University of Calcutta

CCF Syllabus

Bengali

Chemistry

Commerce

Economics

English

Geography

History

Mathematics

Physical Education

Physics

Political Science

Sanskrit

UNIVERSITY OF CALCUTTA

NotificationNo.CSR/13/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of his powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 11.07.2023 approved the Syllabi of the under mentioned subjects for semester wise Four-year (Honours & Honours with Research) / Three-year (Multidisciplinary) programme of U.G. courses of studies, as applicable under CCF,2022 . under this University, as laid down in the accompanying pamphlet.

Name of Subject:

1.Anthropology
2.BBA
3.Bengali
4.BFAD
5.Bio Chemistry
6.Botany
7.Chemistry
8.Commerce
9.Economics
10.Education
11.English
12.Geology
13.Hindi
14.History,Islamic History & Culture
15.Home Science
16.Human Rights
17.Journalism & Mass Communication
18.Mathematics
19.Microbiology (Honours)
20.Molecular Biology
21.Philosophy
22.Physiology
23.Political Science
24.Psychology
25.Social Science
26.Sociology
27.Urdu
28.Women's Studies
29.Zoology

The above shall be effective from the academic session 2023-2024.

12/7/2023

SENATE HOUSE

KOLKATA-700 073

Prof.(Dr.) Debasis Das

Registrar

কলিকাতা বিশ্ববিদ্যালয়

২০২৩

স্নাতক বাংলা পাঠক্রম

চার বছরের অনার্স/অনার্স উইথ রিসার্চ

এবং

তিন বছরের এম.ডি.সি. কোর্সের জন্য

মেজর
মাইনর
আই.ডি.সি
এস.ই.সি
রিসার্চ ওয়ার্ক
এ.ই.সি.
ও
সি.ভি.এ.সি.

ইউ.জি.সি নির্দেশিত সি.সি.এফ. অনুসারে

(উত্তর লেখার ক্ষেত্রে পরীক্ষার্থীদের পশ্চিমবঙ্গ বাংলা আকাদেমি-র বানানবিধি অনুসরণ করতে হবে)

For 4 year Honours / Honours with Research Students

Discipline Specific Core Major Course–4 (3Th + 1Tu) Credits Each

BNG-H-CC-1-1-Th-Tu	বাংলা সাহিত্যের ইতিহাস (১৮০০ খ্রিঃ পর্যন্ত)
BNG-H-CC-2-2-Th-Tu	বর্ণনামূলক ভাষাবিজ্ঞান ও বাংলা ভাষা-১
BNG-H-CC-3-3-Th-Tu	বাংলা সাহিত্যের ইতিহাস (আধুনিক যুগ)
BNG-H-CC-4-3-Th-Tu	বাংলা সাহিত্য : প্রবেশক পাঠ
BNG-H-CC-5-4-Th-Tu	প্রাগাধুনিক বাংলা সাহিত্য-১
BNG-H-CC-6-4-Th-Tu	বাংলা গোয়েন্দা সাহিত্য, কল্পবিজ্ঞান আশ্রয়ী রচনা এবং অলৌকিক কাহিনি
BNG-H-CC-7-4-Th-Tu	কথাসাহিত্য-১
BNG-H-CC-8-4-Th-Tu	ছন্দ, অলঙ্কার ও প্রবন্ধ
BNG-H-CC-9-5-Th-Tu	নাটক ও নাট্যমঞ্চ
BNG-H-CC-10-5-Th-Tu	প্রবন্ধ ও বিবিধ রচনা
BNG-H-CC-11-5-Th-Tu	ঐতিহাসিক ভাষাবিজ্ঞান
BNG-H-CC-12-5-Th-Tu	সংস্কৃত, ইংরেজি ও প্রতিবেশী (হিন্দী) সাহিত্যের ইতিহাস
BNG-H-CC-13-6-Th-Tu	আধুনিক বাংলা কাব্য-কবিতা
BNG-H-CC-14-6-Th-Tu	লোকসংস্কৃতি ও লোকসাহিত্য
BNG-H-CC-15-6-Th-Tu	সাহিত্যের রূপ ও রীতি
BNG-H-CC-16-7-Th-Tu	বাংলার সমাজ-সংস্কৃতি ও সাহিত্যের ইতিহাস (প্রাগাধুনিক পর্যায়)
BNG-H-CC-17-7-Th-Tu	প্রাগাধুনিক বাংলা সাহিত্য-২
BNG-H-CC-18-7-Th-Tu	চরিত সাহিত্য, আত্মচরিত ও ভ্রমণ সাহিত্য
BNG-H-CC-19-7-Th-Tu	বাংলাদেশের সাহিত্য
BNG-H-CC-20-7-Th-Tu*	আধুনিক কাব্য-কবিতা ও নাটক
BNG-H-CC-21-8-Th-Tu	বর্ণনামূলক ভাষা বিজ্ঞান ও বাংলা ভাষা-২
BNG-H-CC-22-8-Th-Tu	বাংলার সমাজ সংস্কৃতি ও সাহিত্যের ইতিহাস (আধুনিক পর্যায়)
BNG-H-CC-23-8-Th-Tu	রবীন্দ্রসাহিত্য
BNG-H-CC-24-8-Th-Tu*	কথাসাহিত্য-২
BNG-H-CC-25-8-Th-Tu*	দেশভাগ ও বাংলা সাহিত্য

[*যে সমস্ত পড়ুয়া গবেষণাপত্র রচনা করবে না বা করার সুযোগ পাবে না তাদের সপ্তম/অষ্টম সেমেস্টারে গবেষণা পত্রের বিকল্পে এই কোর্সগুলি পড়তে হবে।]

Discipline Specific Minor Course–4 (3Th + Tu) Credits Each

For Honours / Major Students	
BNG-H-MIN-1-1/3-Th-Tu	বাংলা সাহিত্যের ইতিহাস (১৮০০ খ্রিঃ পর্যন্ত)
BNG-H-MIN-2-2/4-Th-Tu	বর্ণনামূলক ভাষাবিজ্ঞান ও বাংলা ভাষা-১
BNG-H-MIN-3-5/6-Th-Tu	বাংলা সাহিত্যের ইতিহাস (আধুনিক যুগ)
BNG-H-MIN-4-5/6-Th-Tu	বাংলা সাহিত্য : প্রবেশক পাঠ

Inter Disciplinary Course (IDC)–3 (2Th + 1Tu) Credits.

BNG-H-IDC-1-1/2/3-Th-Tu	কথাসাহিত্য ও নাটক

Discipline Specific Skill Enhancement Couse (SEC)–4 (3Th + 1Tu) Credits Each

BNG-H--SEC-1-1-Th-Tu	মুদ্রণ ও প্রকাশনা
BNG-H--SEC-2-2-Th-Tu	ব্যবহারিক বাংলা—১*
BNG-H--SEC-3-3-Th-Tu	ব্যবহারিক বাংলা—২

***Digital Empowerment** সংক্রান্ত কোর্সটির বিকল্পে এই কোর্সটি করা যাবে।

Dissertation/Research Work (4+8)=12 Credits.

যে সমস্ত পড়ুয়া গবেষণা করার জন্য যোগ্য বিবেচিত হবে না বা/এবং যে সমস্ত পড়ুয়া গবেষণাকর্মের যোগ্যতামান অর্জন করা সত্ত্বেও গবেষণা করবে না তাদের সপ্তম সেমেস্টারে **BNG-MAJ-7-20-Th-Tu** এবং অষটম সেমেস্টারে **BNG-MAJ-8-24-Th-Tu** ও **BNG-MAJ-8-25-Th-Tu** কোর্স তিনটি পড়তে হবে।

BNG-H--Research Work-1-7-3Th-1Tu	সাহিত্য গবেষণার পদ্ধতিবিজ্ঞান
BNG-H--Research Work-2-8-Th-Tu	গবেষণাপত্র নির্মাণ

For 3 year MDC Students

Discipline Specific Minor Course–4 Credits Each

BNG-MD-CC/MIN-1-1/3-Th-Tu	বাংলা সাহিত্যের ইতিহাস (প্রাগাধুনিক পর্যায়)
BNG-MD-CC/MIN-2-2/4-Th-Tu	বর্ণনামূলক ভাষাবিজ্ঞান ও বাংলাভাষা–১
BNG-MD-CC/MIN-3-3/5-Th-Tu	বাংলা সাহিত্যের ইতিহাস (আধুনিক পর্যায়)
BNG-MD-CC/MIN-4-4/5-Th-Tu	বাংলা সাহিত্য : প্রবেশক পাঠ
BNG-MD-CC/MIN-5-4/5/6-Th-Tu	প্রাগাধুনিক বাংলা সাহিত্য–১
BNG-MD-CC/MIN-6-5/6-Th-Tu	বাংলা গোয়েন্দা সাহিত্য, কল্পবিজ্ঞান আশ্রয়ী রচনা
BNG-MD-CC/MIN-7-5/6-Th-Tu	বাংলা কথাসাহিত্য–১
BNG-MD-CC/MIN-8-6Th-Tu	ছন্দ, অলঙ্কার ও প্রবন্ধ

Inter Disciplinary Course (IDC)–3 (2Th + 1Tu) Credits.

BNG-MD-IDC-1-1/2/3-Th-Tu	কথাসাহিত্য ও নাটক

Discipline Specific Skill Enhancement Couse (SEC)–4 (3Th + 1Tu) Credits Each

BNG-MD-SEC-1-1/2/3-Th-Tu	মুদ্রণ ও প্রকাশনা

For All UG (3/4 Years) Students

Ability Enhancement Compulsory Course (AEC-MIL Bengali)–2 (2Th) Credits

BNG-AEC-1-2-Th	প্রবন্ধ ও পরিভাষা
BNG-AEC-2-4-Th	ছোটগল্প ও কবিতা

Common Value Added Course (CVAC)–2 (2 Th) Credits.

BNG-CVAC-1-2-Th	রামায়ণ ও মহাভারত

Discipline Specific Core / Major Course

- স্নাতক বাংলা পাঠক্রমে Discipline Specific Core / Major Course স্তরে (৮৮+১২*) ক্রেডিট-এর মোট (২২+৩*) ২৫টি কোর্স আট (৮)টি সেমেস্টারে পড়তে হবে।
- ৪ (৩ + ১) ক্রেডিট-এর প্রতিটি কোর্সের পূর্ণমান ১০০। এর মধ্যে ২৫ নম্বর কোর্সভিত্তিক টিউটোরিয়াল-এর জন্য বরাদ্দ। বাকি ৭৫ নম্বরের জন্য বিশ্ববিদ্যালয়ের সংশ্লিষ্ট কর্তৃপক্ষের তত্ত্বাবধানে লিখিত পরীক্ষা নেওয়া হবে।
- ৭৫ নম্বরের লিখিত পরীক্ষায় ১৫ নম্বরের তিনটি ব্যাখ্যামূলক, ৫ নম্বরের ৩টি বোধমূলক এবং ১ নম্বরের ১৫টি সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্নের উত্তর দিতে হবে। নিচের তালিকায় প্রশ্নপত্রের ধারণা পাওয়া যাবে।

প্রশ্ন নং	প্রশ্নের ধরন ও বিকল্প সংক্রান্ত নিয়ম	প্রশ্নের মান
১	মডিউল-১ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
২	মডিউল-২ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
৩	মডিউল-৩ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
৪	মডিউল-১ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৫	মডিউল-২ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৬	মডিউল-৩ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৭	প্রত্যেকটি মডিউল থেকে কমপক্ষে **তিনটি** করে প্রশ্ন নিয়ে মোট **পনেরটি** সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্ন দেওয়া হবে। এক্ষেত্রে কোনো বিকল্প থাকবে না।	১ × ১৫

BNG-H-CC-1-1-TH-TU

বাংলা সাহিত্যের ইতিহাস (১৮০০ খ্রিঃ পর্যন্ত)

উদ্দেশ্য : বাংলা ভাষা ও সাহিত্যের উদ্ভবের সময়কাল থেকে ১৮০০ খ্রিস্টাব্দ পর্যন্ত বাংলা সাহিত্যের বিভিন্ন ধারার সঙ্গে শিক্ষার্থীদের পরিচিতি ঘটানো এই পাঠের উদ্দেশ্য।

মডিউল-১

বাংলা ভাষা ও সাহিত্যের আদি পর্বের গতিপ্রকৃতি ও নিদর্শন সমূহ
চর্যাপদ
শ্রীকৃষ্ণকীর্তন

মডিউল -২

অনুবাদ সাহিত্য-ভাগবত, রামায়ণ ও মহাভারত
বৈষ্ণব পদাবলী— বিদ্যাপতি, চণ্ডীদাস, জ্ঞানদাস, গোবিন্দদাস
চৈতন্য-চরিত সাহিত্য— চৈতন্যভাগবত, শ্রীচৈতন্যচরিতামৃত

মডিউল-৩

মনসামঙ্গল, ধর্মমঙ্গল, চণ্ডীমঙ্গল ও অন্নদামঙ্গল
প্রণয়োপাখ্যান— শাহ মহম্মদ সগীর, দৌলত কাজী ও আলাওল
শাক্ত পদাবলী— রামপ্রসাদ সেন ও কমলাকান্ত ভট্টাচার্য

সহায়ক গ্রন্থ (নির্বাচিত)

- বাঙ্গালা সাহিত্যের ইতিহাস (১-২)— সুকুমার সেন
- বাংলা সাহিত্যের রূপ-রেখা (১-২)— গোপাল হালদার
- বাংলা সাহিত্যের ইতিবৃত্ত (১-৫)— অসিতকুমার বন্দ্যোপাধ্যায়
- বাংলা সাহিত্যের ইতিকথা (১-২)— ভূদেব চৌধুরী
- বাঙালি জাতি ও বাংলা সাহিত্য (১-২)— আহমেদ শরীফ
- মধ্যযুগের বাংলা সাহিত্যের তথ্য ও কালক্রম — সুখময় মুখোপাধ্যায়
- বাংলা মঙ্গলকাব্যের ইতিহাস— আশুতোষ ভট্টাচার্য
- বাংলা সাহিত্যের ইতিহাস (আদি ও মধ্যযুগ)— দেবেশকুমার আচার্য

BNG-H-CC-2-2-TH-TU

বর্ণনামূলক ভাষাবিজ্ঞান ও বাংলা ভাষা-১

উদ্দেশ্য : বাংলা সাহিত্যের ছাত্র হিসেবে বাংলা ভাষাতত্ত্ব তথা ধ্বনিতত্ত্ব, রূপতত্ত্ব, শব্দভাণ্ডার এবং উপভাষা সম্পর্কে ধারণা থাকা অত্যন্ত গুরুত্বপূর্ণ। সেই লক্ষ্যপূরণে এই কোর্সটি তৈরি করা হয়েছে।

মডিউল-১

ধ্বনি, বর্ণ, অক্ষর— সংজ্ঞার্থ ও পারস্পরিক সম্পর্ক
উচ্চারণস্থান ও উচ্চারণপ্রকৃতি অনুযায়ী বাংলা স্বর ও ব্যঞ্জনধ্বনিগুলির পরিচয়
বাংলা ভাষার শব্দভাণ্ডার

মডিউল-২

বাংলা ভাষার ধ্বনি পরিবর্তনের রীতি ও প্রকৃতি (বিশেষ পাঠ– স্বরাগম, ব্যঞ্জনাগম, স্বরলোপ, অপিনিহিতি, অভিশ্রুতি, স্বরসঙ্গতি, সমীভবন, বিষমীভবন, মহাপ্রাণীভবন ও অল্পপ্রাণীভবন, নাসিক্যীভবন ও স্বতোনাসিক্যীভবন, বিপর্যাস ও জোড়কলম শব্দ)
বাংলা শব্দার্থ পরিবর্তনের ধারা, বাংলা ভাষার উপভাষা

মডিউল-৩

বাংলা ভাষার রূপতাত্ত্বিক আলোচনা— বচন, লিঙ্গ, পুরুষ, সন্ধি, সমাস, বিভক্তি, কারক, প্রত্যয়, ক্রিয়ার কাল ও অব্যয়

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ সাধারণ ভাষাবিজ্ঞান ও বাঙলা ভাষা— রামেশ্বর শ'
- ❑ ভাষার ইতিবৃত্ত— সুকুমার সেন
- ❑ ভাষাবিদ্যা পরিচয়— পরেশচন্দ্র ভট্টাচার্য
- ❑ বাংলা ভাষা পরিক্রমা (১-২)— পরেশচন্দ্র মজুমদার
- ❑ উপভাষা চর্চার ভূমিকা— মণিরুজ্জামান
- ❑ ভাষাতত্ত্ব অনুশীলন— মণিরুজ্জামান
- ❑ বাংলা ভাষার ব্যাকরণ ও তার ক্রমবিকাশ— নির্মল দাশ
- ❑ বাংলা ভাষার ব্যাকরণ— জ্যোতিভূষণ চাকী
- ❑ ধ্বনিবিজ্ঞান ও বাংলা ধ্বনিতত্ত্ব— মুহম্মদ আব্দুল হাই

BNG-H-CC-3-3-TH-TU

বাংলা সাহিত্যের ইতিহাস (আধুনিক যুগ)

উদ্দেশ্য : ১৮০০ খ্রিস্টাব্দ পরবর্তী সময়কালে বাংলা সাহিত্যের বিভিন্ন ধারার বিবর্তনের গতিরেখার সঙ্গে শিক্ষার্থীদের পরিচিতি ঘটানো এই কোর্সের উদ্দেশ্য।

মডিউল-১ : গদ্য ও প্রবন্ধ

শ্রীরামপুর মিশন, ফোর্ট উইলিয়ম কলেজ, বাংলা সাময়িক পত্রের উন্মেষ (সংবাদ প্রভাকর-এর পূর্ববর্তী সময়)
রাজা রামমোহন রায়, ঈশ্বরচন্দ্র বিদ্যাসাগর, অক্ষয়কুমার দত্ত
প্যারীচাঁদ মিত্র, কালীপ্রসন্ন সিংহ
বঙ্কিমচন্দ্র চট্টোপাধ্যায়, রবীন্দ্রনাথ ঠাকুর
প্রমথ চৌধুরী, বুদ্ধদেব বসু

মডিউল-২ : কাব্য-কবিতা ও নাটক

ক.	ঈশ্বরচন্দ্র গুপ্ত, রঙ্গলাল বন্দ্যোপাধ্যায়
	মধুসূদন দত্ত, বিহারীলাল চক্রবর্তী
	রবীন্দ্রনাথ ঠাকুর, কাজী নজরুল ইসলাম
	যতীন্দ্রনাথ সেনগুপ্ত, জীবনানন্দ দাশ, বিষ্ণু দে, সুভাষ মুখোপাধ্যায়
খ.	মধুসূদন দত্ত, দীনবন্ধু মিত্র
	গিরিশচন্দ্র ঘোষ, রবীন্দ্রনাথ ঠাকুর
	দ্বিজেন্দ্রলাল রায়, বিজন ভট্টাচার্য

মডিউল-৩ : উপন্যাস ও ছোটগল্প

বাংলা উপন্যাসের উদ্ভব ও বিকাশ
বঙ্কিমচন্দ্র চট্টোপাধ্যায়, রবীন্দ্রনাথ ঠাকুর, শরৎচন্দ্র চট্টোপাধ্যায়
বিভূতিভূষণ বন্দ্যোপাধ্যায়, তারাশঙ্কর বন্দ্যোপাধ্যায়, মানিক বন্দ্যোপাধ্যায়

সহায়ক গ্রন্থ (নির্বাচিত)

- বাঙ্গালা সাহিত্যের ইতিহাস (৩-৫ খণ্ড)— সুকুমার সেন
- বাংলা গদ্য সাহিত্যের ইতিহাস— সজনীকান্ত দাস
- বাংলা সাহিত্যে গদ্য— সুকুমার সেন
- বাংলা সাহিত্যের ইতিবৃত্ত (৬-৯)— অসিতকুমার বন্দ্যোপাধ্যায়
- বাংলা সাহিত্যের ইতিকথা (৩-৪)— ভূদেব চৌধুরী
- আধুনিক বাংলা কাব্য— তারাপদ মুখোপাধ্যায়
- উনিশ শতকের গীতিকাব্য— অরুণকুমার মুখোপাধ্যায়
- বাংলা সাময়িক পত্র— ব্রজেন্দ্রনাথ বন্দ্যোপাধ্যায়
- বাংলা নাটকের ইতিহাস— অজিতকুমার ঘোষ
- গদ্যরীতি পদ্যরীতি— পবিত্র সরকার
- রবীন্দ্রানুসারী কবিসমাজ— অরুণকুমার মুখোপাধ্যায়
- আমার কালের কয়েকজন কবি— জগদীশ ভট্টাচার্য
- রবীন্দ্রনাট্য পরিক্রমা— উপেন্দ্রনাথ ভট্টাচার্য
- রবীন্দ্রনাট্য প্রবাহ— প্রমথনাথ বিশী

BNG-H-CC-4-3-TH-TU

বাংলা সাহিত্য : প্রবেশক পাঠ

উদ্দেশ্য : বাংলা ভাষা ও সাহিত্যের ইতিহাস সম্পর্কে প্রাথমিক জ্ঞানার্জনের পর এখানে শিক্ষার্থীরা সাহিত্যের রসাস্বাদনের সুযোগ পাবে। সাহিত্যের পাঠকে যতটা সম্ভব আনন্দদায়ক করে তোলাই এক্ষেত্রে লক্ষ্য।

মডিউল-১ : কবিতা

লুই পা— চর্যাপদ-১
বড়ু চণ্ডীদাস— কে না বাঁশী বাএ বড়ায়ি কালিনী নই কূলে
বিদ্যাপতি— এ সখি হামারি দুখের নাহি ওর
চণ্ডীদাস— সই কেবা শুনাইল
রামপ্রসাদ সেন— কেবল আসার আশা ভবে আসা
লালন ফকির— সব লোকে কয় লালন কি জাত
মধুসূদন দত্ত— হে বঙ্গ ভাণ্ডারে তব
রবীন্দ্রনাথ ঠাকুর— বলাকা
সুকুমার রায়— আবোল তাবোল
কাজী নজরুল ইসলাম— কাণ্ডারী হুঁশিয়ার
জীবনানন্দ দাশ— সুচেতনা
শামসুর রাহমান— আমার ভালবাসা
শঙ্খ ঘোষ— বাবরের প্রার্থনা
শক্তি চট্টোপাধ্যায়— যেতে পারি, কিন্তু কেন যাব?
জয় গোস্বামী— মালতীবালা বালিকা বিদ্যালয়

মডিউল ২ : ছোটগল্প

রবীন্দ্রনাথ ঠাকুর—শাস্তি
শরৎচন্দ্র চট্টোপাধ্যায়— অভাগীর স্বর্গ
পরশুরাম— লম্বকর্ণ
মানিক বন্দ্যোপাধ্যায়— হারানের নাতজামাই
সতীনাথ ভাদুড়ী— চরণদাস এম. এল. এ
সমরেশ বসু— আদাব

মডিউল-৩ : নাটক

মধুসূদন দত্ত — একেই কি বলে সভ্যতা

সহায়ক গ্রন্থ (নির্বাচিত)

- চর্যাগীতি পরিক্রমা— নির্মল দাশ
- শ্রীকৃষ্ণকীর্তন— অমিত্রসূদন ভট্টাচার্য (সম্পাদিত)
- মধ্যযুগের কবি ও কাব্য— শঙ্করীপ্রসাদ বসু
- রবিরশ্মি— চারুচন্দ্র ভট্টাচার্য
- সাহিত্যে ছোটগল্প— নারায়ণ গঙ্গোপাধ্যায়
- বাংলা সাহিত্যের ছোটগল্প ও গল্পকার— ভূদেব চৌধুরী
- কালের পুত্তলিকা— অরুণকুমার মুখোপাধ্যায়
- বাংলা ছোটগল্প : প্রসঙ্গ ও প্রকরণ— বীরেন্দ্র দত্ত
- বাংলা সাহিত্যে নবযুগ— শশিভূষণ দাশগুপ্ত
- আধুনিক বাংলা সাহিত্য— মোহিতলাল মজুমদার
- কবি শ্রী মধুসূদন— মোহিতলাল মজুমদার
- মধুসূদন : কবি ও নাট্যকার—সুবোধচন্দ্র সেনগুপ্ত
- জনপদাবলি— সুধীর চক্রবর্তী (সম্পাদক)
- আধুনিক বাংলা কাব্য পরিচয়—দীপ্তি ত্রিপাঠী
- আমার কালের কয়েকজন কবি—জগদীশ ভট্টাচার্য
- বাংলা কবিতার চালচিত্র—সুমিতা চক্রবর্তী
- আধুনিক কবিতার ইতিহাস—অলোকরঞ্জন দাশগুপ্ত ও দেবীপ্রসাদ বন্দ্যোপাধ্যায় (সম্পা.)

BNG-H-CC-5-4-TH-TU

প্রাগাধুনিক বাংলা সাহিত্য-১

উদ্দেশ্য : প্রাগাধুনিক সাহিত্যের এই কোর্সটির মাধ্যমে শিক্ষার্থীরা সাহিত্যের রসাস্বাদনের পাশাপাশি যাতে বাঙালির সমাজ ও ধর্ম-সংস্কৃতির বিবর্তনের গতিরেখাটিকেও অনুধাবন করতে পারে সেদিকে লক্ষ্য রাখা হয়েছে।

মডিউল-১ বৈষ্ণব পদাবলী (কলিকাতা বিশ্ববিদ্যালয় সংস্করণ)

নীরদনয়নে নীর ঘন সিঞ্চনে
আজু হাম কি পেখলুঁ নবদ্বীপ চন্দ
দাঁড়াইয়া নন্দের আগে গোপাল কান্দে অনুরাগে
ঘরের বাহিরে দণ্ডে শতবার
রূপ লাগি আঁখি ঝুরে গুণে মন ভোর
এমন পিরীতি কভু নাহি দেখি শুনি
সখি কি পুছসি অনুভব মোয়
মন্দির বাহির কঠিন কপাট
কণ্টক গাড়ি কমলসম পদতল
কি মোহিনী জান বধুঁ কি মোহিনী জান
বধুঁ তুমি যে আমার প্রাণ
অঙ্কুর তপন তাপে যদি জারব
বহুদিন পরে বধুঁয়া এলে
তাতল সৈকত বারি-বিন্দুসম

মডিউল-২

চণ্ডীমঙ্গল (১-ম খণ্ড)— মুকুন্দ চক্রবর্তী (**কলিকাতা বিশ্ববিদ্যালয় সংস্করণ**)

মডিউল-৩ : শাক্ত পদাবলী (কলিকাতা বিশ্ববিদ্যালয় সংস্করণ)

গিরিবর, আর আমি পারিনে হে, প্রবোধ দিতে উমারে (বাল্যলীলা)
গিরি, এবার আমার উমা এলে (আগমনী)
কবে যাবে বল গিরিরাজ (ঐ)
বারে বারে কহ রাণি, গৌরী আনিবারে (ঐ)
ওহে হর গঙ্গাধর, কর অঙ্গীকার (ঐ)
গিরিরাণি, এই নাও তোমার উমারে (ঐ)
ওরে নবমী নিশি, না হইও রে (বিজয়া)
ওহে প্রাণনাথ গিরিবর হে (ঐ)
মাগো তারা ও শঙ্করি (ভক্তের আকুতি)
মা আমায় ঘুরাবে কত (ঐ)
আমি কি দুখেরে ডরাই? (ঐ)
আমায় দেও মা তবিলদারী (ঐ)

সহায়ক গ্রন্থ (নির্বাচিত)

- মধ্যযুগের কবি ও কাব্য— শঙ্করীপ্রসাদ বসু
- চণ্ডীদাস ও বিদ্যাপতি— শঙ্করীপ্রসাদ বসু
- শ্রীরাধার ক্রমবিকাশ : দর্শনে ও সাহিত্যে— শশিভূষণ দাশগুপ্ত
- বৈষ্ণব রস প্রকাশ— ক্ষুদিরাম দাস
- বঙ্গে বৈষ্ণবধর্ম— রমাকান্ত চক্রবর্তী
- শাক্ত পদাবলী ও শক্তি সাধনা— জাহ্নবীকুমার চক্রবর্তী
- গৌড়ীয় বৈষ্ণব দর্শন— রাধাগোবিন্দ নাথ
- শাক্তগীতি পদাবলী— অরুণকুমার বসু (সম্পা.)
- বাংলা মঙ্গলকাব্যের ইতিহাস— আশুতোষ ভট্টাচার্য
- চণ্ডীমঙ্গল— সুকুমার সেন সম্পাদিত
- চণ্ডীমঙ্গল— ক্ষুদিরাম দাস সম্পাদিত
- ভারতের শক্তি সাধনা ও শক্তি সাহিত্য— শ্রীশশিভূষণ দাশগুপ্ত
- বাংলার কাব্য— হুমায়ুন কবির
- কবিকঙ্কণ মুকুন্দের চণ্ডীমঙ্গল বীক্ষা ও সমীক্ষা— বিশ্বনাথ রায়
- চণ্ডীমঙ্গল— সনৎকুমার নস্কর (সম্পা.)

BNG-H-CC-6-4-TH-TU

বাংলা গোয়েন্দা সাহিত্য, কল্পবিজ্ঞান আশ্রয়ী রচনা এবং অলৌকিক কাহিনি

উদ্দেশ্য : সাহিত্যের পাঠ এবং আস্বাদনে কিশোরদের অভ্যাস তৈরি হয়ে ওঠে গোয়েন্দা গল্প, কল্পবিজ্ঞানের কাহিনি অথবা ভূতের গল্পের মধ্য দিয়ে। তাদের চেনা ক্ষেত্রকেই পড়ুয়ারা এখানে বিদ্যায়তনিক পাঠ শৃঙ্খলায় অধ্যয়ন করতে শিখবে।

মডিউল-১

শরদিন্দু বন্দ্যোপাধ্যায়— শজারুর কাঁটা

মডিউল-২

সত্যজিৎ রায়— শঙ্কু সমগ্র (আনন্দ পাব.) পাঠ্য সমূহ : ব্যোমযাত্রীর ডায়রি, প্রফেসর শঙ্কু ও ম্যাকাও, প্রফেসর শঙ্কু ও গোলক-রহস্য, প্রফেসর শঙ্কু ও রোবু, মহাকাশের দূত, শঙ্কু ও আদিম মানুষ, শঙ্কু ও ফ্র্যাঙ্কেনস্টাইন

মডিউল-৩

লীলা মজুমদার— সব ভুতুড়ে (‘পেনেটিতে’ থেকে ‘স্পাই’— প্রথম পনেরোটি গল্প)

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ সত্যজিৎ রায়— পশ্চিমবঙ্গ বাংলা আকাদেমি
- ❑ এক দুর্লভ মানিক— অমিত্রসূদন ভট্টাচার্য
- ❑ ক্রাইম কাহিনীর কালক্রান্তি— সুকুমার সেন
- ❑ শরদিন্দু বন্দ্যোপাধ্যায়— শ্রাবণী পাল
- ❑ শরদিন্দু সংখ্যা— কোরক পত্রিকা (১৯৯৬)
- ❑ সত্যজিৎ রায় সংখ্যা— দেশ পত্রিকা (১৯৯২)
- ❑ প্রবন্ধ সংগ্রহ— সত্যজিৎ রায়
- ❑ সত্যজিৎ রায় : সুবর্ণ সাক্ষাৎ সংগ্রহ— সন্দীপ রায় (সম্পা.)
- ❑ পাকদণ্ডী— লীলা মজুমদার
- ❑ উপছায়া— সুকুমার সেন ও সুভদ্রকুমার সেন (সম্পা.)
- ❑ গল্পের ভূত— সুকুমার সেন
- ❑ রমণীয় শরদিন্দু— ক্ষেত্র গুপ্ত

BNG-H-CC-7-4-TH-TU

বাংলা কথাসাহিত্য—১

উদ্দেশ্য : তৃতীয় সেমেস্টারে বাংলা সাহিত্যের আধুনিক পর্যায়ের ইতিহাস বিষয়ে প্রাথমিক জ্ঞানার্জনের পর শিক্ষার্থীরা এই কোর্সটি পড়বে। আধুনিক সময়ের জটিলতা, ব্যষ্টি ও সমষ্টির দ্বন্দ্ব, বাঙালির পারিবারিক জীবনে নারীর অবস্থান, পরিবেশ সম্পর্কিত ভাবনা এবং মানুষের লড়াই-সংগ্রামের নানা প্রবণতাকে পড়ুয়াদের চেনানোর চেষ্টা করা হবে এই কোর্সের মাধ্যমে।

মডিউল-১ : উপন্যাস

কপালকুণ্ডলা— বঙ্কিমচন্দ্র চট্টোপাধ্যায়

মডিউল -২ : উপন্যাস

পদ্মানদীর মাঝি— মানিক বন্দ্যোপাধ্যায়

মডিউল-৩ : ছোটগল্প

দেনাপাওনা, মেঘ ও রৌদ্র, মণিহারা, নিশীথে, একরাত্রি, সুভা, অতিথি, ল্যাবরেটরী

সহায়ক গ্রন্থ (নির্বাচিত)

- বঙ্গ সাহিত্যে উপন্যাসের ধারা— শ্রীকুমার বন্দ্যোপাধ্যায়
- বঙ্কিম সরণী— প্রমথনাথ বিশী
- বাংলা উপন্যাসের কালান্তর— সরোজ বন্দ্যোপাধ্যায়
- বঙ্কিমচন্দ্র— সুবোধচন্দ্র সেনগুপ্ত
- রবীন্দ্রনাথ— সুবোধচন্দ্র সেনগুপ্ত
- সাহিত্যে ছোটগল্প— নারায়ণ গঙ্গোপাধ্যায়
- রবীন্দ্র ছোটগল্পের শিল্পরূপ— তপোব্রত ঘোষ
- রবীন্দ্রনাথের ছোটগল্প ও উপন্যাস— উপেন্দ্রনাথ ভট্টাচার্য
- বাংলা ছোটগল্প : প্রসঙ্গ ও প্রকরণ— বীরেন্দ্র দত্ত
- কথা ও সাহিত্যে রবীন্দ্রনাথ— বিশ্বপতি চৌধুরী
- রবীন্দ্র সাহিত্যের নরনারী (১ম খণ্ড)— গোপীমোহন সিংহ রায়
- ঔপন্যাসিক মানিক বন্দ্যোপাধ্যায়— সরোজমোহন মিত্র
- রবীন্দ্র সাহিত্যের ভূমিকা— নীহাররঞ্জন রায়
- রবীন্দ্রনাথ/রাজনৈতিক ব্যক্তিত্ব— অরবিন্দ পোদ্দার
- রবীন্দ্র-মানস— অরবিন্দ পোদ্দার

BNG-H-CC-8-4-TH-TU

ছন্দ, অলঙ্কার ও প্রবন্ধ

উদ্দেশ্য : সাহিত্যের শিক্ষার্থীদের ছন্দ ও অলঙ্কার বিষয়ে তত্ত্বজ্ঞান থাকা প্রয়োজন। এই কোর্স শিক্ষার্থীদের কাব্য-কবিতা পাঠকে গভীরতর করবে। সংরূপ হিসাবে প্রবন্ধের সঙ্গেও পড়ুয়াদের এখানে প্রথম পরিচয় ঘটছে।

মডিউল-১ : ছন্দ

দল/অক্ষর, কলা/মাত্রা, যতি, যতিলোপ, পর্ব, পঙ্‌ক্তি/চরণ, ছত্র, পদ
মিশ্রবৃত্ত/তানপ্রধান/অক্ষরবৃত্ত— উদাহরণসহ বৈশিষ্ট্য
সরল কলাবৃত্ত/কলাবৃত্ত/ধ্বনি প্রধান/মাত্রাবৃত্ত— উদাহরণসহ বৈশিষ্ট্য
দলবৃত্ত/শ্বাসাঘাত প্রধান/বলবৃত্ত/স্বরবৃত্ত/ছড়ার ছন্দ/ লৌকিক ছন্দ— উদাহরণসহ বৈশিষ্ট্য
ছন্দোলিপি প্রণয়ন (পর্ব, পদ, পঙ্‌ক্তি, লয়, মাত্রা ও রীতির উল্লেখ বাঞ্ছনীয়)

মডিউল-২ : অলংকার

উদাহরণসহ সংজ্ঞা— অনুপ্রাস, শ্লেষ, যমক, বক্রোক্তি
উদাহরণসহ সংজ্ঞা— উপমা, রূপক, সমাসোক্তি, উৎপ্রেক্ষা, অপহ্নুতি, ব্যতিরেক, বিরোধ, অর্থান্তরন্যাস, ব্যাজস্তুতি
অলংকার নির্ণয়

মডিউল-৩ : প্রবন্ধ

বঙ্কিমচন্দ্র চট্টোপাধ্যায়—পতঙ্গ
রবীন্দ্রনাথ ঠাকুর— পূর্ব-পশ্চিম, মেঘদূত
বুদ্ধদেব বসু— বইপড়া

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ বাংলা ছন্দের মূলসূত্র— অমূল্যধন মুখোপাধ্যায়
- ❑ নূতন ছন্দ পরিক্রমা— প্রবোধচন্দ্র সেন
- ❑ বাংলা ছন্দ পরিচয়— নীলরতন সেন
- ❑ অলংকার চন্দ্রিকা— শ্যামাপদ চক্রবর্তী
- ❑ বাঙলা ছন্দ— জীবেন্দ্র সিংহ রায়
- ❑ বাঙলা অলংকার— জীবেন্দ্র সিংহ রায়
- ❑ ছন্দতত্ত্ব ছন্দরূপ— পবিত্র সরকার
- ❑ চিন্তানায়ক বঙ্কিমচন্দ্র— ভবতোষ দত্ত
- ❑ রবীন্দ্র-সৃষ্টি সমীক্ষা— শ্রীকুমার বন্দ্যোপাধ্যায়
- ❑ বাংলা প্রবন্ধ সাহিত্যের ধারা (২ খণ্ড)— অধীর দে

BNG-H-CC-9-5-TH-TU

নাটক ও নাট্যমঞ্চ

উদ্দেশ্য : নাট্যমঞ্চ ও নাটকের বিকাশ পরস্পরের সাপেক্ষ ও পরিপূরক। সামাজিক বাস্তবতার দর্পণ হিসেবে নাট্যসাহিত্য পাঠের পাশাপাশি পড়ুয়ারা নাট্যমঞ্চের বিকাশকেও বিবেচনার মধ্যে রাখবে— এই উদ্দেশ্যে কোর্সটি করা হয়েছে।

মডিউল-১

নীলদর্পণ— দীনবন্ধু মিত্র

মডিউল-২

টিনের তলোয়ার— উৎপল দত্ত

মডিউল-৩ : রঙ্গমঞ্চের ইতিহাস

লেবেডফ ও বেঙ্গলি থিয়েটার, নবীন বসুর শ্যামবাজার থিয়েটার, বেলগাছিয়া নাট্যশালা, জোড়াসাঁকো নাট্যশালা, বাগবাজার অ্যামেচার থিয়েটার (শ্যামবাজার নাট্যসমাজ)
ন্যাশানাল থিয়েটার (প্রথম ও দ্বিতীয় পর্ব)
নাট্যনিয়ন্ত্রণ বিল
গণনাট্য ও নবনাট্য আন্দোলনের কাল

সহায়ক গ্রন্থ (নির্বাচিত)

- নাটকের কথা— অজিতকুমার ঘোষ
- বাংলা নাট্যমঞ্চের ইতিহাস— ব্রজেন্দ্রনাথ বন্দ্যোপাধ্যায়
- বাংলা থিয়েটারের ইতিহাস— দর্শন চৌধুরী
- গণনাট্য আন্দোলন— দর্শন চৌধুরী
- বাংলা নাট্যমঞ্চের রূপরেখা— দুর্গাশঙ্কর মুখোপাধ্যায়
- নাট্যমঞ্চ নাট্যরূপ— পবিত্র সরকার
- রঙ্গমঞ্চে বাংলা নাটকের প্রয়োগ— অজিতকুমার ঘোষ
- নাট্যতত্ত্ব ও নাট্যমঞ্চ— অজিতকুমার ঘোষ
- নীলদর্পণ— আশুতোষ ভট্টাচার্য (সম্পা.)
- নীলদর্পণ— নির্মলেন্দু ভৌমিক (সম্পা.)
- উনিশ শতকের বাংলা দর্পণ নাটক— প্রভাতকুমার গোস্বামী
- গিরিশ মানস— উৎপল দত্ত
- টিনের তলোয়ার— অপূর্ব দে (সম্পা.)
- টিনের তলোয়ার— জগন্নাথ ঘোষ (সম্পা.)
- বাংলা নাট্যরীতির বিকাশ— বিষ্ণু বসু

BNG-H-CC-10-5-TH-TU

প্রবন্ধ ও বিবিধ রচনা

উদ্দেশ্য : বাংলা প্রবন্ধে দার্শনিকতা বা চিন্তার প্রসার ঘটেছে উনিশ শতকের মধ্যভাগ থেকেই। সমাজ, রাষ্ট্র, শিক্ষা, বিজ্ঞান, ভাষা, সাহিত্য, ধর্ম, দর্শন— নানা বিষয়েই বাঙালি চিন্তকগণ প্রবন্ধের মাধ্যমে তাঁদের ভাবনাকে ব্যক্ত করেছেন। রবীন্দ্রনাথের ছিন্নপত্রেও বিশ্ববোধের এক অনন্য রূপ ব্যক্ত হয়েছে। এই কোর্সটির মাধ্যমে শিক্ষার্থীরা সমাজ ও সাহিত্য সম্পর্কিত বিচিত্র বিষয়ে সমৃদ্ধ হতে পারবে।

মডিউল-১

ক	কমলাকান্তের দপ্তর— বঙ্কিমচন্দ্র চট্টোপাধ্যায় পাঠ্য : একা-কে গায় ওই, আমার মন, বিড়াল
খ	একালের প্রবন্ধ সঞ্চয়ন (কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত) পাঠ্য প্রবন্ধ : সংস্কৃতির সামাজিক দূরত্ব— বিনয় ঘোষ, শিক্ষা ও বিজ্ঞান— সতেন্দ্রনাথ বসু যে দেশে বহু ধর্ম বহু ভাষা— অন্নদাশঙ্কর রায়

মডিউল-২

ক	সাহিত্য— সাহিত্যের বিচারক, সৌন্দর্যবোধ
খ	একালের সমালোচনা সঞ্চয়ন (কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত) পাঠ্য প্রবন্ধ : আধুনিক সাহিত্য— গোপাল হালদার রবীন্দ্রনাথ ও উত্তরসাধক— বুদ্ধদেব বসু পাশ্চাত্য ও প্রাচ্য সমালোচনার ধারা— সুবোধচন্দ্র সেনগুপ্ত

মডিউল-৩

ছিন্নপত্র— রবীন্দ্রনাথ ঠাকুর পত্রসংখ্যা— ১০, ১৮, ৩০, ৬৪, ৬৭, ৭৭, ৮১, ১০২, ১০৬, ১০৮

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ চিন্তানায়ক বঙ্কিমচন্দ্র— ভবতোষ দত্ত
- ❑ বঙ্কিমচন্দ্রের সাহিত্য জিজ্ঞাসা— বিষ্ণুপদ ভট্টাচার্য
- ❑ রবীন্দ্রসাহিত্য পাঠ— হরপ্রসাদ মিত্র
- ❑ রবীন্দ্রচর্যা— দেবীপদ ভট্টাচার্য
- ❑ রবীন্দ্রনন্দনতত্ত্ব— বিমলকুমার মুখ্যোপাধ্যায়
- ❑ সাহিত্য বিবেক— বিমলকুমার মুখ্যোপাধ্যায়
- ❑ বঙ্কিমচন্দ্র— মোহিতলাল মজুমদার
- ❑ বঙ্কিম-মানস— অরবিন্দ পোদ্দার
- ❑ বাংলা প্রবন্ধ সাহিত্যের ধারা (১, ২ খণ্ড)— অধীর দে
- ❑ সমালোচনা-সাহিত্য পরিচয়— কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত

BNG-H-CC-11-5-TH-TU

ঐতিহাসিক ভাষাবিজ্ঞান

উদ্দেশ্য : প্রাচীন ভারতীয় আর্যভাষা থেকে আধুনিক ভারতীয় আর্যভাষা হিসেবে বাংলা ভাষার উদ্ভব ও বিকাশের প্রতিটি পর্যায়ের সাহিত্যিক নিদর্শনের সহায়তায় সেই সেই পর্যায়ের ভাষাগত বৈশিষ্ট্য সম্পর্কে শিক্ষার্থীদের ধারণা দেওয়া।

মডিউল-১

ভাষা, ভাষা পরিবার, ইন্দো-ইউরোপীয় ভাষা ও প্রাচীন ভারতীয় আর্যভাষার সম্পর্ক
প্রাচীন ভারতীয় আর্যভাষা থেকে আধুনিক ভারতীয় আর্যভাষা হিসেবে বাংলা ভাষার উদ্ভবের গতিরেখা

মডিউল-২

প্রাচীন বাংলা ভাষার ভাষাতাত্ত্বিক লক্ষণ—প্রেক্ষিত চর্যাপদ
আদি-মধ্য বাংলা ভাষার ভাষাতাত্ত্বিক লক্ষণ— প্রেক্ষিত শ্রীকৃষ্ণকীর্তন

মডিউল -৩

অন্ত-মধ্য বাংলা ভাষার ভাষাতাত্ত্বিক লক্ষণ— প্রেক্ষিত অন্নদামঙ্গল
আধুনিক বাংলা ভাষার ভাষাতাত্ত্বিক লক্ষণ— প্রেক্ষিত পরিব্রাজক (স্বামী বিবেকানন্দ)

সহায়ক গ্রন্থ (নির্বাচিত)

- ভাষা-প্রকাশ বাঙ্গালা ব্যাকরণ— সুনীতিকুমার চট্টোপাধ্যায়
- বাঙ্গালা ভাষার ইতিবৃত্ত— মুহম্মদ শহীদুল্লাহ
- সংস্কৃত ও প্রাকৃত ভাষার ক্রমবিকাশ (১-২ খণ্ড)— পরেশচন্দ্র মজুমদার
- বাংলা ভাষা পরিক্রমা— পরেশচন্দ্র মজুমদার
- ভাষা-জিজ্ঞাসা— শিশিরকুমার দাশ
- ভাষার ইতিবৃত্ত— সুকুমার সেন
- সাধারণ ভাষাবিজ্ঞান ও বাংলা ভাষা— রামেশ্বর শ'
- আধুনিক ভাষাতত্ত্ব— আবদুল কালাম মনজুর মোরশেদ
- বাঙ্গালা ভাষার ইতিবৃত্ত— মুহম্মদ শহীদুল্লাহ
- বাংলা ভাষা— পার্বতীচরণ ভট্টাচার্য
- ভাষা দেশ কাল— পবিত্র সরকার
- ভাষাবিদ্যা পরিচয়— পরেশচন্দ্র ভট্টাচার্য

BNG-H-CC-12-5-TH-TU

সংস্কৃত, ইংরেজি ও প্রতিবেশী (হিন্দী) সাহিত্যের ইতিহাস

উদ্দেশ্য : বাংলা সাহিত্যের সামগ্রিক পরিচয় পাওয়ার পর শিক্ষার্থী সংস্কৃত, ইংরেজি এবং প্রতিবেশী (হিন্দী) সাহিত্যের ইতিহাস সম্পর্কে প্রাথমিক পরিচয় লাভ করবে এবং সেই আলোকে বাংলা সাহিত্য সম্পর্কেও তার মূল্যায়ন আরো স্বচ্ছ হয়ে উঠবে।

মডিউল-১ সংস্কৃত সাহিত্যের সংক্ষিপ্ত ইতিহাস

কালিদাস (কবি ও নাট্যকার)
ভবভূতি
বাণভট্ট
শূদ্রক
জয়দেব

মডিউল-২ : ইংরেজি সাহিত্যের সংক্ষিপ্ত ইতিহাস

নাটক— উইলিয়ম শেক্সপিয়র, জর্জ বার্নার্ড শ', স্যামুয়েল বেকেট
কাব্য— উইলিয়ম ওয়ার্ডসওয়ার্থ, পি.বি. শেলি, জন কীটস, টি.এস এলিয়ট
কথাসাহিত্য—ওয়াল্টার স্কট, চার্লস ডিকেন্স, ভার্জিনিয়া উলফ্

মডিউল-৩ : প্রতিবেশী সাহিত্যের সংক্ষিপ্ত ইতিহাস : হিন্দী (পঠন-পাঠন হবে বাংলায়)

ভারতেন্দু হরিশচন্দ্র, মুন্সী প্রেমচাঁদ
মহাদেবী বর্মা, সূর্যকান্ত ত্রিপাঠী নিরালা, ফণীশ্বরনাথ রেণু

সহায়কগ্রন্থ (নির্বাচিত)

- সংস্কৃত সাহিত্যের রূপরেখা— বিমানচন্দ্র ভট্টাচার্য
- সংস্কৃত সাহিত্য পরিক্রমা— করুণাসিন্ধু দাস
- সংস্কৃত সাহিত্যের দশরত্ন— সুখেন্দুসুন্দর গঙ্গোপাধ্যায়
- সংস্কৃত সাহিত্যের ইতিহাস— ধীরেন্দ্রনাথ বন্দ্যোপাধ্যায়
- ইংরাজী সাহিত্যের ইতিহাস— শ্রীকুমার বন্দ্যোপাধ্যায়
- ইংরাজী সাহিত্যের সংক্ষিপ্ত ইতিহাস— সত্যপ্রসাদ সেনগুপ্ত
- ইংরাজী সাহিত্যের রূপরেখা— গোপাল হালদার
- ইংরেজী সাহিত্য পরিচয় — অরবিন্দ পোদ্দার
- ইংরেজী সাহিত্যের ইতিহাস— কুন্তল চট্টোপাধ্যায়
- হিন্দী সাহিত্যের ইতিহাস— বিজয়েন্দ্র স্নাতক (অনুবাদ—জ্যোতির্ময় দাশ)
- হিন্দী সাহিত্যের ইতিহাস— রামবহাল তেওয়ারী
- আধুনিক হিন্দী সাহিত্য : গতি ও প্রকৃতি— বিপ্লব চক্রবর্তী

BNG-H-CC-13-6-TH-TU

আধুনিক বাংলা কাব্য-কবিতা

উদ্দেশ্য : ঔপনিবেশিক আধুনিকতার সংস্পর্শে এসে আমাদের কাব্যে যে নবযুগের সঞ্চার হয়েছিল, তার বিভিন্ন পর্বকে পড়ুয়ারা অনুধাবন করতে পারবে এই কোর্সটির মাধ্যমে।

মডিউল-১

বীরাঙ্গনা কাব্য— মধুসূদন দত্ত পাঠ্য : দুষ্মন্তের প্রতি শকুন্তলা, সোমের প্রতি তারা, দশরথের প্রতি কেকয়ী, লক্ষ্মণের প্রতি শূর্পনখা এবং নীলধ্বজের প্রতি জনা

মডিউল-২

ক.	পুনশ্চ— রবীন্দ্রনাথ ঠাকুর পাঠ্য : ছেলেটা, সাধারণ মেয়ে, বাঁশি, প্রথম পূজা
খ.	সঞ্চিতা— কাজী নজরুল ইসলাম পাঠ্য— বিদ্রোহী, দারিদ্র্য, পথের দিশা, বধূ-বরণ

মডিউল-৩

একালের কবিতা সঞ্চয়ন (কলিকাতা বিশ্ববিদ্যালয় সংস্করণ) পাঠ্য : ক) রাত্রি— জীবনানন্দ দাশ সোহংবাদ— সুধীন্দ্রনাথ দত্ত সংগতি— অমিয় চক্রবর্তী রবীন্দ্রনাথের প্রতি— বুদ্ধদেব বসু প্রচ্ছন্ন স্বদেশ— বিষ্ণু দে
খ) বধূ— সুভাষ মুখোপাধ্যায় বোধন— সুকান্ত ভট্টাচার্য একটি বাজনা গাছ— দেবারতি মিত্র কেউ কথা রাখেনি— সুনীল গঙ্গোপাধ্যায় আমার নাম ভারতবর্ষ— অমিতাভ দাশগুপ্ত

সহায়ক গ্রন্থ (নির্বাচিত)

- কবি শ্রীমধুসূদন— মোহিতলাল মজুমদার
- মধুসূদন কবি আত্মা ও কাব্যশিল্প— ক্ষেত্র গুপ্ত
- মধুসূদন : কবি ও নাট্যকার— সুবোধচন্দ্র সেনগুপ্ত
- রবীন্দ্র সরণী— প্রমথনাথ বিশী
- রবীন্দ্রকাব্য পরিক্রমা— উপেন্দ্রনাথ ভট্টাচার্য
- আধুনিক বাংলা কাব্য পরিচয়— দীপ্তি ত্রিপাঠী
- আধুনিক কবিতার দিগ্‌বলয়—অশ্রুকুমার শিকদার
- আমার কালের কয়েকজন কবি— জগদীশ ভট্টাচার্য
- আধুনিক বাংলা কবিতায় ইউরোপীয় প্রভাব— মঞ্জুভাষ মিত্র
- বাংলা কবিতার চালচিত্র— সুমিতা চক্রবর্তী
- নজরুলের কবিতা : অসংযমের শিল্প— ক্ষেত্র গুপ্ত
- জনগণের কবি কাজী নজরুল ইসলাম— কল্পতরু সেনগুপ্ত
- নিঃশব্দের তর্জনী— শঙ্খ ঘোষ
- আধুনিক কবিতার ইতিহাস— অলোকরঞ্জন দাশগুপ্ত ও দেবীপ্রসাদ বন্দ্যোপাধ্যায় (সম্পা.)
- কবিতার মিল ও অমিল— শিশিরকুমার দাশ
- এই কাব্য এই হাতছানি— শক্তি চট্টোপাধ্যায়
- বাংলা কবিতার কালান্তর — সরোজ বন্দ্যোপাধ্যায়
- চলমান জীবন— পবিত্র গঙ্গোপাধ্যায়
- কাজী নজরুল ইসলাম : স্মৃতিকথা— মুজফ্‌ফর আহমদ

BNG-H-CC-14-6-TH-TU

লোকসংস্কৃতি ও লোকসাহিত্য

উদ্দেশ্য : বাঙালি এবং তার সংস্কৃতিকে জানতে গেলে আমাদের লোকসংস্কৃতি ও লোকসাহিত্যের পাঠ নেওয়া খুবই জরুরি। বাংলার সমৃদ্ধ লোক-ঐতিহ্য থেকে নির্বাচিত কয়েকটি প্রসঙ্গই এখানে পড়ুয়াদের চর্চার জন্য রাখা হচ্ছে।

মডিউল-১

লোকসংস্কৃতি ও লোকসাহিত্যের সাধারণ পরিচয়
টাইপ ও মোটিফ ইনডেক্স (বৈশিষ্ট্য ও প্রয়োগ শিক্ষার প্রাথমিক পাঠ)
বাংলার ব্রত ও পার্বন (বিশেষ পাঠ : পুণ্যিপুকুর, মাঘমন্ডল, সেঁজুতি)

মডিউল-২

লোকছড়া ও ধাঁধা
লোকনৃত্য (বিশেষ পাঠ : ছৌ, রায়বেশে, গম্ভীরা)
বাংলা প্রবাদ

মডিউল-২

লোকগান (বিশেষ পাঠ : বাউল, ভাটিয়ালী, ভাওয়াইয়া)
লোককথা
মৈমনসিংহ গীতিকা (দীনেশচন্দ্র সেন সম্পাদিত)— মহুয়া পালা

সহায়ক গ্রন্থ (নির্বাচিত) :

- বাংলার ব্রত— অবনীন্দ্রনাথ ঠাকুর
- বাংলার লোক সাহিত্য— আশুতোষ ভট্টাচার্য
- লোকসংস্কৃতির সীমানা ও স্বরূপ— পল্লব সেনগুপ্ত
- ফোকলোর পরিচিতি ও পঠন-পাঠন— মযহারুল ইসলাম
- বাংলা প্রবাদ— সুশীলকুমার দে
- বাংলার ধাঁধার ভূমিকা— নির্মলেন্দু ভৌমিক
- বাংলা ছড়ার ভূমিকা— নির্মলেন্দু ভৌমিক
- বাংলা লোককথার টাইপ ও মোটিফ ইনডেক্স— দিব্যজ্যোতি মজুমদার
- লোকসংস্কৃতি পাঠের ভূমিকা— তুষার চট্টোপাধ্যায়
- বঙ্গীয় লোকসংস্কৃতিকোষ— বরুণ চক্রবর্তী
- বাংলা লোকসঙ্গীত : ভাটিয়ালি গান— ওয়াকিল আহমেদ
- বাউল ফকির কথা— সুধীর চক্রবর্তী
- মৈমনসিংহ গীতিকা— দীনেশচন্দ্র সেন (সম্পা.)
- গীতিকা : স্বরূপ ও বৈশিষ্ট্য— বরুণ চক্রবর্তী
- ময়মনসিংহ গীতিকা— সুখময় মুখোপাধ্যায়
- মৈমনসিংহ গীতিকা— অরূপকুমার দাস (সম্পা.)

BNG-H-CC-15-6-TH-TU

সাহিত্যের রূপ ও রীতি

উদ্দেশ্য : সাহিত্যের রূপবৈচিত্র ও গঠনরীতি সম্পর্কে এই কোর্সে ধারণা প্রদান করা হবে। সাহিত্যের বিভিন্ন সংরূপের রূপ ও আঙ্গিক সম্পর্কে জ্ঞানার্জনের পাশাপাশি শিক্ষার্থীরা সাহিত্যের বিবর্তন সম্পর্কেও ধারণা লাভ করতে পারবে।

মডিউল-১ কাব্য-কবিতা ও নাটক

ক	কবিতার বিভিন্ন রূপকল্প— মহাকাব্য, গীতিকবিতা, কবিগান, সনেট, হাইকু, রুবাই ও লিমেরিক
খ	নাটকের বিভিন্ন রূপকল্প— ট্র্যাজেডি, কমেডি, প্রহসন, কাব্যনাটক, নৃত্যনাট্য, সামাজিক নাটক, পৌরাণিক নাটক, অ্যাবসার্ড নাটক ও একাঙ্ক নাটক

মডিউল-২ : উপন্যাস ও ছোটগল্প

উপন্যাসের রূপকল্প ও শ্রেণিকরণ— নকশাধর্মী উপন্যাস, রোমান্সধর্মী উপন্যাস, সামাজিক উপন্যাস, ঐতিহাসিক উপন্যাস, রাজনৈতিক উপন্যাস, আঞ্চলিক উপন্যাস, মনস্তাত্ত্বিক উপন্যাস, চেতনাপ্রবাহরীতির উপন্যাস
ছোটগল্পের প্রকৃতি
ছোটগল্প ও রূপকথা
অনুগল্প
উপন্যাস ও ছোটগল্পের তুলনা

মডিউল-৩ প্রবন্ধ, সমালোচনা ও অন্যান্য সংরূপ

প্রবন্ধের প্রকার— বস্তুনিষ্ঠ, ব্যক্তিনিষ্ঠ, লঘু প্রবন্ধ ও গবেষণা-প্রবন্ধ
সমালোচনা সাহিত্য
ভ্রমণ সাহিত্য, ডায়েরি, পত্রসাহিত্য, রম্যরচনা, জীবনী ও আত্মজীবনী/স্মৃতিকথা

সহায়ক গ্রন্থ (নির্বাচিত)

- সাহিত্য সন্দর্শন— শ্রীশচন্দ্র দাস
- সাহিত্য ও সমালোচনার রূপরীতি— উজ্জ্বলকুমার মজুমদার
- সাহিত্য : রূপ-বিচিত্রা— অপূর্বকুমার রায়
- সাহিত্যের রূপরীতি ও অন্যান্য প্রসঙ্গ— কুন্তল চট্টোপাধ্যায়
- বাংলা সাহিত্যের রূপরীতি— শুদ্ধসত্ত্ব বসু
- সাহিত্যকোষ : কথাসাহিত্য— অলোক রায়
- সাহিত্য বিচার : তত্ত্ব ও প্রয়োগ— বিমলকুমার মুখোপাধ্যায়
- A Glossary of Literary Terms— M.H. Abrams

BNG-H-CC-16-7-TH-TU

বাংলার সমাজ-সংস্কৃতি ও সাহিত্যের ইতিহাস (প্রাগাধুনিক পর্যায়)

উদ্দেশ্য : বাংলা ভাষা উদ্ভবের সময়কাল থেকে অষ্টাদশ শতক পর্যন্ত বাঙালি জাতির আর্থ-সামাজিক, রাজনৈতিক এবং সাংস্কৃতিক বিকাশের গতিরেখার সঙ্গে সাহিত্যের সংযোগ দেখানোই এই কোর্সের উদ্দেশ্য।

মডিউল-১

বাংলা ও বাঙালি জাতির ভৌগোলিক ও নৃতাত্ত্বিক পরিচয়
বাংলার সমাজ কাঠামো ও অর্থনৈতিক ভিত্তি
বাংলার রাজনৈতিক ইতিহাস
তুর্কি আক্রমণ ও তার ফলাফল

মডিউল-২

চৈতন্য ও বাংলার ভক্তি আন্দোলন
মঙ্গলকাব্যে সমকালীন বাংলার সমাজচিত্র
সুফি সাহিত্য

মডিউল-৩

অষ্টাদশ শতকের বাংলার আর্থ-রাজনৈতিক, সামাজিক ও সাংস্কৃতিক প্রেক্ষাপট
নাথ ও বাউল সাহিত্য

সহায়ক গ্রন্থ (নির্বাচিত)

- বাঙ্গালীর ইতিহাস— নীহাররঞ্জন রায়
- History of Medieval Bengal — রমেশচন্দ্র মজুমদার
- বাংলা দেশের ইতিহাস— রমেশচন্দ্র মজুমদার
- বাঙ্গালার ইতিহাস (অখণ্ড)— রাখালদাস বন্দ্যোপাধ্যায়
- বাঙ্গালীর সংস্কৃতি— সুনীতিকুমার চট্টোপাধ্যায়
- রামতনু লাহিড়ী ও তৎকালীন বঙ্গসমাজ— শিবনাথ শাস্ত্রী
- বাংলার ইতিহাস— সুভাষ মুখোপাধ্যায়
- সংস্কৃতির বিশ্বরূপ— গোপাল হালদার
- বাঙলা ও বাঙালীর বিবর্তন— অতুল সুর
- সংস্কৃতির রূপান্তর— গোপাল হালদার
- চৈতন্য-প্রসঙ্গ— বঙ্গীয় সাহিত্য পরিষদ প্রকাশিত
- বাংলার কাব্য— হুমায়ুন কবির
- বাংলার সামাজিক ইতিহাসের ভূমিকা— সতীন্দ্রমোহন চট্টোপাধ্যায়
- গৌড়ের ইতিহাস— রজনীকান্ত চক্রবর্তী
- প্রাচীন ভারতীয় সাহিত্য ও বাঙালির উত্তরাধিকার— জাহ্নবীকুমার চক্রবর্তী
- বাংলা মঙ্গলকাব্যের ইতিহাস— আশুতোষ ভট্টাচার্য
- হাজার বছরের পুরানো বাংলা ও বাঙালী— শশিভূষণ দাশগুপ্ত
- হাজার বছরের বাঙালি সংস্কৃতি— গোলাম মুরশিদ
- আঠারো শতকের বাংলা ও বাঙালি— অতুল সুর
- ভারতীয় ভক্তি সাহিত্য— বিষ্ণুপদ ভট্টাচার্য
- বঙ্গে বৈষ্ণব ধর্ম— রমাকান্ত চক্রবর্তী
- মধ্যযুগে বাংলা ও বাঙালী— অনিলচন্দ্র বন্দ্যোপাধ্যায়
- বাংলা সাহিত্যে কৃষ্ণকথার ক্রমবিকাশ— সত্যবতী গিরি
- শ্রীরাধার ক্রমবিকাশ : দর্শনে ও সাহিত্যে— শশিভূষণ দাশগুপ্ত
- বঙ্গে সূফি প্রভাব— মুহম্মদ এনামুল হক
- বাংলার বাউল— ক্ষিতিমোহন সেন
- নাথ ধর্ম ও সাহিত্য— প্রফুল্লচরণ চক্রবর্তী
- নাথ সম্প্রদায়ের ইতিহাস, দর্শন ও সাধন প্রণালী— কল্যাণী মল্লিক
- বাংলার বাউল : কাব্য ও দর্শন— সোমেন্দ্রনাথ বন্দ্যোপাধ্যায়

BNG-H-CC-17-7-TH-TU

প্রাগাধুনিক বাংলা সাহিত্য-২

উদ্দেশ্য : প্রাগাধুনিক বাংলা সাহিত্যের দ্বিতীয় পাঠে চর্যাপদ, শ্রীকৃষ্ণকীর্তন এবং অন্নদামঙ্গল-এর পাঠ রাখা হয়েছে। প্রাচীন ও মধ্যযুগের এই সাহিত্য-সংরূপগুলির সঙ্গে বিস্তারিত পরিচয় ঘটানোই এই কোর্সের উদ্দেশ্য।

মডিউল-১

চর্যাপদ/চর্যাগীতি— হাজার বছরের পুরাণ বাঙ্গালা ভাষায় বৌদ্ধগান ও দোহা—হরপ্রসাদ শাস্ত্রী সম্পাদিত
নির্বাচিত পদসমূহ— ৫, ৬, ৮, ১০, ১২, ১৭, ২৮, ৩০, ৩৩, ৪০, ৪৯, ৫০

মডিউল-২

শ্রীকৃষ্ণকীর্তন— বড়ু চণ্ডীদাস (বসন্তরঞ্জন রায় বিদ্বদ্বল্লভ সম্পাদিত)
নির্বাচিত পদসমূহ— ৭, ১৪, ১২৪, ১৬৮, ২২৩, ২৪৯, ২৫৬, ২৭৯, ৩২৩, ৩৪৯, ৩৫৪, ৪১৩

মডিউল-৩

রায়গুণাকর ভারতচন্দ্রের অন্নদামঙ্গল (দেববন্দনা থেকে অন্নদার ভবানন্দ ভবনে যাত্রা পর্যন্ত)

সহায়ক গ্রন্থ (নির্বাচিত)

- চর্যাগীতি পদাবলী— সুকুমার সেন (সম্পা.)
- চর্যাগীতি— তারাপদ মুখোপাধ্যায় (সম্পা.)
- চর্যাগীতি পরিক্রমা— নির্মল দাশ (সম্পা.)
- চর্যাগীতিকোষ— সৌমেন্দ্রনাথ সরকার (সম্পা.)
- বৌদ্ধধর্ম ও চর্যাগীতি— শশিভূষণ দাশগুপ্ত
- বৌদ্ধধর্ম ও সাহিত্য— প্রবোধচন্দ্র বাগচী
- বৌদ্ধ দর্শন— রাহুল সাংকৃত্যায়ন
- শ্রীকৃষ্ণকীর্তন— অমিত্রসূদন ভট্টাচার্য (সম্পা.)
- শ্রীকৃষ্ণকীর্তন— তারাপদ মুখোপাধ্যায় (সম্পা.)
- শ্রীকৃষ্ণকীর্তন— নরেশচন্দ্র জানা (সম্পা.)
- শ্রীকৃষ্ণকীর্তন— ধ্রুবকুমার মুখোপাধ্যায় (সম্পা.)
- কবি ভারতচন্দ্র— শঙ্করীপ্রসাদ বসু
- ভারতচন্দ্র ও রামপ্রসাদ— শিবপ্রসাদ ভট্টাচার্য
- রায়গুণাকর ভারতচন্দ্র— মদনমোহন গোস্বামী
- অন্নদামঙ্গল— ভবানীগোপাল সান্যাল (সম্পা.)
- অন্নদামঙ্গল— মদনমোহন গোস্বামী (সম্পা.)
- অন্নদামঙ্গল— তরুণ মুখোপাধ্যায় (সম্পা.)
- আঠারো শতকের বাংলা : রাজনৈতিক চালচিত্র— নিখিল সুর

BNG-H-CC-18-7-TH-TU

চরিত সাহিত্য, আত্মচরিত ও ভ্রমণ সাহিত্য

উদ্দেশ্য : চরিত সাহিত্য ও আত্মচরিত পাঠের মধ্য দিয়ে পড়ুয়ারা ব্যক্তি চৈতন্যদেব কিংবা ব্যক্তি রবীন্দ্রনাথকে যেমন চিনবে তেমনি তাঁদের সময়কালের ধারণাটিকেও আয়ত্ত করতে পারবে। সুখপাঠ্য দেশে-বিদেশে পাঠের মধ্য দিয়েও ব্যক্তি মুজতবা এবং তাঁর বিচিত্র জীবন অভিজ্ঞতার সঙ্গে পরিচিত হবে পড়ুয়ারা।

মডিউল ১

চৈতন্যভাগবত (আদ্যলীলা)— বৃন্দাবন দাস

মডিউল-২

জীবনস্মৃতি— রবীন্দ্রনাথ ঠাকুর

মডিউল-৩

দেশে-বিদেশে (প্রথম ২১টি অধ্যায়)— সৈয়দ মজুতবা আলী

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ চৈতন্য-প্রসঙ্গ— বঙ্গীয় সাহিত্য পরিষৎ প্রকাশিত
- ❑ জীবনী, আত্মজীবনী ও রবীন্দ্রনাথ— শিশিরকুমার দাশ
- ❑ জীবনের স্বরলিপি : পশ্চিমের মুখর জানালা— বিজয়কুমার দত্ত
- ❑ চৈতন্য ভাগবত— অমিত্রসূদন ভট্টাচার্য (সম্পা.)
- ❑ চৈতন্য ভাগবত— অবন্তীকুমার সান্যাল (সম্পা.)
- ❑ চৈতন্যাবদান— সুকুমার সেন (বাঙ্গালা সাহিত্যের ইতিহাস প্রথম খণ্ড)
- ❑ গৌরাঙ্গ পরিজন— অচিন্ত্যকুমার সেনগুপ্ত
- ❑ চৈতন্যদেব— নৃসিংহপ্রসাদ ভাদুড়ী
- ❑ শ্রীচৈতন্যচরিতের উপাদান— বিমানবিহারী মজুমদার
- ❑ বাংলা সাহিত্যে আত্মজীবনী— সোমেন বসু
- ❑ রবীন্দ্রমনীষা— অরুণকুমার মুখোপাধ্যায়
- ❑ ঠাকুরবাড়ির অন্দরমহল— চিত্রা দেব
- ❑ রবীন্দ্রজীবনী (৪ খণ্ড)— প্রভাতকুমার মুখোপাধ্যায়
- ❑ রবিজীবনী (৯ খণ্ড)— প্রশান্তকুমার পাল
- ❑ বাঙালি পর্যটকের বিশ্বপরিক্রমা— অরুণকুমার মুখোপাধ্যায়
- ❑ ভ্রমণে দেশ-বিদেশ— বিজয় বন্দ্যোপাধ্যায়
- ❑ দেশে-বিদেশে— ধ্রুবকুমার মুখোপাধ্যায় (সম্পা.)

BNG-H-CC-19-7-TH-TU

বাংলাদেশের সাহিত্য

উদ্দেশ্য : দেশভাগের পর পূর্ববঙ্গ তথা বাংলাদেশে বাংলা সাহিত্যের এক সমৃদ্ধ ধারা গড়ে উঠেছে। বাংলা সাহিত্যের পাঠ বাংলাদেশের সাহিত্য ব্যতিরেকে সম্পূর্ণতা লাভ করতে পারে না, এই বিবেচনাতেই কোর্সটির পরিকল্পনা করা হয়েছে।

মডিউল-১ : কথাসাহিত্য

ক.	সূর্য দীঘল বাড়ী— আবু ইসহাক
খ.	প্যাপিরাস প্রকাশিত **বাংলাদেশের গল্প** গ্রন্থ থেকে নিচের গল্পগুলি পাঠ্য : আত্মজা ও একটি করবী গাছ —হাসান আজিজুল হক খোয়াই নদীর বাঁক বদল— সেলিনা হোসেন সুন্দর মানুষ— বিপ্রদাস বড়ুয়া যুগলবন্দি— আখতারুজ্জামান ইলিয়াস

মডিউল-২ : কবিতা ও নাটক

ক.	সপ্তর্ষি প্রকাশিত **বাংলাদেশের শ্রেষ্ঠ কবিতা** — রণজিৎ দাশ ও সাজ্জাদ শরীফ সম্পাদিত। পাঠ্য কবিতা : স্বাধীনতা তুমি— শামসুর রাহমান সোনালী কাবিন ১৩— আল মাহমুদ তোমাকে অভিবাদন, প্রিয়তমা— শহীদ কাদরী নগর ধ্বংসের আগে— রফিক আজাদ জুই ফুলের চেয়ে শাদা ভাতই অধিক সুন্দর— মহাদেব সাহা মানুষ— নির্মলেন্দু গুণ তোমার দূরত্ব নিত্য আমার ক্রোধের দিনে— দাউদ হায়দার বাতাসে লাশের গন্ধ— রুদ্র মুহম্মদ শহিদুল্লাহ
খ.	কবর— মুনীর চৌধুরী

মডিউল -৩ : প্রবন্ধ

অরুণ সেন ও আবুল হাসনাত সম্পাদিত ***বাঙালি ও বাংলাদেশ*** (নয়াউদ্যোগ) গ্রন্থ থেকে নিম্নলিখিত প্রবন্ধগুলি পাঠ্য :
অভিভাষণ— মুহম্মদ শহীদুল্লাহ ❑ বাঙালির আত্মপরিচয়ের সূত্রপাত— আবু জাফর শামসুদ্দীন ❑ ভাষা সংস্কার ও বাঙালি চেতনার বিকৃতি— আহমদ শরীফ ❑ মুসলমানদের স্বদেশ প্রত্যাবর্তন— বদরুদ্দীন উমর ❑ দ্বি-জাতিতত্ত্বের সত্যমিথ্যা— সিরাজুল ইসলাম চৌধুরী ❑ স্বরূপের সন্ধানে— আনিসুজ্জামান ❑ মার্চের স্বপ্ন— মুনতাসীর মামুন

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ বাংলাদেশের সাহিত্য ও সংস্কৃতি— বিশ্বজিৎ ঘোষ
- ❑ বাংলা দেশের প্রবন্ধ সাহিত্য— আবুল কাসেম ফজলুল হক
- ❑ বাংলাদেশের উপন্যাস : বিষয় ও শিল্পরূপ— রফিকুল্লাহ খান
- ❑ বাংলাদেশের থিয়েটার— নৃপেন্দ্র সাহা (সম্পাদিত)
- ❑ বাংলাদেশের কবিতা :সমবায়ী স্বরতন্ত্র— রফিকুল্লাহ খান
- ❑ বাংলাদেশের ছোটগল্পের শিল্পরূপ— চঞ্চলকুমার বোস
- ❑ সংস্কৃতির ভাঙা সেতু— আখতারুজ্জামান ইলিয়াস
- ❑ ভাষা আন্দোলনের দলিলপত্র— রতনলাল চক্রবর্তী (সম্পাদিত)
- ❑ রাজনৈতিক চেতনা : বাংলাদেশের কবিতা— আমিনুর রহমান সুলতান
- ❑ বাংলাদেশের আধুনিক কাব্য পরিচয়— দীপ্তি ত্রিপাঠী
- ❑ পূর্ববাংলার রাজনীতি-সংস্কৃতি ও কবিতা— সাঈদ-উর রহমান
- ❑ বাংলাদেশের কবিতায় ব্যক্তি ও সমাজ— দিলারা হাফিজ
- ❑ বাঙালি মুসলমানের সামাজিক ইতিহাস : কতিপয় প্রসঙ্গ— হাবিব রহমান

BNG-H-CC-20-7-TH-TU*

আধুনিক কাব্য-কবিতা ও নাটক

উদ্দেশ্য : উনিশ ও বিশ শতকের বাংলা কাব্যের প্রধান দুটি ধারার সঙ্গে এই কোর্সের বিস্তারিত পরিচয় ঘটার পাশাপাশি আধুনিক বাংলা নাট্যসাহিত্যের মেধাবী একটি নির্মাণের সঙ্গেও পড়ুয়ারা পরিচিত হবে।

মডিউল-১

মেঘনাদবধ কাব্য— মধুসূদন দত্ত

মডিউল-২

জীবনানন্দ দাশের শ্রেষ্ঠ কবিতা নির্বাচিত কবিতা— মৃত্যুর আগে, বোধ, ক্যাম্পে, পাখিরা, বনলতা সেন, সিন্ধুসারস, বিড়াল, আট বছর আগের একদিন, ১৯৪৬-৪৭, অদ্ভুত আঁধার এক।

মডিউল-৩

চাঁদ বণিকের পালা— শম্ভু মিত্র

সহায়ক গ্রন্থ (নির্বাচিত)

- মাইকেল মধুসূদন দত্তের জীবনচরিত— যোগীন্দ্রনাথ বসু
- কবি শ্রীমধুসূদন— মোহিতলাল মজুমদার
- মধুসূদনের কবিআত্মা ও কাব্যশিল্প— ক্ষেত্র গুপ্ত
- মেঘনাদবধ কাব্যচর্চা— উজ্জ্বলকুমার মজুমদার (সম্পা.)
- মেঘনাদবধ কাব্য— নির্মলেন্দু ভৌমিক (সম্পা.)
- জীবনানন্দ দাশ : বিকাশ ও প্রতিষ্ঠার ইতিবৃত্ত— দেবীপ্রসাদ বন্দ্যোপাধ্যায় (সম্পা.)
- একটি নক্ষত্র আসে— অম্বুজ বসু
- কবি জীবনানন্দ দাশ— সঞ্জয় ভট্টাচার্য
- এই সময় ও জীবনানন্দ— শঙ্খ ঘোষ
- কবিতার গাঢ় এনামেলে : জীবনানন্দের কাব্য-ভাবনা— প্রদ্যুম্ন মিত্র
- শুদ্ধতম কবি— আব্দুল মান্নান সৈয়দ
- আলেখ্য : জীবনানন্দ— ভূমেন্দ্র গুহ
- কবিতার কথা— জীবনানন্দ দাশ
- কবি জীবনানন্দ : অনুভবে, অনুধ্যানে— তরুণ মুখোপাধ্যায়
- সন্মার্গ সপর্যা— শম্ভু মিত্র
- কাকে বলে নাট্যকলা— শম্ভু মিত্র
- শম্ভু মিত্র : নির্মাণ ও সৃজন— কুমার রায়
- শম্ভু মিত্র ধ্যানে ও অন্তর্ধ্যানে— শাঁওলী মিত্র
- শম্ভু মিত্রের নাট্যচর্চা— জগন্নাথ ঘোষ

[*যে সমস্ত পড়ুয়া গবেষণাপত্র রচনা করবে না সপ্তম সেমেস্টারে তাদের **সাহিত্য গবেষণার পদ্ধতিবিজ্ঞান** কোর্সের বিকল্পে এই কোর্সটি পড়তে হবে।]

BNG-H-CC-21-8-TH-TU

বর্ণনামূলক ভাষাবিজ্ঞান ও বাংলা ভাষা–২

উদ্দেশ্য : বাংলা ভাষার ধ্বনিতত্ত্ব, রূপতত্ত্ব এবং বাক্যতত্ত্ব সম্পর্কে বিস্তারিত পাঠদানের পাশাপাশি ভাষাচর্চার আধুনিক প্রবণতাগুলি সম্পর্কে পড়ুয়াদের ধারণা দেওয়াই এই কোর্সের উদ্দেশ্য।

মডিউল-১

ক. ধ্বনিতত্ত্ব— বাগযন্ত্র, স্বরধ্বনি ও ব্যঞ্জনধ্বনির বর্গীকরণ, দ্বিস্বর, সংযুক্ত ব্যঞ্জন, সিলেব্‌লের ধারণা, স্বনিম ও বিস্বনের পার্থক্য, স্বনিম নির্ধারণের পদ্ধতি, বাংলা স্বনিমের বিন্যাস।
খ. আন্তর্জাতিক ধ্বনিমূলক বর্ণমালা (IPA), বাংলা থেকে আন্তর্জাতিক ধ্বনিমূলক বর্ণমালায় লিপ্যন্তরণ।

মডিউল-২

ক. রূপতত্ত্ব— রূপিম ও রূপভেদের পার্থক্য, রূপিম শনাক্তকরণের পদ্ধতি, বাংলা রূপতত্ত্বের মূলসূত্র
খ. বাক্যতত্ত্ব— বাক্য বিশ্লেষণের পদ্ধতি, বাংলা বাক্যের প্রকৃতি, সংগঠন ও পদক্রম।

মডিউল-৩

ক. ভাষাবিজ্ঞানের আধুনিক ক্ষেত্র, ভাষার বৈচিত্র্য ও সমাজভাষা বিজ্ঞান, শৈলীবিজ্ঞান
খ. চমস্কির তত্ত্ব ও সঞ্জননী তত্ত্ব

সহায়ক গ্রন্থ (নির্বাচিত)

- ভাষা-প্রকাশ বাঙ্গালা ব্যাকরণ— সুনীতিকুমার চট্টোপাধ্যায়
- বাঙ্গালা ভাষার ইতিবৃত্ত— মুহম্মদ শহীদুল্লাহ
- সংস্কৃত ও প্রাকৃত ভাষার ক্রমবিকাশ (১-২ খণ্ড)— পরেশচন্দ্র মজুমদার
- বাংলা ভাষা পরিক্রমা— পরেশচন্দ্র মজুমদার
- ভাষা-জিজ্ঞাসা— শিশিরকুমার দাশ
- ভাষার ইতিবৃত্ত— সুকুমার সেন
- সাধারণ ভাষাবিজ্ঞান ও বাংলা ভাষা— রামেশ্বর শ'
- আধুনিক ভাষাতত্ত্ব— আবদুল কালাম মনজুর মোরশেদ
- বাঙ্গালা ভাষার ইতিবৃত্ত— মুহম্মদ শহীদুল্লাহ
- বাংলা ভাষা— পার্বতীচরণ ভট্টাচার্য
- ভাষা দেশ কাল— পবিত্র সরকার
- ভাষাবিদ্যা পরিচয়— পরেশচন্দ্র ভট্টাচার্য
- বাংলা সংবর্তনী ব্যাকরণ— উদয়কুমার চক্রবর্তী
- বাংলা পদগুচ্ছের সংগঠন— উদয়কুমার চক্রবর্তী
- ধ্বনিবিজ্ঞান আই.পি.এ রোমানিকরণ— পবিত্র সরকার
- চমস্কি, ব্যাকরণ ও বাংলা বানান— পবিত্র সরকার
- ভাষা ও সমাজ— মৃণাল নাথ
- শৈলী বিজ্ঞানের গোড়ার কথা— পবিত্র সরকার
- ধ্বনিবিজ্ঞান ও বাংলা ধ্বনিতত্ত্ব— মুহম্মদ আব্দুল হাই
- আধুনিক বাংলা ভাষাতত্ত্ব— সুচরিতা বন্দ্যোপাধ্যায়

BNG-H-CC-22-8-TH-TU

বাংলার সমাজ-সংস্কৃতি ও সাহিত্যের ইতিহাস (আধুনিক পর্যায়)

উদ্দেশ্য : ঊনবিংশ শতকে ঔপনিবেশিক আধুনিকতার অভিঘাত বাংলার সমাজ-সংস্কৃতি ও সাহিত্যে কীভাবে পড়েছিল এই কোর্সে তার বিস্তারিত পরিচয় দেওয়া হবে। বিশ শতকে ঔপনিবেশিকতা বিরোধী বিভিন্ন আন্দোলন আমাদের সাহিত্যকে কীভাবে প্রভাবিত করেছিল তার সঙ্গেও পড়ুয়াদের পরিচয় ঘটবে। এই গোটা কালপর্বে বাংলা সাময়িক পত্রগুলির ভূমিকা সম্পর্কে এই কোর্সে পাঠদান করা হবে।

মডিউল-১

ঔপনিবেশিক আধুনিকতার অভিঘাত— শিক্ষায়, ধর্ম সংস্কারে, সমাজ সংস্কারে ও মুক্তচিন্তায়
ফকির আন্দোলন, কৃষক আন্দোলন ও নীলবিদ্রোহ
ধর্ম, সমাজ ও শিক্ষা সংস্কারের উদ্দেশ্যে গঠিত সভা সমিতি (১৯ শতক)

মডিউল-২

বঙ্গভঙ্গ ও বয়কট-স্বদেশী আন্দোলন
প্রান্তবর্গ/দলিত জনগোষ্ঠীর জাগরণ
বাঙালি মুসলমানের স্বতন্ত্র জাতিসত্তার সন্ধান
দেশভাগ, উদ্বাস্তু সমস্যা ও ভাষা আন্দোলন
খাদ্য আন্দোলন ও নকশাল আন্দোলন

মডিউল-৩

বাংলার সমাজ-সংস্কৃতি ও সাহিত্যের বিকাশে বাংলা সাময়িক পত্রের ভূমিকা (বিশেষ গুরুত্বসহ পাঠ— সংবাদ প্রভাকর, তত্ত্ববোধিনী পত্রিকা, বিবিধার্থ সংগ্রহ, মাসিক পত্রিকা, সোমপ্রকাশ, বঙ্গদর্শন, ভারতী, সবুজপত্র, কল্লোল, প্রবাসী, শনিবারের চিঠি, পরিচয়, কবিতা, চতুরঙ্গ, কৃত্তিবাস)

সহায়ক গ্রন্থ (নির্বাচিত)

- ঔপনিবেশিক বাংলার সমাজ চিত্র— চিত্তব্রত পালিত
- দেশ বিভাগ : পশ্চাৎ ও নেপথ্য কাহিনী— ভবানীপ্রসাদ চট্টোপাধ্যায়
- যুক্ত বাংলার শেষ অধ্যায়— কালীপদ বিশ্বাস
- পলাশি থেকে পার্টিশান— শেখর বন্দ্যোপাধ্যায়
- নীল বিদ্রোহ— পুলক চন্দ্র
- বাঙালির দর্শন— আমিনুল ইসলাম
- স্বাধীন ভারতের সাম্যবাদী আন্দোলন : রাজনীতি ও গতিপ্রকৃতি— শোভনলাল দত্তগুপ্ত
- সাহিত্য সমাজ ইতিহাস— পশ্চিমবঙ্গ ইতিহাস সংসদ প্রকাশিত
- বাংলার রেনেশাঁস— সুশোভন সরকার
- বাংলার নবজাগৃতি— বিনয় ঘোষ
- কলকাতা : ইতিহাসের দিনলিপি— নীরদবরণ হাজরা
- সংস্কৃতির ভাঙা সেতু— আখতারুজ্জামান ইলিয়াস
- শতাব্দীর প্রতিধ্বনি— অতুল সুর
- উত্তাল চল্লিশ : অসমাপ্ত বিপ্লব— অমলেন্দু সেনগুপ্ত
- জোয়ারভাটায় ষাট-সত্তর— অমলেন্দু সেনগুপ্ত
- হাজার বছরের বাঙালির সংস্কৃতি— গোলাম মুরশিদ
- আধুনিক বাঙালী সংস্কৃতি ও বাংলা সাহিত্য— দ্বিজেন্দ্রলাল নাথ
- আত্মঘাতী বাঙালী— নীরদচন্দ্র চৌধুরী
- রামতনু লাহিড়ী ও তৎকালীন বঙ্গসমাজ— শিবনাথ শাস্ত্রী
- বাংলায় নবচেতনার ইতিহাস— স্বপন বসু
- সাহিত্য সমাজ ইতিহাস— পশ্চিমবঙ্গ ইতিহাস সংসদ
- বঙ্গভঙ্গ— প্রমথনাথ বিশী
- বঙ্গভঙ্গ— মুনতাসীর মামুন
- তেভাগা আন্দোলন— ধনঞ্জয় রায় (সম্পা.)
- দেশভাগ দেশত্যাগ— সন্দীপ বন্দ্যোপাধ্যায়
- নকশালবাদী আন্দোলন ও বাংলা সাহিত্য— নির্মল ঘোষ
- ইতিহাসের দিকে ফিরে ছেচল্লিশের দাঙ্গা— সন্দীপ বন্দ্যোপাধ্যায়
- নকশালবাড়ি আন্দোলনের প্রামাণ্য তথ্য সংকলন— অমর ভট্টাচার্য
- বাংলা সাময়িক পত্র— ব্রজেন্দ্রনাথ বন্দ্যোপাধ্যায়
- বাংলা সাময়িকপত্রের ইতিবৃত্ত (১, ২)— সন্দীপ দত্ত
- দেশভাগ থেকে নকশালবাড়ি— কিন্নর রায়
- বাংলা সংবাদপত্র ও বাঙালির নবজাগরণ— পার্থ চট্টোপাধ্যায়

BNG-H-CC-23-8-TH-TU

রবীন্দ্রসাহিত্য

উদ্দেশ্য : রবীন্দ্রসাহিত্যের সঙ্গে পড়ুয়াদের এর আগেই বিচ্ছিন্ন ভাবে পরিচয় ঘটেছে। এই কোর্সে পড়ুয়ারা রবীন্দ্রসাহিত্যের বিস্তারিত পাঠ গ্রহণ করবে।

মডিউল-১

চতুরঙ্গ

মডিউল-২

মুক্তধারা

মডিউল-৩

সাহিত্যের পথে

সহায়ক গ্রন্থ (নির্বাচিত)

- রবীন্দ্রজীবনী (১-৪)— প্রভাতকুমার মুখোপাধ্যায়
- রবিজীবনী (১-৯)— প্রশান্তকুমার পাল
- বঙ্গসাহিত্যে উপন্যাসের ধারা— শ্রীকুমার বন্দ্যোপাধ্যায়
- রবীন্দ্রনাথের ছোটগল্প ও উপন্যাস— উপেন্দ্রনাথ ভট্টাচার্য
- রবীন্দ্রসাহিত্যের ভূমিকা— নীহাররঞ্জন রায়
- রবীন্দ্রমানস— অরবিন্দ পোদ্দার
- রবীন্দ্রনাট্য পরিক্রমা— উপেন্দ্রনাথ ভট্টাচার্য
- রবীন্দ্রসাহিত্যের নরনারী (নাটক)— গোপীমোহন সিংহরায়
- রবীন্দ্রচর্যা— দেবীপদ ভট্টাচার্য
- রবীন্দ্রনন্দনতত্ত্ব— বিমলকুমার মুখোপাধ্যায়
- রবীন্দ্রনাথের সাহিত্যাদর্শ— ভবানীগোপাল সান্যাল
- সাহিত্যতত্ত্বে রবীন্দ্রনাথ— সত্যেন্দ্রনাথ রায়
- রবীন্দ্রনাথ : কথাসাহিত্য— বুদ্ধদেব বসু
- রবীন্দ্র সমীক্ষা— অরুণকুমার মুখোপাধ্যায়
- আধুনিকতা ও রবীন্দ্রনাথ— আবু সয়ীদ আইয়ুব

BNG-H-CC-24-8-TH-TU*

কথাসাহিত্য–২

উদ্দেশ্য : এই কোর্সে বিশ শতকে বাংলা কথাসাহিত্যের সঙ্গে পড়ুয়াদের বিস্তারিত পরিচয় ঘটবে।

মডিউল-১

জাগরী— সতীনাথ ভাদুড়ী

মডিউল-২

অরণ্যের অধিকার— মহাশ্বেতা দেবী

মডিউল-৩

একালের ছোটগল্প সঞ্চয়ন (কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত)

পাঠ্য : পয়োমুখম—জগদীশ গুপ্ত, মহানগর—প্রেমেন্দ্র মিত্র, পুঁই মাচা— বিভূতিভূষণ বন্দ্যোপাধ্যায়, না— তারাশঙ্কর বন্দ্যোপাধ্যায়, ফসিল—সুবোধ ঘোষ, এখন প্রেম—তপোবিজয় ঘোষ, মতিলাল পাদরী— কমলকুমার মজুমদার, ছিন্নমস্তা— আশাপূর্ণা দেবী, প্লাবনকাল—সুচিত্রা ভট্টাচার্য

সহায়ক গ্রন্থ (নির্বাচিত)

- বঙ্গ সাহিত্যে উপন্যাসের ধারা— শ্রীকুমার বন্দ্যোপাধ্যায়
- বাংলা উপন্যাসে কালান্তর— সরোজ বন্দ্যোপাধ্যায়
- বাংলা ছোটগল্প : প্রসঙ্গ ও প্রকরণ— বীরেন্দ্র দত্ত
- সতীনাথ জীবন ও সাহিত্য— সন্তোষকুমার মজুমদার
- সতীনাথ ভাদুড়ী— সরোজ বন্দ্যোপাধ্যায়
- কালের প্রতিমা— অরুণ কুমার মুখোপাধ্যায়
- সাহিত্যে ছোটগল্প— নারায়ণ গঙ্গোপাধ্যায়
- জনজাগরণের উপন্যাস অরণ্যের অধিকার— সোহরাব হোসেন
- সতীনাথ ভাদুড়ী : সাহিত্য ও সাধনা— গোপাল হালদার
- সতীনাথ জিজ্ঞাসা— তরুণ মুখোপাধ্যায় (সম্পা.)
- অরণ্যের অধিকার— অরূপকুমার দাস (সম্পা.)

[*যে সমস্ত পড়ুয়া গবেষণাপত্র রচনা করবে না অষ্টম সেমেস্টারে তাদের গবেষণা পত্রের বিকল্পে এই কোর্সটি পড়তে হবে।]

BNG-H-CC-25-8-TH-TU*

দেশভাগ ও বাংলা সাহিত্য

উদ্দেশ্য : বাঙালি জাতির ইতিহাসে দেশভাগের একটি গভীরমূল এবং সুদূরপ্রসারী অভিঘাত রয়েছে। দেশভাগকে ঘিরে বাঙালির সামূহিক এবং ব্যক্তিক বিপন্নতা, বিপর্যয় এবং অসহায়ত্বের সাক্ষ্যবাহী নির্বাচিত কিছু সাহিত্য এখানে পাঠ্য করা হয়েছে।

মডিউল-১ : নাটক

বাস্তুভিটা— দিগিন্দ্রচন্দ্র বন্দ্যোপাধ্যায়

মডিউল-২ : ছোটগল্প

এপার গঙ্গা ওপার গঙ্গা— জ্যোতির্ময়ী দেবী
গণনায়ক— সতীনাথ ভাদুড়ী
ছেলেমানুষী— মানিক বন্দ্যোপাধ্যায়
পালঙ্ক— নরেন্দ্রনাথ মিত্র
ড্রেসিং টেবিল— সলিল চৌধুরী
করুণকন্যা— রমাপদ চৌধুরী
রাজা আসে রাজা যায়— প্রফুল্ল রায়
জটায়ু— দীপেন্দ্রনাথ বন্দ্যোপাধ্যায়

মডিউল-৩ : কবিতা

পুব-পশ্চিম— অচিন্ত্যকুমার সেনগুপ্ত
খুকু ও খোকা— অন্নদাশঙ্কর রায়
১৫ই আগস্ট ১৯৪৭—দীনেশ দাস
জল দাও— বিষ্ণু দে
পারাপার— সুভাষ মুখোপাধ্যায়
বাংলা, হায় বাংলা— মঙ্গলাচরণ চট্টোপাধ্যায়
তোমাকে বলেছিলাম— নীরেন্দ্রনাথ চক্রবর্তী
দেশহীন — শঙ্খ ঘোষ
ধাত্রী—সুনীল গঙ্গোপাধ্যায়
সমরেন্দ্র সেনগুপ্ত —ভাষাদেশ

সহায়ক গ্রন্থ (নির্বাচিত)

- বাংলা ছোটগল্পে দেশবিভাগ— সানজিদা আখতার
- ভূমিকা (রক্তমণির হারে গ্রন্থ)— দেবেশ রায়
- ভূমিকা (ভেদ-বিভেদ গ্রন্থ)— মানবেন্দ্র বন্দ্যোপাধ্যায়
- যুক্তবঙ্গের স্মৃতি— অন্নদাশঙ্কর রায়
- আমার জন্মভূমি /স্মৃতিময় বাংলাদেশ— ধনঞ্জয় দাশ
- ভাঙা বাংলা ও বাংলা সাহিত্য— অশ্রুকুমার শিকদার
- দেশভাগ দেশত্যাগ— সন্দীপ বন্দ্যোপাধ্যায়
- যুক্ত বাংলার শেষ অধ্যায়— কালীপদ বিশ্বাস
- দেশ বিভাগ : পশ্চাৎ ও নেপথ্য কাহিনী— ভবানী প্রসাদ চট্টোপাধ্যায়
- বাংলা মধ্যবিত্তের আত্মবিকাশ— কামরুদ্দিন আহমেদ
- বাস্তুভিটা— সনৎকুমার নস্কর (সম্পা.)

[*যে সমস্ত পড়ুয়া গবেষণাপত্র রচনা করবে না অষ্টম সেমেস্টারে তাদের গবেষণাপত্রের বিকল্পে এই কোর্সটি পড়তে হবে।]

Discipline Specific Minor Course

(For Major /Honours Students)

- স্নাতক বাংলা পাঠক্রমে Discipline Specific Minor Course স্তরে ১৬ ক্রেডিট-এর মোট ৪টি কোর্স পড়তে হবে।
- ৪ (৩+১) ক্রেডিট-এর প্রতিটি কোর্সের পূর্ণমান ১০০। এর মধ্যে ২৫ নম্বর কোর্সভিত্তিক টিউটোরিয়াল-এর জন্য বরাদ্দ। বাকি ৭৫ নম্বরের জন্য বিশ্ববিদ্যালয়ের সংশ্লিষ্ট কর্তৃপক্ষের তত্ত্বাবধানে লিখিত পরীক্ষা নেওয়া হবে।
- ৭৫ নম্বরের লিখিত পরীক্ষায় ১৫ নম্বরের তিনটি ব্যাখ্যামূলক, ৫ নম্বরের ৩টি বোধমূলক এবং ১ নম্বরের ১৫টি সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্নের উত্তর দিতে হবে। নিচের তালিকায় প্রশ্নপত্রের ধারণা পাওয়া যাবে।

প্রশ্ন নং	প্রশ্নের ধরন ও বিকল্প সংক্রান্ত নিয়ম	প্রশ্নের মান
১	মডিউল-১ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
২	মডিউল-২ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
৩	মডিউল-৩ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
৪	মডিউল-১ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৫	মডিউল-২ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৬	মডিউল-৩ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৭	প্রত্যেকটি মডিউল থেকে কমপক্ষে **তিনটি** করে প্রশ্ন নিয়ে মোট **পনেরটি** সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্ন দেওয়া হবে। এক্ষেত্রে কোনো বিকল্প থাকবে না।	১ × ১৫

BNG-H-MIN-1-1/3-TH-TU

বাংলা সাহিত্যের ইতিহাস (১৮০০ খ্রিঃ পর্যন্ত)

উদ্দেশ্য : বাংলা ভাষা ও সাহিত্যের উদ্ভবের সময়কাল থেকে ১৮০০ খ্রিস্টাব্দ পর্যন্ত বাংলা সাহিত্যের বিভিন্ন ধারার সঙ্গে শিক্ষার্থীদের পরিচিতি ঘটানো এই পাঠের উদ্দেশ্য।

মডিউল-১

বাংলা ভাষা ও সাহিত্যের আদি পর্বের গতিপ্রকৃতি ও নিদর্শন সমূহ
চর্যাপদ
শ্রীকৃষ্ণকীর্তন

মডিউল -২

অনুবাদ সাহিত্য-ভাগবত, রামায়ণ ও মহাভারত
বৈষ্ণব পদাবলী— বিদ্যাপতি, চণ্ডীদাস, জ্ঞানদাস, গোবিন্দদাস
চৈতন্য-চরিত সাহিত্য— চৈতন্যভাগবত, শ্রীচৈতন্যচরিতামৃত

মডিউল-৩

মনসামঙ্গল, ধর্মমঙ্গল, চণ্ডীমঙ্গল ও অন্নদামঙ্গল
প্রণয়োপাখ্যান— শাহ মহম্মদ সগীর, দৌলত কাজী ও আলাওল
শাক্ত পদাবলী— রামপ্রসাদ সেন ও কমলাকান্ত ভট্টাচার্য

সহায়ক গ্রন্থ (নির্বাচিত)

- বাঙ্গালা সাহিত্যের ইতিহাস (১-২)— সুকুমার সেন
- বাংলা সাহিত্যের রূপরেখা (১-২)— গোপাল হালদার
- বাংলা সাহিত্যের ইতিবৃত্ত (১-৫)— অসিতকুমার বন্দ্যোপাধ্যায়
- বাংলা সাহিত্যের ইতিকথা (১-২)— ভূদেব চৌধুরী
- বাঙালি জাতি ও বাংলা সাহিত্য (১-২)— আহমেদ শরীফ
- মধ্যযুগের বাংলা সাহিত্যের তথ্য ও কালক্রম — সুখময় মুখোপাধ্যায়
- বাংলা মঙ্গলকাব্যের ইতিহাস— আশুতোষ ভট্টাচার্য
- বাংলা সাহিত্যের ইতিহাস (আদি ও মধ্যযুগ)— দেবেশকুমার আচার্য

BNG-H-MIN-2-2/4-TH-TU

বর্ণনামূলক ভাষাবিজ্ঞান ও বাংলা ভাষা-১

উদ্দেশ্য : বাংলা সাহিত্যের ছাত্র হিসেবে বাংলা ভাষাতত্ত্ব তথা ধ্বনিতত্ত্ব, রূপতত্ত্ব, শব্দভাণ্ডার এবং উপভাষা সম্পর্কে ধারণা থাকা অত্যন্ত গুরুত্বপূর্ণ। সেই লক্ষ্যপূরণে এই কোর্সটি তৈরি করা হয়েছে।

মডিউল-১

ধ্বনি, বর্ণ, অক্ষর— সংজ্ঞার্থ ও পারস্পরিক সম্পর্ক
উচ্চারণস্থান ও উচ্চারণপ্রকৃতি অনুযায়ী বাংলা স্বর ও ব্যঞ্জনধ্বনিগুলির পরিচয়
বাংলা ভাষার শব্দভাণ্ডার

মডিউল-২

বাংলা ভাষার ধ্বনি পরিবর্তনের রীতি ও প্রকৃতি (বিশেষ পাঠ– স্বরাগম, ব্যঞ্জনাগম, স্বরলোপ, অপিনিহিতি, অভিশ্রুতি, স্বরসঙ্গতি, সমীভবন, বিষমীভবন, মহাপ্রাণীভবন ও অল্পপ্রাণীভবন, নাসিক্যীভবন ও স্বতোনাসিক্যীভবন, বিপর্যাস ও জোড়কলম শব্দ)
বাংলা শব্দার্থ পরিবর্তনের ধারা, বাংলা ভাষার উপভাষা

মডিউল-৩

বাংলা ভাষার রূপতাত্ত্বিক আলোচনা— বচন, লিঙ্গ, পুরুষ, সন্ধি, সমাস, বিভক্তি, কারক, প্রত্যয়, ক্রিয়ার কাল ও অব্যয়

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ সাধারণ ভাষাবিজ্ঞান ও বাঙলা ভাষা— রামেশ্বর শ'
- ❑ ভাষার ইতিবৃত্ত— সুকুমার সেন
- ❑ ভাষাবিদ্যা পরিচয়— পরেশচন্দ্র ভট্টাচার্য
- ❑ বাংলা ভাষা পরিক্রমা (১-২)— পরেশচন্দ্র মজুমদার
- ❑ উপভাষা চর্চার ভূমিকা— মণিরুজ্জামান
- ❑ ভাষাতত্ত্ব অনুশীলন— মণিরুজ্জামান
- ❑ বাংলা ভাষার ব্যাকরণ ও তার ক্রমবিকাশ— নির্মল দাশ
- ❑ বাংলা ভাষার ব্যাকরণ— জ্যোতিভূষণ চাকী
- ❑ ধ্বনিবিজ্ঞান ও বাংলা ধ্বনিতত্ত্ব— মুহম্মদ আব্দুল হাই

BNG-H-MIN-3-5/6-TH-TU

বাংলা সাহিত্যের ইতিহাস (আধুনিক যুগ)

উদ্দেশ্য : ১৮০০ খ্রিস্টাব্দ পরবর্তী সময়কালে বাংলা সাহিত্যের বিভিন্ন ধারার বিবর্তনের গতিরেখার সঙ্গে শিক্ষার্থীদের পরিচিতি ঘটানো এই কোর্সের উদ্দেশ্য।

মডিউল-১ : গদ্য ও প্রবন্ধ

শ্রীরামপুর মিশন, ফোর্ট উইলিয়ম কলেজ, বাংলা সাময়িক পত্রের উন্মেষ (সংবাদ প্রভাকর-এর পূর্ববর্তী সময়)
রাজা রামমোহন রায়, ঈশ্বরচন্দ্র বিদ্যাসাগর, অক্ষয়কুমার দত্ত
প্যারীচাঁদ মিত্র, কালীপ্রসন্ন সিংহ
বঙ্কিমচন্দ্র চট্টোপাধ্যায়, রবীন্দ্রনাথ ঠাকুর
প্রমথ চৌধুরী, বুদ্ধদেব বসু

মডিউল-২ : কাব্য-কবিতা ও নাটক

ক.	ঈশ্বরচন্দ্র গুপ্ত, রঙ্গলাল বন্দ্যোপাধ্যায়
	মধুসূদন দত্ত, বিহারীলাল চক্রবর্তী
	রবীন্দ্রনাথ ঠাকুর, কাজী নজরুল ইসলাম
	যতীন্দ্রনাথ সেনগুপ্ত, জীবনানন্দ দাশ, বিষ্ণু দে, সুভাষ মুখোপাধ্যায়
খ.	মধুসূদন দত্ত, দীনবন্ধু মিত্র
	গিরিশচন্দ্র ঘোষ, রবীন্দ্রনাথ ঠাকুর
	দ্বিজেন্দ্রলাল রায়, বিজন ভট্টাচার্য

মডিউল-৩ : উপন্যাস ও ছোটগল্প

বাংলা উপন্যাসের উদ্ভব ও বিকাশ
বঙ্কিমচন্দ্র চট্টোপাধ্যায়, রবীন্দ্রনাথ ঠাকুর, শরৎচন্দ্র চট্টোপাধ্যায়
বিভূতিভূষণ বন্দ্যোপাধ্যায়, তারাশঙ্কর বন্দ্যোপাধ্যায়, মানিক বন্দ্যোপাধ্যায়

সহায়ক গ্রন্থ (নির্বাচিত)

- বাঙ্গালা সাহিত্যের ইতিহাস (৩-৫ খণ্ড)— সুকুমার সেন
- বাংলা গদ্য সাহিত্যের ইতিহাস— সজনীকান্ত দাস
- বাংলা সাহিত্যে গদ্য— সুকুমার সেন
- বাংলা সাহিত্যের ইতিবৃত্ত (৬-৯)— অসিতকুমার বন্দ্যোপাধ্যায়
- বাংলা সাহিত্যের ইতিকথা (৩-৪)— ভূদেব চৌধুরী
- আধুনিক বাংলা কাব্য— তারাপদ মুখোপাধ্যায়
- উনিশ শতকের গীতিকাব্য— অরুণকুমার মুখোপাধ্যায়
- বাংলা সাময়িক পত্র— ব্রজেন্দ্রনাথ বন্দ্যোপাধ্যায়
- বাংলা নাটকের ইতিহাস— অজিতকুমার ঘোষ
- গদ্যরীতি পদ্যরীতি— পবিত্র সরকার
- রবীন্দ্রানুসারী কবিসমাজ— অরুণকুমার মুখোপাধ্যায়
- আমার কালের কয়েকজন কবি— জগদীশ ভট্টাচার্য
- রবীন্দ্রনাট্য পরিক্রমা— উপেন্দ্রনাথ ভট্টাচার্য
- রবীন্দ্রনাট্য প্রবাহ— প্রমথনাথ বিশী

BNG-H-MIN-4-5/6-TH-TU

বাংলা সাহিত্য : প্রবেশক পাঠ

উদ্দেশ্য : বাংলা ভাষা ও সাহিত্যের ইতিহাস সম্পর্কে প্রাথমিক জ্ঞানার্জনের পর এখানে শিক্ষার্থীরা সাহিত্যের রসাস্বাদনের সুযোগ পাবে। সাহিত্যের পাঠকে যতটা সম্ভব আনন্দদায়ক করে তোলাই এক্ষেত্রে লক্ষ্য।

মডিউল-১ : কবিতা

লুই পা— চর্যাপদ-১
বড়ু চণ্ডীদাস— কে না বাঁশী বাএ বড়ায়ি কালিনী নই কূলে
বিদ্যাপতি— এ সখি হামারি দুখের নাহি ওর
চণ্ডীদাস— সই কেবা শুনাইল
রামপ্রসাদ সেন— কেবল আসার আশা ভবে আসা
লালন ফকির— সব লোকে কয় লালন কি জাত
মধুসূদন দত্ত— হে বঙ্গ ভাণ্ডারে তব
রবীন্দ্রনাথ ঠাকুর— বলাকা
সুকুমার রায়— আবোল তাবোল
কাজী নজরুল ইসলাম— কাণ্ডারী হুঁশিয়ার
জীবনানন্দ দাশ— সুচেতনা
শামসুর রাহমান— আমার ভালবাসা
শঙ্খ ঘোষ— বাবরের প্রার্থনা
শক্তি চট্টোপাধ্যায়— যেতে পারি, কিন্তু কেন যাব?
জয় গোস্বামী— মালতীবালা বালিকা বিদ্যালয়

মডিউল ২ : ছোটগল্প

রবীন্দ্রনাথ ঠাকুর—শাস্তি
শরৎচন্দ্র চট্টোপাধ্যায়— অভাগীর স্বর্গ
পরশুরাম— লম্বকর্ণ
মানিক বন্দ্যোপাধ্যায়— হারানের নাতজামাই
সতীনাথ ভাদুড়ী— চরণদাস এম. এল. এ
সমরেশ বসু— আদাব

মডিউল-৩ : নাটক

মধুসূদন দত্ত — একেই কি বলে সভ্যতা

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ চর্যাগীতি পরিক্রমা— নির্মল দাশ
- ❑ শ্রীকৃষ্ণকীর্তন— অমিত্রসূদন ভট্টাচার্য (সম্পাদিত)
- ❑ মধ্যযুগের কবি ও কাব্য— শঙ্করীপ্রসাদ বসু
- ❑ রবিরশ্মি— চারুচন্দ্র ভট্টাচার্য
- ❑ সাহিত্যে ছোটগল্প— নারায়ণ গঙ্গোপাধ্যায়
- ❑ বাংলা সাহিত্যের ছোটগল্প ও গল্পকার— ভূদেব চৌধুরী
- ❑ কালের পুত্তলিকা— অরুণকুমার মুখোপাধ্যায়
- ❑ বাংলা ছোটগল্প : প্রসঙ্গ ও প্রকরণ— বীরেন্দ্র দত্ত
- ❑ বাংলা সাহিত্যে নবযুগ— শশিভূষণ দাশগুপ্ত
- ❑ আধুনিক বাংলা সাহিত্য— মোহিতলাল মজুমদার
- ❑ কবি শ্রী মধুসূদন— মোহিতলাল মজুমদার
- ❑ মধুসূদন : কবি ও নাট্যকার—সুবোধচন্দ্র সেনগুপ্ত
- ❑ জনপদাবলি— সুধীর চক্রবর্তী (সম্পা.)
- ❑ আধুনিক বাংলা কাব্য পরিচয়—দীপ্তি ত্রিপাঠী
- ❑ আমার কালের কয়েকজন কবি—জগদীশ ভট্টাচার্য
- ❑ বাংলা কবিতার চালচিত্র—সুমিতা চক্রবর্তী
- ❑ আধুনিক কবিতার ইতিহাস—অলোকরঞ্জন দাশগুপ্ত ও দেবীপ্রসাদ বন্দ্যোপাধ্যায় (সম্পা.)

Inter Disciplinary Course (IDC)– 3 Credits.

- যে সমস্ত পড়ুয়া বাংলা মেজর বিষয় হিসাবে গ্রহণ করছে তাদের জন্য এই কোর্স নয়। এই কোর্সটি প্রথম দ্বিতীয় অথবা তৃতীয় সেমেস্টারে পড়া যাবে।
- ৩ ক্রেডিট-এর প্রতিটি কোর্সের পূর্ণমান ৭৫। এর মধ্যে ২৫ নম্বর কোর্সভিত্তিক টিউটোরিয়ালের জন্য বরাদ্দ। বাকি ৫০ নম্বরের জন্য বিশ্ববিদ্যালয়ের সংশ্লিষ্ট কর্তৃপক্ষের তত্ত্বাবধানে লিখিত পরীক্ষা নেওয়া হবে।
- ৫০ নম্বরের লিখিত পরীক্ষায় ১০ নম্বরের তিনটি ব্যাখ্যামূলক, ৫ নম্বরের ৩টি বোধমূলক এবং ১ নম্বরের ৫টি সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্নের উত্তর দিতে হবে। নিচের তালিকায় প্রশ্নপত্রের ধারণা পাওয়া যাবে।

প্রশ্ন নং	প্রশ্নের ধরন ও বিকল্প সংক্রান্ত নিয়ম	প্রশ্নের মান
১	মডিউল-১ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১০
২	মডিউল-২ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১০
৩	মডিউল-৩ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১০
৪	মডিউল-১ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৫	মডিউল-২ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৬	মডিউল-৩ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৭	প্রত্যেকটি মডিউল থেকে কমপক্ষে **একটি** করে প্রশ্ন নিয়ে মোট **পাঁচটি** সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্ন দেওয়া হবে। এক্ষেত্রে কোনো বিকল্প থাকবে না।	১ × ৫

BNG-H-IDC-1-1/2/3-TH-TU

কথাসাহিত্য ও নাটক

উদ্দেশ্য : অন্যান্য বিভাগের পড়ুয়াদের জন্য এই কোর্সটির পরিকল্পনা করা হয়েছে। এই কোর্সে যে সাহিত্যকর্মগুলি পাঠ্য হিসাবে রাখা হয়েছে সেগুলির পাঠ ইতিহাস, রাজনীতি বিজ্ঞান, সমাজবিদ্যা, অর্থনীতি এবং দর্শন বিভাগের পড়ুয়াদের বিদ্যাচর্চার পরিপূরক হয়ে উঠবে বলে মনে হয়।

মডিউল-১ : উপন্যাস

পল্লীসমাজ— শরৎচন্দ্র চট্টোপাধ্যায়

মডিউল-২ : ছোটগল্প

একালের গল্প সঞ্চয়ন (কলিকাতা বিশ্ববিদ্যালয় সংস্করণ)
পাঠ্য গল্প : চোর— জ্যোতিরিন্দ্র নন্দী, রেকর্ড— নারায়ণ গঙ্গোপাধ্যায়, অন্তঃসলিলা— সাবিত্রী রায়,
আদাব— সমরেশ বসু, টোবাটেক সিং— সাদাত হোসেন মন্টো
এবং
স্ত্রীর পত্র— রবীন্দ্রনাথ ঠাকুর

মডিউল-৩ : নাটক

নবান্ন— বিজন ভট্টাচার্য

সহায়ক গ্রন্থ (নির্বাচিত)

- বাংলা ছোটগল্প : প্রসঙ্গ ও প্রকরণ— বীরেন্দ্র দত্ত
- বাংলা নাটকের ইতিহাস— অজিতকুমার ঘোষ
- গণনাট্য নবনাট্য সৎনাট্য ও শম্ভু মিত্র— শাঁওলী মিত্র
- শরৎচন্দ্র— সুবোধচন্দ্র সেনগুপ্ত
- শরৎচন্দ্র : পুনর্বিচার— অরুণকুমার মুখোপাধ্যায়
- বাংলা থিয়েটারের ইতিহাস— দর্শন চৌধুরী
- গণনাট্য আন্দোলন— দর্শন চৌধুরী
- বাংলা নাট্যমঞ্চের রূপরেখা— দুর্গাশঙ্কর মুখোপাধ্যায়
- নাট্যমঞ্চ নাট্যরূপ— পবিত্র সরকার

Skill Enhancement Course (SEC)– 4 Credits each

- স্নাতক পাঠক্রমের শিক্ষার্থীদের 'Skill Enhancement Course (SEC)' স্তরে ১২ (৪ × ৩) ক্রেডিট-এর মোট ৩টি কোর্স প্রথম ৩টি সেমেস্টারে পড়তে হবে।
- ৪ ক্রেডিট-এর প্রতিটি কোর্সের পূর্ণমান ১০০। এর মধ্যে ২৫ নম্বর কোর্সভিত্তিক টিউটোরিয়ালের জন্য বরাদ্দ। বাকি ৭৫ নম্বরের জন্য বিশ্ববিদ্যালয়ের সংশ্লিষ্ট কর্তৃপক্ষের তত্ত্বাবধানে লিখিত পরীক্ষা নেওয়া হবে।
- ৭৫ নম্বরের লিখিত পরীক্ষায় ১৫ নম্বরের তিনটি ব্যাখ্যামূলক, ৫ নম্বরের ৩টি বোধমূলক এবং ১ নম্বরের ১৫টি সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্নের উত্তর দিতে হবে। নিচের তালিকায় প্রশ্নপত্রের ধারণা পাওয়া যাবে।

প্রশ্ন নং	প্রশ্নের ধরন ও বিকল্প সংক্রান্ত নিয়ম	প্রশ্নের মান
১	মডিউল-১ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
২	মডিউল-২ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
৩	মডিউল-৩ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
৪	মডিউল-১ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৫	মডিউল-২ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৬	মডিউল-৩ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৭	প্রত্যেকটি মডিউল থেকে কমপক্ষে **তিনটি** করে প্রশ্ন নিয়ে মোট **পনেরটি** সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্ন দেওয়া হবে। এক্ষেত্রে কোনো বিকল্প থাকবে না।	১ × ১৫

BNG-H-SEC-1-1-TH-TU

মুদ্রণ ও প্রকাশনা

উদ্দেশ্য : বাংলা মুদ্রণ ও প্রকাশনা সংক্রান্ত সাধারণ জ্ঞানার্জন করবে পড়ুয়ারা।

মডিউল-১

পাণ্ডুলিপি প্রস্তুতি
বাংলা যুক্তাক্ষরের ধারণা
সংগ্রহ-সম্পাদনা ও সংকলন সম্পর্কে ধারণা
কভার, টাইটেল পেজ, গ্রন্থ/পত্রিকার পঞ্জিকরণ সংক্রান্ত ধারণা

মডিউল-২

বাংলা বানানের বিবর্তন সম্পর্কে সাধারণ ধারণা
পশ্চিমবঙ্গ বাংলা আকাদেমির বানানবিধি

মডিউল-৩

প্রুফ সংশোধন (দৃষ্টিহীন পড়ুয়াদের জন্য অশুদ্ধি সংশোধন থাকবে)
ছাপার প্রযুক্তি, স্টিচিং, বাইন্ডিং, মার্কেটিং সম্পর্কিত সাধারণ ধারণা

সহায়ক গ্রন্থ (নির্বাচিত)

- যখন ছাপাখানা এলো— শ্রীপান্থ
- দুই শতকের বাংলা মুদ্রণ ও প্রকাশন— চিত্তরঞ্জন বন্দ্যোপাধ্যায় (সম্পাদিত)
- বাংলা পাণ্ডুলিপি পাঠ ও পরিক্রমা— ত্রিপুরা বসু
- মুদ্রণের সংস্কৃতি ও বাংলা বই— স্বপন চক্রবর্তী (সম্পাদিত)
- উনিশ শতকের বাংলা ছাপাখানা— আশিস খাস্তগীর
- গবেষণাপত্র : অনুসন্ধান ও রচনা— জগমোহন মুখোপাধ্যায়
- লেখক ও সম্পাদকের অভিধান— সুভাষ ভট্টাচার্য (সম্পাদিত)
- বাংলা বানান বিধি— পরেশচন্দ্র মজুমদার
- বাংলা বানান সংস্কার, সমস্যা ও সম্ভাবনা— পবিত্র সরকার

BNG-H-SEC-2-2-Th-Tu*

ব্যবহারিক বাংলা— ১

উদ্দেশ্য : এই কোর্সে সঠিকভাবে চিঠিপত্র লেখার মতো অতি প্রয়োজনীয় ব্যবহারিক জ্ঞানার্জনের পাশাপাশি অনুবাদ, গ্রন্থ সমালোচনা এবং কনটেন্ট রাইটিং-এর মতো পেশাভিত্তিক বিষয়গুলি সম্পর্কেও ধারণা পাবে পড়ুয়ারা।

মডিউল-১

চিঠিপত্র রচনা— বিভিন্ন প্রকারসহ
দিনপঞ্জি রচনা

মডিউল-২

গ্রন্থ সমালোচনার রীতি ও পদ্ধতি
বিষয়বস্তু রচনা (Content/Article Writing)— বিভিন্ন প্রকারসহ

মডিউল-৩

অনুবাদ— কী এবং কেন
অনুবাদের বিভিন্ন প্রকার
ইংরেজি থেকে বাংলায় অনুবাদ

সহায়ক গ্রন্থ (নির্বাচিত) :

- বাংলা বলো— পবিত্র সরকার
- কি লিখি কেন লিখি— নীরেন্দ্রনাথ চক্রবর্তী
- লেখক ও সম্পাদকের অভিধান— সুভাষ ভট্টাচার্য (সম্পা.)

[*Digital Empowerment সংক্রান্ত কোর্সটির বিকল্পে এই কোর্সটি করা যাবে।]

BNG-H-SEC-3-3-Th-Tu

ব্যবহারিক বাংলা— ২

উদ্দেশ্য : পরবর্তী জীবনে পেশা হিসেবে যে-সব পড়ুয়া নাটক অথবা সিনেমা-সিরিয়ালকে কিংবা গণমাধ্যমকে গ্রহণ করতে চাইবে, তারা ঐ সব বিষয়ের প্রাথমিক ধ্যানধারণা পাবে এই কোর্স থেকে।

মডিউল-১

গল্পসূত্র থেকে কাহিনি নির্মাণ
গল্প/উপন্যাস থেকে নাট্যরূপ/ চিত্রনাট্য নির্মাণ
কাল্পনিক সাক্ষাৎকার রচনা

মডিউল-২

সংবাদপত্র অথবা ব্যক্তিগতভাবে প্রচারের লক্ষে প্রতিবেদন রচনা
ছাপা মাধ্যম এবং বৈদ্যুতিন মাধ্যমের জন্য বিজ্ঞাপন রচনা

মডিউল-৩

সাহিত্য ও চলচ্চিত্র— পারস্পরিক সম্পর্ক
বাংলা সাহিত্যের চলচ্চিত্রায়ণ বিশেষ পাঠ : ক্ষুধিত পাষাণ, পথের পাঁচালী, বাড়ি থেকে পালিয়ে

সহায়ক গ্রন্থ (নির্বাচিত) :

- ❑ চলচ্চিত্রের অভিধান— ধীমান দাশগুপ্ত
- ❑ বিষয় চলচ্চিত্র— সত্যজিৎ রায়
- ❑ বাংলা চলচ্চিত্রের ইতিহাস— নির্মাল্য আচার্য ও দিব্যেন্দু পালিত (সম্পাদিত)
- ❑ রবীন্দ্রনাথের সিনেমা সিনেমার রবীন্দ্রনাথ— চণ্ডী মুখোপাধ্যায়
- ❑ মৃণাল সেনের ফিল্মযাত্রা— শিলাদিত্য সেন
- ❑ গণজ্ঞাপন : তত্ত্ব ও প্রয়োগে— পার্থ চট্টোপাধ্যায়
- ❑ সেকাল একালের সংবাদ পরিবেশনের ধারা ও বিচিত্র সংবাদ— বৈদ্যনাথ বন্দ্যোপাধ্যায়
- ❑ বাংলা সিনেমার ইতিকথা : দুই বাংলার চলচ্চিত্র (১৯০৩-২০১৪)— চণ্ডী মুখোপাধ্যায়
- ❑ চলচ্চিত্র : চিন্তাবীজ রবের ব্রেসঁ (ভাষান্তর : সন্দীপন ভট্টাচার্য)
- ❑ চলচ্চিত্র মানুষ এবং আরো কিছু— ঋত্বিককুমার ঘটক
- ❑ সিনেমার ইতিবৃত্তান্ত— পার্থ রাহা
- ❑ বাংলা বলো— পবিত্র সরকার
- ❑ কি লিখি কেন লিখি— নীরেন্দ্রনাথ চক্রবর্তী

BNG-H-Research Work-1-7-TH-TU

সাহিত্য গবেষণার পদ্ধতিবিজ্ঞান

উদ্দেশ্য : অষ্টম সেমেস্টারে গবেষণাপত্র তৈরির আগে পড়ুয়াদের গবেষণার পদ্ধতিবিজ্ঞান সম্পর্কে পাঠদানের লক্ষেই এই কোর্স করা হয়েছে।

মডিউল-১

গবেষণা : সংজ্ঞা, স্বরূপ ও বৈশিষ্ট্য
গবেষণার শ্রেণিভেদ
গবেষণার আদর্শ বিন্যাসক্রম
গবেষণার রীতি ও নির্মাণ পদ্ধতি
ক্ষেত্রভিত্তিক গবেষণার রীতি ও পদ্ধতি

মডিউল-২

গ্রন্থাগার ও অভিলেখ্যাগার ব্যবহার প্রণালী
তথ্যসংগ্রহ প্রণালী ও কার্ড ইংডেক্সিং
প্রাথমিক ও গৌণ উৎস সম্পর্কিত ধারণা
গবেষণাপত্রে তথ্যবিন্যাস প্রণালী
তথ্য বিশ্লেষণ কৌশল
তথ্যপ্রযুক্তি ও তার ব্যবহার

মডিউল-৩

কপিরাইট আইন
উদ্ধৃতির প্রয়োগ
পাদটীকা, প্রান্তটীকা, উৎস-নির্দেশ, গ্রন্থপঞ্জি, নির্ঘণ্ট ও পরিশিষ্ট প্রণয়ন বিধি
প্রুফ সংশোধনের নিয়মাবলী

সহায়ক গ্রন্থ (নির্বাচিত)

- গবেষণাপত্র অনুসন্ধান ও রচনা— জগমোহন মুখোপাধ্যায়
- গবেষণার পদ্ধতি বিজ্ঞান— মকবুল ইসলাম
- সাহিত্য-গবেষণা/বিষয় ও কৌশল— সফিকুন্নবী সামাদী ও অন্যান্য

BNG-H-Research Work-2-8-TH-TU

গবেষণাপত্র নির্মাণ

গবেষণাপত্র তৈরির জন্য যোগ্যতামান অর্জন করেছে যে পড়ুয়ারা তাদের অষ্টম সেমেস্টারে মোট ৮ ক্রেডিটের একটি গবেষণাপত্র তৈরি করতে হবে। গবেষণাপত্র সংক্রান্ত নিয়মবিধি এবং মূল্যায়ন পদ্ধতি যথাসময়ে জানানো হবে।

(For 3 year MDC Student)

Discipline Specific Core / Minor Course

- তিন বছরের স্নাতক পাঠক্রমে Discipline Specific Core / Minor Course স্তরে ৩২/২৪ ক্রেডিট-এর মোট ৮/৬টি কোর্স ছয়টি সেমেস্টারে পড়তে হবে। ৩২ ক্রেডিটের বাংলা পড়লে প্রতিটি কোর্স এবং ২৪ ক্রেডিটের বাংলা পড়লে প্রথম ছয়টি কোর্স তৃতীয় থেকে ষষ্ঠ সেমেস্টারে পড়তে হবে।
- ৪ (৩ + ১) ক্রেডিট-এর প্রতিটি কোর্সের পূর্ণমান ১০০। এর মধ্যে ২৫ নম্বর কোর্সভিত্তিক টিউটোরিয়াল-এর জন্য বরাদ্দ। বাকি ৭৫ নম্বরের জন্য বিশ্ববিদ্যালয়ের সংশ্লিষ্ট কর্তৃপক্ষের তত্ত্বাবধানে লিখিত পরীক্ষা নেওয়া হবে।
- ৭৫ নম্বরের লিখিত পরীক্ষায় ১৫ নম্বরের তিনটি ব্যাখ্যামূলক, ৫ নম্বরের ৩টি বোধমূলক এবং ১ নম্বরের ১৫টি সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্নের উত্তর দিতে হবে। নিচের তালিকায় প্রশ্নপত্রের ধারণা পাওয়া যাবে।

প্রশ্ন নং	প্রশ্নের ধরন ও বিকল্প সংক্রান্ত নিয়ম	প্রশ্নের মান
১	মডিউল-১ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
২	মডিউল-২ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
৩	মডিউল-৩ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
৪	মডিউল-১ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৫	মডিউল-২ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৬	মডিউল-৩ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৭	প্রত্যেকটি মডিউল থেকে কমপক্ষে **তিনটি** করে প্রশ্ন নিয়ে মোট **পনেরটি** সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্ন দেওয়া হবে। এক্ষেত্রে কোনো বিকল্প থাকবে না।	১ × ১৫

BNG-MD-CC/MIN-1-1/3-TH-TU

বাংলা সাহিত্যের ইতিহাস (১৮০০ খ্রিঃ পর্যন্ত)

উদ্দেশ্য : বাংলা ভাষা ও সাহিত্যের উদ্ভবের সময়কাল থেকে ১৮০০ খ্রিস্টাব্দ পর্যন্ত বাংলা সাহিত্যের বিভিন্ন ধারার সঙ্গে শিক্ষার্থীদের পরিচিতি ঘটানো এই পাঠের উদ্দেশ্য।

মডিউল-১

বাংলা ভাষা ও সাহিত্যের আদি পর্বের গতিপ্রকৃতি ও নিদর্শন সমূহ
চর্যাপদ
শ্রীকৃষ্ণকীর্তন

মডিউল -২

অনুবাদ সাহিত্য-ভাগবত, রামায়ণ ও মহাভারত
বৈষ্ণব পদাবলী— বিদ্যাপতি, চণ্ডীদাস, জ্ঞানদাস, গোবিন্দদাস
চৈতন্য-চরিত সাহিত্য— চৈতন্যভাগবত, শ্রীচৈতন্যচরিতামৃত

মডিউল-৩

মনসামঙ্গল, ধর্মমঙ্গল, চণ্ডীমঙ্গল ও অন্নদামঙ্গল	১২	৪
প্রণয়োপাখ্যান— শাহ মহম্মদ সগীর, দৌলত কাজী ও আলাওল		
শাক্ত পদাবলী— রামপ্রসাদ সেন ও কমলাকান্ত ভট্টাচার্য		

সহায়ক গ্রন্থ (নির্বাচিত)

- বাঙ্গালা সাহিত্যের ইতিহাস (১-২)— সুকুমার সেন
- বাংলা সাহিত্যের রূপ-রেখা (১-২)— গোপাল হালদার
- বাংলা সাহিত্যের ইতিবৃত্ত (১-৫)— অসিতকুমার বন্দ্যোপাধ্যায়
- বাংলা সাহিত্যের ইতিকথা (১-২)— ভূদেব চৌধুরী
- বাঙালি জাতি ও বাংলা সাহিত্য (১-২)— আহমেদ শরীফ
- মধ্যযুগের বাংলা সাহিত্যের তথ্য ও কালক্রম — সুখময় মুখোপাধ্যায়
- বাংলা মঙ্গলকাব্যের ইতিহাস— আশুতোষ ভট্টাচার্য
- বাংলা সাহিত্যের ইতিহাস (আদি ও মধ্যযুগ)— দেবেশকুমার আচার্য

BNG-MD-CC/MIN-2-2/4-TH-TU

বর্ণনামূলক ভাষাবিজ্ঞান ও বাংলা ভাষা-১

উদ্দেশ্য : বাংলা সাহিত্যের ছাত্র হিসেবে বাংলা ভাষাতত্ত্ব তথা ধ্বনিতত্ত্ব, রূপতত্ত্ব, শব্দভাণ্ডার এবং উপভাষা সম্পর্কে ধারণা থাকা অত্যন্ত গুরুত্বপূর্ণ। সেই লক্ষ্যপূরণে এই কোর্সটি তৈরি করা হয়েছে।

মডিউল-১

ধ্বনি, বর্ণ, অক্ষর— সংজ্ঞার্থ ও পারস্পরিক সম্পর্ক
উচ্চারণস্থান ও উচ্চারণপ্রকৃতি অনুযায়ী বাংলা স্বর ও ব্যঞ্জনধ্বনিগুলির পরিচয়
বাংলা ভাষার শব্দভাণ্ডার

মডিউল-২

বাংলা ভাষার ধ্বনি পরিবর্তনের রীতি ও প্রকৃতি (বিশেষ পাঠ– স্বরাগম, ব্যঞ্জনাগম, স্বরলোপ, অপিনিহিতি, অভিশ্রুতি, স্বরসঙ্গতি, সমীভবন, বিষমীভবন, মহাপ্রাণীভবন ও অল্পপ্রাণীভবন, নাসিক্যীভবন ও স্বতোনাসিক্যীভবন, বিপর্যাস ও জোড়কলম শব্দ)
বাংলা শব্দার্থ পরিবর্তনের ধারা, বাংলা ভাষার উপভাষা

মডিউল-৩

বাংলা ভাষার রূপতাত্ত্বিক আলোচনা— বচন, লিঙ্গ, পুরুষ, সন্ধি, সমাস, বিভক্তি, কারক, প্রত্যয়, ক্রিয়ার কাল ও অব্যয়

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ সাধারণ ভাষাবিজ্ঞান ও বাঙলা ভাষা— রামেশ্বর শ'
- ❑ ভাষার ইতিবৃত্ত— সুকুমার সেন
- ❑ ভাষাবিদ্যা পরিচয়— পরেশচন্দ্র ভট্টাচার্য
- ❑ বাংলা ভাষা পরিক্রমা (১-২)— পরেশচন্দ্র মজুমদার
- ❑ উপভাষা চর্চার ভূমিকা— মণিরুজ্জামান
- ❑ ভাষাতত্ত্ব অনুশীলন— মণিরুজ্জামান
- ❑ বাংলা ভাষার ব্যাকরণ ও তার ক্রমবিকাশ— নির্মল দাশ
- ❑ বাংলা ভাষার ব্যাকরণ— জ্যোতিভূষণ চাকী
- ❑ ধ্বনিবিজ্ঞান ও বাংলা ধ্বনিতত্ত্ব— মুহম্মদ আব্দুল হাই

BNG-MD-CC/MIN-3-3/5-TH-TU

বাংলা সাহিত্যের ইতিহাস (আধুনিক যুগ)

উদ্দেশ্য : ১৮০০ খ্রিস্টাব্দ পরবর্তী সময়কালে বাংলা সাহিত্যের বিভিন্ন ধারার বিবর্তনের গতিরেখার সঙ্গে শিক্ষার্থীদের পরিচিতি ঘটানো এই কোর্সের উদ্দেশ্য।

মডিউল-১ : গদ্য ও প্রবন্ধ

শ্রীরামপুর মিশন, ফোর্ট উইলিয়ম কলেজ, বাংলা সাময়িক পত্রের উন্মেষ (সংবাদ প্রভাকর-এর পূর্ববর্তী সময়)
রাজা রামমোহন রায়, ঈশ্বরচন্দ্র বিদ্যাসাগর, অক্ষয়কুমার দত্ত
প্যারীচাঁদ মিত্র, কালীপ্রসন্ন সিংহ
বঙ্কিমচন্দ্র চট্টোপাধ্যায়, রবীন্দ্রনাথ ঠাকুর
প্রমথ চৌধুরী, বুদ্ধদেব বসু

মডিউল-২ : কাব্য-কবিতা ও নাটক

ক.	ঈশ্বরচন্দ্র গুপ্ত, রঙ্গলাল বন্দ্যোপাধ্যায়
	মধুসূদন দত্ত, বিহারীলাল চক্রবর্তী
	রবীন্দ্রনাথ ঠাকুর, কাজী নজরুল ইসলাম
	যতীন্দ্রনাথ সেনগুপ্ত, জীবনানন্দ দাশ, বিষ্ণু দে, সুভাষ মুখোপাধ্যায়
খ.	মধুসূদন দত্ত, দীনবন্ধু মিত্র
	গিরিশচন্দ্র ঘোষ, রবীন্দ্রনাথ ঠাকুর
	দ্বিজেন্দ্রলাল রায়, বিজন ভট্টাচার্য

মডিউল-৩ : উপন্যাস ও ছোটগল্প

বাংলা উপন্যাসের উদ্ভব ও বিকাশ
বঙ্কিমচন্দ্র চট্টোপাধ্যায়, রবীন্দ্রনাথ ঠাকুর, শরৎচন্দ্র চট্টোপাধ্যায়
বিভূতিভূষণ বন্দ্যোপাধ্যায়, তারাশঙ্কর বন্দ্যোপাধ্যায়, মানিক বন্দ্যোপাধ্যায়

সহায়ক গ্রন্থ (নির্বাচিত)

- বাঙ্গালা সাহিত্যের ইতিহাস (৩-৫ খণ্ড)— সুকুমার সেন
- বাংলা গদ্য সাহিত্যের ইতিহাস— সজনীকান্ত দাস
- বাংলা সাহিত্যে গদ্য— সুকুমার সেন
- বাংলা সাহিত্যের ইতিবৃত্ত (৬-৯)— অসিতকুমার বন্দ্যোপাধ্যায়
- বাংলা সাহিত্যের ইতিকথা (৩-৪)— ভূদেব চৌধুরী
- আধুনিক বাংলা কাব্য— তারাপদ মুখোপাধ্যায়
- উনিশ শতকের গীতিকাব্য— অরুণকুমার মুখোপাধ্যায়
- বাংলা সাময়িক পত্র— ব্রজেন্দ্রনাথ বন্দ্যোপাধ্যায়
- বাংলা নাটকের ইতিহাস— অজিতকুমার ঘোষ
- গদ্যরীতি পদ্যরীতি— পবিত্র সরকার
- রবীন্দ্রানুসারী কবিসমাজ— অরুণকুমার মুখোপাধ্যায়
- আমার কালের কয়েকজন কবি— জগদীশ ভট্টাচার্য
- রবীন্দ্রনাট্য পরিক্রমা— উপেন্দ্রনাথ ভট্টাচার্য
- রবীন্দ্রনাট্য প্রবাহ— প্রমথনাথ বিশী

BNG-MD-CC/MIN-4-4/5-TH-TU

বাংলা সাহিত্য : প্রবেশক পাঠ

উদ্দেশ্য : বাংলা ভাষা ও সাহিত্যের ইতিহাস সম্পর্কে প্রাথমিক জ্ঞানার্জনের পর এখানে শিক্ষার্থীরা সাহিত্যের রসাস্বাদনের সুযোগ পাবে। সাহিত্যের পাঠকে যতটা সম্ভব আনন্দদায়ক করে তোলাই এক্ষেত্রে লক্ষ্য।

মডিউল-১ : কবিতা

লুই পা— চর্যাপদ-১
বড়ু চণ্ডীদাস— কে না বাঁশী বাএ বড়ায়ি কালিনী নই কূলে
বিদ্যাপতি— এ সখি হামারি দুখের নাহি ওর
চণ্ডীদাস— সই কেবা শুনাইল
রামপ্রসাদ সেন— কেবল আসার আশা ভবে আসা
লালন ফকির— সব লোকে কয় লালন কি জাত
মধুসূদন দত্ত— হে বঙ্গ ভাণ্ডারে তব
রবীন্দ্রনাথ ঠাকুর— বলাকা
সুকুমার রায়— আবোল তাবোল
কাজী নজরুল ইসলাম— কাণ্ডারী হুঁশিয়ার
জীবনানন্দ দাশ— সুচেতনা
শামসুর রাহমান— আমার ভালবাসা
শঙ্খ ঘোষ— বাবরের প্রার্থনা
শক্তি চট্টোপাধ্যায়— যেতে পারি, কিন্তু কেন যাব?
জয় গোস্বামী— মালতীবালা বালিকা বিদ্যালয়

মডিউল ২ : ছোটগল্প

রবীন্দ্রনাথ ঠাকুর—শাস্তি
শরৎচন্দ্র চট্টোপাধ্যায়— অভাগীর স্বর্গ
পরশুরাম— লম্বকর্ণ
মানিক বন্দ্যোপাধ্যায়— হারানের নাতজামাই
সতীনাথ ভাদুড়ী— চরণদাস এম. এল. এ
সমরেশ বসু— আদাব

মডিউল-৩ : নাটক

মধুসূদন দত্ত — একেই কি বলে সভ্যতা

সহায়ক গ্রন্থ (নির্বাচিত)

- চর্যাগীতি পরিক্রমা— নির্মল দাশ
- শ্রীকৃষ্ণকীর্তন— অমিত্রসূদন ভট্টাচার্য (সম্পাদিত)
- মধ্যযুগের কবি ও কাব্য— শঙ্করীপ্রসাদ বসু
- রবিরশ্মি— চারুচন্দ্র ভট্টাচার্য
- সাহিত্যে ছোটগল্প— নারায়ণ গঙ্গোপাধ্যায়
- বাংলা সাহিত্যের ছোটগল্প ও গল্পকার— ভূদেব চৌধুরী
- কালের পুত্তলিকা— অরুণকুমার মুখোপাধ্যায়
- বাংলা ছোটগল্প : প্রসঙ্গ ও প্রকরণ— বীরেন্দ্র দত্ত
- বাংলা সাহিত্যে নবযুগ— শশিভূষণ দাশগুপ্ত
- আধুনিক বাংলা সাহিত্য— মোহিতলাল মজুমদার
- কবি শ্রী মধুসূদন— মোহিতলাল মজুমদার
- মধুসূদন : কবি ও নাট্যকার—সুবোধচন্দ্র সেনগুপ্ত
- জনপদাবলি— সুধীর চক্রবর্তী (সম্পাদক)
- আধুনিক বাংলা কাব্য পরিচয়—দীপ্তি ত্রিপাঠী
- আমার কালের কয়েকজন কবি—জগদীশ ভট্টাচার্য
- বাংলা কবিতার চালচিত্র—সুমিতা চক্রবর্তী
- আধুনিক কবিতার ইতিহাস—অলোকরঞ্জন দাশগুপ্ত ও দেবীপ্রসাদ বন্দ্যোপাধ্যায় (সম্পা.)

BNG-MD-CC/MIN-5-4/5/6-TH-TU

প্রাগাধুনিক বাংলা সাহিত্য-১

উদ্দেশ্য : প্রাগাধুনিক সাহিত্যের এই কোর্সটির মাধ্যমে শিক্ষার্থীরা সাহিত্যের রসাস্বাদনের পাশাপাশি যাতে বাঙালির সমাজ ও ধর্ম-সংস্কৃতির বিবর্তনের গতিরেখাটিকেও অনুধাবন করতে পারে সেদিকে লক্ষ্য রাখা হয়েছে।

মডিউল-১ বৈষ্ণব পদাবলী (কলিকাতা বিশ্ববিদ্যালয় সংস্করণ)

নীরদনয়নে নীর ঘন সিঞ্চনে
আজু হাম কি পেখলুঁ নবদ্বীপ চন্দ
দাঁড়াইয়া নন্দের আগে গোপাল কান্দে অনুরাগে
ঘরের বাহিরে দণ্ডে শতবার
রূপ লাগি আঁখি ঝুরে গুণে মন ভোর
এমন পিরীতি কভু নাহি দেখি শুনি
সখি কি পুছসি অনুভব মোয়
মন্দির বাহির কঠিন কপাট
কণ্টক গাড়ি কমলসম পদতল
কি মোহিনী জান বধুঁ কি মোহিনী জান
বধুঁ তুমি যে আমার প্রাণ
অঙ্কুর তপন তাপে যদি জারব
বহুদিন পরে বধুঁয়া এলে
তাতল সৈকত বারি-বিন্দুসম

মডিউল-২

চণ্ডীমঙ্গল (১-ম খণ্ড)— মুকুন্দ চক্রবর্তী (**কলিকাতা বিশ্ববিদ্যালয় সংস্করণ**)

মডিউল-৩ : শাক্ত পদাবলী (কলিকাতা বিশ্ববিদ্যালয় সংস্করণ)

গিরিবর, আর আমি পারিনে হে, প্রবোধ দিতে উমারে (বাল্যলীলা)
গিরি, এবার আমার উমা এলে (আগমনী)
কবে যাবে বল গিরিরাজ (ঐ)
বারে বারে কহ রাণি, গৌরী আনিবারে (ঐ)
ওহে হর গঙ্গাধর, কর অঙ্গীকার (ঐ)
গিরিরাণি, এই নাও তোমার উমারে (ঐ)
ওরে নবমী নিশি, না হইও রে (বিজয়া)
ওহে প্রাণনাথ গিরিবর হে (ঐ)
মাগো তারা ও শঙ্করি (ভক্তের আকুতি)
মা আমায় ঘুরাবে কত (ঐ)
আমি কি দুখেরে ডরাই? (ঐ)
আমায় দেও মা তবিলদারী (ঐ)

সহায়ক গ্রন্থ (নির্বাচিত)

- মধ্যযুগের কবি ও কাব্য— শঙ্করীপ্রসাদ বসু
- চণ্ডীদাস ও বিদ্যাপতি— শঙ্করীপ্রসাদ বসু
- শ্রীরাধার ক্রমবিকাশ : দর্শনে ও সাহিত্যে— শশিভূষণ দাশগুপ্ত
- বৈষ্ণব রস প্রকাশ— ক্ষুদিরাম দাস
- বঙ্গে বৈষ্ণবধর্ম— রমাকান্ত চক্রবর্তী
- শাক্ত পদাবলী ও শক্তি সাধনা— জাহ্নবীকুমার চক্রবর্তী
- গৌড়ীয় বৈষ্ণব দর্শন— রাধাগোবিন্দ নাথ
- শাক্তগীতি পদাবলী— অরুণকুমার বসু (সম্পা.)
- বাংলা মঙ্গলকাব্যের ইতিহাস— আশুতোষ ভট্টাচার্য
- চণ্ডীমঙ্গল— সুকুমার সেন সম্পাদিত
- চণ্ডীমঙ্গল— ক্ষুদিরাম দাস সম্পাদিত
- ভারতের শক্তি সাধনা ও শক্তি সাহিত্য— শ্রীশশিভূষণ দাশগুপ্ত
- বাংলার কাব্য— হুমায়ুন কবির
- কবিকঙ্কণ মুকুন্দের চণ্ডীমঙ্গল বীক্ষা ও সমীক্ষা— বিশ্বনাথ রায়
- চণ্ডীমঙ্গল— সনৎকুমার নস্কর (সম্পা.)

BNG-MD-CC/MIN-6-5/6-TH-TU

বাংলা গোয়েন্দা সাহিত্য, কল্পবিজ্ঞান আশ্রয়ী রচনা এবং অলৌকিক কাহিনি

উদ্দেশ্য : সাহিত্যের পাঠ এবং আস্বাদনে কিশোরদের অভ্যাস তৈরি হয়ে ওঠে গোয়েন্দা গল্প, কল্পবিজ্ঞানের কাহিনি অথবা ভূতের গল্পের মধ্য দিয়ে। তাদের চেনা ক্ষেত্রকেই পড়ুয়ারা এখানে বিদ্যায়তনিক পাঠ শৃঙ্খলায় অধ্যয়ন করতে শিখবে।

মডিউল-১

শরদিন্দু বন্দ্যোপাধ্যায়— শজারুর কাঁটা

মডিউল-২

সত্যজিৎ রায়— শঙ্কু সমগ্র (আনন্দ পাব.) পাঠ্য সমূহ : ব্যোমযাত্রীর ডায়রি, প্রফেসর শঙ্কু ও ম্যাকাও, প্রফেসর শঙ্কু ও গোলক-রহস্য, প্রফেসর শঙ্কু ও রোবু, মহাকাশের দূত, শঙ্কু ও আদিম মানুষ, শঙ্কু ও ফ্র্যাঙ্কেনস্টাইন

মডিউল-৩

লীলা মজুমদার— সব ভুতুড়ে (‘পেনেটিতে’ থেকে ‘স্পাই’— প্রথম পনেরোটি গল্প)

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ সত্যজিৎ রায়— পশ্চিমবঙ্গ বাংলা আকাদেমি
- ❑ এক দুর্লভ মানিক— অমিত্রসূদন ভট্টাচার্য
- ❑ ক্রাইম কাহিনীর কালক্রান্তি— সুকুমার সেন
- ❑ শরদিন্দু বন্দ্যোপাধ্যায়— শ্রাবণী পাল
- ❑ শরদিন্দু সংখ্যা— কোরক পত্রিকা (১৯৯৬)
- ❑ সত্যজিৎ রায় সংখ্যা— দেশ পত্রিকা (১৯৯২)
- ❑ প্রবন্ধ সংগ্রহ— সত্যজিৎ রায়
- ❑ সত্যজিৎ রায় : সুবর্ণ সাক্ষাৎ সংগ্রহ— সন্দীপ রায় (সম্পা.)
- ❑ পাকদণ্ডী— লীলা মজুমদার
- ❑ উপছায়া— সুকুমার সেন ও সুভদ্রকুমার সেন (সম্পা.)
- ❑ গল্পের ভূত— সুকুমার সেন
- ❑ রমণীয় শরদিন্দু— ক্ষেত্র গুপ্ত

BNG-MD-CC/MIN-7-5/6-TH-TU

বাংলা কথাসাহিত্য—১

উদ্দেশ্য : তৃতীয় সেমেস্টারে বাংলা সাহিত্যের আধুনিক পর্যায়ের ইতিহাস বিষয়ে প্রাথমিক জ্ঞানার্জনের পর শিক্ষার্থীরা এই কোর্সটি পড়বে। আধুনিক সময়ের জটিলতা, ব্যষ্টি ও সমষ্টির দ্বন্দ্ব, বাঙালির পারিবারিক জীবনে নারীর অবস্থান, পরিবেশ সম্পর্কিত ভাবনা এবং মানুষের লড়াই-সংগ্রামের নানা প্রবণতাকে পড়ুয়াদের চেনানোর চেষ্টা করা হবে এই কোর্সের মাধ্যমে।

মডিউল-১ : উপন্যাস

কপালকুণ্ডলা— বঙ্কিমচন্দ্র চট্টোপাধ্যায়

মডিউল -২ : উপন্যাস

পদ্মানদীর মাঝি— মানিক বন্দ্যোপাধ্যায়

মডিউল-৩ : ছোটগল্প

দেনাপাওনা, মেঘ ও রৌদ্র, মণিহারা, নিশীথে, একরাত্রি, সুভা, অতিথি, ল্যাবরেটরী

সহায়ক গ্রন্থ (নির্বাচিত)

- বঙ্গ সাহিত্যে উপন্যাসের ধারা— শ্রীকুমার বন্দ্যোপাধ্যায়
- বঙ্কিম সরণী— প্রমথনাথ বিশী
- বাংলা উপন্যাসের কালান্তর— সরোজ বন্দ্যোপাধ্যায়
- বঙ্কিমচন্দ্র— সুবোধচন্দ্র সেনগুপ্ত
- রবীন্দ্রনাথ— সুবোধচন্দ্র সেনগুপ্ত
- সাহিত্যে ছোটগল্প— নারায়ণ গঙ্গোপাধ্যায়
- রবীন্দ্র ছোটগল্পের শিল্পরূপ— তপোব্রত ঘোষ
- রবীন্দ্রনাথের ছোটগল্প ও উপন্যাস— উপেন্দ্রনাথ ভট্টাচার্য
- বাংলা ছোটগল্প : প্রসঙ্গ ও প্রকরণ— বীরেন্দ্র দত্ত
- কথা ও সাহিত্যে রবীন্দ্রনাথ— বিশ্বপতি চৌধুরী
- রবীন্দ্র সাহিত্যের নরনারী (১ম খণ্ড)— গোপীমোহন সিংহ রায়
- ঔপন্যাসিক মানিক বন্দ্যোপাধ্যায়— সরোজমোহন মিত্র
- রবীন্দ্র সাহিত্যের ভূমিকা— নীহাররঞ্জন রায়
- রবীন্দ্রনাথ/রাজনৈতিক ব্যক্তিত্ব— অরবিন্দ পোদ্দার
- রবীন্দ্র-মানস— অরবিন্দ পোদ্দার

BNG-MD-CC/MIN-8-6-TH-TU

ছন্দ, অলঙ্কার ও প্রবন্ধ

উদ্দেশ্য : সাহিত্যের শিক্ষার্থীদের ছন্দ ও অলঙ্কার বিষয়ে তত্ত্বজ্ঞান থাকা প্রয়োজন। এই কোর্স শিক্ষার্থীদের কাব্য-কবিতা পাঠকে গভীরতর করবে। সংরূপ হিসাবে প্রবন্ধের সঙ্গেও পড়ুয়াদের এখানে প্রথম পরিচয় ঘটছে।

মডিউল-১ : ছন্দ

দল/অক্ষর, কলা/মাত্রা, যতি, যতিলোপ, পর্ব, পঙ্‌ক্তি/চরণ, ছত্র, পদ
মিশ্রবৃত্ত/তানপ্রধান/অক্ষরবৃত্ত— উদাহরণসহ বৈশিষ্ট্য
সরল কলাবৃত্ত/কলাবৃত্ত/ধ্বনি প্রধান/মাত্রাবৃত্ত— উদাহরণসহ বৈশিষ্ট্য
দলবৃত্ত/শ্বাসাঘাত প্রধান/বলবৃত্ত/স্বরবৃত্ত/ছড়ার ছন্দ/লৌকিক ছন্দ— উদাহরণসহ বৈশিষ্ট্য
ছন্দোলিপি প্রণয়ন (পর্ব, পদ, পঙ্‌ক্তি, লয়, মাত্রা ও রীতির উল্লেখ বাঞ্ছনীয়)

মডিউল-২ : অলংকার

উদাহরণসহ সংজ্ঞা— অনুপ্রাস, শ্লেষ, যমক, বক্রোক্তি
উদাহরণসহ সংজ্ঞা— উপমা, রূপক, সমাসোক্তি, উৎপ্রেক্ষা, অপহ্নুতি, ব্যতিরেক, বিরোধ, অর্থান্তরন্যাস, ব্যাজস্তুতি
অলংকার নির্ণয়

মডিউল-৩ : প্রবন্ধ

বঙ্কিমচন্দ্র চট্টোপাধ্যায়—পতঙ্গ
রবীন্দ্রনাথ ঠাকুর— পূর্ব-পশ্চিম, মেঘদূত
বুদ্ধদেব বসু— বইপড়া

সহায়ক গ্রন্থ (নির্বাচিত)

- ❑ বাংলা ছন্দের মূলসূত্র— অমূল্যধন মুখোপাধ্যায়
- ❑ নূতন ছন্দ পরিক্রমা— প্রবোধচন্দ্র সেন
- ❑ বাংলা ছন্দ পরিচয়— নীলরতন সেন
- ❑ অলংকার চন্দ্রিকা— শ্যামাপদ চক্রবর্তী
- ❑ বাঙলা ছন্দ— জীবেন্দ্র সিংহ রায়
- ❑ বাঙলা অলংকার— জীবেন্দ্র সিংহ রায়
- ❑ ছন্দতত্ত্ব ছন্দরূপ— পবিত্র সরকার
- ❑ চিন্তানায়ক বঙ্কিমচন্দ্র— ভবতোষ দত্ত
- ❑ রবীন্দ্র-সৃষ্টি সমীক্ষা— শ্রীকুমার বন্দ্যোপাধ্যায়
- ❑ বাংলা প্রবন্ধ সাহিত্যের ধারা (২ খণ্ড)— অধীর দে

Inter Disciplinary Course (IDC)– 3 Credits.

- যে সমস্ত পড়ুয়া CC/MIN হিসাবে বাংলা গ্রহণ করছে তাদের জন্য এই কোর্স নয়। এই কোর্সটি প্রথম/দ্বিতীয়/তৃতীয় সেমেস্টারে পড়া যাবে।
- ৩ ক্রেডিট-এর প্রতিটি কোর্সের পূর্ণমান ৭৫। এর মধ্যে ২৫ নম্বর কোর্সভিত্তিক টিউটোরিয়ালের জন্য বরাদ্দ। বাকি ৫০ নম্বরের জন্য বিশ্ববিদ্যালয়ের সংশ্লিষ্ট কর্তৃপক্ষের তত্ত্বাবধানে লিখিত পরীক্ষা নেওয়া হবে।
- ৫০ নম্বরের লিখিত পরীক্ষায় ১০ নম্বরের তিনটি ব্যাখ্যামূলক, ৫ নম্বরের ৩টি বোধমূলক এবং ১ নম্বরের ৫টি সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্নের উত্তর দিতে হবে। নিচের তালিকায় প্রশ্নপত্রের ধারণা পাওয়া যাবে।

প্রশ্ন নং	প্রশ্নের ধরন ও বিকল্প সংক্রান্ত নিয়ম	প্রশ্নের মান
১	মডিউল-১ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১০
২	মডিউল-২ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১০
৩	মডিউল-৩ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১০
৪	মডিউল-১ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৫	মডিউল-২ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৬	মডিউল-৩ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৭	প্রত্যেকটি মডিউল থেকে কমপক্ষে **একটি** করে প্রশ্ন নিয়ে মোট **পাঁচটি** সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্ন দেওয়া হবে। এক্ষেত্রে কোনো বিকল্প থাকবে না।	১ × ৫

BNG-MD-IDC-1-1/2/3-TH-TU

কথাসাহিত্য ও নাটক

উদ্দেশ্য : অন্যান্য বিভাগের পড়ুয়াদের জন্য এই কোর্সটির পরিকল্পনা করা হয়েছে। এই কোর্সে যে সাহিত্যকর্মগুলি পাঠ্য হিসাবে রাখা হয়েছে সেগুলির পাঠ ইতিহাস, রাজনীতি বিজ্ঞান, সমাজবিদ্যা, অর্থনীতি এবং দর্শন বিভাগের পড়ুয়াদের বিদ্যাচর্চার পরিপূরক হয়ে উঠবে বলে মনে হয়।

মডিউল-১ : উপন্যাস

পল্লীসমাজ— শরৎচন্দ্র চট্টোপাধ্যায়

মডিউল-২ : ছোটগল্প

একালের গল্প সঞ্চয়ন (কলিকাতা বিশ্ববিদ্যালয় সংস্করণ)
পাঠ্য গল্প : চোর— জ্যোতিরিন্দ্র নন্দী, রেকর্ড— নারায়ণ গঙ্গোপাধ্যায়, অন্তঃসলিলা— সাবিত্রী রায়,
আদাব— সমরেশ বসু, টোবাটেক সিং— সাদাত হোসেন মন্টো
এবং
স্ত্রীর পত্র— রবীন্দ্রনাথ ঠাকুর

মডিউল-৩ : নাটক

নবান্ন— বিজন ভট্টাচার্য

সহায়ক গ্রন্থ (নির্বাচিত)

- বাংলা ছোটগল্প : প্রসঙ্গ ও প্রকরণ— বীরেন্দ্র দত্ত
- বাংলা নাটকের ইতিহাস— অজিতকুমার ঘোষ
- গণনাট্য নবনাট্য সৎনাট্য ও শম্ভু মিত্র— শাঁওলী মিত্র
- শরৎচন্দ্র— সুবোধচন্দ্র সেনগুপ্ত
- শরৎচন্দ্র : পুনর্বিচার— অরুণকুমার মুখোপাধ্যায়
- বাংলা থিয়েটারের ইতিহাস— দর্শন চৌধুরী
- গণনাট্য আন্দোলন— দর্শন চৌধুরী
- বাংলা নাট্যমঞ্চের রূপরেখা— দুর্গাশঙ্কর মুখোপাধ্যায়
- নাট্যমঞ্চ নাট্যরূপ— পবিত্র সরকার

Skill Enhancement Course (SEC)– 4 Credits each

- স্নাতক পাঠক্রমের শিক্ষার্থীদের 'Skill Enhancement Course (SEC)' স্তরে ৪ ক্রেডিট-এর ১টি কোর্স প্রথম/দ্বিতীয়/তৃতীয় সেমেস্টারে পড়তে হবে।
- ৪ ক্রেডিট-এর প্রতিটি কোর্সের পূর্ণমান ১০০। এর মধ্যে ২৫ নম্বর কোর্সভিত্তিক টিউটোরিয়ালের জন্য বরাদ্দ। বাকি ৭৫ নম্বরের জন্য বিশ্ববিদ্যালয়ের সংশ্লিষ্ট কর্তৃপক্ষের তত্ত্বাবধানে লিখিত পরীক্ষা নেওয়া হবে।
- ৭৫ নম্বরের লিখিত পরীক্ষায় ১৫ নম্বরের তিনটি ব্যাখ্যামূলক, ৫ নম্বরের ৩টি বোধমূলক এবং ১ নম্বরের ১৫টি সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্নের উত্তর দিতে হবে। নিচের তালিকায় প্রশ্নপত্রের ধারণা পাওয়া যাবে।

প্রশ্ন নং	প্রশ্নের ধরন ও বিকল্প সংক্রান্ত নিয়ম	প্রশ্নের মান
১	মডিউল-১ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
২	মডিউল-২ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
৩	মডিউল-৩ থেকে একটি ব্যাখ্যামূলক প্রশ্ন। একটি বিকল্প থাকবে।	১৫
৪	মডিউল-১ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৫	মডিউল-২ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৬	মডিউল-৩ থেকে একটি বোধমূলক প্রশ্ন। একটি বিকল্প থাকবে।	৫
৭	প্রত্যেকটি মডিউল থেকে কমপক্ষে **তিনটি** করে প্রশ্ন নিয়ে মোট **পনেরটি** সংক্ষিপ্ত উত্তরভিত্তিক/তথ্যমূলক প্রশ্ন দেওয়া হবে। এক্ষেত্রে কোনো বিকল্প থাকবে না।	১ × ১৫

BNG-MD-SEC-1-1/2/3-TH-TU

মুদ্রণ ও প্রকাশনা

উদ্দেশ্য : বাংলা মুদ্রণ ও প্রকাশনা সংক্রান্ত সাধারণ জ্ঞানার্জন করবে পড়ুয়ারা।

মডিউল-১

পাণ্ডুলিপি প্রস্তুতি
বাংলা যুক্তাক্ষরের ধারণা
সংগ্রহ-সম্পাদনা ও সংকলন সম্পর্কে ধারণা
কভার, টাইটেল পেজ, গ্রন্থ/পত্রিকার পঞ্জিকরণ সংক্রান্ত ধারণা

মডিউল-২

বাংলা বানানের বিবর্তন সম্পর্কে সাধারণ ধারণা
পশ্চিমবঙ্গ বাংলা আকাদেমির বানানবিধি

মডিউল-৩

প্রুফ সংশোধন (দৃষ্টিহীন পড়ুয়াদের জন্য অশুদ্ধি সংশোধন থাকবে)
ছাপার প্রযুক্তি, স্টিচিং, বাইন্ডিং, মার্কেটিং সম্পর্কিত সাধারণ ধারণা

সহায়ক গ্রন্থ (নির্বাচিত)

- যখন ছাপাখানা এলো— শ্রীপান্থ
- দুই শতকের বাংলা মুদ্রণ ও প্রকাশন— চিত্তরঞ্জন বন্দ্যোপাধ্যায় (সম্পাদিত)
- বাংলা পাণ্ডুলিপি পাঠ ও পরিক্রমা— ত্রিপুরা বসু
- মুদ্রণের সংস্কৃতি ও বাংলা বই— স্বপন চক্রবর্তী (সম্পাদিত)
- উনিশ শতকের বাংলা ছাপাখানা— আশিস খাস্তগীর
- গবেষণাপত্র : অনুসন্ধান ও রচনা— জগমোহন মুখোপাধ্যায়
- লেখক ও সম্পাদকের অভিধান— সুভাষ ভট্টাচার্য (সম্পাদিত)
- বাংলা বানান বিধি— পরেশচন্দ্র মজুমদার
- বাংলা বানান সংস্কার, সমস্যা ও সম্ভাবনা— পবিত্র সরকার

AEC [MIL (Bengali)]–2 Credits Each

- স্নাতক কলা, বাণিজ্য, বিজ্ঞান বিভাগের যে-সমস্ত পড়ুয়া AEC স্তরে MIL হিসেবে বাংলা বিকল্পটি গ্রহণ করবে তাদের জন্য তৃতীয় ও চতুর্থ সেমেস্টারে ২ ক্রেডিটের এই কোর্স দুটি পাঠ্য।
- এই কোর্সটি ৫০ নম্বরের। **প্রত্যেকটি মডিউল থেকে কমপক্ষে ১০টি করে ২ নম্বরের মোট ২৫টি MCQ ধর্মী প্রশ্নে** পরীক্ষা নেওয়া হবে।

BNG-AEC-1-3-TH
প্রবন্ধ ও পরিভাষা

মডিউল-১ : প্রবন্ধ (কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত *ভাষাপাঠ সঞ্চয়ন-এ সংকলিত*)

পাঠ্য প্রবন্ধ : স্বদেশী সমাজ— রবীন্দ্রনাথ ঠাকুর
বাঙ্গালা ভাষা— স্বামী বিবেকানন্দ
স্ত্রী জাতির অবনতি— বেগম রোকেয়া
অপবিজ্ঞান— রাজশেখর বসু

মডিউল-২ : পরিভাষা

কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত ভাষাপাঠ সঞ্চয়ন-এ নির্ধারিত ২৫০টি পরিভাষা

BNG-AEC-2-4-TH
ছোটগল্প ও কবিতা

মডিউল-১ : ছোটগল্প (কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত *ভাষাপাঠ সঞ্চয়ন-এ সংকলিত*)

পাঠ্যগল্প : রবীন্দ্রনাথ ঠাকুর লিখিত পোস্টমাস্টার, ছুটি, জীবিত ও মৃত এবং বলাই

মডিউল-২ : কবিতা (কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত *ভাষাপাঠ সঞ্চয়ন-এ সংকলিত*)

নৈবেদ্য— রবীন্দ্রনাথ ঠাকুর
পাঠ্য :
বৈরাগ্য সাধনে মুক্তি সে আমার নয় (৩০), শতাব্দীর সূর্য আজি রক্ত মেঘ-মাঝে (৬৪),
স্বার্থের সমাপ্তি অপঘাতে (৬৫), তোমার ন্যায়ের দণ্ড প্রত্যেকের করে (৭০), চিত্ত যেথা ভয় শূন্য উচ্চ যেথা শির (৭২), শক্তিদম্ভ স্বার্থলোভ মারীর মতন (৯২)

Common Value Added Course (CVAC)–2 Credits.

- স্নাতক কলা, বাণিজ্য, বিজ্ঞান বিভাগের যে-সমস্ত পড়ুয়া CVAC স্তরের কোর্স হিসেবে এই বিকল্পটি গ্রহণ করবে তাদের জন্য দ্বিতীয় সেমেস্টারে ২ ক্রেডিটের এই কোর্সটি পাঠ্য।

- এই কোর্সটি ৫০ নম্বরের। **প্রত্যেকটি মডিউল থেকে কমপক্ষে ১০টি করে ২ নম্বরের মোট ২৫টি MCQ ধর্মী প্রশ্নে** পরীক্ষা নেওয়া হবে।

BNG-CVAC-1-2-TH

রামায়ণ ও মহাভারত

উদ্দেশ্য : বাংলা অনুবাদে রামায়ণ এবং মহাভারতের নির্বাচিত অংশদুটি পাঠের মাধ্যমে প্রাচীন ভারতের পারিবারিক জীবন, সমাজ কাঠামো, সমাজ চেতনা এবং মূল্যবোধগুলির সঙ্গে পড়ুয়াদের পরিচিতি ঘটবে। সেইসঙ্গে প্রাচীন মহাকাব্য দুটির বাংলা কাব্যানুবাদ এবং গদ্যানুবাদের মাধ্যমে শিক্ষার্থীরা গল্পরসের আস্বাদনও করতে পারবে।

মডিউল-১

রামায়ণ/শ্রীরাম পাঁচালী (অযোধ্যাকাণ্ড)—কৃত্তিবাস ওঝা

মডিউল-২

মহাভারত (সভাপর্ব)— রাজশেখর বসু

Common Value Added Course (CVAC)–2 Credits.

- স্নাতক কলা, বাণিজ্য, বিজ্ঞান বিভাগের যে-সমস্ত পড়ুয়া CVAC স্তরের কোর্স হিসেবে এই বিকল্পটি গ্রহণ করবে তাদের জন্য দ্বিতীয় সেমেস্টারে ২ ক্রেডিটের এই কোর্সটি পাঠ্য।

- এই কোর্সটি ৫০ নম্বরের। **প্রত্যেকটি মডিউল থেকে কমপক্ষে ১০টি করে ২ নম্বরের মোট ২৫টি MCQ ধর্মী প্রশ্নে** পরীক্ষা নেওয়া হবে।

BNG-CVAC-1-2-TH

রামায়ণ ও মহাভারত

উদ্দেশ্য : বাংলা অনুবাদে রামায়ণ এবং মহাভারতের নির্বাচিত অংশদুটি পাঠের মাধ্যমে প্রাচীন ভারতের পারিবারিক জীবন, সমাজ কাঠামো, সমাজ চেতনা এবং মূল্যবোধগুলির সঙ্গে পড়ুয়াদের পরিচিতি ঘটবে। সেইসঙ্গে প্রাচীন মহাকাব্য দুটির বাংলা কাব্যানুবাদ এবং গদ্যানুবাদের মাধ্যমে শিক্ষার্থীরা গল্পরসের আস্বাদনও করতে পারবে।

মডিউল-১

রামায়ণ/শ্রীরাম পাঁচালী (অযোধ্যাকাণ্ড)—কৃত্তিবাস ওঝা

মডিউল-২

মহাভারত (সভাপর্ব)— রাজশেখর বসু

AEC [MIL (Bengali)]–2 Credits Each

- স্নাতক কলা, বাণিজ্য, বিজ্ঞান বিভাগের যে-সমস্ত পড়ুয়া AEC স্তরে MIL হিসেবে বাংলা বিকল্পটি গ্রহণ করবে তাদের জন্য তৃতীয় ও চতুর্থ সেমেস্টারে ২ ক্রেডিটের এই কোর্স দুটি পাঠ্য।
- এই কোর্সটি ৫০ নম্বরের। **প্রত্যেকটি মডিউল থেকে কমপক্ষে ১০টি করে ২ নম্বরের মোট ২৫টি MCQ ধর্মী প্রশ্নে** পরীক্ষা নেওয়া হবে।

BNG-AEC-1-3-TH
প্রবন্ধ ও পরিভাষা

মডিউল-১ : প্রবন্ধ (কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত *ভাষাপাঠ সঞ্চয়ন-এ সংকলিত*)

পাঠ্য প্রবন্ধ : স্বদেশী সমাজ— রবীন্দ্রনাথ ঠাকুর
বাঙ্গালা ভাষা— স্বামী বিবেকানন্দ
স্ত্রী জাতির অবনতি— বেগম রোকেয়া
অপবিজ্ঞান— রাজশেখর বসু

মডিউল-২ : পরিভাষা

কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত ভাষাপাঠ সঞ্চয়ন-এ নির্ধারিত ২৫০টি পরিভাষা

BNG-AEC-2-4-TH
ছোটগল্প ও কবিতা

মডিউল-১ : ছোটগল্প (কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত *ভাষাপাঠ সঞ্চয়ন-এ সংকলিত*)

পাঠ্যগল্প : রবীন্দ্রনাথ ঠাকুর লিখিত পোস্টমাস্টার, ছুটি, জীবিত ও মৃত এবং বলাই

মডিউল-২ : কবিতা (কলিকাতা বিশ্ববিদ্যালয় প্রকাশিত *ভাষাপাঠ সঞ্চয়ন-এ সংকলিত*)

নৈবেদ্য— রবীন্দ্রনাথ ঠাকুর
পাঠ্য :
বৈরাগ্য সাধনে মুক্তি সে আমার নয় (৩০), শতাব্দীর সূর্য আজি রক্ত মেঘ-মাঝে (৬৪),
স্বার্থের সমাপ্তি অপঘাতে (৬৫), তোমার ন্যায়ের দণ্ড প্রত্যেকের করে (৭০), চিত্ত যেথা ভয় শূন্য উচ্চ যেথা শির (৭২), শক্তিদম্ভ স্বার্থলোভ মারীর মতন (৯২)

UNIVERSITY OF CALCUTTA

NotificationNo.CSR/13/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of his powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 11.07.2023 approved the Syllabi of the under mentioned subjects for semester wise Four-year (Honours & Honours with Research) / Three-year (Multidisciplinary) programme of U.G. courses of studies, as applicable under CCF,2022 . under this University, as laid down in the accompanying pamphlet.

Name of Subject:

1.Anthropology
2.BBA
3.Bengali
4.BFAD
5.Bio Chemistry
6.Botany
7.Chemistry
8.Commerce
9.Economics
10.Education
11.English
12.Geology
13.Hindi
14.History,Islamic History & Culture
15.Home Science
16.Human Rights
17.Journalism & Mass Communication
18.Mathematics
19.Microbiology (Honours)
20.Molecular Biology
21.Philosophy
22.Physiology
23.Political Science
24.Psychology
25.Social Science
26.Sociology
27.Urdu
28.Women's Studies
29.Zoology

The above shall be effective from the academic session 2023-2024.

12/7/2023

SENATE HOUSE

KOLKATA-700 073

Prof.(Dr.) Debasis Das

Registrar

Four-Year B.A./B.Sc (Honours and Honours with Research) Courses of Studies (Under Curriculum & Credit framework, 2022)

SYLLABUS

FOR

CHEMISTRY

UNIVERSITY OF CALCUTTA

Course Structure (Chemistry-Major With Honours and Honours With Research)

Course Credits

Theory+ Practical

==========

Discipline Specific Core (DSC)

Theory (Honours)
(25 papers of 3 credits each) **25 X 3 = 75**

Practical / Tutorial
(25 papers of 1 credit each) **25 X 1 = 25**

Minor (For Chemistry Major)

Theory
(Including Practical/ Tutorial)
(8 papers of 4 credits each) **8 X 4 = 32**

Ability Enhancement Course (AEC)

(4 papers of 2 credits each) **4 X 2 = 8**

Skill Enhancement Courses (SEC)

(3 papers of 4 credits each) **3 X 4 = 12**

Interdisciplinary Courses (IDC)

(3 papers of 3 credits each) **3 X 3 = 9**

Common Value-Added Courses (CVAC)

(4 papers of 2 credits each) **4 X 2 = 8**

Summer Internship **3**
(6^{th} Semester)

==========

Total Credits **172**

*** Honours students undertaking Research will take 3 Research papers of 12 Credits in place of 3 DSC Papers of 12 credits.**

Important recommendations

- **Minor Courses for Chemistry Major are to be taken preferably (Not Compulsory) from Physics and Mathematics disciplines.**

- **All graphs for Physical / Inorganic Courses must be done using standard Spreadsheet Software**

- **Each college should take necessary measures to ensure they should have the following facilities:**

  1.Spectrophotometer with printer, pH-Meter, Conductivity Meter, Potentiometer, Polarimeter.

  2. Internet facility.

  3. Requisite number of computers (One computer for 3-4 students).

For proper maintenance of above mentioned facilities, clean & dry AC rooms are mandatory.

Chemistry Course Structure

Four-year Chemistry Major Course Structure
(Theory)

Semester	Paper Code	Paper Name	Brief Descriptions
1	CHEM-H-CC1-1-Th	Fundamentals Of Chemistry-I	Extra nuclear structure of atoms and Periodicity, Basics of Organic Chemistry Bonding and Physical Properties , Stereochemistry – I, Thermodynamics –I, Chemical Kinetics-I.
	CHEM-H-SEC1-1-Th	Quantitative Analysis and Basic Laboratory Practices	Introduction to Quantitative analysis and its interdisciplinary nature, Titrimetric analysis etc. , Water analysis, Basic laboratory practices.
2	CHEM-H-CC2-2-Th	Fundamentals Of Chemistry-II	Kinetic Theory and Gaseous state, Chemical Bonding – I , Stereochemistry – II, General Treatment of Reaction Mechanism-I
	CHEM-H-SEC2-2-Th	AI for Everyone	Introduction to Artificial Intelligence, Subfields and technologies, Applications of AI.
3	CHEM-H-CC3-3-Th	Physical Chemistry - I	Thermodynamics -II , Applications of Thermodynamics – I , Electrochemistry-I.
	CHEM-H-CC4-3-Th	Organic Chemistry – I	Aromatic Substitution Reaction , General Treatment of Reaction Mechanism-II, Substitution, elimination, Addition to alkenes, dienes, alkynes.
	CHEM-H-SEC3-3-Th	Chemistry in Daily Life	Dairy Products, Food additives, adulterants, and contaminants, Artificial food colorants , Vitamins, Oils and fats, Soaps & Detergents , Chemical and Renewable Energy Sources, Polymers.
4	CHEM-H-CC5-4-Th	Inorganic Chemistry – I	Chemical bonding- II, Acids and bases, Theoretical principles of inorganic qualitative analysis .
	CHEM-H-CC6-4-Th	Organic Chemistry – II	Stereochemistry – III, Chemistry of Carbonyl Compounds, Organometallics.
	CHEM-H-CC7-4-Th	Physical Chemistry - II	Transport processes and Liquid State, Solid State, Application of Thermodynamics– II, Electrochemistry-II.
	CHEM-H-CC8-4-Th	Inorganic Chemistry – II	Coordination chemistry , Radioactivity, Redox reactions .
5	CHEM-H-CC9-5-Th	Organic Chemistry – III	Organic Synthesis –I, Rearrangement Reactions , Organonitrogen Compounds.
	CHEM-H-CC10-5-Th	Inorganic Chemistry – III	s and p block elements, Nuclear models and radio-analytical techniques, Nanoscience and technology.
	CHEM-H-CC11-5-Th	Physical Chemistry - III	Foundation of Quantum Mechanics, Exactly Solvable Systems, Surface Chemistry and Electrical properties.
	CHEM-H-CC12-5-Th	Physical Chemistry – IV	Polymer Chemistry, Chemical Kinetics - II, Statistical Data analysis.
6	CHEM-H-CC13-6-Th	Physical Chemistry - V	Molecular Spectroscopy, Introduction to NMR Spectroscopy, Atomic spectroscopy, Photochemistry.
	CHEM-H-CC14-6-Th	Organic Chemistry – IV	Organic Spectroscopy-I, Carbocycle, Heterocycles-I, Stereochemistry and Reactions of Alicyclic Compounds.
	CHEM-H-CC15-6-Th	Inorganic Chemistry – IV	d and f block elements, Reaction kinetics and mechanism , Spectroscopic techniques.
		Summer Internship	

7	CHEM-H-CC16-7-Th	Physical Chemistry - VI	Statistical Thermodynamics, 3rd law of thermodynamics, Specific heat of Solids, Molecular Modelling.
	CHEM-H-CC17-7-Th	Inorganic Chemistry – V	Bioinorganic chemistry, Separation techniques , Advanced chemistry of s and p block elements.
	CHEM-H-CC18-7-Th	Inorganic Chemistry – VI	Organometallic chemistry , Thermal methods of analysis , Electro analytical techniques.
	CHEM-H-CC19-7-Th	Organic Chemistry - V	Carbohydrates, Biomolecules –I . Concept of aromaticity and free energy relationship. Pericyclic Reactions.
	CHEM-H-CC20-7-Th	Research Methodology For Chemistry/ Research*	Research Methodology - I
8	CHEM-H-CC21-8-Th	Organic Chemistry – VI	Green Chemistry, Medicinal Chemistry, Supramolecular Chemistry.
	CHEM-H-CC22-8-Th	Physical Chemistry - VII	Approximation Methods in Quantum Mechanics, LCAO-M.O, Chemical applications of group theory.
	CHEM-H-CC23-8-Th	Organic Chemistry – VII	Heterocycles-II, Biomolecules-II, Organic Synthesis-II, Organic Spectroscopy-II.
	CHEM-H-CC24-8-Th	Inorganic Chemistry – VII / Research*	Crystallography, Electrochemical analysis, Advanced Organometallic chemistry .
	CHEM-H-CC25-8-Th	Research Methodology For Chemistry/ Research*	Research Methodology - II

*** Students who secure 75% marks and above in the first six semesters and wish to undertake research at the UG level can choose a research supervisor in the fourth year.**

Summer Internship:

All the students are required to do one 3 credits Summer Internship at the end of the 2nd or 4th or 6th semester. Students completing Internship at the end of the 2nd semester will be allowed to take exit from the course and will be awarded Certificate of 45 credits. Students completing Internship at the end of the 4th semester will be allowed to take exit from the course and will be awarded Diploma of 88 credits. Students completing Internship at the end of the 6th semester will be allowed to take exit from the course and will be awarded three-year Single major Degree of 132 credits [Following the Notification No. CSR/05/2023, dated 23rd June, 2023 of University of Calcutta].

Four-year Chemistry Major Course Structure
(Practical / Tutorial)

Semester	Paper Code	Paper Name	Brief Descriptions
1	CHEM-H-CC1-1-P	Fundamentals Of Chemistry-I	Acid-Base Titration, Oxidation-Reduction Titrimetry.
	CHEM-H-SEC1-1-Tu	Quantitative Analysis and Basic Laboratory Practices	Tutorial
2	CHEM-H-CC2-2-P	Fundamentals Of Chemistry-II	Iodo-/ Iodimetric Titrations , Estimation of metal content in some selective samples.
3	CHEM-H-CC3-3-P	Physical Chemistry - I	Chemical Kinetics (Analytical).
	CHEM-H-CC4-3-P	Organic Chemistry – I	Identification of Single Organic Compounds.
	CHEM-H-SEC3-3-Tu	Chemistry in Daily Life	Tutorial
4	CHEM-H-CC5-4-P	Inorganic Chemistry – I	Qualitative semimicro analysis of mixtures containing three radicals.
	CHEM-H-CC6-4-P	Organic Chemistry – II	Qualitative analysis of single solid Organic compounds.
	CHEM-H-CC7-4-P	Physical Chemistry - II	Surface Tension, Viscosity, Conductometry.
	CHEM-H-CC8-4-P	Inorganic Chemistry – II	Estimation of mixtures of metal ions.
5	CHEM-H-CC9-5-P	Organic Chemistry – III	Organic Preparations.
	CHEM-H-CC10-5-P	Inorganic Chemistry – III	Complexometric titrations.
	CHEM-H-CC11-5-P	Physical Chemistry - III	Conductometry, pH-metry, Potentiometry etc.
	CHEM-H-CC12-5-P	Physical Chemistry – IV	Spreadsheet based Practicals.
6	CHEM-H-CC13-6-P	Physical Chemistry - V	pH-metry , Spectrophotometry , Phase Diagram.
	CHEM-H-CC14-6-P	Organic Chemistry – IV	TLC & Paper Chromatography.
	CHEM-H-CC15-6-P	Inorganic Chemistry – IV	Qualitative semimicro analysis of mixtures containing four radicals with composition.
		Summer Internship	
7	CHEM-H-CC16-7-P	Physical Chemistry - VI	Spectrophotometry , Conductometry etc.
	CHEM-H-CC17-7-P	Inorganic Chemistry – V	Colorimetric and Complexometric estimations.
	CHEM-H-CC18-7-P	Inorganic Chemistry – VI	Qualitative semimicro analysis of mixtures containing six radicals with composition.
	CHEM-H-CC19-7-P	Organic Chemistry - V	Spectroscopy (^{1}H – NMR and IR).
	CHEM-H-CC20-7-P	Research Methodology For Chemistry/ Research*	Tutorials/Presentations/Dissertations.

8	**CHEM-H-CC21-8-P**	**Organic Chemistry – VI**	**Green Organic Synthesis (MCR, Solid State Reactions)**
	CHEM-H-CC22-8-P	**Physical Chemistry - VII**	**Phase diagram, Polarimeter based experiments, etc.**
	CHEM-H-CC23-8-P	**Organic Chemistry – VII**	**Qualitative Analysis of single Organic Liquid Compounds**
	CHEM-H-CC24-8-P	**Inorganic Chemistry – VII / Research***	**Ion Exchange , Thin Layer Chromatography**
	CHEM-H-CC25-8-P	**Research Methodology For Chemistry/ Research***	**Tutorials/Presentations/Dissertations**

*** Students who secure 75% marks and above in the first six semesters and wish to undertake research at the UG level can choose a research stream in the fourth year**.

CHEMISTRY MINOR COURSE STRUCTURE
(Theory)

Semester	Paper Code	Paper Name	Brief Descriptions
1 or 3	CHEM-H-CC1-1-Th Or CHEM-H-CC1-3-Th	Chemistry MINOR-I	Extra nuclear structure of atoms and Periodicity, Basics of Organic Chemistry Bonding and Physical Properties, Stereochemistry – I, Thermodynamics –I, Chemical Kinetics-I.
2 or 4	CHEM-H-CC2-2-Th Or CHEM-H-CC2-4-Th	Chemistry MINOR-II	Kinetic Theory and Gaseous state, Chemical Bonding – I, Stereochemistry – II, General Treatment of Reaction Mechanism.
5	CHEM-H-CC4-5-Th	Chemistry MINOR-III	S_EAr, S_NAr, Acid-Base, Tautomerism, Substitution, elimination, Addition to alkenes, dienes, alkynes.
6	CHEM-H-CC5-6-Th	Chemistry MINOR-IV	Chemical bonding II, Acids and bases, Theoretical principles of inorganic qualitative analysis.

Note 1: The above course structure for Minor is applicable to students admitted in 4-year Honours / Honours with Research course with Major different from Chemistry.

Note 2: A student will have to take 8 Minor courses from 2 subjects (M1 and M2) from the same broad discipline as the Major excluding the Major subject. Students have to study 4 minor courses in the first two years (1 in each semester) and 4 Minor courses in the 3rd year (2 in each semester).

For example: A student with Chemistry Minor have two options for choosing Chemistry from Semesters 1 to 4.

Option-1: A student can take CHEM-H-CC1-1-Th in semester-I and CHEM-H-CC2-2-Th in semester –II

Or,

Option 2: A student can take CHEM-H-CC1-3-Th in semester-III and CHEM-H-CC2-4-Th in semester –IV

No other combinations of CHEM-H-CC1-1-Th and CHEM-H-CC2-2-Th will be allowed. In the semesters 1 & 2 minor papers from the same subject has to be chosen, e.g. either M1 or M2. In semesters 3 & 4 the other subject, not chosen previously has to be chosen.

Note 3:

In the 3rd year (in semesters 5 & 6) two minor subjects in each semester will have to be taken from two different subjects.

CHEMISTRY MINOR COURSE STRUCTURE
(Practical)

Semester	Paper Code	Paper Name	Brief Descriptions
1 or 3	CHEM-H-CC1-1-P Or CHEM-H-CC1-3-P	Chemistry MINOR-I	Acid-Base Titration, Oxidation-Reduction Titrimetry.
2 or 4	CHEM-H-CC2-2-P Or CHEM-H-CC2-4-P	Chemistry MINOR-II	Iodo-/ Iodimetric Titrations, Estimation of metal content in some selective samples.
5	CHEM-H-CC4-5-P	Chemistry MINOR-III	Identification of Single organic Compound.
6	CHEM-H-CC5-6-P	Chemistry MINOR-IV	Qualitative semimicro analysis of mixtures containing three radicals.

Interdisciplinary Course Structure in Chemistry

Semester	Paper Code	Paper Name	Brief Descriptions
1	CHEM-H-IDC1-1-Th	Quantitative Analysis and Basic Laboratory Practices	Introduction to Quantitative analysis and its interdisciplinary nature, Titrimetric analysis etc. , Water analysis, Basic laboratory practices.
2	CHEM-H-IDC2-2-Th	Quantitative Analysis and Basic Laboratory Practices	Introduction to Quantitative analysis and its interdisciplinary nature, Titrimetric analysis etc. , Water analysis, Basic laboratory practices.
3	CHEM-H-IDC3-3-Th	Chemistry in Daily Life	Dairy Products, Food additives, adulterants, and contaminants, Artificial food colorants , Vitamins, Oils and fats, Soaps & Detergents , Chemical and Renewable Energy Sources, Polymers.

A student can take either **CHEM-H-IDC1-1-Th in the first semester** or **CHEM-H-IDC2-2-Th in the second semester** or **CHEM-H-IDC3-3-Th in the third semester**.

CHEMISTRY MAJOR

PAPER : CHEM-H-CC1-1-Th

(Credit : Theory -03, Practical – 01)

Fundamentals of Chemistry - I

Theory: (45 Lectures)

Module : I

Extra nuclear structure of atoms and Periodicity: (15 Lectures)

Wave-Particle duality; de Broglie hypothesis. Heisenberg's uncertainty principle. Introducing Schrödinger equation. Hydrogen and hydrogen like systems (detailed solution not required) .Concept of Atomic Orbital; shapes of s, p and d orbitals. Radial and angular distribution curves. Extension to multielectronic systems. Aufbau principle and its limitations; Pauli's exclusion principle ; Hund's rules and multiplicity. Effective nuclear charge. Shielding and penetration; Slater's rule.

The general idea about modern periodic table, atomic and ionic radii, ionization energy, electron affinity and electro negativity –definition, trends of variation in periodic table and their application in explaining and predicting the chemical behavior of elements and compounds. Electronegativity scales (Pauling's, Mulliken's and Allred-Rochow's scales). Inert pair effect.

Module : II

Basics of Organic Chemistry Bonding and Physical Properties: (10 Lectures)

Valence Bond Theory

Nomenclature of Organic Compounds, Concept of hybridisation, shapes and structures of molecules, double bond equivalent (DBE), Resonance (including hyperconjugation) and Resonance energy.

Electronic displacement:

Inductive effect, bond polarization and bond polarizability; steric effect, steric inhibition of resonance.

MO Theory

Qualitative idea about molecular orbitals, bonding and antibonding interactions, idea about σ, σ*, π, π *, n – MOs; concept of HOMO, LUMO and SOMO; sketch and energy levels of π MOs of i) acyclic p orbital system (C=C, conjugated diene, triene, allyl and pentadienyl systems) ii) cyclic p orbital system (neutral systems: [4], [6] annulenes; charged systems: 3-,4-,5-7 membered ring systems); Hückel's rules for aromaticity up to [8] annulene; concept of antiaromaticity; non-aromatic molecules.

Physical properties

Melting point/boiling point and solubility of common organic compounds in terms of covalent & non-covalent intermolecular forces; polarity of molecules and dipole moments.

Stereochemistry – I: **(5 Lectures)**

Bonding geometries of carbon compounds and representation of molecules: tetrahedral nature of carbon and concept of asymmetry; Fischer, sawhorse, flying wedge and Newman projection formulae and their inter translations. Concept of chirality and symmetry: symmetry elements, molecular chirality and centre of chirality; asymmetric and dissymmetric molecules; enantiomers and diastereomers; concept of stereogenicity, chiral centres and number of stereoisomers: systems involving 1/2-chiral centre(s).

Module : III

Thermodynamics -I : **(9 Lectures)**

Concept of systems (open, closed and isolated) and surroundings. State of a system; Intensive and extensive variables. Partial derivatives. Exact and inexact differentials. Path function and State function. Concept of heat and work. Zeroth law of thermodynamics. Concept of thermodynamic reversibility. Concept of internal energy and 1^{st} law of thermodynamics. Enthalpy and heat capacity, Relations between C_p and C_v. Isothermal and Adiabatic processes ; Calculations of ΔU, ΔH, q and w involving ideal gases in different processes.

Enthalpy of reaction. Hess's law. Enthalpy of formation and combustion. Kirchhoff's equation.

Chemical Kinetics-I: **(6 Lectures)**

Concept of order and molecularity. Rate laws for zero, 1^{st} and 2^{nd} order reactions and in general for any n-th order reaction. Determination of order of a reaction by half-life and differential methods. Rate determining step and steady state approximation. Opposing, Consecutive and parallel reactions (first order steps only).Temperature dependence of rate constant and Arrhenius equation.

Recommended Text Books:

1. **Lee, J. D. Concise Inorganic Chemistry,5th Ed., Wiley India Pvt. Ltd., 2008.**
2. **Atkins, Overton, Rourke , Weller , Armstrong; Shriver & Atkins' Inorganic Chemistry, 5th Ed., Oxford University Press (2010).**
3. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
4. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
5. **Nasipuri, D. Stereochemistry of Organic Compounds, 4th Edition, New Age International Pvt Ltd , 2020**
6. **Levine, I. N. Physical Chemistry, 6th Edition McGraw-Hill India, 2011**
7. **Castellan, G. W. Physical Chemistry, Narosa , 2004**
8. **Atkins, P. W. & Paula, J. de, Atkins' Physical Chemistry, 11th Edition, Oxford University Press, 2018**
9. **G. L. Miessler, D. A. Tarr, Inorganic Chemistry , 3rd Edition, Pearson India, 2008**

Practical : (30 Lectures)

PAPER : CHEM-H-CC1-1-P

(1) Calibration and use of apparatus.

(2) Preparation of primary standard solutions (Oxalic Acid and $K_2Cr_2O_7$)

Acid-Base Titrations:

(3) Standardization of NaOH standard oxalic acid solution.

(4) Estimation of carbonate and bicarbonate present together in a mixture

(5) Estimation of acetic acid in commercial Vinegar.

Oxidation-Reduction Titrimetry:

(6) Standardization of $KMnO_4$ standard oxalic acid solution.

(7) Estimation of Fe(II) using standardized $KMnO_4$ solution.

(8) Estimation of Fe(III) using standard $K_2Cr_2O_7$ solution.

(9) Estimation of Fe(II) and Fe(III) in a given mixture using standard $K_2Cr_2O_7$ solution.

Reference Books:

1. **Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.**
2. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MAJOR

PAPER : CHEM-H-CC2-2-Th

(Credit : Theory -03, Practical – 01)

Fundamentals of Chemistry - II

Theory: (45 Lectures)

Module : I

Kinetic Theory and Gaseous state: (8 Lectures)

Concept of pressure and temperature from kinetic theory of gas. Nature of distribution of velocities, Maxwell's distribution of speeds in one, two and three dimensions; Kinetic energy distribution in one, two and three dimensions, calculations of average, root mean square and most probable values in each case; Collision of gas molecules; Collision diameter; Collision number and mean free path; Frequency of binary collisions (similar and different molecules); Wall collision and rate of effusion Calculation of number of molecules having energy $\geq \varepsilon$, Principle of equipartition of energy and its application to calculate the classical limit of molar heat capacity of gases

Real gas and Virial equation: (7 Lectures)

Deviation of gases from ideal behavior; Compressibility factor; Boyle temperature; Andrew's and Amagat's plots; van der Waals equation and its features; its derivation and application in explaining real gas behavior ; Existence of critical state, Critical constants in terms of van der Waals constants; Law of corresponding states; Virial equation of state; van der Waals equation expressed in the Virial form and significance of second virial coefficient; Intermolecular forces (Debye, Keesom and London interactions; Lennard-Jones potential - elementary idea.

Module : II

Chemical Bonding – I: (15 Lectures)

i) Ionic bond: General characteristics, types of ions, size effects, radius ratio rule and its application and limitations. Packing of ions in crystals. Born-Lande equation with derivation and importance of Kapustinskii expression for lattice energy. Madelung constant, Born-Haber cycle and its application, Solvation energy. Defects in solids (elementary idea). Solubility energetics of dissolution process.

ii) Covalent bond: Polarizing power and polarizabilty, ionic potential, Fajan's rules, Lewis structures, formal charge, Valence Bond Theory, The hydrogen molecule (Heitler – London approach), directional character of covalent bonds, hybridizations, equivalent and non-equivalent hybrid orbitals, Bent's rules, dipole moments, VSEPR theory, shapes of molecules and ions containing lone pairs (examples from main group chemistry) and multiple bonding (σ and π bond approach).

Module : III

Stereochemistry – II: (8 Lectures)

Chirotopicityand its relationship with stereogenicity; concept of pseudoasymmetry for ABA type systems. Relative and absolute configuration: *R/S* descriptors; *erythro/threo* and *meso* nomenclature of compounds; *E/Z* descriptors for C=C, combination of *R/S*- and *E/Z* isomerisms. Optical activity of chiral compounds: optical rotation, and specific rotation; racemic compounds, racemisation (through cationic, anionic intermediates); resolution of acids and bases *via* diastereomeric salt formation; optical purity and enantiomeric excess.

General Treatment of Reaction Mechanism –I: (7 Lectures)

Reactive intermediates

Carbocations (carbenium and carbonium ions), non-classical carbocations, carbanions, carbon radicals: generation and stability, structure and electrophilic / nucleophilic behaviour of reactive intermediates (elementary idea).

Reaction thermodynamics

Free energy and equilibrium, enthalpy and entropy factor, calculation of enthalpy change *via* BDE, intermolecular & intramolecular reactions.

Reaction kinetics

Rate constant and free energy of activation; free energy profiles for one-step, and two-step reactions; catalyzed reactions, principle of microscopic reversibility; Hammond's postulate.

Substitution Reaction

Free-radical substitution reaction: halogenation of alkanes, mechanism (with evidence) and stereochemical features; reactivity-selectivity principle in the light of Hammond's postulate.

Recommended Text Books:

1. **Lee, J. D. Concise Inorganic Chemistry,5th Ed., Wiley India Pvt. Ltd., 2008.**
2. **Atkins, Overton, Rourke , Weller , Armstrong; Shriver & Atkins' Inorganic Chemistry, 5th Ed., Oxford University Press (2010).**
3. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
4. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
5. **Nasipuri, D. Stereochemistry of Organic Compounds, 4th Edition, New Age International Pvt Ltd , 2020**
6. **Levine, I. N. Physical Chemistry, 6th Edition McGraw-Hill India, 2011**
7. **Castellan, G. W. Physical Chemistry, Narosa , 2004**
8. **Atkins, P. W. & Paula, J. de, Atkins' Physical Chemistry, 11th Edition, Oxford University Press, 2018**
9. **G. L. Miessler, D. A. Tarr, Inorganic Chemistry , 3rd Edition, Pearson India, 2008**

Practical : (30 Lectures)

PAPER: CHEM-H-CC2-2-P

(1) Standardization of $Na_2S_2O_3$ solution against standard $K_2Cr_2O_7$ solution.

Iodo-/ Iodimetric Titrations

(2) Estimation of Vitamin C

(3) Estimation of (i) arsenite and (ii) antimony iodimetrically

(4) Estimation of available chlorine in bleaching powder.

Estimation of metal content in some selective samples

(5) Estimation of Cu in brass.

(6) Estimation of Cr and Mn in Steel.

(7) Estimation of Fe in cement.

Reference Books:

1. **Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.**
2. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MAJOR

PAPER : CHEM-H-CC3-3-Th

(Credit : Theory -03, Practical – 01)

Physical Chemistry - I

Theory: (45 Lectures)

Module : I

Thermodynamics - II: **(20 Lectures)**

Second Law

Need for a Second law; statement of the second law of thermodynamics; Concept of heat reservoirs and heat engines; Carnot cycle; Carnot engine and refrigerator; Kelvin – Planck and Clausius statements and equivalence of the two statements with entropic formulation; Carnot's theorem; Values of §dQ/T and Clausius inequality; Physical concept of Entropy; Entropy is a measure of the microscopic disorder of the system. Entropy change of systems and

surroundings for various processes and transformations; Entropy and unavailable work; Temperature – Entropy diagram.
Useful work and The Gibbs and Helmholtz function. Changes at constant T, P. Application to electric work. Criteria for spontaneity and equilibrium. Gibbs- Helmholtz equation, The Gibbs Function and useful work in Biological systems. Gibbs free energy and spontaneous phase transition.

Maxwell's relations; Joule-Thomson experiment and its consequences; inversion temperature; Joule-Thomson coefficient for a van der Waals gas; General heat capacity relations

Systems of Variable Compositions
State functions for system of variable compositions. Criteria of equilibrium and spontaneity in systems of variable composition. Partial molar quantities, dependence of thermodynamic parameters on composition; Chemical potential as an escaping tendency. Gibbs-Duhem equation, Entropy and Gibbs function for mixing of ideal gases, the chemical potential of ideal mixtures. The Fugacity function of a pure real gas. Calculation of the fugacity of a van der Waals gas using compressibility factor. Definitions of Activities and activity coefficients. Choice of standard states. Dependence of Activity on pressure and temperature.

Module : II

Applications of Thermodynamics – I: (8 Lectures)

Chemical Equilibrium
Thermodynamic conditions for equilibrium, degree of advancement; van't Hoff's reaction isotherm (deduction from chemical potential); Variation of free energy with degree of advancement; Equilibrium constant and standard Gibbs free energy change; Van't Hoff's reaction isobar and isochore from different standard states; Le Chatelier's principle and its derivation, variation of equilibrium constant under different conditions Nernst's distribution law; Application- (eg. dimerization of benzene in benzoic acid). Solvent Extraction.

Module : III

ELECTROCHEMISTRY-I:

(i) Conductance (9 Lectures)
Ion conductance; Conductance and measurement of conductance, cell constant, specific conductance and molar conductance; Variation of specific and equivalent conductance with dilution for strong and weak electrolytes; Kohlrausch's law of independent migration of ions; Equivalent and molar conductance at infinite dilution and their determination for strong and weak electrolytes; Debye –Huckel theory of Ion atmosphere (qualitative)-asymmetric effect, relaxation effect and electrophoretic effect; Debye-Huckel limiting law-brief qualitative description. Estimation of activity coefficient for electrolytes using Debye-Huckel limiting law. Ostwald's dilution law; Ionic mobility; Application of conductance measurement (determination of solubility product and ionic product of water); Conductometric titrations. Transport number, Principles of Hittorf's and Moving-boundary method .

(ii) Ionic Equilibrium (8 Lectures)
Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant and ionic product of water. Ionization of weak acids and bases, pH scale Salt hydrolysis- calculation of hydrolysis constant, degree of hydrolysis and pH for different salts (exact Treatment). Determination of hydrolysis constant conductometrically. Buffer solutions; derivation of Henderson equation and its applications; buffer capacity, buffer range, buffer action. Theory of acid–base indicators; selection of indicators and their limitations.

Recommended Text Books:

1. **Levine, I. N. Physical Chemistry, 6th Edition McGraw-Hill India, 2011**
2. **Castellan, G. W. Physical Chemistry, Narosa , 2004**
3. **Atkins, P. W. & Paula, J. de, Atkins' Physical Chemistry, 11th Edition, Oxford University Press, 2018**

Reference Books:

1. **Denbigh, K. The Principles of Chemical Equilibrium, Cambridge University Press**
2. **Zemansky, M. W. & Dittman, R.H , Heat and Thermodynamics, Special Indian Edition , 8th Edition, Tata-McGraw-Hil ,2017**
3. **Klotz, Irving M , Rosenberg, Robert M, Chemical Thermodynamics ,Wiley India , 2013**

Practical : (30 Lectures)

PAPER: CHEM-H-CC3-3-P

1. Determination of rate constant of the reaction between H_2O_2 and acidified KI solution using Clock reaction.

2. Determination of the rate constant for the decomposition of H_2O_2 using $FeCl_3$ as catalyst.

3. Determination of the rate constant for the first order acid catalyzed hydrolysis of an ester.

4. To study the kinetics of the inversion of cane sugar using a polarimeter.

Reference Books:

1. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MAJOR

PAPER : CHEM-H-CC4-3-Th

(Credit : Theory -03, Practical – 01)

Organic Chemistry – I

Theory: (45 Lectures)

Module : I

Aromatic Substitution: (12 Lectures)

Electrophilic aromatic substitution

Mechanisms and evidences in favour of it including PKIE; orientation and reactivity; reactions: nitration, nitrosation, sulfonation, halogenation, Friedel-Crafts reaction; one-carbon electrophiles (reactions: chloromethylation, Houben-Hoesch, Vilsmeier-Haack, Reimer-Tiemann, Kolbe-Schmidt); *Ipso* substitution.

Nucleophilic aromatic substitution

Addition-elimination mechanism and evidences in favour of it; S_N1 mechanism; *cine* substitution (benzyne mechanism), structure of benzyne.

Birch Reduction of benzenoid aromatics

Benzene, Alkylbenzene, Anisole, Benzoic acid (with mechanism).

General Treatment of Reaction Mechanism –II: (8 Lectures)

Concept of organic acids and bases

Concept of pK_a and pK_{aH}, effect of structure, substituent and solvent on acidity and basicity; proton sponge.

Tautomerism

Basic difference between tautomerism and resonance, prototropy (keto-enol, phenol-keto); composition of the equilibrium in different systems (simple carbonyl; 1,2- and 1,3-dicarbonyl systems, phenols and related systems), factors affecting keto-enol tautomerism, basic ideas about valence tautomerism and ring-chain tautomerism.

Module : II

Substitution and Elimination Reactions: (13 Lectures)

Nucleophilic substitution reactions

Substitution at sp^3 centre[systems: alkyl halides, allyl halides, benzyl halides, alcohols, ethers, epoxides, α-halocarbonyls]:mechanisms (with evidence),relative rates & stereochemical features: S_N1, S_N2, S_N2', S_N1' (allylic rearrangement) and S_Ni; effects of solvent, substrate structure, leaving group and nucleophiles (including ambident nucleophiles, cyanide & nitrite); substitutions involving NGP (with heteroatoms and phenyl groups).

Elimination reactions

E1, E2, E1cB and Ei (pyrolytic *syn* eliminations); formation of alkenes and alkynes; mechanisms (with evidence), reactivity, regioselectivity (Saytzeff/Hofmann)and stereoselectivity; comparison between substitution and elimination reactions , comparison between nucleophilicity and basicity.

Module : III

Chemistry of alkenes and alkynes: (12 Lectures)

Addition to C=C

Mechanism (with evidence wherever applicable), reactivity, regioselectivity (Markownikoff and anti-Markownikoff additions) and stereoselectivity; reactions: hydrogenation, halogenation, hydrohalogenation, hydration, oxymercuration-demercuration, hydroboration-oxidation, epoxidation, *syn* and *anti*-hydroxylation, ozonolysis, addition of singlet and triplet carbenes; Simmons-Smith cyclopropanation reaction; electrophilic addition to 1,3-butadiene; concept of kinetic and thermodynamic control of products; radical addition: HBr addition; mechanism of allylic and benzylic bromination in competition with brominations across C=C; use of NBS; interconversion of *E* and *Z* alkenes.

Addition to C≡C (in comparison to C=C)

Mechanism, reactivity, regioselectivity (Markownikoff and anti-Markownikoff addition) and stereoselectivity; reactions: hydrogenation, Hg(II) ion catalysed hydration, hydroboration-oxidation, dissolving metal reduction of alkynes (Birch); reactions of terminal alkynes by exploring its acidity.

Recommended Text Books:

1. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
2. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
3. **Morrison, R. N. & Boyd, R. N. and Bhattacharjee , Organic Chemistry, 7th Edition , Pearson Education , 2010**

Practical : (30 Lectures)

PAPER: CHEM-H-CC4-3-P

Identification of Pure Single organic Compound.

Solid compounds:

Oxalic acid, tartaric acid, citric acid, succinic acid, resorcinol, urea, glucose, cane sugar, benzoic acid and salicylic acid

Liquid Compounds:

Formic acid, acetic acid, ethyl alcohol, acetone, aniline, dimethylaniline, benzaldehyde, chloroform and nitrobenzene

Reference Books:

1. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**
2. **Furniss , Hannaford, Smith, Tatcholl, Vogel's Textbook of Practical Organic Chemistry ,5th Edition , Pearson India, 2003**

CHEMISTRY MAJOR

PAPER : CHEM-H-CC5-4-Th

(Credit : Theory -03, Practical – 01)

Inorganic Chemistry – I

Theory: (45 Lectures)

Module : I

Chemical bonding -II: (25 Lectures)

Molecular orbital concept of bonding

The approximations of the theory, Linear combination of atomic orbitals (LCAO) (elementary pictorial approach): sigma and pi bonds and delta interaction, multiple bonding. Orbital designations: gerade, ungerade, HOMO, LUMO. Orbital mixing,. MO diagrams of H_2, Li_2, Be_2, B_2, C_2, N_2, O_2, F_2, and their ions wherever possible; Heteronuclear molecular orbitals: CO, NO, NO^+, CN^-, HF, BeH_2, CO_2 and H_2O. Bond properties: bond orders, bond lengths.

Metallic Bond

Qualitative idea of valence bond and band theories. Semiconductors and insulators, defects in solids.

Weak Chemical Forces

Hydrogen bonding (theories of hydrogen bonding, valence bond treatment), receptor-guest interactions, Halogen bonds. Effects of chemical force, melting and boiling points.

Module : II

Acids and bases: (10 Lectures)

Acid-Base concept

Arrhenius concept, theory of solvent system (in H_2O, NH_3, SO_2 and HF), Bronsted-Lowry's concept, Lux Flood concept, Lewis concept, group characteristics of Lewis acids, solvent levelling and differentiating effects. Relative strength of acids, Pauling's rules. HSAB principle.

Thermodynamic acidity parameters

Drago-Wayland equation. Superacids, Gas phase acidity and proton affinity.

Acid-base equilibria in aqueous solution:

Proton transfer equilibria in water, pH, buffer. Acid-base neutralization curves; indicator, choice of indicators.

Module : III

Theoretical principles of inorganic qualitative analysis: (10 Lectures)

Basic principles involved in analysis of cations and anions and solubility products, common ion effect.

Principle involved in separation of cations into groups and choice of group reagents. Interfering anions (fluoride, borate, oxalate and phosphate) and need to remove them after Group II.

Recommended Text Books:

1. **G. L. Miessler, D. A. Tarr, Inorganic Chemistry , 3rd Edition, Pearson India, 2008**
2. **A. G. Sharpe, C. E. Housecroft, Inorganic Chemistry 3rd Edition , Pearson India ,2002**
3. **Svehla & Sivasankar , Vogel's Qualitative Inorganic Analysis, 7th Ed., Pearson, 2012.**

Practical : (30 Lectures)

PAPER: CHEM-H-CC5-4-P

Qualitative semimicro analysis of mixtures containing three radicals. Emphasis should be given to the understanding of the chemistry of different reactions:

Cation Radicals

Na^+, K^+, Ca^{2+}, Sr^{2+}, Ba^{2+}, Al^{3+}, Cr^{3+}, Mn^{2+}/Mn^{4+}, Fe^{3+}, Co^{2+}/Co^{3+}, Ni^{2+}, Cu^{2+}, Zn^{2+}, Pb^{2+}, Cd^{2+} , Bi^{3+} , Sn^{2+}/Sn^{4+}, As^{3+}/As^{5+}, $Sb^{3+/5+}$, NH_4^+, Mg^{2+} .

Anion Radicals

F^-, Cl^- , Br^-, BrO_3^-, I^-, IO_3^-, SCN^-, S^{2-}, SO_4^{2-}, NO_3^-, NO_2^-, PO_4^{3-}, AsO_4^{3--}, BO_3^{3-}, CrO_4^{2-} / $Cr_2O_7^{2-}$, $Fe(CN)_6^{4-}$, $Fe(CN)_6^{3-}$.

Insoluble Materials

Al_2O_3(ig), Fe_2O_3(ig), Cr_2O_3(ig), SnO_2, $SrSO_4$, $BaSO_4$, CaF_2, $PbSO_4$.

Reference Books:

1. **Svehla & Sivasankar , Vogel's Qualitative Inorganic Analysis, 7th Ed., Pearson, 2012.**
2. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MAJOR

PAPER : CHEM-H-CC6-4-Th

(Credit : Theory -03, Practical – 01)

Organic Chemistry – II

Theory: (45 Lectures)

Module : I

Stereochemistry – III: **(12 Lectures)**

Conformation

Conformational nomenclature: eclipsed, staggered, gauche, syn and anti; dihedral angle, torsion angle; energy barrier of rotation, concept of torsional and steric strains; relative stability of conformers on the basis of steric effect, dipole-dipole interaction and H-bonding; butane gauche interaction; conformational analysis of ethane, propane, *n*-butane, and 2-methylbutane; 1,2-dihaloalkanes and ethylene glycol.

Concept of prostereoisomerism

Prostereogenic centre; concept of $(pro)^n$ chirality: topicity of ligands and faces (elementary idea); pro-R/pro-S, pro-E/pro-Z and Re/Si descriptors; pro-*r* and pro-*s* descriptors of ligands on propseudoasymmetric centre.

Chirality arising out of stereoaxis

Stereoisomerism of substituted cumulenes with even and odd number of double bonds; chiral axis in allenes, and biphenyls; related configurational descriptors (R_a/S_a); atropisomerism; racemisation of chiral biphenyls

Module : II

Chemistry of carbonyl Compounds: **(28 Lectures)**

Nucleophilic Addition to C=O

Structure and reactivity of carbonyl compounds; mechanism (with evidence), reactivity, equilibrium and kinetic control; formation of hydrates, cyanohydrins and bisulphite adduct; nucleophilic addition-elimination reactions with alcohols, thiols and nitrogen-based nucleophiles; reactions: benzoin condensation, Cannizzaro and Tischenko reactions, reactions with ylides: Wittig and Corey-Chaykovsky reaction; Rupe rearrangement, oxidations and reductions: Clemmensen, Wolff-Kishner, $LiAlH_4$, $NaBH_4$, MPVO redox equilibrium, acyloin condensation; oxidation of alcohols with PDC and PCC; periodic acid and lead tetraacetate oxidation of 1,2-diols.

Exploitation of acidity of α-H of C=O

Formation of enols and enolates; kinetic and thermodynamic enolates; reactions (mechanism with evidence): halogenation of carbonyl compounds under acidic and basic conditions, Hell-Volhard-Zelinsky (H. V. Z.) reaction, nitrosation, SeO_2 (Riley) oxidation; condensations (mechanism with evidence): Aldol, Tollens', Knoevenagel, Claisen-Schmidt, Claisen ester including Dieckmann; Mannich reaction, Perkin reaction; alkylation of active

methylene compounds; synthetic applications of diethyl malonate and ethyl acetoacetate; specific enol equivalents (lithium enolates, enamines and silyl enol ethers) in connection with alkylation, acylation and aldol type reaction.

Nucleophilic addition to α,β-unsaturated carbonyl system

General principle and mechanism (with evidence); direct and conjugate addition, addition of enolates (Michael reaction), Robinson annulations reaction.

Substitution at sp^2 carbon (C=O system)

Mechanism (with evidence): $B_{AC}2$, $A_{AC}2$, $A_{AC}1$, $A_{AL}1$ (in connection to acid and ester); acid derivatives: amides, anhydrides & acyl halides (formation and hydrolysis including comparison).

Module : III

Organometallics (5 Lectures)

Grignard reagents ,Organolithiums; Gilman cuprates: preparation and reactions (mechanism with evidence); addition of Grignard and organolithium to carbonyl compounds; substitution on -COX; directed *ortho* metalation of arenes using organolithiums, conjugate addition by Gilman cuprates; Corey-House synthesis; abnormal behaviour of Grignard reagents; comparison of reactivity among Grignard, organolithiums and organocopper reagents; Reformatsky reaction; concept of umpolung.

Recommended Text Books:

1. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
2. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
3. **Morrison, R. N. & Boyd, R. N. and Bhattacharjee , Organic Chemistry, 7th Edition ,(Pearson Education) , 2010**
4. **Nasipuri, D. Stereochemistry of Organic Compounds, 4th Edition, New Age International Pvt Ltd , 2020**

Practical : (30 Lectures)

PAPER: CHEM-H-CC6-4-P

Qualitative analysis of single solid organic compound:

1. Detection of special elements (N, S, Cl) by Lassaigne's test

2. Solubility and classification (solvents: H_2O, 5% HCl, 5% NaOH and 5% NaHCO3)

3. Detection of the following functional groups by systematic chemical tests: aromatic amino (Ar-NH2), aromatic nitro (-NO2), amido (-CONH2, including imide), phenolic –OH, carboxylic acid (-COOH), carbonyl (distinction between -CHO and >C=O); only one test for each functional group is to be reported.

Each student, during laboratory session, is required to carry out qualitative chemical tests for all the special elements and the functional groups in known and unknown (**at least six)** organic compounds.

Reference Books:

1. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**
2. **Furniss, Hannaford, Smith, Tatcholl, Vogel's Textbook of Practical Organic Chemistry ,5th Edition , Pearson India, 2003**

CHEMISTRY MAJOR

PAPER : CHEM-H-CC7-4-Th

(Credit : Theory -03, Practical – 01)

Physical Chemistry - II

Theory: (45 Lectures)

Module : I

Transport processes and Liquid State:

Diffusion and Viscosity: (5 Lectures)

Diffusion

Fick's law, Flux, force, phenomenological coefficients & their inter-relationship (general form), different examples of transport properties

Viscosity

General features of fluid flow (streamline flow and turbulent flow); Newton's equation, viscosity coefficient; Poiseuille's equation (with derivation); principle of determination of viscosity coefficient of liquids by falling sphere method and using Ostwald's viscometer. Temperature variation of viscosity of liquids and comparison with that of gases. Relation between viscosity coefficient of a gas and mean free path.

Surface tension and energy (4 Lectures)

Surface tension, surface energy, excess pressure, capillary rise and surface tension; Work of cohesion and adhesion, spreading of liquid over other surface; Vapour pressure over curved surface; Temperature dependence of surface tension

Module : II

Solid State: (12 Lectures)

Bravais Lattice and Laws of Crystallography

Types of solid, Bragg's law of diffraction; Laws of crystallography (Haüy's law and Steno's law); Permissible symmetry axes in crystals; Lattice, space lattice, unit cell, crystal planes, Bravais lattice. Packing of uniform hard sphere, close packed arrangements (fcc and hcp); Tetrahedral and octahedral voids. Void space in cubic systems

Crystal plane

Distance between consecutive planes [cubic and orthorhombic lattices]; Indexing of planes, Miller indices; calculation of d_{hkl}; Relation between molar mass and unit cell dimension for cubic system; Bragg's law (derivation).Determination of crystal structure: Powder method; Structure of NaCl and KCl crystals.

Module : III

Application of Thermodynamics – II: **(16 Lectures)**

Colligative properties

Vapour pressure of solution; Ideal solution, ideally dilute solution and colligative properties; Raoult's law . Thermodynamic derivations (using chemical potential) relating (i) Elevation of boiling point of an ideally dilute solution containing a non- volatile non electrolyte solute, (ii) Depression of freezing point of an ideally dilute solution containing a non -volatile non electrolyte solute (iii) Osmotic pressure of an ideally dilute solution containing a non volatile non electrolyte solute with the molality / molar concentration of solute in solution . Applications in calculating molar masses of normal, dissociated and associated solutes in solution; Abnormal colligative properties.

Phase Equilibrium:

Definitions of phase, component and degrees of freedom; Phase rule and its derivations; Definition of phase diagram; Phase diagram for water, CO_2, Sulphur. First order phase transition and Clapeyron equation; Clausius- Clapeyron equation - derivation and use; Ehrenfest Classification of phase transition.

Binary solutions: Liquid vapour equilibrium for two component systems. Ideal solution at fixed temperature and pressure; Lever Rule. Principle of fractional distillation; Duhem-Margules equation; Henry's law; Konowaloff's rule; Positive and negative deviations from ideal behaviour; Azeotropic solution; Liquid-liquid phase diagram using phenol- water system; Solid-liquid phase diagram; Eutectic mixture

Three component systems, water-chloroform-acetic acid system, triangular plots.

ELECTROCHEMISTRY-II: **(8 Lectures)**

Electromotive Force:

Rules of oxidation/reduction of ions based on half-cell potentials,; Chemical cells, reversible and irreversible cells with examples; Electromotive force of a cell and its measurement, Thermodynamic derivation of Nernst equation; Standard electrode (reduction) potential and its application to different kinds of half-cells. Application of EMF measurements in determining (i) free energy, enthalpy and entropy of a cell reaction, (ii) equilibrium constants, and (iii) pH values, using hydrogen, quinone-hydroquinone and glass electrodes. Concentration cells with and without transference, liquid junction potential; Potentiometric Titration.

Recommended Text Books:

1. **Levine, I. N. Physical Chemistry, 6th Edition McGraw-Hill India, 2011**
2. **Castellan, G. W. Physical Chemistry, Narosa , 2004**
3. **Atkins, P. W. & Paula, J. de, Atkins' Physical Chemistry, 11th Edition, Oxford University Press, 2018**

Practical : (30 Lectures)

PAPER : CHEM-H-CC7-4-P

1. Surface tension measurements using Stalagmometer:

a) Determine the surface tension of a given solution by drop weight method using a stalagmometer.

b) Study the variation of surface tension of acetic acid solutions with concentration and hence determine graphically the concentration of an unknown solution of acetic acid.

2. Viscosity measurement using Ostwald's viscometer:

a) Determination of viscosity of aqueous solutions of (i) polymer (ii) ethanol and (iii) sugar at room temperature.

b) Study the variation of viscosity of sucrose solution with the concentration of solute and hence determine graphically the concentration of an unknown solution .

3. Conductometric Experiments :

a) Conductometric titration of an acid (Mixture Strong and Weak monobasic acid, and Dibasic acid) against strong base.

b) Study of kinetics saponification reaction conductometrically

Reference Books:

1. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MAJOR

PAPER : CHEM-H-CC8-4-Th

(Credit : Theory -03, Practical – 01)

Inorganic Chemistry – II

Theory: (45 Lectures)

Module : I

Coordination chemistry: (30 Lectures)

Basics of coordination chemistry

Werner's theory, ligands, IUPAC nomenclature, Isomerism (constitutional and stereo isomerism, Geometrical and optical isomerism in square planar and octahedral complexes)

Valence bond theory and crystal field theory

VB description and its limitations. Elementary Crystal Field Theory: splitting of d^n configurations in octahedral, square planar and tetrahedral fields, crystal field stabilization energy (CFSE) in weak and strong fields; pairing energy. Spectrochemical series. Jahn- Teller distortion. Octahedral site stabilization energy (OSSE). Metal-ligand bonding

(MO concept, elementary idea), sigma- and pi-bonding in octahedral complexes (qualitative pictorial approach) and their effects on the oxidation states of transitional metals (examples).

Electronic spectra of complexes and magnetic properties

d-d transitions; L-S coupling; qualitative Orgel diagrams for $3d^1$ to $3d^9$ ions. Racah parameter. Selection rules for electronic spectral transitions; spectrochemical series of ligands; charge transfer spectra (elementary idea). Orbital and spin magnetic moments, spin only moments of d^n ions and their correlation with effective magnetic moments, including orbital contribution; quenching of magnetic moment: super exchange and antiferromagnetic interactions (elementary idea with examples only);

Supramolecular chemistry

Hydrogen bonding. Non-covalent interactions – examples of Ion-Dipole Interactions, Dipole-Dipole interactions, Dipole-Induced Dipole and Ion-Induced Dipole interactions, van der Waals or Dispersion Interactions, Halogen bonding, Cation- interactions, Anion-pi interactions, pi - pi interactions, Aromatic-Aromatic Interactions: Edge-to-face *vs* pi-pi Stacking Interactions, N-H- pi interactions, Sulfur-aromatic interactions.

.

Module : II

Radioactivity **(05 Lectures)**

Nuclear stability

Nuclear stability and nuclear binding energy.

Nuclear Reactions

Artificial radioactivity, fission, fusion and spallation.

Radiocarbon dating

Module : III

Redox reactions: **(10 Lectures)**

Basic principle of redox reactions

Ion-electron method of balancing equation of redox reaction. Elementary idea on standard redox potentials with sign conventions. Nernst equation (without derivation). Influence of complex formation, precipitation and change of pH on redox potentials; formal potential.

Redox titrations

Feasibility of a redox titration, redox potential at the equivalence point, redox indicators. Redox potential diagram (Latimer and Frost diagrams) of common elements and their applications. Disproportionation and comproportionation reactions (typical examples).

Recommended Text Books:

1. **J. E. Huheey, E. A. Keiter, R. L. Keiter, Okhil K. Medhi , Principles of Structure and Reactivity, 5th Edition ,Pearson India, 2022**
2. **H. J. Arnikar, Essentials of Nuclear Chemistry , 5th Edition , New Age International Pvt, Ltd. , 2022**
3. **G. Friedlander, J.W. Kennedy, E. S. Macias , J.M. Miller , Nuclear and radiochemistry , 3rd Edition , John Wiley , 1981**

Practical : (30 Lectures)

PAPER: CHEM-H-CC8-4-P

Estimation of mixtures of metal ions:

1. Estimation of Fe^{3+} and Cu^{2+} in a mixture.
2. Estimation of Fe^{3+} + Cr^{3+} in a mixture.
3. Estimation of Fe^{3+} + $Cr_2O_7^{2-}$ in a mixture.
4. Estimation of Fe^{3+} and Mn^{2+} in a mixture.

Reference Books:

1. **Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.**
2. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MINOR

PAPER : CHEM-H-CC1-1-Th Or CHEM-H-CC1-3-Th

(Credit : Theory -03, Practical – 01)

Chemistry Minor - I

Theory: (45 Lectures)

Module : I

Extra nuclear structure of atoms and Periodicity: (15 Lectures)

Wave-Particle duality; de Broglie hypothesis. Heisenberg's uncertainty principle. Introducing Schrödinger equation. Hydrogen and hydrogen like systems (detailed solution not required) .Concept of Atomic Orbital ; shapes of s, p and d orbitals . Radial and angular distribution curves. Extension to multielectronic systems. Aufbau principle and its limitations ; Pauli's exclusion principle ; Hund's rules and multiplicity. Effective nuclear charge. Shielding and penetration; Slater's rule.

The general idea about modern periodic table, atomic and ionic radii, ionization energy, electron affinity and electro negativity –definition, trends of variation in periodic table and their application in explaining and predicting the chemical behavior of elements and compounds. Electronegativity scales (Pauling's, Mulliken's and Allred-Rochow's scales). Inert pair effect.

Module : II

Basics of Organic Chemistry Bonding and Physical Properties: (10 Lectures)

Valence Bond Theory
Nomenclature of Organic Compounds, Concept of hybridisation, shapes and structures of molecules, double bond equivalent (DBE), Resonance (including hyperconjugation) and Resonance energy.

Electronic displacements
Inductive effect, bond polarization and bond polarizability; steric effect, steric inhibition of resonance.

MO Theory
Qualitative idea about molecular orbitals, bonding and antibonding interactions, idea about σ, σ*, π, π *, n – MOs; concept of HOMO, LUMO and SOMO; sketch and energy levels of π MOs of i) acyclic p orbital system (C=C, conjugated diene, triene, allyl and pentadienyl systems) ii) cyclic p orbital system (neutral systems: [4], [6] annulenes; charged systems: 3-,4-,5-7 membered ring systems); Hückel's rules for aromaticity up to [8] annulene; concept of antiaromaticity; non-aromatic molecules.

Physical properties

Melting point/boiling point and solubility of common organic compounds in terms of covalent & non-covalent intermolecular forces; polarity of molecules and dipole moments.

Stereochemistry – I: (5 Lectures)

Bonding geometries of carbon compounds and representation of molecules: tetrahedral nature of carbon and concept of asymmetry; Fischer, sawhorse, flying wedge and Newman projection formulae and their inter translations. Concept of chirality and symmetry: symmetry elements, molecular chirality and centre of chirality; asymmetric and dissymmetric molecules; enantiomers and diastereomers; concept of stereogenicity, chiral centres and number of stereoisomers: systems involving 1/2-chiral centre(s).

Module : III

Thermodynamics -I: (9 Lectures)

Concept of systems (open , closed and isolated) and surroundings . State of a system; Intensive and extensive variables. Partial derivatives. Exact and inexact differentials. Path function and State function. Concept of heat and work. zeroth law of thermodynamics. Concept of thermodynamic reversibility. Concept of internal energy and 1^{st} law of thermodynamics. Enthalpy and heat capacity, Relations between C_p and C_v . Isothermal and Adiabatic processes ; Calculations of ΔU , ΔH , q and w involving ideal gases in different processes.

Enthalpy of reaction. Hess's law. Enthalpy of formation and combustion. Kirchhoff's equation.

Chemical Kinetics-I: (6 Lectures)

Concept of order and molecularity. Rate laws for zero , 1^{st} and 2^{nd} order reactions and in general for any n-th order reaction. Determination of order of a reaction by half-life and differential methods. Rate determining step and steady state approximation. Opposing, Consecutive and parallel reactions (first order steps only).Temperature dependence of rate constant and Arrhenius equation.

Recommended Text Books:

1. **Lee, J. D. Concise Inorganic Chemistry,5th Ed., Wiley India Pvt. Ltd., 2008.**
2. **Atkins, Overton, Rourke , Weller , Armstrong; Shriver & Atkins' Inorganic Chemistry, 5th Ed., Oxford University Press (2010).**
3. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
4. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
5. **Nasipuri, D. Stereochemistry of Organic Compounds, 4th Edition, New Age International Pvt Ltd , 2020**
6. **Levine, I. N. Physical Chemistry, 6th Edition McGraw-Hill India, 2011**
7. **Castellan, G. W. Physical Chemistry, Narosa , 2004**
8. **Atkins, P. W. & Paula, J. de, Atkins' Physical Chemistry, 11th Edition, Oxford University Press, 2018**
9. **G. L. Miessler, D. A. Tarr, Inorganic Chemistry , 3rd Edition, Pearson India, 2008**

Practical : (30 Lectures)

PAPER: CHEM-H-CC1-1-P Or CHEM-H-CC1-3-P

(1) Calibration and use of apparatus.

(2) Preparation of primary standard solutions (Oxalic Acid and $K_2Cr_2O_7$)

Acid-Base Titrations:

(3) Standardization of NaOH standard oxalic acid solution.

(4) Estimation of Carbonate and bicarbonate present together in a mixture

(5) Estimation of acetic acid in commercial Vinegar.

Oxidation-Reduction Titrimetry:

(6) Standardization of $KMnO_4$ standard Oxalic Acid solution.

(7) Estimation of Fe(II) using standardized $KMnO_4$ solution.

(8) Estimation of Fe(III) using standard $K_2Cr_2O_7$ solution.

(9) Estimation of Fe(II) and Fe(III) in a given mixture using standard $K_2Cr_2O_7$ solution.

Reference Books:

1. **Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.**
2. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MINOR

PAPER : CHEM-H-CC2-3-Th Or CHEM-H-CC2-4-Th

(Credit : Theory -03, Practical – 01)

Chemistry Minor - II

Theory: (45 Lectures)

Module : I

Kinetic Theory and Gaseous state: (8 Lectures)

Concept of pressure and temperature from kinetic theory of gas. Nature of distribution of velocities, Maxwell's distribution of speeds in one, two and three dimensions; Kinetic energy distribution in one, two and three dimensions, calculations of average, root mean square and most probable values in each case; Collision of gas molecules; Collision

diameter; Collision number and mean free path; Frequency of binary collisions (similar and different molecules); Wall collision and rate of effusion Calculation of number of molecules having energy ≥ ε, Principle of equipartition of energy and its application to calculate the classical limit of molar heat capacity of gases.

Real gas and Virial equation: **(7 Lectures)**

Deviation of gases from ideal behavior; compressibility factor; Boyle temperature; Andrew's and Amagat's plots; van der Waals equation and its features; its derivation and application in explaining real gas behavior, other equations of state ; Existence of critical state, Critical constants in terms of van der Waals constants; Law of corresponding states; virial equation of state; van der Waals equation expressed in virial form and significance of second virial coefficient; Intermolecular forces (Debye, Keesom and London interactions; Lennard-Jones potential - elementary idea).

Module : II

Chemical Bonding – I: **(15 Lectures)**

i) Ionic bond: General characteristics, types of ions, size effects, radius ratio rule and its application and limitations. Packing of ions in crystals. Born-Lande equation with derivation and importance of Kapustinskii expression for lattice energy. Madelung constant, Born-Haber cycle and its application, Solvation energy. Defects in solids (elementary idea). Solubility energetic of dissolution process.

ii) Covalent bond: Polarizing power and polarizabilty, ionic potential, Fajan's rules, Lewis structures, formal charge, Valence Bond Theory, The hydrogen molecule (Heitler – London approach), directional character of covalent bonds, hybridizations, equivalent and non-equivalent hybrid orbitals, Bent's rules, dipole moments, VSEPR theory, shapes of molecules and ions containing lone pairs (examples from main group chemistry) and multiple bonding (σ and π bond approach).

Module : III

Stereochemistry – II: **(8 Lectures)**

Chirotopicityand its relationship with stereogenicity; concept of pseudoasymmetry for ABA type systems. Relative and absolute configuration: *R/S* descriptors; *erythro/threo* and *meso* nomenclature of compounds; *E/Z* descriptors for C=C, combination of *R/S*- and *E/Z* isomerisms. Optical activity of chiral compounds: optical rotation, and specific rotation; racemic compounds, racemisation (through cationic, anionic intermediates); resolution of acids and bases *via* diastereomeric salt formation; optical purity and enantiomeric excess.

General Treatment of Reaction Mechanism –I: **(7 Lectures)**

Reactive intermediates

Carbocations (carbenium and carbonium ions), non-classical carbocations, carbanions, carbon radicals: generation and stability, structure and electrophilic / nucleophilic behaviour of reactive intermediates (elementary idea).

Reaction thermodynamics

Free energy and equilibrium, enthalpy and entropy factor, calculation of enthalpy change *via* BDE, intermolecular & intramolecular reactions.

Reaction kinetics

Rate constant and free energy of activation; free energy profiles for one-step, and two-step reactions; catalyzed reactions, principle of microscopic reversibility; Hammond's postulate.

Substitution reaction

Free-radical substitution reaction: halogenation of alkanes, mechanism (with evidence) and stereochemical features; reactivity-selectivity principle in the light of Hammond's postulate.

Recommended Text Books:

1. **Lee, J. D. Concise Inorganic Chemistry,5th Ed., Wiley India Pvt. Ltd., 2008.**
2. **Atkins, Overton, Rourke , Weller , Armstrong; Shriver & Atkins' Inorganic Chemistry, 5th Ed., Oxford University Press (2010).**
3. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
4. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
5. **Nasipuri, D. Stereochemistry of Organic Compounds, 4th Edition, New Age International Pvt Ltd , 2020**
6. **Levine, I. N. Physical Chemistry, 6th Edition McGraw-Hill India, 2011**
7. **Castellan, G. W. Physical Chemistry, Narosa , 2004**
8. **Atkins, P. W. & Paula, J. de, Atkins' Physical Chemistry, 11th Edition, Oxford University Press, 2018**
9. **G. L. Miessler, D. A. Tarr, Inorganic Chemistry , 3rd Edition, Pearson India, 2008**

Practical : (30 Lectures)

PAPER: CHEM-H-CC2-3-P Or CHEM-H-CC2-4-P

(1) Standardization of $Na_2S_2O_3$ solution against standard $K_2Cr_2O_7$ solution.

Iodo-/ Iodimetric Titrations

(2) Estimation of Vitamin C

(3) Estimation of (i) arsenite and (ii) antimony iodimetrically

(4) Estimation of available chlorine in bleaching powder.

Estimation of metal content in some selective samples

(5) Estimation of Cu in brass.

(6) Estimation of Cr and Mn in Steel.

(7) Estimation of Fe in cement.

Reference Books:

1. **Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.**
2. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MINOR

PAPER : CHEM-H-CC4-5-Th

(Credit : Theory -03, Practical – 01)

Chemistry Minor– III

Theory: (45 Lectures)

Module : I

Aromatic Substitution: (12 Lectures)

Electrophilic aromatic substitution

Mechanisms and evidences in favour of it including PKIE; orientation and reactivity; reactions: nitration, nitrosation, sulfonation, halogenation, Friedel-Crafts reaction; one-carbon electrophiles (reactions: chloromethylation, Houben-Hoesch, Vilsmeier-Haack, Reimer-Tiemann, Kolbe-Schmidt); *Ipso* substitution.

Nucleophilic aromatic substitution

Addition-elimination mechanism and evidences in favour of it; S_N1 mechanism; *cine* substitution (benzyne mechanism), structure of benzyne.

Birch Reduction of benzenoid aromatics

Benzene, Alkylbenzene, Anisole, Benzoic acid (with mechanism).

General Treatment of Reaction Mechanism –II: (8 Lectures)

Concept of organic acids and bases

Concept of pK_a and pK_{aH}, effect of structure, substituent and solvent on acidity and basicity; proton sponge.

Tautomerism

Basic difference between tautomerism and resonance, prototropy (keto-enol, phenol-keto); composition of the equilibrium in different systems (simple carbonyl; 1,2- and 1,3-dicarbonyl systems, phenols and related systems), factors affecting keto-enol tautomerism, basic ideas about valence tautomerism and ring-chain tautomerism.

Module : II

Substitution and Elimination Reactions: (13 Lectures)

Nucleophilic substitution reactions

Substitution at sp^3 centre[systems: alkyl halides, allyl halides, benzyl halides, alcohols, ethers, epoxides, α-halocarbonyls]:mechanisms (with evidence),relative rates & stereochemical features: S_N1, S_N2, S_N2', S_N1' (allylic rearrangement) and S_Ni; effects of solvent, substrate structure, leaving group and nucleophiles (including ambident nucleophiles, cyanide & nitrite); substitutions involving NGP (with heteroatoms and phenyl groups).

Elimination reactions

E1, E2, E1cB and Ei (pyrolytic *syn* eliminations); formation of alkenes and alkynes; mechanisms (with evidence), reactivity, regioselectivity (Saytzeff/Hofmann) and stereoselectivity; comparison between substitution and elimination reactions , comparison between nucleophilicity and basicity.

Module : III

Chemistry of alkenes and alkynes: (12 Lectures)

Addition to C=C

Mechanism (with evidence wherever applicable), reactivity, regioselectivity (Markownikoff and anti-Markownikoff additions) and stereoselectivity; reactions: hydrogenation, halogenation, hydrohalogenation, hydration, oxymercuration-demercuration, hydroboration-oxidation, epoxidation, *syn* and *anti*-hydroxylation, ozonolysis, addition of singlet and triplet carbenes; Simmons-Smith cyclopropanation reaction; electrophilic addition to 1,3-butadiene; concept of kinetic and thermodynamic control of products; radical addition: HBr addition; mechanism of allylic and benzylic bromination in competition with brominations across C=C; use of NBS; interconversion of *E* and *Z* alkenes.

Addition to C≡C (in comparison to C=C)

Mechanism, reactivity, regioselectivity (Markownikoff and anti-Markownikoff addition) and stereoselectivity; reactions: hydrogenation, Hg(II) ion catalysed hydration, hydroboration-oxidation, dissolving metal reduction of alkynes (Birch); reactions of terminal alkynes by exploring its acidity.

Recommended Text Books:

1. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
2. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
3. **Morrison, R. N. & Boyd, R. N. and Bhattacharjee , Organic Chemistry, 7th Edition , Pearson Education , 2010**

Practical : (30 Lectures)

PAPER: CHEM-H-CC4-3-P

Identification of Pure Single organic Compound.

Solid compounds:

Oxalic acid, tartaric acid, citric acid, succinic acid, resorcinol, urea, glucose, cane sugar, benzoic acid and salicylic acid

Liquid Compounds:

Formic acid, acetic acid, ethyl alcohol, acetone, aniline, dimethylaniline, benzaldehyde, chloroform and nitrobenzene

Reference Books:

1. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**
2. **Furniss , Hannaford, Smith, Tatcholl, Vogel's Textbook of Practical Organic Chemistry ,5th Edition , Pearson India, 2003**

CHEMISTRY MINOR

PAPER : CHEM-H-CC5-6-Th

(Credit : Theory -03, Practical – 01)

Chemistry Minor – IV

Theory: (45 Lectures)

Module : I

Chemical bonding II: **(25 Lectures)**

Molecular orbital concept of bonding

The approximations of the theory, Linear combination of atomic orbitals (LCAO) (elementary pictorial approach): sigma and pi bonds and delta interaction, multiple bonding. Orbital designations: gerade, ungerade, HOMO, LUMO. Orbital mixing,. MO diagrams of H_2, Li_2, Be_2, B_2, C_2, N_2, O_2, F_2, and their ions wherever possible; Heteronuclear molecular orbitals: CO, NO, NO^+, CN^-, HF, BeH_2, CO_2 and H_2O. Bond properties: bond orders, bond lengths.

Metallic Bond

Qualitative idea of valence bond and band theories. Semiconductors and insulators, defects in solids.

Weak Chemical Forces

Hydrogen bonding (theories of hydrogen bonding, valence bond treatment), receptor-guest interactions, Halogen bonds. Effects of chemical force, melting and boiling points.

Module : II

Acids and bases: **(10 Lectures)**

Acid-Base concept

Arrhenius concept, theory of solvent system (in H_2O, NH_3, SO_2 and HF), Bronsted-Lowry's concept, Lux Flood concept, Lewis concept, group characteristics of Lewis acids, solvent levelling and differentiating effects. Relative strength of acids, Pauling's rules. HSAB principle.

Thermodynamic acidity parameters

Drago-Wayland equation. Superacids, Gas phase acidity and proton affinity.

Acid-base equilibria in aqueous solution

Proton transfer equilibria in water, pH, buffer. Acid-base neutralisation curves; indicator, choice of indicators.

Module : III

Theoretical principles of inorganic qualitative analysis: (10 Lectures)

Basic principles involved in analysis of cations and anions and solubility products, common ion effect.

Principle involved in separation of cations into groups and choice of group reagents. Interfering anions (fluoride, borate, oxalate and phosphate) and need to remove them after Group II.

Recommended Text Books:

1. **G. L. Miessler, D. A. Tarr, Inorganic Chemistry , 3rd Edition, Pearson India, 2008**
2. **A. G. Sharpe, C. E. Housecroft, Inorganic Chemistry 3rd Edition ,Pearson India ,2002**
3. **J. E. Huheey, E. A. Keiter, R. L. Keiter, Okhil K. Medhi , Principles of Structure and Reactivity, 5th Edition ,Pearson India, 2022**

Practical : (30 Lectures)

PAPER: CHEM-H-CC5-6-P

Qualitative semimicro analysis of mixtures containing three radicals. Emphasis should be given to the understanding of the chemistry of different reactions.

Cation Radicals: Na^{+}, K^{+}, Ca^{2+}, Sr^{2+}, Ba^{2+}, Al^{3+}, Cr^{3+}, Mn^{2+}/Mn^{4+}, Fe^{3+}, Co^{2+}/Co^{3+}, Ni^{2+}, Cu^{2+}, Zn^{2+}, Pb^{2+}, Cd^{2+} (Demo), Bi^{3+} (Demo), Sn^{2+}/Sn^{4+}, As^{3+}/As^{5+}, $Sb^{3+/5+}$ (Demo), NH_4^{+}, Mg^{2+} (Demo).

Anion Radicals: F^{-}, Cl^{-} , Br^{-}, BrO_3^{-}, I^{-}, IO_3^{-}, SCN^{-}, S^{2-}, SO_4^{2-}, NO_3^{-}, NO_2^{-}, PO_4^{3-}, AsO_4^{3--}, BO_3^{3-}, CrO_4^{2-} / $Cr_2O_7^{2-}$, $Fe(CN)_6^{4-}$, $Fe(CN)_6^{3-}$.

Insoluble Materials: Al_2O_3(ig), Fe_2O_3(ig), Cr_2O_3(ig), SnO_2, $SrSO_4$, $BaSO_4$, CaF_2, $PbSO_4$.

Reference Book:

1. **Svehla & Sivasankar , Vogel's Qualitative Inorganic Analysis, 7th Ed., Pearson, 2012.**
2. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

SKILL ENHANCEMENT COURSE

CHEMISTRY

Paper : CHEM-H-SEC1-1-Th
(Credit : Theory -03, Tutorial – 01)

Quantitative Analysis and Basic Laboratory Practices

Theory: (45 Lectures)

Module : I

Introduction to Quantitative analysis and its interdisciplinary nature: **(15 Lectures)**
Definitions of analysis, determination, measurement, techniques and methods. Classification of analytical techniques. Choice of an analytical method -accuracy, precision, sensitivity, selectivity, method validation. Figures of merit of analytical methods and limit of detection (LOD). Limitations of analytical methods . Errors: Determinate and indeterminate errors, absolute error, relative error, minimization of errors. Statistical treatment of finite samples - mean, median, range, standard deviation and variance. External standard calibration -regression equation (least squares method), correlation coefficient (R^2). Presentation of experimental data and results from the point of view of significant figures.
Numerical problems are to be solved wherever applicable.

Module : II

Titrimetric analysis: **(15 Lectures)**
Principle, classification, normality, molarity, molality, mole fraction, ppm, ppb etc. Standard solutions, preparation and dilution of reagents/ solutions using $N_1 V_1 = N_2 V_2$, preparation of ppm level solutions from source materials (salts).
Numerical problems are to be solved wherever applicable.

Acid-base titrimetry:
Titration curves for strong acid vs strong base, weak acid vs strong base and weak base vs strong acid titrations. Quantitative applications – selecting and standardizing a titrant, inorganic analysis - alkalinity, acidity.
Numerical problems are to be solved wherever applicable.

Redox titrimetry:
Theory, balancing redox equations, titration curves, theory of redox indicators and applications.
Numerical problems are to be solved wherever applicable.

Precipitation titrimetry:
Theory, titration curves, indicators for precipitation titrations involving silver nitrate- Volhard's and Mohr's methods and their differences.
Numerical problems are to be solved wherever applicable.

Complexometric titrimetry:
Theory, titration methods employing EDTA (direct, back, displacement and indirect determinations). Indicators for EDTA titrations - theory of metal ion indicators. Determination of hardness of water.
Numerical problems are to be solved wherever applicable.

Gravimetric Analysis:
Stages in gravimetric analysis, requisites of precipitation, theories of precipitation, factors influencing precipitation, co-precipitation and post precipitation. Structure, specificity, conditions and applications of organic reagents such as salcylaldoxime, oxine, dimethyl glyoxime, cupron and cupferron in inorganic analysis. Advantages of organic reagents over inorganic reagents.

Module : III

(15 Lectures)

Water analysis:
Water availability, requirement of water. Quality of surface water and ground water. Impurities in water. Standards of water quality for potable, domestic, industrial and agricultural purpose (color, pH, alkalinity, hardness, TDS, sulphate, fluoride, chloride etc.)

Water treatment technologies:
House hold water treatment, municipal water treatment and industrial treatment (primary and secondary treatment of industrial effluent).Softening of water. Disinfection of water. Definition and determinations of DO, BOD and COD, and their significance.
Numerical problems are to be solved wherever required

Basic laboratory practices:
Basic laboratory practices, calibration of glassware (pipette, burette and volumetric flask), Sampling(solids and liquids), weighing, drying, dissolving, Acid treatment, Rules of work in analytical laboratory, General rule for performing quantitative determinations (volumetric and gravimetric), Safety in Chemical laboratory, Rules of fire prevention and accidents, First aid. Precautions to be taken while
handling toxic chemicals, concentrated/fuming acids and organic solvents.

Recommended Text

1. Douglas A. Skoog, D.M. West , F. james Holler , Stanely R. Crouch, Fundamentals of Analytical Chemistry , Cengage learning India Pvt Ltd. 10th Edition , 2022
2. Daniel C. Harris , Quantitative Chemical Analysis , 10th Edition , W.H. Freeman , 2020

Tutorial: (15 hours)

PAPER: CHEM-H-SEC1-1-Tu

1. Safety Practices in the Chemistry Laboratory, knowledge about common toxic chemicals and safety measures in their handling, cleaning and drying of glass wares.
2. Calibration of glassware, pipette, burette and volumetric flask.
3. Preparation of TLC plates and separation of amino acids
4. Calibration of instruments like colorimeter, pH-meter, conductivity meter, spectrophotometer using reference standards or reference materials.
5. Conductometric titration between HCl and NaOH.
6. Determination of alkali present in soaps/detergents.

SKILL ENHANCEMENT COURSE
CHEMISTRY

Paper : CHEM-H-SEC2-2-Th
(Credit : Theory -04)

Theory: (45 Lectures)

AI for Everyone

Module I

Introduction to Artificial Intelligence, Subfields and Technologies: (15 Lectures)

- Definition and scope of AI
- Historical overview and key milestones
- Differentiating AI from human intelligence
- Machine learning: Supervised, unsupervised, and reinforcement learning
- Deep learning and neural networks
- Natural language processing (NLP) and computer vision

Module II

Applications of AI and Ethical and Social Implications of AI : **(15 Lectures)**

- AI in healthcare: Diagnosis, treatment, and medical imaging
- AI in finance: Fraud detection, algorithmic trading, and risk assessment
- AI in transportation: Autonomous vehicles and traffic optimization
- AI in customer service and chatbots
- AI in education: Personalized learning and intelligent tutoring systems
- Bias and fairness in AI systems
- Privacy and data protection concerns
- Impact of AI on employment and the workforce
- AI and social inequality

Module III

Other Important Issues: (15 Lectures)

- Ethical guidelines and responsible AI practices
- AI and Innovation
- Emerging trends and future directions in AI
- AI and creativity: Generative models and artistic applications

Reference Book :

1. **Russell / Norvig , ARTIFICIAL INTELLIGENCE: A MODERN APPROACH , 4th Edition , Pearson Education, 2022**

SKILL ENHANCEMENT COURSE

CHEMISTRY

Paper : CHEM-H-SEC3-3-Th
(Credit : Theory -03, Tutorial – 01)

Theory: (45 Lectures)

CHEMISTRY IN DAILY LIFE

Module : I

(15 Lectures)

Dairy Products:
Composition of milk and milk products. Analysis of fat content, minerals in milk and butter. Estimation of added water in milk.
Beverages: Analysis of caffeine in coffee and tea, detection of chicory in coffee, chloral hydrate in toddy, determination of methyl alcohol in alcoholic beverages.

Food additives, adulterants, and contaminants:
Food preservatives like benzoates, propionates, sorbates, disulphites. Artificial sweeteners: Aspartame, saccharin, dulcin, sucralose, and sodium cyclamate. Flavors: Vanillin, alkyl esters (fruit flavors), and monosodium glutamate.

Artificial food colorants:
Coal tar dyes and non-permitted colors and metallic salts. Analysis of pesticide residues in food.

Module : II

(15 Lectures)

Vitamins:
Classification and Nomenclature. Sources, deficiency diseases, and structures of Vitamin A1, Vitamin B1, Vitamin C, Vitamin D, Vitamin E & Vitamin K1.

Oils and fats:
Composition of edible oils, detection of purity, rancidity of fats and oil. Tests for adulterants like argemone oil and mineral oils. Halphen test.

Soaps & Detergents:
Definition, classification, manufacturing of soaps and detergents, composition and uses

Module : III

(**15 Lectures)**

Chemical and Renewable Energy Sources:
Principles and applications of primary & secondary batteries and fuel cells. Basics of solar energy, future energy storer.

Polymers:
Basic concept of polymers, classification and characteristics of polymers. Applications of polymers as plastics in electronics, automobile components, medical fields and aerospace materials. Problems of plastic waste management. Strategies for the development of environment-friendly polymers.

Recommended Text Books:

1. **B. K. Sharma: Introduction to Industrial Chemistry, Goel Publishing, Meerut (1998)**
2. **Ashtoush Kar. Medicinal Chemistry (Two Colour Edition), New Age International Pvt Ltd, 2022**
3. **Edward Cox Henry , The Chemical analysis of Foods , Hardcover , Hassell Street Press , 2021**
4. **Fred Billmeyer : Textbook of polymer science; Wiley 3rd addition.**

Tutorial: (15 hours)

PAPER: CHEM-H-SEC3-3-Tu

1. Estimation of Vitamin C
2. Determination of Iodine number of oil.
3. Determination of saponification number of oil.
4. Determination of methyl alcohol in alcoholic beverages.

Interdisciplinary Course in Chemistry

Paper: CHEM-H-IDC1-1-Th
or
CHEM-H-IDC2-2-Th

(Credit : Theory -02, Tutorial – 01)

Quantitative Analysis and Basic Laboratory Practices

Theory: (30 Lectures)

Module : I

(10 Lectures)

Introduction to Quantitative analysis and its interdisciplinary nature:
Definitions of analysis, determination, measurement, techniques and methods. Classification of analytical techniques. Choice of an analytical method -accuracy, precision, sensitivity . Errors: Determinate and indeterminate errors, absolute error, relative error, minimization of errors. Statistical treatment of finite samples - mean, median, range, standard deviation and variance. External standard calibration -regression equation (least squares method), correlation coefficient (R^2). Presentation of experimental data and results from the point of view of significant figures.

Module : II

(10 Lectures)

Titrimetric analysis:
Principle, classification, normality, molarity, molality, mole fraction, ppm, ppb etc. Standard solutions, preparation and dilution of reagents/ solutions using [$N_1 V_1 = N_2 V_2$], preparation of ppm level solutions from source materials (salts).

Acid-base titrimetry:
Titration curves for strong acid vs strong base, weak acid vs strong base and weak base vs strong acid titrations.

Redox titrimetry:
Theory, balancing redox equations, titration curves.

Precipitation titrimetry:
Theory, titration curves, indicators for precipitation titrations.

Complexometric titrimetry:
Theory, titration methods employing EDTA (direct, back, displacement and indirect determinations). Indicators for EDTA titrations . Determination of hardness of water.

Module : III

(10 Lectures)

Water analysis:
Water availability, requirement of water. Quality of surface water and ground water. Impurities in water. Standards of water quality for potable, domestic, industrial and agricultural purpose (color, pH, alkalinity, hardness, TDS, sulphate, fluoride, chloride etc.)

Water treatment technologies:
House hold water treatment, municipal water treatment and industrial treatment (primary and secondary treatment of industrial effluent).Softening of water. Disinfection of water. Definition and determinations of DO, BOD and COD, and their significance.

Basic laboratory practices:
Basic laboratory practices, calibration of glassware (pipette, burette and volumetric flask), Sampling(solids and liquids), weighing, drying, dissolving, Acid treatment, Rules of work in analytical laboratory, General rule for performing quantitative determinations (volumetric and gravimetric), Safety in Chemical laboratory, Rules of fire prevention and accidents, First aid. Precautions to be taken while
handling toxic chemicals, concentrated/fuming acids and organic solvents.

Recommended Text

1. Douglas A. Skoog, D.M. West , F. james Holler , Stanely R. Crouch, Fundamentals of Analytical Chemistry , Cengage learning India Pvt Ltd. 10th Edition , 2022
2. Daniel C. Harris , Quantitative Chemical Analysis , 10th Edition , W.H. Freeman , 2020

Tutorial: (15 hours)

PAPER: CHEM-H-IDC1-1-Tu or PAPER:CHEM-H-IDC2-2-Tu

1. Safety Practices in the Chemistry Laboratory, knowledge about common toxic chemicals and safety measures in their handling, cleaning and drying of glass wares.
2. Calibration of glassware, pipette, burette and volumetric flask.
3. Preparation of TLC plates and separation of amino acids
4. Calibration of instruments like colorimeter, pH-meter, conductivity meter, spectrophotometer using reference standards or reference materials.
5. Determination of alkali present in soaps/detergents.

Interdisciplinary Course in Chemistry

Paper: CHEM-H-IDC3-3-Th

Theory: (30 Lectures)

(Credit : Theory -02, Tutorial – 01)

CHEMISTRY IN DAILY LIFE

Module : I

(10 Lectures)

Dairy Products:
Composition of milk and milk products. Analysis of fat content, minerals in milk and butter. Estimation of added water in milk.
Beverages: Analysis of caffeine in coffee and tea, detection of chicory in coffee, chloral hydrate in toddy, determination of methyl alcohol in alcoholic beverages.

Food additives, adulterants, and contaminants:
Food preservatives like benzoates, propionates, sorbates, disulphites. Artificial sweeteners: Aspartame, saccharin, dulcin, sucralose, and sodium cyclamate. Flavors: Vanillin, alkyl esters (fruit flavors), and monosodium glutamate.

Artificial food colorants:
Coal tar dyes and non-permitted colors and metallic salts. Analysis of pesticide residues in food.

Module : II

(10 Lectures)

Vitamins:
Classification and Nomenclature. Sources, deficiency diseases, and structures of Vitamin A1, Vitamin B1, Vitamin C, Vitamin D, Vitamin E & Vitamin K1.

Oils and fats:
Composition of edible oils, detection of purity, rancidity of fats and oil. Tests for adulterants like argemone oil and mineral oils. Halphen test.

Soaps & Detergents:
Definition, classification, manufacturing of soaps and detergents, composition and uses

Module : III

(10 Lectures)

Chemical and Renewable Energy Sources:
Principles and applications of primary & secondary batteries and fuel cells. Basics of solar energy, future energy storer.

Polymers:
Basic concept of polymers, classification and characteristics of polymers. Applications of polymers as plastics in electronics, automobile components, medical fields and aerospace materials. Problems of plastic waste management. Strategies for the development of environment-friendly polymers.

Recommended Text Books:

1. **B. K. Sharma: Introduction to Industrial Chemistry, Goel Publishing, Meerut (1998)**
2. **Ashtoush Kar. Medicinal Chemistry (Two Colour Edition), New Age International Pvt Ltd, 2022**
3. **Edward Cox Henry , The Chemical analysis of Foods , Hardcover , Hassell Street Press , 2021**
4. **Fred Billmeyer : Textbook of polymer science; Wiley 3rd addition.**

Tutorial: (15 hours)

PAPER : CHEM-H-IDC3-3-Tu

1. Estimation of Vitamin C
2. Determination of Iodine number of oil.
3. Determination of saponification number of oil.
4. Determination of methyl alcohol in alcoholic beverages.

THREE-YEAR B.A./B.Sc

(Multidisciplinary Courses of Studies, under Curriculum & Credit framework, 2022)

SYLLABUS

FOR

CHEMISTRY

UNIVERSITY OF CALCUTTA

Chemistry Course Structure (CC1 & CC2)
For
Three-year MULTIDISCIPLINARY Studies
(Theory)

Semester	Paper Code	Paper Name	Brief Descriptions
1	CHEM-MD-CC1-1-Th	Chemistry MDC- I	Extra nuclear structure of atoms and Periodicity, Basics of Organic Chemistry Bonding and Physical Properties , Stereochemistry – I, Thermodynamics – I, Chemical Kinetics-I.
2	CHEM-MD-CC2-2-Th	Chemistry MDC- II	Kinetic Theory and Gaseous state, Chemical Bonding – I , Stereochemistry – II, General Treatment of Reaction Mechanism-I.
3	CHEM-MD-CC3-3-Th	Chemistry MDC- III	Aromatic Substitution Reaction, General Treatment of Reaction Mechanism-II, Substitution, elimination, Addition to alkenes, dienes, alkynes.
4	CHEM-MD-CC4-4-Th	Chemistry MDC- IV	Chemical bonding -II, Acids and bases, Theoretical principles of inorganic qualitative analysis .
	CHEM-MD-CC5-4-Th	Chemistry MDC- V	Thermodynamics- II , Applications of Thermodynamics – I ,Electrochemistry-I.
5 & 6	CHEM-MD-CC6-5-Th	Chemistry MDC- VI	Stereochemistry – III, Chemistry of Carbonyl Compounds, Organometallics.
	CHEM-MD-CC7-5-Th Or CHEM-MD-CC7-6-Th	Chemistry MDC- VII	Transport processes and Liquid State, Solid State, Application of Thermodynamics - II, Electrochemistry-II.
	CHEM-MD-CC8-6-Th	Chemistry MDC- VIII	Coordination chemistry, Radioactivity, Redox reactions .

Important Points

If Chemistry is considered by a student as CC1(Core Course 1 in the CSR/04/2023, dated 23rd June, 2023 of University of Calcutta) then He / She will take CHEM-MD-CC6-5-Th and CHEM MD-CC7-5-Th in Semester 5 and CHEM-MD-CC8-6-Th in Semester 6. On the other hand if Chemistry is opted as CC2 (Core Course 2 in the CSR/04/2023, dated 23rd June, 2023 of University of Calcutta) then He / She will take CHEM-MD-CC6-5-Th in Semester 5 and CHEM-MD-CC7-6-Th &CHEM-MD-CC8-6-Th in Semester 6.

Chemistry Course Structure (CC1 & CC2)

For

Three-year MULTIDISCIPLINARY Studies

(Practical)

Semester	Paper Code	Paper Name	Brief Descriptions
1	CHEM-MD-CC1-1-P	Chemistry MDC- I	Acid-Base Titration, Oxidation-Reduction Titrimetry.
2	CHEM-MD-CC2-2-P	Chemistry MDC- II	Iodo-/ Iodimetric Titrations , Estimation of metal content in some selective samples.
3	CHEM-MD-CC3-3-P	Chemistry MDC- III	Identification of Single organic Compound.
4	CHEM-MD-CC4-4-P	Chemistry MDC- IV	Qualitative semimicro analysis of mixtures containing three radicals.
	CHEM-MD-CC5-4-P	Chemistry MDC- V	Chemical Kinetics (Analytical).
5 & 6	CHEM-MD-CC6-5-P	Chemistry MDC- VI	Qualitative analysis of single solid organic compound.
	CHEM-MD-CC7-5-P Or CHEM-MD-CC7-6-P	Chemistry MDC- VII	Surface Tension, Viscosity, Conductometry.
	CHEM-MD-CC8-6-P	Chemistry MDC- VIII	Estimation of mixtures of metal ions.

Important Points

If Chemistry is considered by a student as CC1(Core Course 1 in the CSR/04/2023, dated 23rd June, 2023 of University of Calcutta) then He / She will take CHEM-MD-CC6-5-P and CHEM MD-CC7-5-P in Semester 5 and CHEM-MD-CC8-6-P in Semester 6. On the other hand if Chemistry is opted as CC2 (Core Course 2 in the CSR/04/2023, dated 23rd June, 2023 of University of Calcutta) then He / She will take CHEM-MD-CC6-5-P in Semester 5 and CHEM-MD-CC7-6-P &CHEM-MD-CC8-6-P in Semester 6.

Chemistry Course Structure (Minor)

For

Three-year MULTIDISCIPLINARY Studies

(Theory)

Semester	Paper Code	Paper Name	Brief Descriptions
3	CHEM-MD-CC1-3-Th	Chemistry MDC- I	Extra nuclear structure of atoms and Periodicity, Basics of Organic Chemistry Bonding and Physical Properties , Stereochemistry – I, Thermodynamics –I, Chemical Kinetics-I.
4	CHEM-MD-CC2-4-Th	Chemistry MDC- II	Kinetic Theory and Gaseous state, Chemical Bonding – I, Stereochemistry – II, General Treatment of Reaction Mechanism-I.
5	CHEM-MD-CC3-5-Th	Chemistry MDC- III	Aromatic Substitution Reaction, General Treatment of Reaction Mechanism-II, Substitution, elimination, Addition to alkenes, dienes, alkynes.
5	CHEM-MD-CC4-5-Th	Chemistry MDC- IV	Chemical bonding II, Acids and bases, Theoretical principles of inorganic qualitative analysis .
6	CHEM-MD-CC5-6-Th	Chemistry MDC- V	Thermodynamics II , Applications of Thermodynamics – I , Electrochemistry-I.
6	CHEM-MD-CC6-6-Th	Chemistry MDC- VI	Stereochemistry – III, Chemistry of carbonyl Compounds, Organometallics.

Chemistry Course Structure (Minor)
For
Three-year MULTIDISCIPLINARY Studies
(Practical)

Semester	Paper Code	Paper Name	Brief Descriptions
3	CHEM-MD-CC1-3-P	Chemistry MDC- I	Acid-Base Titration, Oxidation-Reduction Titrimetry.
4	CHEM-MD-CC2-4-P	Chemistry MDC- II	Iodo-/ Iodimetric Titrations , Estimation of metal content in some selective samples.
5	CHEM-MD-CC3-5-P	Chemistry MDC- III	Identification of Single organic Compound.
5	CHEM-MD-CC4-5-P	Chemistry MDC- IV	Qualitative semimicro analysis of mixtures containing three radicals.
6	CHEM-MD-CC5-6-P	Chemistry MDC- V	Chemical Kinetics (Analytical).
6	CHEM-MD-CC6-6-P	Chemistry MDC- VI	Qualitative analysis of single solid organic compound.

Summer Internship:

All the students are required to do one 3 credits Summer Internship at the end of the 2nd or 4th or 6th semester. Students completing Internship at the end of the 2nd semester will be allowed to take exit from the course and will be awarded Certificate of 45 (42+3) credits. Students completing Internship at the end of the 4th semester will be allowed to take exit from the course and will be awarded Diploma of 88 (85+3) credits. Students completing Internship at the end of the 6th semester and after successful completion of all the 6 semesters will be awarded B.A./ B.Sc. Degree of 128 (125+3) credits. [Following the Notification No. CSR/04/2023, dated 23rd June, 2023 of University of Calcutta].

CHEMISTRY MDC

PAPER : CHEM-MD-CC1-1-Th /CHEM-MD-CC1-3-Th

(Credit : Theory -03, Practical – 01)

Chemistry MDC- I

Theory: (45 Lectures)

Module : I

(15 Lectures)

Extra nuclear structure of atoms and Periodicity:

Wave-Particle duality; de Broglie hypothesis. Heisenberg's uncertainty principle. Introducing Schrödinger equation . Hydrogen and hydrogen like systems (detailed solution not required) .Concept of Atomic Orbital ; shapes of s, p and d orbitals . Radial and angular distribution curves. Extension to multielectronic systems. Aufbau principle and its limitations ; Pauli's exclusion principle ; Hund's rules and multiplicity. Effective nuclear charge. Shielding and penetration; Slater's rule.

The general idea about modern periodic table, atomic and ionic radii , ionization energy, electron affinity and electro negativity –definition, trends of variation in periodic table and their application in explaining and predicting the chemical behavior of elements and compounds. Electronegativity scales (Pauling's, Mulliken's and Allred-Rochow's scales). Inert pair effect.

Module : II

Basics of Organic Chemistry Bonding and Physical Properties: (10 Lectures)

Valence Bond Theory

Nomenclature of Organic Compounds, Concept of hybridisation, shapes and structures of molecules, double bond equivalent (DBE), Resonance (including hyperconjugation) and Resonance energy.

Electronic displacements

Inductive effect, bond polarization and bond polarizability; steric effect, steric inhibition of resonance.

MO Theory

Qualitative idea about molecular orbitals, bonding and antibonding interactions, idea about σ, σ*, π, π *, n – MOs; concept of HOMO, LUMO and SOMO; sketch and energy levels of π MOs of i) acyclic p orbital system (C=C, conjugated diene, triene, allyl and pentadienyl systems) ii) cyclic p orbital system (neutral systems: [4], [6] annulenes; charged systems: 3-,4-,5-7 membered ring systems); Hückel's rules for aromaticity up to [8] annulene; concept of antiaromaticity; non-aromatic molecules.

Physical properties

Melting point/boiling point and solubility of common organic compounds in terms of covalent & non-covalent intermolecular forces; polarity of molecules and dipole moments.

Stereochemistry – I **(05 Lectures)**

Bonding geometries of carbon compounds and representation of molecules: tetrahedral nature of carbon and concept of asymmetry; Fischer, sawhorse, flying wedge and Newman projection formulae and their inter translations. Concept of chirality and symmetry: symmetry elements, molecular chirality and centre of chirality; asymmetric and dissymmetric molecules; enantiomers and diastereomers; concept of stereogenicity, chiral centres and number of stereoisomers:systems involving 1/2-chiral centre(s).

Module : III

Thermodynamics -I : **(9 Lectures)**

Concept of systems (open ,closed and isolated) and surroundings . State of a system ; Intensive and extensive variables. Partial derivatives. Exact and inexact differentials. Path function and State function. Concept of heat and work. Zeroth law of thermodynamics. Concept of thermodynamic reversibility. Concept of internal energy and 1^{st} law of thermodynamics. Enthalpy and heat capacity, Relations between C_p and C_v . Isothermal and Adiabatic processes ; Calculations of ΔU , ΔH , q and w involving ideal gases in different processes.

Enthalpy of reaction. Hess's law. Enthalpy of formation and combustion. Kirchhoff's equation.

Chemical Kinetics-I: **(6 Lectures)**

Concept of order and molecularity. Rate laws for zero , 1^{st} and 2^{nd} order reactions and in general for any n-th order reaction. Determination of order of a reaction by half-life and differential methods. Rate determining step and steady state approximation. Opposing, Consecutive and parallel reactions (first order steps only).Temperature dependence of rate constant and Arrhenius equation.

Recommended Text Books:

1. **Lee, J. D. Concise Inorganic Chemistry,5th Ed., Wiley India Pvt. Ltd., 2008.**
2. **Atkins, Overton, Rourke , Weller , Armstrong; Shriver & Atkins' Inorganic Chemistry, 5th Ed., Oxford University Press (2010).**
3. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
4. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
5. **Nasipuri, D. Stereochemistry of Organic Compounds, 4th Edition, New Age International Pvt Ltd , 2020**
6. **Levine, I. N. Physical Chemistry, 6th Edition McGraw-Hill India, 2011**
7. **Castellan, G. W. Physical Chemistry, Narosa , 2004**
8. **Atkins, P. W. & Paula, J. de, Atkins' Physical Chemistry, 11th Edition, Oxford University Press, 2018**
9. **G. L. Miessler, D. A. Tarr, Inorganic Chemistry , 3rd Edition, Pearson India, 2008**

Practical : (30 Lectures)

PAPER: CHEM-MD-CC1-1-P / CHEM-MD-CC1-3-P

(1) Calibration and use of apparatus.

(2) Preparation of primary standard solutions (Oxalic Acid and $K_2Cr_2O_7$)

Acid-Base Titrations:

(3) Standardization of NaOH standard oxalic acid solution.

(4)Estimation of carbonate and bicarbonate present together in a mixture

(5)Estimation of acetic acid in commercial Vinegar.

Oxidation-Reduction Titrimetry:

(6) Standardization of $KMnO_4$ standard oxalic acid solution.

(7) Estimation of Fe(II) using standardized $KMnO_4$ solution.

(8) Estimation of Fe(III) using standard $K_2Cr_2O_7$ solution.

(9) Estimation of Fe(II) and Fe(III) in a given mixture using standard $K_2Cr_2O_7$ solution.

Reference Books:

1. **Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.**
2. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MDC

PAPER : CHEM-MD-CC2-2-Th / CHEM-MD-CC2-4-Th

(Credit : Theory -03, Practical – 01)

Chemistry MDC- II

Theory: (45 Lectures)

Module : I

Kinetic Theory and Gaseous state: (8 Lectures)

Concept of pressure and temperature from kinetic theory of gas.

Nature of distribution of velocities, Maxwell's distribution of speeds in one, two and three dimensions; Kinetic energy distribution in one, two and three dimensions, calculations of average, root mean square and most probable values in each case; Collision of gas molecules; Collision diameter; Collision number and mean free path; Frequency of binary collisions (similar and different molecules); Wall collision and rate of effusion Calculation of number of molecules having energy $\geq \varepsilon$, Principle of equipartition of energy and its application to calculate the classical limit of molar heat capacity of gases

Real gas and Virial equation: (7 Lectures)

Deviation of gases from ideal behavior; Compressibility factor; Boyle temperature; Andrew's and Amagat's plots; van der Waals equation and its features; its derivation and application in explaining real gas behavior ; Existence of critical state, Critical constants in terms of van der Waals constants; Law of corresponding states; Virial equation of state; van der Waals equation expressed in the Virial form and significance of second virial coefficient; Intermolecular forces (Debye, Keesom and London interactions; Lennard-Jones potential - elementary idea.

Module : II

Chemical Bonding – I: **(15 Lectures)**

i) Ionic bond: General characteristics, types of ions, size effects, radius ratio rule and its application and limitations. Packing of ions in crystals. Born-Lande equation with derivation and importance of Kapustinskii expression for lattice energy. Madelung constant, Born-Haber cycle and its application, Solvation energy. Defects in solids (elementary idea). Solubility energetics of dissolution process.

ii) Covalent bond: Polarizing power and polarizabilty, ionic potential, Fajan's rules, Lewis structures, formal charge, Valence Bond Theory, The hydrogen molecule (Heitler – London approach), directional character of covalent bonds, hybridizations, equivalent and non-equivalent hybrid orbitals, Bent's rules, dipole moments, VSEPR theory, shapes of molecules and ions containing lone pairs (examples from main group chemistry) and multiple bonding (σ and π bond approach).

Module : III

Stereochemistry – II : **(8 Lectures)**

Chirotopicityand its relationship with stereogenicity; concept of pseudoasymmetry for ABA type systems. Relative and absolute configuration: *R/S* descriptors; *erythro/threo* and *meso* nomenclature of compounds; *E/Z* descriptors for C=C, combination of *R/S*- and *E/Z* isomerisms. Optical activity of chiral compounds: optical rotation, and specific rotation; racemic compounds, racemisation (through cationic, anionic intermediates); resolution of acids and bases *via* diastereomeric salt formation; optical purity and enantiomeric excess.

General Treatment of Reaction Mechanism –I: **(7 Lectures)**

Reactive intermediates

Carbocations (carbenium and carbonium ions), non-classical carbocations, carbanions, carbon radicals: generation and stability, structure and electrophilic / nucleophilic behaviour of reactive intermediates (elementary idea).

Reaction thermodynamics

Free energy and equilibrium, enthalpy and entropy factor, calculation of enthalpy change *via* BDE, intermolecular & intramolecular reactions.

Reaction kinetics

Rate constant and free energy of activation; free energy profiles for one-step, and two-step reactions; catalyzed reactions, principle of microscopic reversibility; Hammond's postulate.

Substitution Reaction

Free-radical substitution reaction: halogenation of alkanes, mechanism (with evidence) and stereochemical features; reactivity-selectivity principle in the light of Hammond's postulate.

Recommended Text Books:

1. **Lee, J. D. Concise Inorganic Chemistry,5th Ed., Wiley India Pvt. Ltd., 2008.**
2. **Atkins, Overton, Rourke , Weller , Armstrong; Shriver & Atkins' Inorganic Chemistry, 5th Ed., Oxford University Press (2010).**
3. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
4. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
5. **Nasipuri, D. Stereochemistry of Organic Compounds, 4th Edition, New Age International Pvt Ltd , 2020**
6. **Levine, I. N. Physical Chemistry, 6th Edition McGraw-Hill India, 2011**
7. **Castellan, G. W. Physical Chemistry, Narosa , 2004**
8. **Atkins, P. W. & Paula, J. de, Atkins' Physical Chemistry, 11th Edition, Oxford University Press, 2018**
9. **G. L. Miessler, D. A. Tarr, Inorganic Chemistry , 3rd Edition, Pearson India, 2008**

Practical : (30 Lectures)

PAPER: CHEM-MD-CC2-2-P / CHEM-MD-CC2-4-P

(1) Standardization of $Na_2S_2O_3$ solution against standard $K_2Cr_2O_7$ solution.

Iodo-/ Iodimetric Titrations

(2) Estimation of Vitamin C

(3) Estimation of (i) arsenite and (ii) antimony iodimetrically

(4) Estimation of available chlorine in bleaching powder.

Estimation of metal content in some selective samples

(5) Estimation of Cu in brass.

(6) Estimation of Cr and Mn in Steel.

(7) Estimation of Fe in cement.

Reference Books:

1. **Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.**
2. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MDC

PAPER : CHEM-MD-CC3-3-Th / CHEM-MD-CC3-5-Th

(Credit : Theory -03, Practical – 01)

Chemistry MDC- III

Theory: (45 Lectures)

Module : I

Aromatic Substitution: (12 Lectures)

Electrophilic aromatic substitution

Mechanisms and evidences in favour of it including PKIE; orientation and reactivity; reactions: nitration, nitrosation, sulfonation, halogenation, Friedel-Crafts reaction; one-carbon electrophiles (reactions: chloromethylation, Houben-Hoesch, Vilsmeier-Haack, Reimer-Tiemann, Kolbe-Schmidt); *Ipso* substitution.

Nucleophilic aromatic substitution

Addition-elimination mechanism and evidences in favour of it; S_N1 mechanism; *cine* substitution (benzyne mechanism), structure of benzyne.

Birch Reduction of benzenoid aromatics

Benzene, Alkylbenzene, Anisole, Benzoic acid (with mechanism).

General Treatment of Reaction Mechanism –II (8 Lectures)

Concept of organic acids and bases

Concept of pK_a and pK_{aH}, effect of structure, substituent and solvent on acidity and basicity; proton sponge.

Tautomerism:

Basic difference between tautomerism and resonance, prototropy (keto-enol, phenol-keto); composition of the equilibrium in different systems (simple carbonyl; 1,2- and 1,3-dicarbonyl systems, phenols and related systems), factors affecting keto-enol tautomerism, basic ideas about valence tautomerism and ring-chain tautomerism.

Module : II

Substitution and Elimination Reactions: (13 Lectures)

Nucleophilic substitution reactions

Substitution at sp^3 centre[systems: alkyl halides, allyl halides, benzyl halides, alcohols, ethers, epoxides, α-halocarbonyls]:mechanisms (with evidence),relative rates& stereochemical features: S_N1, S_N2, S_N2', S_N1' (allylic rearrangement) and S_Ni; effects of solvent, substrate structure, leaving group and nucleophiles (including ambident nucleophiles, cyanide & nitrite); substitutions involving NGP (with heteroatoms and phenyl groups).

Elimination reactions

E1, E2, E1cB and Ei (pyrolytic *syn* eliminations); formation of alkenes and alkynes; mechanisms (with evidence), reactivity, regioselectivity (Saytzeff/Hofmann) and stereoselectivity; comparison between substitution and elimination reactions , comparison between nucleophilicity and basicity.

Module : III

Chemistry of alkenes and alkynes: (12 Lectures)

Addition to C=C

Mechanism (with evidence wherever applicable), reactivity, regioselectivity (Markownikoff and anti-Markownikoff additions) and stereoselectivity; reactions: hydrogenation, halogenation, hydrohalogenation, hydration, oxymercuration-demercuration, hydroboration-oxidation, epoxidation, *syn* and *anti*-hydroxylation, ozonolysis, addition of singlet and triplet carbenes; Simmons-Smith cyclopropanation reaction; electrophilic addition to 1,3-butadiene; concept of kinetic and thermodynamic control of products; radical addition: HBr addition; mechanism of allylic and benzylic bromination in competition with brominations across C=C; use of NBS; interconversion of *E* and *Z* alkenes.

Addition to C≡C (in comparison to C=C)

Mechanism, reactivity, regioselectivity (Markownikoff and anti-Markownikoff addition) and stereoselectivity; reactions: hydrogenation, Hg(II) ion catalysed hydration, hydroboration-oxidation, dissolving metal reduction of alkynes (Birch); reactions of terminal alkynes by exploring its acidity.

Recommended Text Books:

1. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
2. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
3. **Morrison, R. N. & Boyd, R. N. and Bhattacharjee ,Organic Chemistry,7th Edition , Pearson Education , 2010**

Practical : (30 Lectures)

PAPER: CHEM-MD-CC3-3-P / CHEM-MD-CC3-5-P

Identification of Pure Single organic Compound.

Solid compounds:

Oxalic acid, tartaric acid, citric acid, succinic acid, resorcinol, urea, glucose, cane sugar, benzoic acid and salicylic acid

Liquid Compounds:

Formic acid, acetic acid, ethyl alcohol, acetone, aniline, dimethylaniline, benzaldehyde, chloroform and nitrobenzene

Reference Books:

1. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**
2. **Furniss , Hannaford, Smith, Tatcholl, Vogel's Textbook of Practical Organic Chemistry ,5th Edition , Pearson India, 2003**

CHEMISTRY MDC

PAPER : CHEM-MD-CC4-4-Th / CHEM-MD-CC4-5-Th

(Credit : Theory -03, Practical – 01)

Chemistry MDC- IV

Theory: (45 Lectures)

Module : I

Chemical bonding -II: (25 Lectures)

Molecular orbital concept of bonding

The approximations of the theory, Linear combination of atomic orbitals (LCAO) (elementary pictorial approach): sigma and pi bonds and delta interaction, multiple bonding. Orbital designations: gerade, ungerade, HOMO, LUMO. Orbital mixing,. MO diagrams of H_2, Li_2, Be_2, B_2, C_2, N_2, O_2, F_2, and their ions

wherever possible; Heteronuclear molecular orbitals: CO, NO, NO^+, CN^-, HF, BeH_2, CO_2 and H_2O. Bond properties: bond orders, bond lengths.

Metallic Bond
Qualitative idea of valence bond and band theories. Semiconductors and insulators, defects in solids.

Weak Chemical Forces
Hydrogen bonding (theories of hydrogen bonding, valence bond treatment), receptor-guest interactions, Halogen bonds. Effects of chemical force, melting and boiling points.

Module : II

Acids and bases: (10 Lectures)

Acid-Base concept
Arrhenius concept, theory of solvent system (in H_2O, NH_3, SO_2 and HF), Bronsted-Lowry's concept, Lux Flood concept, Lewis concept, group characteristics of Lewis acids, solvent levelling and differentiating effects. Relative strength of acids, Pauling's rules. HSAB principle.

Thermodynamic acidity parameters
Drago-Wayland equation. Superacids, Gas phase acidity and proton affinity.

Acid-base equilibria in aqueous solution
Proton transfer equilibria in water, pH, buffer. Acid-base neutralization curves; indicator, choice of indicators.

Module : III

Theoretical principles of inorganic qualitative analysis: (10 Lectures)
Basic principles involved in analysis of cations and anions and solubility products, common ion effect. Principle involved in separation of cations into groups and choice of group reagents. Interfering anions (fluoride, borate, oxalate and phosphate) and need to remove them after Group II.

Recommended Text Books:

1. **G. L. Miessler, D. A. Tarr, Inorganic Chemistry , 3rd Edition, Pearson India, 2008**
2. **A. G. Sharpe, C. E. Housecroft, Inorganic Chemistry 3rd Edition , Pearson India ,2002**
3. **Svehla & Sivasankar , Vogel's Qualitative Inorganic Analysis, 7th Ed., Pearson, 2012.**

Practical : (30 Lectures)

PAPER: CHEM-MD-CC4-4-P / CHEM-MD-CC4-5-P

Qualitative semimicro analysis of mixtures containing three radicals. Emphasis should be given to the understanding of the chemistry of different reactions:

Cation Radicals
Na^+,K^+, Ca^{2+}, Sr^{2+}, Ba^{2+}, Al^{3+}, Cr^{3+}, Mn^{2+}/Mn^{4+}, Fe^{3+}, Co^{2+}/Co^{3+}, Ni^{2+}, Cu^{2+}, Zn^{2+}, Pb^{2+}, Cd^{2+}, Bi^{3+} , Sn^{2+}/Sn^{4+}, As^{3+}/As^{5+}, $Sb^{3+/5+}$, NH_4^+, Mg^{2+} .

Anion Radicals
F^-, Cl^-, Br^-, BrO_3^-, I^-, IO_3^-, SCN^-, S^{2-}, SO_4^{2-}, NO_3^-, NO_2^-, PO_4^{3-}, AsO_4^{3--}, BO_3^{3-}, CrO_4^{2-} / $Cr_2O_7^{2-}$, $Fe(CN)_6^{4-}$, $Fe(CN)_6^{3-}$.

Insoluble Materials
Al_2O_3(ig), Fe_2O_3(ig), Cr_2O_3(ig), SnO_2, $SrSO_4$, $BaSO_4$, CaF_2, $PbSO_4$.

Reference Books:

1. **Svehla & Sivasankar , Vogel's Qualitative Inorganic Analysis, 7th Ed., Pearson, 2012.**
2. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MDC

PAPER : CHEM-MD-CC5-4-Th / CHEM-MD-CC5-6-Th

(Credit : Theory -03, Practical – 01)

Chemistry MDC- V

Theory: (45 Lectures)

Module : I

Thermodynamics- II: **(20 Lectures)**

Second Law
Need for a Second law; statement of the second law of thermodynamics; Concept of heat reservoirs and heat engines; Carnot cycle; Carnot engine and refrigerator; Kelvin – Planck and Clausius statements and

equivalence of the two statements with entropic formulation; Carnot's theorem; Values of §dQ/T and Clausius inequality; Physical concept of Entropy; Entropy is a measure of the microscopic disorder of the system. Entropy change of systems and surroundings for various processes and transformations; Entropy and unavailable work; Temperature – Entropy diagram.
Useful work and The Gibbs and Helmholtz function. Changes at constant T, P. Application to electric work. Criteria for spontaneity and equilibrium. Gibbs- Helmholtz equation, The Gibbs Function and useful work in Biological systems. Gibbs free energy and spontaneous phase transition.

Maxwell's relations; Joule-Thomson experiment and its consequences; inversion temperature; Joule-Thomson coefficient for a van der Waals gas; General heat capacity relations

Systems of Variable Compositions
State functions for system of variable compositions. Criteria of equilibrium and spontaneity in systems of variable composition. Partial molar quantities, dependence of thermodynamic parameters on composition; Chemical potential as an escaping tendency. Gibbs-Duhem equation, Entropy and Gibbs function for mixing of ideal gases, the chemical potential of ideal mixtures. The Fugacity function of a pure real gas. Calculation of the fugacity of a van der Waals gas using compressibility factor. Definitions of Activities and activity coefficients. Choice of standard states.

Module : II

Applications of Thermodynamics – I: (8 Lectures)

Chemical Equilibrium
Thermodynamic conditions for equilibrium, degree of advancement; van't Hoff's reaction isotherm (deduction from chemical potential); Variation of free energy with degree of advancement; Equilibrium constant and standard Gibbs free energy change; Van't Hoff's reaction isobar and isochore from different standard states; Le Chatelier's principle and its derivation, variation of equilibrium constant under different conditions Nernst's distribution law; Solvent Extraction.

Module : III

ELECTROCHEMISTRY-I:

(i) Conductance (9 Lectures)
Ion conductance; Conductance and measurement of conductance, cell constant, specific conductance and molar conductance; Variation of specific and equivalent conductance with dilution for strong and weak electrolytes; Kohlrausch's law of independent migration of ions; Equivalent and molar conductance at infinite dilution and their determination for strong and weak electrolytes; Debye-Huckel limiting law-brief qualitative description. Estimation of activity coefficient for electrolytes using Debye-Huckel limiting law. Ostwald's dilution law; Ionic mobility; Application of conductance measurement (determination of

solubility product and ionic product of water); Conductometric titrations. Transport number, Principles of Moving-boundary method .

(ii) Ionic Equilibrium (8 Lectures)

Strong, moderate and weak electrolytes, degree of ionization, factors affecting degree of ionization, ionization constant and ionic product of water. Ionization of weak acids and bases, pH scale Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Determination of hydrolysis constant conductometrically. Buffer solutions; derivation of Henderson equation and its applications; buffer capacity, buffer range, buffer action. Theory of acid–base indicators; selection of indicators and their limitations.

Recommended Text Books:

1. **Levine, I. N. Physical Chemistry, 6th Edition McGraw-Hill India, 2011**
2. **Castellan, G. W. Physical Chemistry, Narosa , 2004**
3. **Atkins, P. W. & Paula, J. de, Atkins' Physical Chemistry, 11th Edition, Oxford University Press, 2018**

Reference Books:

1. **Denbigh, K. The Principles of Chemical Equilibrium, Cambridge University Press**
2. **Zemansky, M. W. & Dittman, R.H , Heat and Thermodynamics, Special Indian Edition , 8th Edition, Tata-McGraw-Hil ,2017**
3. **Klotz, Irving M , Rosenberg, Robert M,Chemical Thermodynamics ,Wiley India , 2013**

Practical : (30 Lectures)

PAPER: CHEM-MD-CC5-4-P / CHEM-MD-CC5-6-P

Physical Chemistry Practicals:

1. Determination of rate constant of the reaction between H_2O_2 and acidified KI solution using Clock reaction.
2. Determination of the rate constant for the decomposition of H_2O_2 using $FeCl_3$ as catalyst.
3. Determination of the rate constant for the first order acid catalyzed hydrolysis of an ester.
4.To study the kinetics of the inversion of cane sugar using a polarimeter.

Reference Books:

1.Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015

CHEMISTRY MDC

PAPER : CHEM-MD-CC6-5-Th /CHEM-MD-CC6-6-Th

(Credit : Theory -03, Practical – 01)

Chemistry MDC- VI

Theory: (45 Lectures)

Module : I

Stereochemistry – III: (8 Lectures)

Conformation

Conformational nomenclature: eclipsed, staggered, gauche, syn and anti; dihedral angle, torsion angle; energy barrier of rotation, concept of torsional and steric strains; relative stability of conformers on the basis of steric effect, dipole-dipole interaction and H-bonding; butane gauche interaction; conformational analysis of ethane, propane, *n*-butane, and 2-methylbutane; 1,2-dihaloalkanes and ethylene glycol.

Module : II

Chemistry of carbonyl Compounds: (32 Lectures)

Nucleophilic Addition to C=O

Structure and reactivity of carbonyl compounds; mechanism (with evidence), reactivity, equilibrium and kinetic control; formation of hydrates, cyanohydrins and bisulphite adduct; nucleophilic addition-elimination reactions with alcohols, thiols and nitrogen-based nucleophiles; reactions: benzoin condensation, Cannizzaro and Tischenko reactions, reactions with ylides: Wittig and Corey-Chaykovsky reaction; Rupe rearrangement, oxidations and reductions: Clemmensen, Wolff-Kishner, $LiAlH_4$, $NaBH_4$, MPVO redox equilibrium, acyloin condensation; oxidation of alcohols with PDC and PCC; periodic acid and lead tetraacetate oxidation of 1,2-diols.

Exploitation of acidity of α-H of C=O

Formation of enols and enolates; kinetic and thermodynamic enolates; reactions (mechanism with evidence): halogenation of carbonyl compounds under acidic and basic conditions, Hell-Volhard-Zelinsky (H. V. Z.) reaction, nitrosation, SeO_2 (Riley) oxidation; condensations (mechanism with evidence): Aldol,Tollens', Knoevenagel, Claisen-Schmidt, Claisen ester including Dieckmann; Mannich reaction,Perkin reaction; alkylation of active methylene compounds; synthetic applications of diethyl malonate and ethyl acetoacetate; specific enol equivalents (lithium enolates, enamines and silyl enol ethers) in connection with alkylation, acylation and aldol type reaction.

Nucleophilic addition to α,β-unsaturated carbonyl system

General principle and mechanism (with evidence); direct and conjugate addition, addition of enolates (Michael reaction), Robinson annulations reaction.

Substitution at sp^2 carbon (C=O system)

Mechanism (with evidence): $B_{AC}2$, $A_{AC}2$, $A_{AC}1$, $A_{AL}1$ (in connection to acid and ester); acid derivatives: amides, anhydrides & acyl halides (formation and hydrolysis including comparison).

Module : III

Organometallics (5 Lectures)

Grignard reagents , Gilman cuprates: preparation and reactions (mechanism with evidence); addition of Grignard to carbonyl compounds; substitution on -COX; Conjugate addition by Gilman cuprates; Corey-House synthesis; abnormal behaviour of Grignard reagents; comparison of reactivity among Grignard, and organocopper reagents; Reformatsky reaction; concept of umpolung.

Recommended Text Books:

1. **Finar, I. L. Organic Chemistry (Volume 1), 6th Edition , Pearson Education , 2002**
2. **Sykes, P. A guidebook to Mechanism in Organic Chemistry, Pearson Education, 2003.**
3. **Morrison, R. N. & Boyd, R. N. and Bhattacharjee , Organic Chemistry, 7th Edition ,(Pearson Education) , 2010**
4. **Nasipuri, D. Stereochemistry of Organic Compounds, 4th Edition, New Age International Pvt Ltd , 2020**

Practical : (30 Lectures)

PAPER: CHEM-MD-CC6-5-P / CHEM-MD-CC6-6-P

Qualitative analysis of single solid organic compound:

1. Detection of special elements (N, S, Cl) by Lassaigne's test
2. Solubility and classification (solvents: H_2O, 5% HCl, 5% NaOH and 5% $NaHCO_3$)
3. Detection of the following functional groups by systematic chemical tests: aromatic amino (Ar-NH_2), aromatic nitro (-NO_2), amido (-$CONH_2$, including imide), phenolic –OH, carboxylic acid (-COOH), carbonyl (distinction between -CHO and >C=O); only one test for each functional group is to be reported.

Each student, during laboratory session, is required to carry out qualitative chemical tests for all the special elements and the functional groups in known and unknown (**at least six)** organic compounds.

Reference Books:

1. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**
2. **Furniss, Hannaford, Smith, Tatcholl, Vogel's Textbook of Practical Organic Chemistry ,5th Edition , Pearson India, 2003**

CHEMISTRY MDC

PAPER : CHEM-MD-CC7-5-Th / CHEM-MD-CC7-6-Th

(Credit : Theory -03, Practical – 01)

Chemistry MDC- VII

Theory: (45 Lectures)

Module : I

Transport processes and Liquid State: (9 Lectures)

Viscosity

General features of fluid flow (streamline flow and turbulent flow); Newton's equation, viscosity coefficient; Poiseuille's equation ; principle of determination of viscosity coefficient of liquids by falling sphere method and using Ostwald's viscometer. Temperature variation of viscosity of liquids and comparison with that of gases. Relation between viscosity coefficient of a gas and mean free path.

Surface tension and energy

Surface tension, surface energy, excess pressure, capillary rise and surface tension; Work of cohesion and adhesion, spreading of liquid over other surface; Temperature dependence of surface tension

Module : II

Solid State: (12 Lectures)

Bravais Lattice and Laws of Crystallography

Types of solid, Bragg's law of diffraction; Laws of crystallography (Haüy's law and Steno's law); Permissible symmetry axes in crystals; Lattice, space lattice, unit cell, crystal planes, Bravais lattice. Packing of uniform hard sphere, close packed arrangements (fcc and hcp); Tetrahedral and octahedral voids. Void space in cubic systems.

Crystal planes

Distance between consecutive planes [cubic and orthorhombic lattices]; Indexing of planes, Miller indices; calculation of d_{hkl}; Relation between molar mass and unit cell dimension for cubic system; Bragg's law . Determination of crystal structure: Structure of NaCl and KCl crystals.

Module : III

Application of Thermodynamics – II: (16 Lectures)

Colligative properties

Vapour pressure of solution; Ideal solution, ideally dilute solution and colligative properties; Raoult's law. Thermodynamic derivations (using chemical potential) relating (i) Elevation of boiling point of an ideally dilute solution containing a non- volatile non electrolyte solute, (ii) Depression of freezing point of an ideally dilute solution containing a non -volatile non electrolyte solute (iii) Osmotic pressure of an ideally dilute solution containing a non- volatile non electrolyte solute with the molality / molar concentration of solute in solution . Applications in calculating molar masses of normal, dissociated and associated solutes in solution; Abnormal colligative properties.

Phase Equilibrium

Definitions of phase, component and degrees of freedom; Phase rule and its derivations; Definition of phase diagram; Phase diagram for water, CO_2, Sulphur. First order phase transition and Clapeyron equation; Clausius-Clapeyron equation - derivation and use;

Binary solutions: Liquid vapour equilibrium for two component systems. Ideal solution at fixed temperature and pressure;Lever Rule. Principle of fractional distillation; Duhem-Margules equation; Henry's law; Konowaloff's rule; Positive and negative deviations from ideal behaviour; Azeotropic solution; Liquid-liquid phase diagram using phenol- water system; Solid-liquid phase diagram; Eutectic mixture

ELECTROCHEMISTRY-II: (8 Lectures)

Electromotive Force

Rules of oxidation/reduction of ions based on half-cell potentials,; Chemical cells, reversible and irreversible cells with examples; Electromotive force of a cell and its measurement, Nernst equation; Standard electrode (reduction) potential and its application to different kinds of half-cells. Application of EMF measurements in determining (i) free energy, enthalpy and entropy of a cell reaction, (ii) equilibrium constants, and (iii) pH values, using glass electrodes. Concentration cells with and without transference, liquid junction potential; Potentiometric Titration.

Recommended Text Books:

1. **Levine, I. N. Physical Chemistry, 6th Edition McGraw-Hill India, 2011**
2. **Castellan, G. W. Physical Chemistry, Narosa , 2004**
3. **Atkins, P. W. & Paula, J. de, Atkins' Physical Chemistry, 11th Edition, Oxford University Press, 2018**

Practical : (30 Lectures)

PAPER: CHEM-MD-CC7-5-P / CHEM-MD-CC7-6-P

Physical Chemistry Practicals:

1. Surface tension measurements using Stalagmometer:

a) Determine the surface tension of a given solution by drop weight method using a stalagmometer.

b) Study the variation of surface tension of acetic acid solutions with concentration and hence determine graphically the concentration of an unknown solution of acetic acid.

2. Viscosity measurement using Ostwald's viscometer:

a) Determination of viscosity of aqueous solutions of (i) polymer (ii) ethanol and (iii) sugar at room temperature.

b) Study the variation of viscosity of sucrose solution with the concentration of solute and hence determine graphically the concentration of an unknown solution .

3. Solubility Product:

a) Determination of solubility and solubility product of a sparingly soluble salt in water, and in various electrolytic media by titrimetric method.

b) Determination of the activity solubility product of KHTa from the variation of concentrated solubility product with the ionic strength of the solution

Reference Books:

1. **Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015**

CHEMISTRY MDC

PAPER : CHEM-MD-CC8-6-Th

(Credit : Theory -03, Practical – 01)

Chemistry MDC-VIII

Theory: (45 Lectures)

Module : I

Coordination chemistry: (25 Lectures)

Basics of coordination chemistry

Werner's theory, ligands, IUPAC nomenclature, Isomerism (constitutional and stereo isomerism, Geometrical and optical isomerism in square planar and octahedral complexes)

Valence bond theory and crystal field theory:

VB description and its limitations. Elementary Crystal Field Theory: splitting of d^n configurations in octahedral, square planar and tetrahedral fields, crystal field stabilization energy (CFSE) in weak and strong fields; pairing energy. Spectrochemical series. Jahn- Teller distortion. Octahedral site stabilization energy (OSSE). Metal-ligand bonding (MO concept, elementary idea), sigma- and pi-bonding in octahedral complexes (qualitative pictorial approach) and their effects on the oxidation states of transitional metals (examples).

Electronic spectra of complexes and magnetic properties

d-d transitions; L-S coupling; qualitative Orgel diagrams for $3d^1$ to $3d^9$ ions. Racah parameter. Selection rules for electronic spectral transitions; spectrochemical series of ligands; charge transfer spectra (elementary idea). Orbital and spin magnetic moments, spin only moments of d^n ions and their correlation with effective magnetic moments, including orbital contribution; quenching of magnetic moment.

Module : II

Radioactivity: (5 Lectures)

Nuclear stability

Nuclear stability and nuclear binding energy.

Nuclear Reactions

Artificial radioactivity, fission, fusion and spallation.

Radiocarbon dating

Module : III

Redox reactions : (15 Lectures)

Basic principle of redox reactions

Ion-electron method of balancing equation of redox reaction. Elementary idea on standard redox potentials with sign conventions. Nernst equation (without derivation). Influence of complex formation, precipitation and change of pH on redox potentials; formal potential.

Redox titrations

Feasibility of a redox titration, redox potential at the equivalence point, redox indicators. Redox potential diagram (Latimer and Frost diagrams) of common elements and their applications. Disproportionation and comproportionation reactions (typical examples).

Recommended Text Books:

1. J. E. Huheey, E. A. Keiter, R. L. Keiter, Okhil K. Medhi , Principles of Structure and Reactivity, 5th Edition ,Pearson India, 2022

2. H. J. Arnikar, Essentials of Nuclear Chemistry , 5th Edition , New Age International Pvt, Ltd. , 2022

3. G. Friedlander, J.W. Kennedy, E. S. Macias , J.M. Miller , Nuclear and radiochemistry , 3rd Edition , John Wiley , 1981

Practical : (30 Lectures)

PAPER: CHEM-MD-CC8-6-P

Inorganic Chemistry Practicals:

Estimation of mixtures of metal ions

1. Estimation of Fe^{3+} and Cu^{2+} in a mixture.

2. Estimation of $Fe^{3+} + Cr^{3+}$ in a mixture.

3. Estimation of $Fe^{3+} + Cr_2O_7^{2-}$ in a mixture.

4. Estimation of Fe^{3+} and Mn^{2+} in a mixture.

Reference Books:

1. Mendham, J., A. I. Vogel's Quantitative Chemical Analysis 6th Ed., Pearson, 2009.

2. Practical Workbook Chemistry (Honours), UGBOS, Chemistry, University of Calcutta, 2015

SKILL ENHANCEMENT COURSE
CHEMISTRY

PAPER : CHEM-MD-SEC-Th

(Credit : Theory -03, Tutorial – 01)

Theory: (45 Lectures)

CHEMISTRY IN DAILY LIFE

Module : I

(15 Lectures)

Dairy Products:
Composition of milk and milk products. Analysis of fat content, minerals in milk and butter. Estimation of added water in milk.
Beverages: Analysis of caffeine in coffee and tea, detection of chicory in coffee, chloral hydrate in toddy, determination of methyl alcohol in alcoholic beverages.

Food additives, adulterants, and contaminants:
Food preservatives like benzoates, propionates, sorbates, disulphites. Artificial sweeteners: Aspartame, saccharin, dulcin, sucralose, and sodium cyclamate. Flavors: Vanillin, alkyl esters (fruit flavors), and monosodium glutamate.

Artificial food colorants:
Coal tar dyes and non-permitted colors and metallic salts. Analysis of pesticide residues in food.

Module : II

(15 Lectures)

Vitamins:
Classification and Nomenclature. Sources, deficiency diseases, and structures of Vitamin A1, Vitamin B1, Vitamin C, Vitamin D, Vitamin E & Vitamin K1.

Oils and fats:
Composition of edible oils, detection of purity, rancidity of fats and oil. Tests for adulterants like argemone oil and mineral oils. Halphen test.

Soaps & Detergents:
Definition, classification, manufacturing of soaps and detergents, composition and uses

Module : III

(15 Lectures)

Chemical and Renewable Energy Sources:
Principles and applications of primary & secondary batteries and fuel cells. Basics of solar energy.

Polymers:
Basic concept of polymers, classification and characteristics of polymers. Applications of polymers as plastics in electronics, automobile components, medical fields and aerospace materials. Problems of plastic waste management. Strategies for the development of environment-friendly polymers.

Recommended Text Books:

1. **B. K. Sharma: Introduction to Industrial Chemistry, Goel Publishing, Meerut (1998)**
2. **Ashtoush Kar. Medicinal Chemistry (Two Colour Edition), New Age International Pvt Ltd, 2022**
3. **Edward Cox Henry , The Chemical analysis of Foods , Hardcover , Hassell Street Press , 2021**
4. **Fred Billmeyer : Textbook of polymer science; Wiley 3rd addition.**

Tutorial: (15 hours)

PAPER: CHEM-MD-SEC-Tu

1. Estimation of Vitamin C
2. Determination of Iodine number of oil.
3. Determination of saponification number of oil.
4. Determination of methyl alcohol in alcoholic beverages.

Interdisciplinary Course in Chemistry

PAPER: CHEM-MD-IDC-Th

(Credit : Theory -02, Tutorial – 01)

Theory: (30 Lectures)

CHEMISTRY IN DAILY LIFE

Module : I

(10 Lectures)

Dairy Products:
Composition of milk and milk products. Analysis of fat content, minerals in milk and butter. Estimation of added water in milk. Beverages: Analysis of caffeine in coffee and tea, detection of chicory in coffee, chloral hydrate in toddy, determination of methyl alcohol in alcoholic beverages.

Food additives, adulterants, and contaminants:
Food preservatives like benzoates, propionates, sorbates, disulphites. Artificial sweeteners: Aspartame, saccharin, dulcin, sucralose, and sodium cyclamate. Flavors: Vanillin, alkyl esters (fruit flavors), and monosodium glutamate.

Artificial food colorants:
Coal tar dyes and non-permitted colors and metallic salts. Analysis of pesticide residues in food.

Module : II

10 Lectures)

Vitamins:
Classification and Nomenclature. Sources, deficiency diseases, and structures of Vitamin A1, Vitamin B1, Vitamin C, Vitamin D, Vitamin E & Vitamin K1.

Oils and fats:
Composition of edible oils, detection of purity, rancidity of fats and oil. Tests for adulterants like argemone oil and mineral oils. Halphen test.

Soaps & Detergents:
Definition, classification, manufacturing of soaps and detergents, composition and uses

Module : III

(10 Lectures)

Chemical and Renewable Energy Sources:
Principles and applications of primary & secondary batteries and fuel cells. Basics of solar energy, future energy storer.

Polymers:
Basic concept of polymers, classification and characteristics of polymers. Applications of polymers as plastics in electronics, automobile components, medical fields and aerospace materials. Problems of plastic waste management. Strategies for the development of environment-friendly polymers.

Recommended Text Books:

1. **B. K. Sharma: Introduction to Industrial Chemistry, Goel Publishing, Meerut (1998)**
2. **Ashtoush Kar. Medicinal Chemistry (Two Colour Edition), New Age International Pvt Ltd, 2022**
3. **Edward Cox Henry , The Chemical analysis of Foods , Hardcover , Hassell Street Press , 2021**
4. **Fred Billmeyer : Textbook of polymer science; Wiley 3rd addition.**

Tutorial: (15 hours)

PAPER: CHEM-MD-IDC-Tu

1. Estimation of Vitamin C.
2. Determination of Iodine number of oil.
3. Determination of saponification number of oil.
4. Determination of methyl alcohol in alcoholic beverages.

UNIVERSITY OF CALCUTTA

NotificationNo.CSR/13/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of his powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 11.07.2023 approved the Syllabi of the under mentioned subjects for semester wise Four-year (Honours & Honours with Research) / Three-year (Multidisciplinary) programme of U.G. courses of studies, as applicable under CCF,2022 . under this University, as laid down in the accompanying pamphlet.

Name of Subject:

1.Anthropology
2.BBA
3.Bengali
4.BFAD
5.Bio Chemistry
6.Botany
7.Chemistry
8.Commerce
9.Economics
10.Education
11.English
12.Geology
13.Hindi
14.History,Islamic History & Culture
15.Home Science
16.Human Rights
17.Journalism & Mass Communication
18.Mathematics
19.Microbiology (Honours)
20.Molecular Biology
21.Philosophy
22.Physiology
23.Political Science
24.Psychology
25.Social Science
26.Sociology
27.Urdu
28.Women's Studies
29.Zoology

The above shall be effective from the academic session 2023-2024.

12/7/2023

SENATE HOUSE

KOLKATA-700 073

Prof.(Dr.) Debasis Das

Registrar

UNIVERSITY OF CALCUTTA
Syllabi for Semester 1 & 2 of B.Com. 4-year Programme
And B.Com.(MDC) 3-year Programme
Under NEP-2020
Effective from the Academic Session 2023-24

Semester 1 Major Paper 1

Financial Accounting I

Credit of the Paper 4
Semester-end Examinations: 75 marks
Tutorial Examinations: 25 marks
Total 100 marks

Unit	Topic	Details
1	Introduction	• Nature of accounting; Users of accounting information; Qualitative characteristics of accounting information. • Double entry book keeping system – Basic accounting equation, meaning of assets, liabilities, equity, revenue and expenses. Accounting Cycle - Recording of transaction: Journal, Ledger and preparation of Trial Balance. • Bases of accounting; cash basis and accrual basis. • Basic concepts and conventions: entity, money measurement, going concern, cost, realisation, accruals, periodicity, consistency, prudence (conservatism), materiality, matching and full disclosures.
2	Concepts for determination of business income	• Concept of revenue recognition and recognition of expenses. • Inventories: meaning. Significance of inventory valuation. Lower of cost or market rule; Inventory ascertainment and reconciliation.
		• The nature of depreciation. The accounting concept of depreciation. Factors in the measurement of depreciation. Methods of computing depreciation: straight line method, diminishing balance and Units of production method; Disposal of depreciable assets; change in estimate and method of charging depreciation. Accounting for depreciation: Asset-depreciation, Asset-provision. • Reserves and provisions: Meaning; Objective; Types & Accounting
		• Capital and revenue expenditures and receipts: general introduction only. • Adjustment (including goods with customers pending approval) and rectification entry

3	Final accounts of Trading Concern	Preparation of financial statements: of sole proprietorship business entities from a trial balance – Manufacturing, Trading, Profit & Loss Account and Balance Sheet
4	Financial statements of Not for Profit organisations and from Incomplete records	Preparation of Receipts & Payments A/c, Income & Expenditure A/c and Balance Sheet Transaction approach
5	Sectional and Self-balancing ledger	• Concept of sectional balancing, preparation of control accounts. Self-balancing Ledger: advantages; Recording process; preparation of Adjustment accounts.

Relevant Accounting Standards issued by the Institute of Chartered Accountants of India are to be followed.

Suggested Reading:

• Basic Accounting, Rajni Sofat & Preeti Hiro, PHI
• Sukla, Grewal, Gupta: Advanced Accountancy Vol. I, S Chand
• R. L.Gupta & Radheswamy, Advanced Accountancy Vol. I, S. Chand

• Maheshwari & Maheshwari, Advanced Accountancy Vol. I, Vikash Publishing House Pvt. Ltd.
• Sehgal & Sehgal, Advanced Accountancy Vol. I, Taxman Publication
• Hanif & Mukherjee, Financial Accounting, TMH
• Frank Wood, Business Accounting Vol 1, Pearson
• Tulsian, Financial Accounting, Pearson
• Mukherjee and Mukherjee, Financial Accounting I, Oxford
• Accounting Standards issued by ICAI
• Amitava Basu & Sibasish Datta, Financial Accounting I, Tee Dee Pub. Ltd.
• Debarshi Bhattacharya (Ratul), Financial Accounting I, Law Point

Semester 1 Minor Paper 1

Principles and Practice of Management

Credit of the Paper 4

Semester-end Examinations: 75 marks
Tutorial Examinations: 25 marks
Total 100 marks

Unit-1: Introduction:

Management-definition, importance, functions, levels of management, managerial tasks and skills, Management theories - Classical (Taylor & Fayol), Neo-classical (Elton mayo & Mary Parker Follet) and Modern School of

management (Peter Drucker & Michael Porter) Managerial roles (Mintzberg), Social Responsibility of Management and its significance

Unit-2: Planning:
Meaning, nature, purpose, types, premises, elements of planning and limitations of planning; Strategic planning-concept, process and importance, Decision Making - concept, importance; Environment analysis and SWOT analysis [concept and elements]

Unit-3: Organizing:
Concept, need, principles, steps in organising, different organization structure [line, staff, functional, project and new organisational structure – basic concepts] Departmentation-need, basis, Delegation of Authority-elements, principles; Centralization and Decentralization of Authority; Span of Management; concept and factors determining span of management

Unit-4: Directing and Leadership:
Directing: concepts, elements and importance; Leadership: Concept, importance, types, Major theories of Leadership (Likert's system four theory, Blake and Mouton's Managerial Grid theory, Fred Fiedler's situational leadership, Tannenbaum & Schmidt's Behavioural Model, Trait theory of leadership)

Unit- 5: Motivation, Co-ordination and Control:
Motivation: Concept, steps, importance, Motivation theories: Maslow's Need-Hierarchy theory, Herzberg's Two-factor theory and McGregor's theory of X and Y;.
Coordination: concepts, importance, principles; Control: concepts, importance and Managerial tools of control.

Suggested Readings

- Kaul, V.K.,Business Management, Vikash
- Koontz &Weirich, Essentials of Management, TMH
- Principles of Management, Meenakshi Gupta, PHI
- Stoner & Freeman, Management , PHI
- Drucker, P.F., Managing Challanges for the 21st Century, Butterworth, Oxford
- Mitra, J.K., Principles of Management, Oxford
- Debnath S.K, & Dutta S.P., Principles and Practice of Management, Tee Dee Pub. (P) Ltd.
- Kaul Vijay Kumar, Business Management, Vikas Publishing House

Semester 1 Inter-Disciplinary / Multi-Disciplinary

(IDC / MDC) Paper 1

Microeconomics

Credit of the Paper 3

Semester-end Examinations: 50 marks
Tutorial Examinations: 25 marks
Total 75 marks

Unit-I Introduction -Definition of Microeconomics, Macroeconomics--positive and normative economics--Basic concepts--scarcity and choice--Production Possibility Curve--Central Problem of the Economy--concept of slope

Unit-II: Theory of Demand and Supply

(A) Demand and Supply--Concepts of Demand-derived demand--Demand function--Determinants of demand --Law of Demand & its expectations--Movement along the Demand curve and shift of the Demand curve--Concepts of Supply and Supply function--Law of Supply --Movement along the supply curve and shift of the supply curve--Market equilibrium and Determination of price--Effect of change in the Demand and Supply on Equilibrium price

(B) Elasticity of Demand and Supply-- Price elasticity of demand --Determinants and Measurement of price elasticity--Relationship between slope and price elasticity of demand--Income elasticity of demand--Cross price Elasticity of Demand --Elasticity of Supply

Unit III: Theory of Consumer Behaviour--Concept of Utility and Marginal utility--The Law of Diminishing marginal Utility--Cardinal Utility theory-Concept and significance of Consumer Surplus--Consumer's Equilibrium in case of single and two commodities--Concept of Ordinal utility theory--Indifference curve and its properties--Marginal Rate of Substitution--Budget Line and Budget equation--Consumer's Equilibrium

Unit IV: Theory of Production and Cost- Concept of Production Function--Fixed and Variable inputs--Short run and Long run--Relation among Total, Average and Marginal Product--Law of Variable Proportion--Return to Scale--Isoquants, Isocosts and Producer's equilibrium (Graphical Explanation)--Concepts of Economic Cost and Opportunity Cost--Short Run and Long run Cost Functions--Relation among Average Cost, Average Variable Cost and Marginal Cost--Long run Average Cost Curve from Short Run Average Cost curves

Unit V :Revenue and Market-- Definition and different forms of Market--Revenue under Different Market Structure--Relation among Total Revenue, Average revenue and Marginal Revenue--Perfect Competition and Monopoly--Features, Equilibrium of the firm (Short Run and Long Run)--Short run supply curve of a firm under perfect competition--Price discrimination under monopoly--concepts and conditions

Suggested readings

- Microeconomics, Mukherjee sampat, Mukherjee Mallinath & Ghosh Amitava, PHI
- Pindyck R and Rubinfeld D.L, Micro Economics, Pearson
- Gould & Ferguson, Micro Economic Theory
- Mankiw.N.G., Principles of Microeconomics, Cengage
- Dasgupta P and Khan P, Microeconomics and Statistics, Elegant Publication

•Bhattacharyya S, Microeconomics and Indian Economics, Oxford University Press
• Majumdar D and Banerjee A, Microeconomics and Statistics, ABS Publishing House
• Dwivedi, D.N., Managerial Economics, Vikash Publications
• Sarkhel J, Salim S and Dutta S, Microeconomics and Statistics, Book Syndicate
• De Bipul, Microeconomics, Tee Dee Publications (P) Ltd. (Bengali & English Version)
• Jana Dipparna, Microeconomics 1, Law Point

Semester 1 SKILL ENHANCEMENT COURSE (SEC) Paper 1

Entrepreneurship Development

Credit of the Paper 4

Semester-end Examinations: 75 marks
Tutorial Examinations: 25 marks
Total 100 marks

Unit-1:

Entrepreneur: meaning, features, functions and different types (Innovative, imitating, fabian, drone, social, intrapreneur, technopreneur, ecopreneur) ;Entrepreneurship Meaning, elements, determinants and importance; need for creativity and innovation in Entrepreneurship; Role of family business in India; The contemporary role models in Indian business [includingWomen Entrepreneur]: their values, business philosophy and behavioural orientations; Conflict in family business and its resolution.

Unit-2:

Public and private system of stimulation, support and sustainability of entrepreneurship, requirement, availability and access to finance, marketing assistance, technology, and industrial accommodation, Role of industries/entrepreneur's associations and self-help groups, The concept, role and functions of business incubators, angel investors, venture capital and private equity fund.

Unit-3:

Sources of business ideas [concept and features] and tests of feasibility [concept and objective], innovation life cycle, creative process, Significance of writing the business plan/project proposal; Concept, importance and contents of business plan/project proposal; Designing business processes, location, layout, operation, planning & control; preparation of feasibilitystudy report and project report [Unit to be studied along-with Case Studies as far as practicable]

Unit-4:

Mobilizing Resources for entrepreneurship, Need for finance in entrepreneurship; Micro, Small and Medium Enterprises: meaning, advantages and disadvantages; Startup: mobilizing resources for start-up: Accommodation and utilities; Preliminary contracts with the vendors, suppliers, bankers, principal customers, basic startup problems, methods to solve startup problems.

Suggested Readings:

- Kuratko and Rao, *Entrepreneurship: A South Asian Perspective,* Cengage Learning.
- Sharma, S., Entrepreneurship Development, PHI

- Robert Hisrich, Michael Peters, Dean Shepherd, *Entrepreneurship,* McGraw-Hill Education
- Desai, Vasant. *Dynamics of Entrepreneurial Development and Management*. Mumbai, Himalaya Publishing House.
- Dollinger, Mare J. *Entrepreneurship: Strategies and Resources*. Illinois, Irwin.
- Holt, David H. *Entrepreneurship: New Venture Creation*. Prentice-Hall of India, New Delhi.
- Plsek, Paul E. *Creativity, Innovation and Quality*. (Eastern Economic Edition), New Delhi: Prentice-Hall of India. ISBN-81-203-1690-8.
- Singh, Nagendra P. *Emerging Trends in Entrepreneurship Development*. New Delhi: ASEED.
- SS Khanka, *Entrepreneurial Development,* S. Chand & Co, Delhi.
- K Ramachandran, *Entrepreneurship Development,* McGraw-Hill Education
- SIDBI Reports on Small Scale Industries Sector.
- Mukherjee & Roy, Entrepreneurship Development, Oxford
- Chandra B & Biswas B, Entrepreneurship Development, Tee Dee Pub (P) Ltd (Bengali & English Version)

Syllabi for AEC and VAC will be provided by the respective UGBOS

Semester 2

Major Paper 2

Cost Accounting I

Credit of the Paper 4

Semester-end Examinations: 75 marks
Tutorial Examinations: 25 marks
Total 100 marks

Unit	Topic	Content
1.	**Introduction**	• Definition of Costing, Objectives of Cost Accounting; Installing a Cost Accounting System, Essentials of a good Cost Accounting System. • **Cost concepts, terms and classification of costs**: Cost, Cost object, Cost units and Cost Centres, Types of costs, classification of costs- Direct-Indirect, Elementwise, Functionwise, Behaviourwise, Sunk Cost, opportunity Cost, Incremental and Differential cost. **Costing Methods and Techniques** (introduction only).
2	**Material Costs**	• *Purchase of materials*: Organisation, purchase procedure, documentation, determination of material purchase costs. • *Storage of materials*: Need for storage, location and types, functions of a storekeeper, requisition, receipt, issue and transfer of materials, storage record, accounting for materials cost. • *Materials control*: Organisation; Tools: Just-in-Time Purchase; various stock levels, Economic Ordering Quantity and ABC Analysis; Periodic Inventory, Perpetual Inventory, Physical verification; Discrepancies in stock and their treatment. • Methods of Pricing Material Issues: FIFO, LIFO, and Weighted Average. • Treatment of Normal and Abnormal Loss of Materials

3	**Employee Cost and Incentive Systems**	• Introduction, Recordinglabour cost: Attendance and payroll procedures (Time-keeping, Time-Booking, Payroll procedure, Payment of wages-Piece rate, differential piece rate, time rate); Idle time (causes and treatment in Cost Accounting), Overtime (its effect and treatment in Cost Accounting), Labour turnover (Causes, impact and methods of calculating labour turnover). • Main Principles for sound system of wage incentive schemes, labour utilisation; System of Wage Payment and Incentives(Halsey, Halsey-weir, Rowan and Efficiency based); Group Bonus scheme (simple) • System of Incentive Schemes for Indirect Workers; Component of wages cost for costing purpose.
4	**Accounting for Overhead**	**Overhead** • *Introduction:* Definition, Classification of Overhead- Functional and Behavioural. • *Manufacturing Overheads:* Allocation and apportionment of Overhead; Absorption of Overhead: Blanket and Departmental rate; various methods of absorption and their applications; Under absorption/over absorption of overheads and their treatment. • *Administration and Selling & Distribution Overheads and their charging.*
5	**Cost Statement**	• Preparation of Cost Sheet, Single product and Multi-product, estimation and price quotation

Suggested Readings

- Horngren, Foster, Datar, et al., Cost Accounting,- A Managerial Emphasis, Pearson
- B.Banerjee, Cost Accounting: Theory and Practice, PHI
- Drury, Colin., Management and Cost Accounting, Cengage
- Jawahar Lal & Seema Srivastava, Cost Accounting, TMH
- M.Y.Khan & P.K.Jain, Management Accounting, TMH
- Atkinson, Management Accounting, Pearson
- Bhattacharyya, Ashish K., Cost Accounting for Business Manageres, Elsevier
- Ravi M Kishore, Cost and management Accounting, Taxmann
- Mitra, J.K., Cost & Management Accounting, Oxford
- Hanif, M., Cost & Management Accounting, McGraw Hill
- Bhattacharya Debarshi, Cost & Management Accounting I, Law Point

Semester 2Minor Paper 2
Marketing Management and Human Resource Management
Credit of the Paper 4
Semester-end Examinations: 75 marks
Tutorial Examinations: 25 marks
Total 100 marks

Module 1: Marketing Management
Semester-end Examinations – 40 marks

Unit 1: Introduction

Meaning of market, Objectives and Importance of Marketing; Societal Marketing concept
Selling vs. Marketing; Marketing mix [concepts, components]
Marketing environment: concept, importance, and components.

Unit 2: Market Segmentation

Market segmentation: concept, importance and bases; Product differentiation vs. market segmentation.

Unit 3: Product

Concept and importance, Product classifications; Concept of product mix;
Branding-Concept, packaging and labeling;
Product life-cycle [concept], New Product Development Process.

Unit 4: Pricing and Distribution

Pricing [Meaning, objectives, Significance and methods] Factors affecting price of a product. Pricing policies and strategies
Distribution Channels - meaning and importance; Types of distribution channels

Unit 5: Promotion and Recent developments in marketing

Promotion: Nature and importance of promotion;
Types of promotion: advertising, personal selling, publicity & sales promotion,
Recent developments in marketing: Social Marketing, online marketing, direct marketing, services marketing, green marketing, Rural marketing; Consumerism.

Module 2: Human Resource Management
Semester-end Examinations – 35 marks

Unit 1: Nature and Scope

Concept and meaning of HR, Understanding the Nature and Scope of HRM,
Functions and importance of HRM

Unit 2: Human Resource Planning

Definition, Need of Human Resource Planning,
Factors affecting Human Resource Planning.

Unit 3: Recruitment and Selection

Definition of Recruitment, Source, need and importance of Recruitment,
Recruitment Policy–process–sources of Recruitment Definition of Selection, Steps in selection.

Unit 4: Training and Development

Training and Development Meaning and purpose of training,
Benefits of training to organization and employees –Training methods.

Unit 5: Job Evaluation and Performance Appraisal

Job evaluation- objectives, scope,
Job analysis, Job description, Job Specification-basic concept and significance,
Performance Appraisal-Concept

Suggested Readings:

- Kotler, P., Marketing Management, Pearson
- Ramaswamy and Namakumari, Marketing Management, McMillan
- Marketing Management, Govindarajan, M., PHI
- Principles of Marketing, Kapoor, N., PHI
- Bhagwati, Pillai, Marketing Management, S.Chand
- Verma, Duggal, Haldar & Sarkar, Principles of Marketing, Oxford
- Samanta, S R, Human Resource Management, PHI
- Mahajan, Reeta, Human Resource Management, Vikash
- Haldar & Sarkar, Human Resource Management, Oxford
- Sinha, Sekhar & Bala, Human Resource Management, Cengage
- Jyothi & Venkatesh, Human Resource Management, Oxford
- Praharaj & Praharaj, Principle of Marketing and Human Resource Management, Tee Dee Pub (P) Ltd. (Bengali & English Version)
- Ghosh Sudipta & Joshi Lalit Kumar, Marketing Management and Human Resource Management, Law Point

Semester 2Inter-Disciplinary / Multi-Disciplinary COURSE (IDC / MDC)Paper 2

Macroeconomics

Credit of the Paper 3

Semester-end Examinations: 50 marks

Tutorial Examinations: 25 marks

Total 75 marks

Unit –IBasic Concepts: Macroeconomics, Concepts,Scope, macroeconomic variables, objectives, Differenceswith microeconomics.

Unit-II :Natonal Income: National income accounting, Concepts and measurement of GDP,GNP,NNP,NDP,PI,DPI,Circular flow of income (2 sectors & 3 sectors economy),Real and Nominal GDPand GDP Deflator.

Unit-III: Determination of equilibrium income in Simple Keynesian Model: Theory of Income determination-Simple Keynesian model; Consumption, Saving, Investment functions; National Income determination; Investment multiplier, Government expenditure multiplier (Graphical Analysis), Tax multiplier and Balanced budget multiplier (concepts).

Unit-IV: Money and inflation Concept of demand for money and supply of money, Measures of supply of money, High powered money, money multiplier, Concept of Inflation, Demand pull and Cost push Inflation. Inflationary gap. Monetary and fiscal measures to control inflation.

Unit-V: Public Finance: Government budget-meaning and components, Classifications of receipts –revenue and capital receipts; Classification of expenditure-revenue and capital expenditure. Measures of Government deficit-Revenue deficit, Fiscal deficit, Primary deficit.

Suggested Readings

- Branson W.H. Macro Economic Theory and Policy,
- Dornbusch, Fischer &Startz, Macroeconomics, TMH
- Samuelson & Nordhaus, Macroeconomics, McGraw Hill
- Ghosh C & Ghosh A., Macroeconomics, PHI
- Parchure, S., Macroeconomics, PHI
- Bhattacharyya S and Das I, Macroeconomics and Advanced Business Mathematics, , Oxford University Press
- Majumdar D and Chatterjee N, Macroeconomics and Advanced Business Mathematics, ABS Publishing House
- Dasgupta P and Chakraborty G, SamashtigotoOrthoneeti o uchhotoroBanijyikGonit, Dey Book Concern
- De Bipul, Macroeconomics, Tee Dee Publications (P) Ltd. (Bengali & English Version)

Semester 2 SKILL ENHANCEMENT COURSE (SEC) Paper 2

Information Technology and its Application in Business

Credit of the Paper 4
Semester-end Examinations (Theory): 50 marks
Semester-end Practical Examinations: 50 marks
Total 100 marks

Module I
Theory (50 Marks)

Unit 1: Fundamentals of Computer

Components of a Computer System, Applications of Computers, Advantages and Disadvantages of Computers, Software and its Types: System Software, Application Software, Operating System, Mobile Operating System, Free and Open Software.

Unit 2: Internet Services & Security measure:

Key technology concepts, Packet switching, TCP/IP, IP addresses, Types of Internet Services, World Wide Web (WWW), Uniform Resource Locator (URL), Domain Names, Web Browsers. Internet of Things: Concept, Smart Device, RFID and it's use cases, Wireless Sensor Networks and it's applications, Information Rights, Privacy and Freedom in an Information Society, Principles of Cyber Security, Computer Malwares, Well-known attacks (Fishing, Spoofing etc) and it's prevention measures like CAPTCHA Code, Password etc. Use of Blockchain technique for security measures.

Unit 3: Current Computing Paradigm

Cloud Computing: Service Oriented approach, Virtualization, Business Model, Use cases, Green computing, Edge computing,Quantum computing,Challenge of Big Data

Unit 4: Business Data Handling

Transaction processing, Analytical processing-Concepts, Techniques,Difference, Concept of Data Mining including Text Mining and Web Mining, Evolution of AI, Importance of Artificial Intelligence in Business Data handling through use cases, Basic Concepts of an Expert system in context of Business Data Management, Basic concepts of Machine learning including supervised and unsupervised learning, Application of Machine learning in Banking and Finance, Basic concepts on ERP based Business Software Solutions.Intelligent Agents (Concepts & Application).

Unit 5: IT Act. 2000and Cyber Crimes

IT Act 2000(as amended thereon)- Definitions of different terms, Digital signature, Electronic Governance, Attribution, Acknowledgement and Dispatch of Electronic Records, Regulation of Certifying Authorities, Digital Signatures Certificates, Duties of Subscribers, Penalties and Adjudication, Appellate Tribunal, Offences and Cyber-crimes.

Module II
Practical (50 Marks)

Unit No.	Unit Name	Topics
1	Word processing	Introduction: Creating and saving your document, displaying different views, working with styles and character formatting, working with paragraph formatting techniques using indents, tabs, alignment, spacing, bullets and numbering and creating borders; Page setup and sections: Setting page margins, orientation, headers and footers, end notes and foot notes, creating section breaks and page borders; Working with tables: Creating tables, modifying table layout and design, sorting, inserting graphics in a table, table math, converting text to table and vice versa; Create newspaper columns, indexes and table of contents, Spell check your document using inbuilt and custom dictionaries, checking grammar and style , using thesaurus and finding and replacing text; Create bookmarks, captions and cross referencing, adding hyperlinks, adding sources and compiling and bibliography; Mail merge: Creating and editing your main document and data source, sorting and filtering merged documents and using merge instructions like ask, fill-in and if-then-else; Linking and embedding to keep things together. (**Creating Business Documents using the above facilities;** Hands-on experience in using spreadsheet software
2	Spreadsheet	Working with cell and cell addresses, entering and editing data, finding and replacing data, selecting a range, moving, cutting, copying with paste, inserting and deleting cells, freezing cells, cell formatting options, adding, deleting and copying worksheet with in a workbook, renaming a worksheet, Cell reference – relative, absolute - Elements of spreadsheet charts – categories, create a chart, choosing chart type, edit chart axis, titles, labels, data series and legend, adding a text box, rotate text in a chart. Hands-on experience in using spreadsheet software .
3	Presentation	Introduction, creating presentations – using auto content wizard, using templates, using blank presentation, formatting background, adding sounds, slide show, slide sorter, setting animation, slide transaction, setting intervals, saving and printing, presentations, adding and playing audio clips in presentations, creating hyperlinks in presentations, converting the presentations into a video clip, Morph Transition. (**Creating Business Presentations using above facilities). C**reating professional presentations using software.

Suggested Readings

- Introduction to Computer Application (As per NEP) by Ashok Arora. [S.Chand and Co. Ltd.]
- Fundamentals of Computers by Reema Thareja; Oxford Publisher
- Computer Fundamentals by Pradeep K Sinha; BPB Publication
- Experiencing MIS by Kroenke and Boyle. [Pearson]
- Essentials of MIS by Laudon & Laudon. [Pearson, 14th Edition]
- New Perspectives Microsoft® Office 365® & Office 2019 Introductory by Patrick Carey, Dan Oja, June Jamrich Parsons, Katherine T. Pinard, Ann Shaffer, Mark Shellman [Cengage]
- Information Technology and its Application in Business, S Dawn and P Banerjee, Tee Dee Pub. Ltd.
- Introduction to Computer Application, Ashok Arora, Vikas Publishing House,
- Computer Applications -1, Anirban Das & Shantanu Chakraborty, Law Point
- Computer Applications in Business, Deepak Jain, Law Point

Syllabi for AEC and VAC will be provided by the respective UGBOS

UNIVERSITY OF CALCUTTA

NotificationNo.CSR/13/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of his powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 11.07.2023 approved the Syllabi of the under mentioned subjects for semester wise Four-year (Honours & Honours with Research) / Three-year (Multidisciplinary) programme of U.G. courses of studies, as applicable under CCF,2022 . under this University, as laid down in the accompanying pamphlet.

Name of Subject:

1.Anthropology
2.BBA
3.Bengali
4.BFAD
5.Bio Chemistry
6.Botany
7.Chemistry
8.Commerce
9.Economics
10.Education
11.English
12.Geology
13.Hindi
14.History,Islamic History & Culture
15.Home Science
16.Human Rights
17.Journalism & Mass Communication
18.Mathematics
19.Microbiology (Honours)
20.Molecular Biology .
21.Philosophy
22.Physiology
23.Political Science
24.Psychology
25.Social Science
26.Sociology
27.Urdu
28.Women's Studies
29.Zoology

The above shall be effective from the academic session 2023-2024.

12/7/2023

SENATE HOUSE

KOLKATA-700 073

Prof.(Dr.) Debasis Das

Registrar

Economics (Major- Minor)

Major (4 Credits)				
Sem	**Course**	**Name of the Paper**	**Code (Th)**	**Code (Tu/ P)**
1	CC1	Microeconomics (I)	ECON-H-CC1-1-Th	ECON-H-CC1-1-Tu
2	CC2	Macroeconomics (I)	ECON-H-CC2-2-Th	ECON-H-CC2-2-Tu
3	CC3	Microeconomics (II)	ECON-H-CC3-3-Th	ECON-H-CC3-3-Tu
3	CC4	Development Economics (I)	ECON-H-CC4-3-Th	ECON-H-CC4-3-Tu
4	CC5	Mathematical Economics (I)	ECON-H-CC5-4-Th	ECON-H-CC5-4-Tu
4	CC6	Macroeconomics (II)	ECON-H-CC6-4-Th	ECON-H-CC6-4-Tu
4	CC7	Statistics for Economics	ECON-H-CC7-4-Th	ECON-H-CC7-4-Tu
4	CC8	Indian Economics (I)	ECON-H-CC8-4-Th	ECON-H-CC8-4-Tu
5	CC9	Microeconomics (III)	ECON-H-CC9-5-Th	ECON-H-CC9-5-Tu
5	CC10	Macroeconomics (III)	ECON-H-CC10-5-Th	ECON-H-CC10-5-Tu
5	CC11	Mathematical Economics (II)	ECON-H-CC11-5-Th	ECON-H-CC11-5-Tu
5	CC12	Econometrics (I)	ECON-H-CC12-5-Th	ECON-H-CC12-5-Tu
6	CC13	International Economics (I)	ECON-H-CC13-6-Th	ECON-H-CC13-6-Tu
6	CC14	Environmental & Resource Economics (I)	ECON-H-CC14-6-Th	ECON-H-CC14-6-Tu
6	CC15	Public Economics (I)	ECON-H-CC15-6-Th	ECON-H-CC15-6-Tu
6	Summer Internship			
7	CC16	Financial Economics (I)	ECON-H-CC16-7-Th	ECON-H-CC16-7-Tu
7	CC17	Development Economics (II)	ECON-H-CC17-7-Th	ECON-H-CC17-7-Tu
7	CC18	Environmental & Resource Economics (II)	ECON-H-CC18-7-Th	ECON-H-CC18-7-Tu
7	CC19	Advanced Microeconomic Theory	ECON-H-CC19-7-Th	ECON-H-CC19-7-Tu
*7**	*CC20*	*A) PUBLIC ECONOMICS (II)/ B) INDIAN ECONOMICS (II) OR DISSERTATION**	ECON-H-CC20(A)-7-Th/ ECON-H-CC20(B)-7-Th	ECON-H-CC20(A)-7-Tu/ ECON-H-CC20(B)-7-Tu
8	CC21	Econometrics (II)	ECON-H-CC21-8-Th	ECON-H-CC21-8-P
8	CC22	International Economics (II)	ECON-H-CC22-8-Th	ECON-H-CC22-8-Tu
8	CC23	Advanced Macroeconomic Theory	ECON-H-CC23-8-Th	ECON-H-CC23-8-Tu

*8**	*CC24*	*A) FINANCIAL ECONOMICS (II)/ B) MANAGERIAL ECONOMICS OR, DISSERTATION**	ECON-H-CC24 (A)-8-Th/ ECON-H-CC24 (B)-8-Th	ECON-H-CC24 (A)-8-Tu/ ECON-H-CC24 (B)-8-Tu
*8**	*CC25*	*A) GENDER ECONOMICS / B) INDIAN ECONOMIC HISTORY OR, DISSERTATION**	ECON-H-CC25 (A)-8-Th/ ECON-H-CC25 (B)-8-Th	ECON-H-CC25 (A)-8-Tu/ ECON-H-CC25 (B)-8-Tu
Sem	**SEC (4 Credits)**			
1	SEC1	Introductory Statistics & Application (I)	ECON-H-SEC1-1-Th	ECON-H-SEC1-1-Tu
2	SEC2	Introductory Statistics & Application (II)	ECON-H-SEC2-2-Th	ECON-H-SEC2-2-P
3	SEC3	Data Analysis and Research Methodology	ECON-H-SEC3-3-Th	ECON-H-SEC3-3-Tu/P
Sem	**IDC (3 Credits)**			
1/2/3	IDC	Elementary Economics	ECON-H-IDC-1/2/3-Th	ECON-H-IDC-1/2/3-Tu

Sem	**Minor (4 Credits)**		
	Name of the Paper	**Code (Th)**	**Code (Tu/ P)**
1 (or 3)	Microeconomics (I)	ECON-H-CC1-1-Th/ ECON-H-CC1-3-Th	ECON-H-CC1-1-Tu/ ECON-H-CC1-3-Tu
2 (or 4)	Macroeconomics (I)	ECON-H-CC2-2-Th/ ECON-H-CC2-4-Th	ECON-H-CC2-2-Tu/ ECON-H-CC2-4-Tu
5	Development Economics (I)	ECON-H-CC4-5-Th	ECON-H-CC4-5-Tu
6	Indian Economics (I)	ECON-H-CC8-6-Th	ECON-H-CC8-6-Tu

ECONOMICS [MDC- Core Course (CC)] (4 Credits)					
Sem	**Paper**	**Course**	**Name of the Paper**	**Code (Th)**	**Code (Tu)**
1	CC1/ CC2	MDC 1	Microeconomics (I)	ECON-MD-CC1-1-Th	ECON-MD-CC1-1-Tu
2	CC1/ CC2	MDC 2	Macroeconomics (I)	ECON-MD-CC2-2-Th	ECON-MD-CC2-2-Tu
3	CC1/ CC2	MDC 3	Development Economics (I)	ECON-MD-CC3-3-Th	ECON-MD-CC3-3-Tu
4	CC1/ CC2	MDC 4	Indian Economics (I)	ECON-MD-CC4-4-Th	ECON-MD-CC4-4-Tu
	CC1/ CC2	MDC 5	Sustainable Development	ECON-MD-CC5-4-Th	ECON-MD-CC5-4-Tu
5	CC1/ CC2	MDC 6	Economic History of India (1857-1947)	ECON-MD-CC6-5-Th	ECON-MD-CC6-5-Tu
5	CC1	MDC 7	Public Finance	ECON-MD-CC7-5-Th	ECON-MD-CC7-5-Tu
6	CC2			ECON-MD-CC7-6-Th	ECON-MD-CC7-6-Tu
6	CC1/ CC2	MDC 8	Rural Development	ECON-MD-CC8-6-Th	ECON-MD-CC8-6-Tu

Sem	ECONOMICS [MDC- Minor] (4 Credits)			
	Course	**Name of the Paper**	**Code (Th)**	**Code (Tu)**
3	MDC_m 1	Microeconomics (I)	ECON-MD-CC1-3-Th	ECON-MD-CC1-3-Tu
4	MDC_m 2	Macroeconomics (I)	ECON-MD-CC2-4-Th	ECON-MD-CC2-4-Tu
5	MDC_m 3	Development Economics (I)	ECON-MD-CC3-5-Th	ECON-MD-CC3-5-Tu
5	MDC_m 4	Indian Economics (I)	ECON-MD-CC4-5-Th	ECON-MD-CC4-5-Tu
6	MDC_m 5	Sustainable Development	ECON-MD-CC5-6-Th	ECON-MD-CC5-6-Tu
6	MDC_m 6	Economic History of India	ECON-MD-CC6-6-Th	ECON-MD-CC6-6-Tu

Sem	SEC (4 Credits)		
	Name of the Paper	**Code (Th)**	**Code (Tu)**
1/ 2/ 3	A) Economic Data Analysis and Report Writing/ B)Entrepreneurship and Development	ECON-MD-SEC1 (A)-1-Th or, ECON-MD-SEC2 (A)-2-Th or, ECON-MD-SEC3 (A)-3-Th/ ECON-MD-SEC1 (B)-1-Th or, ECON-MD-SEC2 (B)-2-Th or, ECON-MD-SEC3 (B)-3-Th	ECON-MD-SEC1 (A)-1-Tu or, ECON-MD-SEC2 (A)-2-Tu or, ECON-MD-SEC3 (A)-3-Tu/ ECON-MD-SEC1 (B)-1-Tu or, ECON-MD-SEC2 (B)-2-Tu or, ECON-MD-SEC3 (B)-3-Tu

Sem	IDC (3 Credits)		
	Name of the Paper	**Code (Th)**	**Code (Tu)**
1/ 2/ 3	Elementary Economics	ECON-MD-IDC1-1-Th or, ECON-MD-IDC2-2-Th or, ECON-MD-IDC3-3-Th	ECON-MD-IDC1-1-Tu or, ECON-MD-IDC2-2-Tu or, ECON-MD-IDC3-3-Tu

Economics Core Course I: ECON-H-CC1-1-Th
Microeconomics (I)

Marks: 75 **Credits: 3**

No. of Lecture hours (Th): 45
[For Semester-I]

Unit 1: Exploring the subject matter of Economics **5 lecture hours**

1.1 Scope and Method of Economics: Wants, Scarcity, Competing Ends and Choice - Defining Economics, Thinking like an economist: Basic Economics Questions, Households and firms, Demand and Supply, Basic concepts of Utility, basic concepts of production-Production function, Definition of Average and Marginal Product, Microeconomics and Macroeconomics, Normative Economics and Positive Economics

1.2 Principles of Microeconomics – principles of individual decision making and principles of economic interactions – trade off, opportunity cost, efficiency, marginal changes and cost-benefit, trade, market economy, property rights, market failure, externality and market power.

1.3 Interdependence and the Gains from Trade- production possibilities frontier and increasing costs, absolute and comparative advantage, comparative advantage and gains from trade.

Unit 2: Utility Theory **20 lecture hours**

(Focus on intuitive explanation and diagrams. Learning to analyze without using calculus a must)

2.1 Cardinal and Ordinal Approach.

2.2 Utility in Cardinal Approach- Utility and choice, Total Utility and Marginal Utility, Utility and choice-maximization, marginal utility, theory of demand

2.3 Ordinal utility: Assumptions on preference ordering, Indifference curve (IC), Marginal rate of substitution and convexity of IC, Budget constraint, Consumers 'equilibrium-interior and corner,

Unit 3: Demand and Supply: How Markets Work **8 lecture hours**

3.1 Elementary theory of Demand: Factors influencing household demand and market demand, the demand curve, movement along and shift of the demand curve

3.2 Elementary theory of Supply: factors influencing supply, the supply curve, movement along and shift of the supply curve

3.3 The Elementary theory of market price: Determination of equilibrium price in a competitive market.

Unit 4: Market and Adjustments **4 lecture hours**

4.1 The Evolution of Market Economies, Price System and the Invisible Hand

4.2 The Decision-takers - households, firms and central authorities

4.3 The Concepts of Markets- individual market, separation of individual markets, interlinking of individual

markets. Difference among markets- competitiveness, goods and factor markets, free and controlled markets. Market and non-market sectors, public and private sectors, economies- free market, command and mixed.

4.4 Different goods: Public goods, Private goods, Common resources and Natural Monopolies.

Unit 5: Market Sensitivity and Elasticity **8 lecture hours**

5.1 Importance of Elasticity in Choice-Decisions

5.2 Method of Calculation- Arc Elasticity, Point Elasticity-definition

5.3 Demand and supply Elasticities-types of elasticity and factors affecting elasticity, Demand Elasticity and Revenue, Long run and Short run elasticities of Demand and Supply

5.4 Income and Cross Price Elasticity

5.5 Applications: Case studies – OPEC and Oil Price

Economics Core Course I: ECON-H-CC1-1-Tu
Microeconomics (I)
Marks: 25 **Credit: 1**
No. of Lecture hours (Tu): 15
[For Semester-I]

Mode of tutorial Examination: Viva or Presentation plus viva

Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A **Tutorial** class also helps a teacher to clarify any topic in detail to the students.
- A **Tutorial** contact hour has been meant to promote teacher-student academic interaction.
- The norm of examination for this **Tutorial** part of the course will be **Viva, or presentation plus viva, unless otherwise mentioned.**

Texts/ References:

1. G.Mankiw. 2007, Economics: Principles and Applications, India edition by South Western, Cengage Learning
2. R.G. Lipsey. An Introduction to Positive Economics, ELBS (6^{th} edition)
3. Lipsey, R. and Chrystal, A. 2007 Economics, OUP
4. Pindyck, Rubinfeld and Mehta, Microeconomics, Pearson
5. G.S.Maddala and E. Miller, 1989, Microeconomics, Prentice Hall, McGraw Hill International Editions

6. Karl e Case and Ray C Fair, Principles of Economics, Pearson Education, 8th Edition, 2007
7. P Samuelson and W.Nordhaus, Economics, McGraw hill International Edition (14th edition or later edition)
8. J.E.Stiglitz and C.E.Walsh, Principles of Economics, WW Norton and Company, NY, (3rd edition or later edition)
9. Hal. R Varian , Intermediate Microeconomics, A modern Approach, WW Norton and Company, 8th edition, 2010 (T)
10. Gravelle, H. and Rees,R. , Microeconomics, Prentice Hall
11. Ryan, W.J.L. and Pearce : Price Theory and Applications , Macmillan Education, UK
12. Ferguson, C.E. and Gould, J.P. : Microeconomic Theory, Aitbs Publishers and Distributors, New Delhi.
13. Satya Chakrabarty, Microeconomics, Allied Publishers
14. Gould, J.P and E.P. Lazear: Microeconomics Theory, McGraw-Hill

Economics Core Course II: ECON-H-CC2-2-Th

Macroeconomics (I)

Marks: 75 ***Credits: 3***

No. of Lecture hours (Th): 45

[For Semester-II]

1.National Income Accounting **Lecture hours 12**

1.1 Macroeconomic data- Basic concepts of National Income accounting. The circular flow (three sector).
1.2 Concepts of GNP, GDP, NNP, and NDP at market price and at factor cost- Real and Nominal, -Implicit deflator.
1.3 The measurement of National Income. The problem of double counting.
1.4 The role of Government. Concepts of Corporate Income, Corporate Savings, Personal Income, Personal Disposable Income and Personal Savings.
1.5 Saving-Investment gap and its relation with budget deficit and trade surplus. National Income accounting and cost of living.

2. Income Determination in the Short Run (Part-I):
The Simple Keynesian Model in a Closed Economy

Lecture hours 12

2.1 Consumption Function; the Keynesian Saving Function; stability of equilibrium; the concept of effective demand- the concept of demand-determined output
2.2 Equilibrium Income determination in SKM; the Simple Keynesian Multiplier ; the paradox of thrift; the SKM in a Closed Economy with Government; Government expenditure and Tax
2.3 Balanced Budget Multiplier

3. Basic theory of Investment **Lecture hour 3**

3.1 Investment function: Determinants of investment. -Concepts of Marginal productivity of capital
3.2 Marginal efficiency of capital (MEC) and Marginal efficiency of investment (MEI).
.

4. The Classical system **Lecture hours 12**

4.1 Basic ideas of Classical Macroeconomics; Say 's Law and Quantity Theory of Money
4.2 Loanable fund theory
4.3 The Classical Theory of Income and Employment determination
4.4 Full Employment and wage-price flexibility; Neutrality of Money
4.5 Classical Dichotomy (Basic Concept).

5. Inflation **Lecture hours 6**

5.1 Concepts and types - Inflationary Gap, Demand pull vs. Cost push inflation,
5.2 Anti-inflationary policy

Economics Core Course II: ECON-H-CC2-2-Tu

Macroeconomics (I)

Marks: 25 ***Credit: 1***

No. of Lecture hours (Tu): 15

[For Semester-II]

Mode of Tutorial Examination: Viva, or Presentation plus viva

Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A **Tutorial** class also helps a teacher to clarify any topic in detail to the students.
- A **Tutorial** contact hour has been meant to promote teacher-student academic interaction.
- The norm of examination for this **Tutorial** part of the course will be **Viva, or presentation plus viva, unless otherwise mentioned.**

Text/ References:

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
2. N. Gregory Mankiw. Principles of Macroeconomics, Indian Imprint of South Western by Cengage India, 6th edition, 2015.
3. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 2010.
4. Ghosh Chandana and Ghosh Ambar, Macroeconomics, PHI Learning Pvt Ltd, 2014.
5. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
6. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
7. Venieris, Y.P. and Sebold F.D., Macroeconomics: Models and Policy, John Wiley and Sons, 1977.
8. Ackley Gardner (old), Macroeconomic Theory, Macmillan, 1961
9. Ackley Gardner(new), Macroeconomics : Theory and Policy : Macmillan
10. J.R.Hicks. The Social Framework: An introduction to Economics, Clarendon Press, 3rd Edition, 1960
11. Sikdar Soumyen, Principles of Macroeconomics, Oxford University Press

Economics Core Course I:
ECON-H-CC1-1-Th/
ECON-H-CC1-3-Th
Microeconomics (I/ III)

Marks: 75 **Credits: 3**

No. of Lecture hours (Th): 45
[For Semester-I]

Unit 1: Exploring the subject matter of Economics **5 lecture hours**

1.1 Scope and Method of Economics: Wants, Scarcity, Competing Ends and Choice - Defining Economics, Thinking like an economist: Basic Economics Questions, Households and firms, Demand and Supply, Basic concepts of Utility, basic concepts of production-Production function, Definition of Average and Marginal Product, Microeconomics and Macroeconomics, Normative Economics and Positive Economics

1.2 Principles of Microeconomics – principles of individual decision making and principles of economic interactions – trade off, opportunity cost, efficiency, marginal changes and cost-benefit, trade, market economy, property rights, market failure, externality and market power.

1.3 Interdependence and the Gains from Trade- production possibilities frontier and increasing costs, absolute and comparative advantage, comparative advantage and gains from trade.

Unit 2: Utility Theory **20 lecture hours**

(Focus on intuitive explanation and diagrams. Learning to analyze without using calculus a must)

2.1 Cardinal and Ordinal Approach.

2.2 Utility in Cardinal Approach- Utility and choice, Total Utility and Marginal Utility, Utility and choice-maximization, marginal utility, theory of demand

2.3 Ordinal utility: Assumptions on preference ordering, Indifference curve (IC), Marginal rate of substitution and convexity of IC, Budget constraint, Consumers 'equilibrium-interior and corner,

Unit 3: Demand and Supply: How Markets Work **8 lecture hours**

3.1 Elementary theory of Demand: Factors influencing household demand and market demand, the demand curve, movement along and shift of the demand curve

3.2 Elementary theory of Supply: factors influencing supply, the supply curve, movement along and shift of the supply curve

3.3 The Elementary theory of market price: Determination of equilibrium price in a competitive market.

Unit 4: Market and Adjustments **4 lecture hours**

4.1 The Evolution of Market Economies, Price System and the Invisible Hand

4.2 The Decision-takers - households, firms and central authorities

4.3 The Concepts of Markets- individual market, separation of individual markets, interlinking of individual markets. Difference among markets- competitiveness, goods and factor markets, free and controlled markets. Market and non-market sectors, public and private sectors, economies- free market, command and mixed.

4.4 Different goods: Public goods, Private goods, Common resources and Natural Monopolies.

Unit 5: Market Sensitivity and Elasticity **8 lecture hours**

5.1 Importance of Elasticity in Choice-Decisions

5.2 Method of Calculation- Arc Elasticity, Point Elasticity-definition

5.3 Demand and supply Elasticities-types of elasticity and factors affecting elasticity, Demand Elasticity and Revenue, Long run and Short run elasticities of Demand and Supply

5.4 Income and Cross Price Elasticity

5.5 Applications: Case studies – OPEC and Oil Price

Economics Core Course I:
ECON-H-CC1-1-Tu/
ECON-H-CC1-3-Tu
Microeconomics (I)

Marks: 25 **Credit: 1**

No. of Lecture hours (Tu): 15
[For Semester-I/ III]

Mode of tutorial Examination: Viva or Presentation plus viva

Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A **Tutorial** class also helps a teacher to clarify any topic in detail to the students.
- A **Tutorial** contact hour has been meant to promote teacher-student academic interaction.
- The norm of examination for this **Tutorial** part of the course will be **Viva, or presentation plus viva, unless otherwise mentioned.**

Texts/ References:

1. G.Mankiw. 2007, Economics: Principles and Applications, India edition by South Western, Cengage Learning
2. R.G. Lipsey. An Introduction to Positive Economics, ELBS (6^{th} edition)
3. Lipsey, R. and Chrystal, A. 2007 Economics, OUP
4. Pindyck, Rubinfeld and Mehta, Microeconomics, Pearson
5. G.S.Maddala and E. Miller, 1989, Microeconomics, Prentice Hall, McGraw Hill International Editions

6. Karl e Case and Ray C Fair, Principles of Economics, Pearson Education, 8th Edition, 2007
7. P Samuelson and W.Nordhaus, Economics, McGraw hill International Edition (14th edition or later edition)
8. J.E.Stiglitz and C.E.Walsh, Principles of Economics, WW Norton and Company, NY, (3rd edition or later edition)
9. Hal. R Varian , Intermediate Microeconomics, A modern Approach, WW Norton and Company, 8th edition, 2010 (T)
10. Gravelle, H. and Rees,R. , Microeconomics, Prentice Hall
11. Ryan, W.J.L. and Pearce : Price Theory and Applications , Macmillan Education, UK
12. Ferguson, C.E. and Gould, J.P. : Microeconomic Theory, Aitbs Publishers and Distributors, New Delhi.
13. Satya Chakrabarty, Microeconomics, Allied Publishers
14. Gould, J.P and E.P. Lazear: Microeconomics Theory, McGraw-Hill

Economics Core Course II:

ECON-H-CC2-2-Th/

ECON-H-CC2-4-Th

Macroeconomics (I)

Marks: 75 ***Credits: 3***

No. of Lecture hours (Th): 45

[For Semester-II]

1.National Income Accounting **Lecture hours 12**

1.1 Macroeconomic data- Basic concepts of National Income accounting. The circular flow (three sector).
1.2 Concepts of GNP, GDP, NNP, and NDP at market price and at factor cost- Real and Nominal, -Implicit deflator.
1.3 The measurement of National Income. The problem of double counting.
1.4 The role of Government. Concepts of Corporate Income, Corporate Savings, Personal Income, Personal Disposable Income and Personal Savings.
1.5 Saving-Investment gap and its relation with budget deficit and trade surplus. National Income accounting and cost of living.

2. Income Determination in the Short Run (Part-I):
The Simple Keynesian Model in a Closed Economy

Lecture hours 12

2.1 Consumption Function; the Keynesian Saving Function; stability of equilibrium; the concept of effective demand- the concept of demand-determined output
2.2 Equilibrium Income determination in SKM; the Simple Keynesian Multiplier ; the paradox of thrift; the SKM in a Closed Economy with Government; Government expenditure and Tax
2.3 Balanced Budget Multiplier

3. Basic theory of Investment **Lecture hour 3**

3.1 Investment function: Determinants of investment. -Concepts of Marginal productivity of capital
3.2 Marginal efficiency of capital (MEC) and Marginal efficiency of investment (MEI).
.

4. The Classical system **Lecture hours 12**

4.1 Basic ideas of Classical Macroeconomics; Say 's Law and Quantity Theory of Money
4.2 Loanable fund theory
4.3 The Classical Theory of Income and Employment determination
4.4 Full Employment and wage-price flexibility; Neutrality of Money
4.5 Classical Dichotomy (Basic Concept).

5. Inflation **Lecture hours 6**

5.1 Concepts and types - Inflationary Gap, Demand pull vs. Cost push inflation,
5.2 Anti-inflationary policy

Economics Core Course II:

ECON-H-CC2-2-Tu/

ECON-H-CC2-4-Tu

Macroeconomics (I)

Marks: 25 ***Credit: 1***

No. of Lecture hours (Tu): 15

[For Semester-II]

Mode of Tutorial Examination: Viva, or Presentation plus viva

Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point, (iii) preparation of term paper etc.
- A **Tutorial** class also helps a teacher to clarify any topic in detail to the students.
- A **Tutorial** contact hour has been meant to promote teacher-student academic interaction.
- The norm of examination for this **Tutorial** part of the course will be **Viva, or presentation plus viva, unless otherwise mentioned.**

Text/ References:

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
2. N. Gregory Mankiw. Principles of Macroeconomics, Indian Imprint of South Western by Cengage India, 6th edition, 2015.
3. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 2010.
4. Ghosh Chandana and Ghosh Ambar, Macroeconomics, PHI Learning Pvt Ltd, 2014.
5. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
6. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
7. Venieris, Y.P. and Sebold F.D., Macroeconomics: Models and Policy, John Wiley and Sons, 1977.
8. Ackley Gardner (old), Macroeconomic Theory, Macmillan, 1961
9. Ackley Gardner(new), Macroeconomics : Theory and Policy : Macmillan
10. J.R.Hicks. The Social Framework: An introduction to Economics, Clarendon Press, 3rd Edition, 1960
11. Sikdar Soumyen, Principles of Macroeconomics, Oxford University Press

Skill Enhancement Course (ECON-H-SEC1-1-Th)

Introductory Statistics and Applications (I)

Marks: 75 ***Credits: 3***

No. of Lecture hours (Th): 45

[For Semester-I]

Introductory Statistics (Theory) **45 Lecture Hours**

Unit 1: Introduction and Overview **Lecture hours 10**

1.1 Subject matter of Statistics

1.2 Basic Steps in Statistical Methods – Collection, Presentation and Analysis of Data

1.2.1 Collection of Data – Primary and Secondary sources – their comparison, methods of Collection of data
1.2.2 Concepts – Variable and Attribute (categorical variable) – Discrete, Continuous and Categorical Variables, Complete Enumeration Survey and Sample Survey, Population and Sample
1.2.3 Presentation of data – Textual, Tabular, Diagrammatic
1.2.4 Frequency Distribution – Construction of Ogives, Column diagram, Frequency Polygon, Histogram, Frequency Curve
1.2.5 Analysis of Data – Univariate and Bivariate Analysis (Concepts only)

[**References**: Gun, A. M., M.K. Gupta and B. Dasgupta (GGDG) (2022), Fundamentals of Statistics, Volume One, World Press Private Limited Kolkata – Chapter on 'Collection and Presentation of Data'; Chapter on 'Frequency Distributions']

Unit 2: Descriptive Statistics **Lecture hours 35**

2.1 Central Tendency **Lecture hours 10**

2.1.1 Measures of central tendency for ungrouped and grouped data – arithmetic mean, geometric mean, harmonic mean, median and mode–Composite measures; Comparison of different measures, Quartiles, Deciles and Percentiles
2.1.2 Index numbers – Price Index Numbers – problems of construction, methods of construction – aggregative (simple and weighted) and averaging price-relatives (simple and weighted), Laspayre's, Paasche's index numbers, Fisher's Index Number, Quantity Index Numbers, Tests of Index Numbers, Fixed Base and Chain Base, Wholesale price index and cost of living index, Uses of index numbers

2.2 Dispersion **Lecture hours 10**

2.2.1 Absolute measures of dispersion for ungrouped and grouped data – range, quartile deviation, mean deviation, standard deviation –Composite SD; Comparison of different measures
2.2.2 Relative measures - coefficient of variation, coefficient of mean deviation, coefficient of quartile deviation
2.2.3 Distribution of income and wealth – Lorenz curve, Gini Coefficient, Theil's Index

2.3 Skewness and Kurtosis **Lecture hours 5**
2.3.1 Moments – central and non-central – computation, conversion
2.3.2 Measures of skewness – Bowley's measure, coefficient of quartile deviation, measure based on moments
2.3.3 Measure of kurtosis – measure based on moments

2.4 Bivariate Analysis **Lecture hours10**
2.4.1 Bivariate data – scatter diagram, Simple correlation coefficient – computation, limitations, and properties

2.4.2 Simple linear regression – Least squares technique – Properties

[**Ref:** GGDG ,Volume One – Chapter on 'Measures of Central Tendency', Chapter on 'Measures of Dispersion', Chapter on 'Moments and Measures of Skewness & Kurtosis', Chapter on 'Bivariate Frequency Distributions', Volume Two – Chapter on 'Index Numbers'; Sen, A. On Economic Inequality – Chapter on 'Measures of Inequality', OUP 1973]

Additional References for Group A

1. Freund, John E., Mathematical Statistics, Prentice Hall,1992.
2. Mood, A. M., F. A. Graybill and D. C. Boes, Introduction to the Theory of Statistics, McGraw Hill, 1974.

Skill Enhancement Course (ECON-H-SEC1-1-Tu)

Introductory Statistics and Applications (I)

Marks: 25 ***Credit: 1***

No. of Lecture hours (Tu): 15

[For Semester-I]

Tutorial: **15 Lecture Hours**

Mode of Tutorial Examination: Viva or presentation plus viva

Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A **Tutorial** class also helps a teacher to clarify any topic in detail to the students.
- A **Tutorial** contact hour has been meant to promote teacher-student academic interaction.
- The norm of examination for this **Tutorial** part of the course will be **Viva, or presentation plus viva, unless otherwise mentioned.**

Skill Enhancement Course (ECON-H-SEC2-2-Th)

Introductory Statistics and Applications (II)

Marks: 25 ***Credit: 1***

No. of Lecture hours (Th): 15

[For Semester-II]

Group A (Theory)

1. Basic ideas of economic data **15 lecture hours**

1.1 Types of data-cross section, time series, pooled data, panel data etc.
1.2 Nature of field survey data – types of cross section data
1.3 Advantages and disadvantages of field survey data
1.4 Importance of field survey data for economic analysis
1.5 Role of pilot survey

Skill Enhancement Course (ECON-H-SEC2-2-P)

Introductory Statistics and Applications (II)

Marks: 75 ***Credits: 3***

No. of Lecture hours (P): 45

[For Semester-II]

Group B (Practical) **45 lecture hours**

2. Topics under worksheet Program: (Microsoft Excel)

2.1 Concept on Data Frame: **(13 lecture hours)**
(Understanding the purpose and benefits of using worksheets in data management and analysis - Familiarizing students with Microsoft Excel, and their user interface)

2.1.1 Data Entry and Formatting
2.1.2 Variables & Observations
(Inputting data into cells accurately and efficiently - Applying formatting options to enhance data presentation (e.g., number formatting, date formatting, cell borders).
2.1.3 Data Validation and Conditional Formatting (Setting validation rules to ensure data accuracy and consistency - Applying conditional formatting to highlight specific data patterns or trends.)
2.1.4 Data Sorting and Filtering (Sorting data in ascending or descending order based on specific criteria - Filtering data to display only relevant information).
2.1.5 Basic Formulas and Functions
(Understanding the concept of formulas and their role in performing calculations - Using basic mathematical operators (+, -, *, /) to create formulas - Utilizing built-in functions (e.g., SUM, AVERAGE, MAX, MIN, AND, IF, OR, COUNTIF, VLOOKUP, HLOOKUP) to perform common calculations)
2.1.6 Importing and Exporting Data (Importing data from external sources (e.g., CSV files, databases) into spreadsheets - Exporting spreadsheet data to different file formats (e.g., CSV, PDF) for sharing or further analysis).

2.2 Frequency Analysis and Data Visualization: **(12 lecture hours)**
(Creating charts and graphs to visually represent data - Selecting appropriate chart types based on data characteristics - Customizing chart elements (e.g., titles, axes, legends) to improve readability)

2.2.1 Raw Data to Group Data
2.2.2 Different type so Frequency Table

2.2.3 Different Types of Tabulation (e.g.: Two Way, Three Way, Pivot Table etc.)
2.2.4 Different Types of Frequency Graphs (Bar Chart, Column Charts, Frequency Polygon, Histogram, Pie Diagram)
2.2.5 Customization of Graphs Frame

2.3 Descriptive Statistics: (20 lecture hours)
(Applying descriptive statistics functions to analyze data - Calculating measures of central tendency and dispersion - Bivariate Analysis).

2.3.1 Calculation of Mean, Median & Mode (Un-Grouped & Grouped Data)
2.3.2 Dispersion & Inequality Measures (Un-Grouped & Grouped Data)
2.3.3 Findings the Observations from different Descriptive Statistical Measures with Graphics (e.g.: Box Plot, Histogram, Lorenz Curve etc.)
2.3.4 Starter Diagram - Correlation Coefficient
2.3.5 Simple Regression (Two Variables) - Estimation of Predicted Value & Regression Residuals
2.3.6 Random Number Generation

Suggested Readings

Microsoft Excel

1. "Mastering Data Analysis with Excel" by Michael Alexander. "Data Analysis Using Excel" by Michael Middleton; Wiley, 2020
2. "Excel Bible" by John Walkenbach; Wiley, 2019
3. "Excel Charts and Graphs: Master Data Visualization Techniques" by Paul McFedries; Wiley, 2016
4. "Excel Formulas and Functions for Dummies" by Ken Bluttman; For Dummies, 2015
5. "Microsoft Excel 2016 Step by Step" by Curtis Frye; Microsoft Press, 2015

Weblinks:

1) MS Excel: https://www.w3schools.com/EXCEL/index.php
2) MSExcel: https://support.microsoft.com/en-au/office/excel-video-training-9bc05390-e94c-46af-a5b3-d7c22f6990bb

Total Practical Hours: 45

- Applications of use of **Microsoft Excel** software will be demonstrated in the computer laboratory in practical classes and the practical examination will be conducted in the usual manner as mentioned in CSR.
- To be more specific, the practical examination of the project is to be conducted jointly by the supervisor and an external examiner on the basis of the use of the **Worksheet Program** software in the computer laboratory (by determining the various measures of descriptive statistics in front of the examiners just like that of a practical examination) and also on the basis of a viva-voce based on the candidate's knowledge in this context.

Interdisciplinary Course (IDC)
Elementary Economics (ECON-H-IDC-1/2/3-Th)
Marks: 50 ***Credits: 2***
No. of Lecture hours (Th): 30
[For Semester-I/ II/ III]

1**. Elementary Microeconomic Concepts**: **10 Lecture Hours**

1.1 Theory of Demand and Supply--Determinants, Law of demand and supply, Demand and supply curves

1.2 Elasticity of Demand and Supply--Concepts of Price and income elasticity and implications

1.3 Theory of Production and Cost—Production function--Concepts of TP, AP, MP, short run-long run and different cost curves-social and external costs

1.4 Market--Different forms-TR, AR and MR-- Pricing and Output Decisions under Perfect competition and monopoly--features and equilibrium (diagrammatic representation only)

2. Elementary Macroeconomic Concepts: 10 Lecture Hours

2.1 National Income Accounting –Circular flow-- concepts of GNP, GDP, NNP, NDP, National Income

2.2 Money and Banking--Different measures of money supply, Difference between central and commercial bank and their functions

2.3 Inflation --Definition, types and anti-inflationary policy

2.4 Fiscal Policy & Monetary Policy -Objectives and Instruments

2.5 International Trade and contemporary issues--Balance of Payments (BOP)--Concepts autonomous and accommodating transactions, Functions of IMF, World Bank, WTO Exchange Rates—PPP (Concepts only)

3. Elementary Economic Development Concepts: 5 Lecture Hours

3.1 Growth vs. Development

3.2 Development Indicators - Human Development Index (HDI), Gender (GDI), Poverty (MPI), Inequality (GINI) Indices—India's rank

3.3 Sustainable development--concepts and Goals

4. Elementary Concepts of Indian Economics: 5 Lecture Hours

4.1 Economic Reforms in India—Background, Basic steps of trade, industry and financial sector reforms

4.2 NITI AYOG-Structure and objectives

Interdisciplinary Course (IDC)
Elementary Economics (ECON-H-IDC-1/2/3-Tu)
Marks: 25 ***Credit: 1***
No. of Lecture hours (Tu): 15
[For Semester-I/ II/ III]

Mode of Tutorial Examination: Viva or Presentation plus viva

References:

Unit-1

1. G.Mankiw. 2007, Economics: Principles and Applications, India edition by South Western, Cengage Learning

2. R.G. Lipsey. An Introduction to Positive Economics, ELBS (6th edition)

4. Pindyck, Rubinfeld and Mehta, Microeconomics, Pearson

5. G.S.Maddala and E. Miller, 1989, Microeconomics, Prentice Hall, McGraw Hill International Editions

7. Ferguson, C.E. and Gould, J.P. : Microeconomic Theory, Aitbs Publishers and Distributors, New Delhi.

Unit-2

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.

2. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 2010.

3. Branson,William, Macroeconomic Theory and Policy, East West Press

4.Salvatore, D, Internaional Economics, John Wiley and sons

5. Sikdar Soumyen, Principles of Macroeconomics, Oxford University Press.

6. https://www.imf.org/en/Home

7. https://www.worldbank.org/en/home

8. https://www.wto.org/

Unit-3

1. Thirlwall, A.P, Growth and Development, Fourth Edition, ELBS

2. Todaro, M.P, Economic Development, Sixth Edition, AWL

Unit-4

1. Puri, V.K & Mishra, S.K, Indian Economy, Himalaya Publishing House

2. Dutt & Sundharam, Indian Economy, S. Chand

Economics Core Course I: ECON-MD-CC1-1-Th

Microeconomics (I)

Marks: 75 **Credits: 3**

No. of Lecture hours (Th): 45

[For Semester-I]

Unit 1: Exploring the subject matter of Economics **5 lecture hours**

1.1 Scope and Method of Economics: Wants, Scarcity, Competing Ends and Choice - Defining Economics, Thinking like an economist: Basic Economics Questions, Households and firms, Demand and Supply, Basic concepts of Utility, basic concepts of production-Production function, Definition of Average and Marginal Product, Microeconomics and Macroeconomics, Normative Economics and Positive Economics

1.2 Principles of Microeconomics – principles of individual decision making and principles of economic interactions – trade off, opportunity cost, efficiency, marginal changes and cost-benefit, trade, market economy, property rights, market failure, externality and market power.

1.3 Interdependence and the Gains from Trade- production possibilities frontier and increasing costs, absolute and comparative advantage, comparative advantage and gains from trade.

Unit 2: Utility Theory **20 lecture hours**

(Focus on intuitive explanation and diagrams. Learning to analyze without using calculus a must)

2.1 Cardinal and Ordinal Approach.

2.2 Utility in Cardinal Approach- Utility and choice, Total Utility and Marginal Utility, Utility and choice-maximization, marginal utility, theory of demand

2.3 Ordinal utility: Assumptions on preference ordering, Indifference curve (IC), Marginal rate of substitution and convexity of IC, Budget constraint, Consumers 'equilibrium-interior and corner,

Unit 3: Demand and Supply: How Markets Work **8 lecture hours**

3.1 Elementary theory of Demand: Factors influencing household demand and market demand, the demand curve, movement along and shift of the demand curve

3.2 Elementary theory of Supply: factors influencing supply, the supply curve, movement along and shift of the supply curve

3.3 The Elementary theory of market price: Determination of equilibrium price in a competitive market.

Unit 4: Market and Adjustments **4 lecture hours**

4.1 The Evolution of Market Economies, Price System and the Invisible Hand

4.2 The Decision-takers - households, firms and central authorities

4.3 The Concepts of Markets- individual market, separation of individual markets, interlinking of individual

markets. Difference among markets- competitiveness, goods and factor markets, free and controlled markets. Market and non-market sectors, public and private sectors, economies- free market, command and mixed.

4.4 Different goods: Public goods, Private goods, Common resources and Natural Monopolies.

Unit 5: Market Sensitivity and Elasticity **8 lecture hours**

5.1 Importance of Elasticity in Choice-Decisions

5.2 Method of Calculation- Arc Elasticity, Point Elasticity-definition

5.3 Demand and supply Elasticities-types of elasticity and factors affecting elasticity, Demand Elasticity and Revenue, Long run and Short run elasticities of Demand and Supply

5.4 Income and Cross Price Elasticity

5.5 Applications: Case studies – OPEC and Oil Price

Economics Core Course I: ECON-MD-CC1-1-Tu
Microeconomics (I)
Marks: 25 **Credit: 1**
No. of Lecture hours (Tu): 15
[For Semester-I]

Mode of tutorial Examination: Viva or Presentation plus viva

Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A **Tutorial** class also helps a teacher to clarify any topic in detail to the students.
- A **Tutorial** contact hour has been meant to promote teacher-student academic interaction.
- The norm of examination for this **Tutorial** part of the course will be **Viva, or presentation plus viva, unless otherwise mentioned.**

Texts/ References:

1. G.Mankiw. 2007, Economics: Principles and Applications, India edition by South Western, Cengage Learning
2. R.G. Lipsey. An Introduction to Positive Economics, ELBS (6^{th} edition)
3. Lipsey, R. and Chrystal, A. 2007 Economics, OUP
4. Pindyck, Rubinfeld and Mehta, Microeconomics, Pearson
5. G.S.Maddala and E. Miller, 1989, Microeconomics, Prentice Hall, McGraw Hill International Editions

6. Karl e Case and Ray C Fair, Principles of Economics, Pearson Education, 8th Edition, 2007
7. P Samuelson and W.Nordhaus, Economics, McGraw hill International Edition (14th edition or later edition)
8. J.E.Stiglitz and C.E.Walsh, Principles of Economics, WW Norton and Company, NY, (3rd edition or later edition)
9. Hal. R Varian , Intermediate Microeconomics, A modern Approach, WW Norton and Company, 8th edition, 2010 (T)
10. Gravelle, H. and Rees,R. , Microeconomics, Prentice Hall
11. Ryan, W.J.L. and Pearce : Price Theory and Applications , Macmillan Education, UK
12. Ferguson, C.E. and Gould, J.P. : Microeconomic Theory, Aitbs Publishers and Distributors, New Delhi.
13. Satya Chakrabarty, Microeconomics, Allied Publishers
14. Gould, J.P and E.P. Lazear: Microeconomics Theory, McGraw-Hill

Economics Core Course II: ECON-MD-CC2-2-Th

Macroeconomics (I)

Marks: 75 ***Credits: 3***

No. of Lecture hours (Th): 45

[For Semester-II]

1.National Income Accounting **Lecture hours 12**

1.1 Macroeconomic data- Basic concepts of National Income accounting. The circular flow (three sector).
1.2 Concepts of GNP, GDP, NNP, and NDP at market price and at factor cost- Real and Nominal, -Implicit deflator.
1.3 The measurement of National Income. The problem of double counting.
1.4 The role of Government. Concepts of Corporate Income, Corporate Savings, Personal Income, Personal Disposable Income and Personal Savings.
1.5 Saving-Investment gap and its relation with budget deficit and trade surplus. National Income accounting and cost of living.

2. Income Determination in the Short Run (Part-I):
The Simple Keynesian Model in a Closed Economy

Lecture hours 12

2.1 Consumption Function; the Keynesian Saving Function; stability of equilibrium; the concept of effective demand- the concept of demand-determined output
2.2 Equilibrium Income determination in SKM; the Simple Keynesian Multiplier ; the paradox of thrift; the SKM in a Closed Economy with Government; Government expenditure and Tax
2.3 Balanced Budget Multiplier

3. Basic theory of Investment **Lecture hour 3**

3.1 Investment function: Determinants of investment. -Concepts of Marginal productivity of capital
3.2 Marginal efficiency of capital (MEC) and Marginal efficiency of investment (MEI).
.

4. The Classical system **Lecture hours 12**

4.1 Basic ideas of Classical Macroeconomics; Say 's Law and Quantity Theory of Money
4.2 Loanable fund theory
4.3 The Classical Theory of Income and Employment determination
4.4 Full Employment and wage-price flexibility; Neutrality of Money
4.5 Classical Dichotomy (Basic Concept).

5. Inflation **Lecture hours 6**

5.1 Concepts and types - Inflationary Gap, Demand pull vs. Cost push inflation,
5.2 Anti-inflationary policy

Economics Core Course II: ECON-MD-CC2-2-Tu

Macroeconomics (I)

Marks: 25 ***Credit: 1***

No. of Lecture hours (Tu): 15

[For Semester-II]

Mode of Tutorial Examination: Viva, or Presentation plus viva

Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point, (iii) preparation of term paper etc.
- A **Tutorial** class also helps a teacher to clarify any topic in detail to the students.
- A **Tutorial** contact hour has been meant to promote teacher-student academic interaction.
- The norm of examination for this **Tutorial** part of the course will be **Viva, or presentation plus viva, unless otherwise mentioned.**

Text/ References:

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.
2. N. Gregory Mankiw. Principles of Macroeconomics, Indian Imprint of South Western by Cengage India, 6th edition, 2015.
3. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 2010.
4. Ghosh Chandana and Ghosh Ambar, Macroeconomics, PHI Learning Pvt Ltd, 2014.
5. Richard T. Froyen, Macroeconomics, Pearson Education Asia, 2nd edition, 2005.
6. Andrew B. Abel and Ben S. Bernanke, Macroeconomics, Pearson Education, Inc., 7th edition, 2011.
7. Venieris, Y.P. and Sebold F.D., Macroeconomics: Models and Policy, John Wiley and Sons, 1977.
8. Ackley Gardner (old), Macroeconomic Theory, Macmillan, 1961
9. Ackley Gardner(new), Macroeconomics: Theory and Policy: Macmillan
10. J.R.Hicks. The Social Framework: An introduction to Economics, Clarendon Press, 3rd Edition, 1960
11. Sikdar Soumyen, Principles of Macroeconomics, Oxford University Press

Skill Enhancement Course [Economics: MDC (A)]
ECON-MD-SEC1 (A)-1-Th/
ECON-MD-SEC2 (A)-2-Th/
ECON-MD-SEC3 (A)-3-Th/
Name of the Course: Economic Data Analysis and Report Writing (EDARW)
Marks: 75 **Credits: 3**
No. of Lecture hours (Th): 45
[For Semester I/ II/ III]

1. Tabular and Graphical representation of Statistical Data **10 lecture hours**

1.1 Tabular representation of data for analysis
1.2 Graphical representation of data-use of line diagram, bar chart, divided bar chart, pie chart etc.
1.3 Frequency distribution table: uses and implications
1.4 Pictorial descriptions of frequency table: frequency polygon, histogram, ogive etc.

2. Basic Descriptive Statistics and its role in Data Analysis **25 lecture hours**

2.1 Measures of Central Tendency-Concept of arithmetic mean, geometric mean and harmonic mean-their uses (explicit mathematical proof of the properties of different types mean are not required).The concept of median and mode-their uses in analyzing economic data.
2.2 Comparison of mean, median and mode as measures of central tendency
2.3 Measures of dispersion: range, mean deviation, standard deviation and quartile deviation. Properties of various measures and their implications (explicit proof of properties is not required). Comparison of various measures of dispersion. Significance of the concept of coefficient of variation. Use of range, standard deviation and coefficient of variation in measuring income inequality. Basic concept of Gini coefficient and Lorenz curve.
2.4 Introductory ideas of correlation and regression analysis.

3. Elements of Report writing **10 lecture hours**

3.1 Locating the basic issues- theme based literature survey and motivation behind any study- objectives of the study-development of writing skills
3.2 Methodological issues: Use of tables and graphs. Use of various measures of central tendency and dispersion in analyzing the results.
3.3 Insertion of footnotes or end notes.
3.4 Preparation of Bibliography

References

1. Goon, A. M, Gupta, M. K, and Dasgupta, B. Fundamentals of Statistics (Volume One), The World Press Private Ltd.
2. A.L. Nagar and R.K. Das : Basic Statistics, 2nd edition, Oxford University Press.
3. C.R. Kothari: Research Methodology: Methods and Techniques (second revised edition), New Age India (P) Ltd Publishers.

Skill Enhancement Course [Economics: MDC (A)]
ECON-MD-SEC1 (A)-1-Tu/
ECON-MD-SEC2 (A)-2-Tu/
ECON-MD-SEC3 (A)-3-Tu/
Name of the Course: Economic Data Analysis and Report Writing (EDARW)
Marks: 25 **Credit: 1**
No. of Lecture hours (Tu): 15
[For Semester I/ II/ III]

Mode of tutorial Examination: Viva or Presentation plus viva

Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A **Tutorial** class also helps a teacher to clarify any topic in detail to the students.
- A **Tutorial** contact hour has been meant to promote teacher-student academic interaction.
- The norm of examination for this **Tutorial** part of the course will be **report writing based on item 3 (Elements of Report writing)**

Skill Enhancement Course [Economics: MDC (B)]
ECON-MD-SEC1 (B)-1-Th/
ECON-MD-SEC2 (B)-2-Th/
ECON-MD-SEC3 (B)-3-Th/
Name of the Course: Entrepreneurship and Development (ED)
Marks: 75 **Credits: 3**
No. of Lecture hours (Th): 45
[For Semester I/ II/ III]

1. Basic issues of Entrepreneurship and Economic Development **15 lecture hours**
1.1 Basic features of Entrepreneurship
1.2 Entrepreneurship and its linkages with economic development
1.3 Growth of entrepreneurship in India—Role of Entrepreneurship in Economic Development.
1.4 Planning Commission's guidelines for formulating a project report by an entrepreneur
1.5 Problem of Rural entrepreneurship in India

2. Financial resources for new ventures of an entrepreneur **10 lecture hours**
2.1 Sources of finance---capital structure.
2.2 Institutional support to enterprises—national small industries board – state small industries development corporation--- district industries center--- industrial estates-Indian experience

3. Growth strategies in small business **10 lecture hours**
3.1 Stages of growth,
3.2 Types of growth strategies-Expansion, Diversification, Joint Venture, Merger and Subcontracting

4. Sickness in Small Business **10 lecture hours**
4.1 Concept of industrial sickness
4.2 Symptoms of sickness in small business
4.3 Causes and consequences of sickness in small business

Skill Enhancement Course [Economics: MDC (B]
ECON-MD-SEC1 (B)-1-Tu/
ECON-MD-SEC2 (B)-2-Tu/
ECON-MD-SEC3 (B)-3-Tu/
Name of the Course: Entrepreneurship and Development (ED)
Marks: 25 **Credit: 1**
No. of Lecture hours (Tu): 15
[For Semester I/ II/ III]

Mode of tutorial Examination: Project Report. A student has to prepare a questionnaire comprising 10 questions and conduct interviews of 7-10 small entrepreneurs. They will prepare a project report (around 500 words) on the basis of the outcome.

Tutorial contact hours: 15 [for Revision, Doubt Clearing, Solving Problems]

- Tutorial classes are introduced per course to give the students an idea of detailed understanding of the course and also to build their confidence on the subject in terms of (i) solving problems, (ii) presenting a paper in terms of board work or power point,(iii) preparation of term paper etc.
- A **Tutorial** class also helps a teacher to clarify any topic in detail to the students.
- A **Tutorial** contact hour has been meant to promote teacher-student academic interaction.
- The norm of examination for this **Tutorial** part of the course will be **project report preparation as mentioned above**

References

1. S.S Khanka--- Entrepreneurial Development, S.Chand & Company Ltd
2. Rajeev Roy--- Entrepreneurship, 3E , Oxford University Press
3. Bill Bolton and John Thompson ---- Entrepreneurs: Talent, Temperament and Technique, Butterworth and Heinemann.
4. David .H Holt---Entrepreneurship New Venture Creation
5. Poornima M. Charantimath: Entrepreneurship Development and Small Business Enterprises (2nd Edition) Pearson.
6. Misra D. and Puri K. Indian Economy, Himalaya Publishing House
7. Datt and Sundharam (Revised by G.Datt and A. Mahajan) , Indian Economy, 70th edition, S. Chand

Interdisciplinary Course (IDC)

Elementary Economics (ECON-MD-IDC1-1-Th/ ECON-MD-IDC2-2-Th/ ECON-MD-IDC3-3-Th**)**

Marks: 50 ***Credits: 2***

No. of Lecture hours (Th): 30

[For Semester-I/ II/ III]

1**. Elementary Microeconomic Concepts**: **10 Lecture Hours**

1.1 Theory of Demand and Supply--Determinants, Law of demand and supply, Demand and supply curves

1.2 Elasticity of Demand and Supply--Concepts of Price and income elasticity and implications

1.3 Theory of Production and Cost—Production function--Concepts of TP, AP, MP, short run-long run and different cost curves-social and external costs

1.4 Market--Different forms-TR, AR and MR-- Pricing and Output Decisions under Perfect competition and monopoly--features and equilibrium (diagrammatic representation only)

2. Elementary Macroeconomic Concepts: 10 Lecture Hours

2.1 National Income Accounting –Circular flow-- concepts of GNP, GDP, NNP, NDP, National Income

2.2 Money and Banking--Different measures of money supply, Difference between central and commercial bank and their functions

2.3 Inflation --Definition, types and anti-inflationary policy

2.4 Fiscal Policy & Monetary Policy -Objectives and Instruments

2.5 International Trade and contemporary issues--Balance of Payments (BOP)--Concepts autonomous and accommodating transactions, Functions of IMF, World Bank, WTO Exchange Rates—PPP (Concepts only)

3. Elementary Economic Development Concepts: 5 Lecture Hours

3.1 Growth vs. Development

3.2 Development Indicators - Human Development Index (HDI), Gender (GDI), Poverty (MPI), Inequality (GINI) Indices—India's rank

3.3 Sustainable development--concepts and Goals

4. Elementary Concepts of Indian Economics: 5 Lecture Hours

4.1 Economic Reforms in India—Background, Basic steps of trade, industry and financial sector reforms

4.2 NITI AYOG-Structure and objectives

Interdisciplinary Course (IDC)
Elementary Economics (ECON-MD-IDC1-1-Tu/ ECON-MD-IDC2-2-Tu/ ECON-MD-IDC3-3-Tu**)**
Marks: 25 ***Credit: 1***
No. of Lecture hours (Tu): 15
[For Semester-I/ II/ III]

Mode of Tutorial Examination: Viva or Presentation plus viva

References:

Unit-1

1. G.Mankiw. 2007, Economics: Principles and Applications, India edition by South Western, Cengage Learning

2. R.G. Lipsey. An Introduction to Positive Economics, ELBS (6th edition)

4. Pindyck, Rubinfeld and Mehta, Microeconomics, Pearson

5. G.S.Maddala and E. Miller, 1989, Microeconomics, Prentice Hall, McGraw Hill International Editions

7. Ferguson, C.E. and Gould, J.P. : Microeconomic Theory, Aitbs Publishers and Distributors, New Delhi.

Unit-2

1. Dornbusch, Fischer and Startz, Macroeconomics, McGraw Hill, 11th edition, 2010.

2. N. Gregory Mankiw. Macroeconomics, Worth Publishers, 2010.

3. Branson,William, Macroeconomic Theory and Policy, East West Press

4.Salvatore, D, Internaional Economics, John Wiley and sons

5. Sikdar Soumyen, Principles of Macroeconomics, Oxford University Press.

6. https://www.imf.org/en/Home

7. https://www.worldbank.org/en/home

8. https://www.wto.org/

Unit-3

1. Thirlwall, A.P, Growth and Development, Fourth Edition, ELBS

2. Todaro, M.P, Economic Development, Sixth Edition, AWL

Unit-4

1. Puri, V.K & Mishra, S.K, Indian Economy, Himalaya Publishing House

2. Dutt & Sundharam, Indian Economy, S. Chand

UNIVERSITY OF CALCUTTA

NotificationNo.CSR/13/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of his powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 11.07.2023 approved the Syllabi of the under mentioned subjects for semester wise Four-year (Honours & Honours with Research) / Three-year (Multidisciplinary) programme of U.G. courses of studies, as applicable under CCF,2022 . under this University, as laid down in the accompanying pamphlet.

Name of Subject:

1.Anthropology
2.BBA
3.Bengali
4.BFAD
5.Bio Chemistry
6.Botany
7.Chemistry
8.Commerce
9.Economics
10.Education
11.English
12.Geology
13.Hindi
14.History,Islamic History & Culture
15.Home Science
16.Human Rights
17.Journalism & Mass Communication
18.Mathematics
19.Microbiology (Honours)
20.Molecular Biology .
21.Philosophy
22.Physiology
23.Political Science
24.Psychology
25.Social Science
26.Sociology
27.Urdu
28.Women's Studies
29.Zoology

The above shall be effective from the academic session 2023-2024.

12/7/2023

SENATE HOUSE

KOLKATA-700 073

Prof.(Dr.) Debasis Das

Registrar

UNIVERSITY OF CALCUTTA

FOUR YEAR UNDERGRADUATE SYLLABUS FOR ENGLISH

2023

COURSE STRUCTURE

DISCIPLINE SPECIFIC COMPULSORY/CORE

SEMESTER – 1

DSC 1 (4 Credits – Th 3, Tu 1)

INTRODUCTION TO ENGLISH LITERATURE (POETRY)

1. HISTORY OF ENGLISH POETRY (FROM ELIZABETHAN AGE TO MODERN PERIOD)
2. WILLIAM SHAKESPEARE, SONNET 73
3. JOHN DONNE, 'THE SUN RISING'
4. JOHN KEATS, 'TO AUTUMN'
5. W.B. YEATS, 'THE SECOND COMING'
6. TED HUGHES, 'CROW'

SEMESTER – 2

DSC 2 (4 Credits – Th 3, Tu 1)

INTRODUCTION TO ENGLISH LITERATURE (PROSE)

1. HISTORY OF ENGLISH PROSE (FROM ELIZABETHAN AGE TO MODERN PERIOD)
2. FRANCIS BACON, 'OF STUDIES'
3. D.H. LAWRENCE, 'THE ROCKING HORSE WINNER'
4. JAMES JOYCE, 'ARABY'
5. GEORGE ORWELL, 'SHOOTING AN ELEPHANT'
6. JHUMPA LAHIRI, 'A TEMPORARY MATTER'

SEMESTER – 3

DSC 3 (4 Credits – Th 3, Tu 1)

INTRODUCTION TO ENGLISH LITERATURE (DRAMA)

DSC 4 (4 Credits – Th 3, Tu 1)

AMERICAN LITERATURE – 1

SEMESTER – 4

DSC 5 (4 Credits – Th 3, Tu 1)

POPULAR LITERATURE

DSC 6 (4 Credits – Th 3, Tu 1)

INTRODUCTION TO INDIAN WRITING IN ENGLISH

DSC 7 (4 Credits – Th 3, Tu 1)

ENGLISH POETRY – I

DSC 8 (4 Credits – Th 3, Tu 1)

ENGLISH DRAMA

SEMESTER – 5

DSC 9 (4 Credits – Th 3, Tu 1)

ENGLISH PROSE – 1

DSC 10 (4 Credits – Th 3, Tu 1)

ENGLISH POETRY – II

DSC 11 (4 Credits – Th 3, Tu 1)

ENGLISH PROSE – II

DSC 12 (4 Credits – Th 3, Tu 1)

LITERARY THEORY – I

SEMESTER – 6

DSC 13 (4 Credits – Th 3, Tu 1)

INDIAN WRITING IN ENGLISH – I

DSC 14 (4 Credits – Th 3, Tu 1)

MODERN EUROPEAN DRAMA

DSC 15 (4 Credits – Th 3, Tu 1)

AMERICAN LITERATURE – II

SEMESTER – 7

DSC 16 (4 Credits – Th 3, Tu 1)

INDIAN WRITING IN ENGLISH – II

DSC 17 (4 Credits – Th 3, Tu 1)

LITERARY THEORY – II

DSC 18 (4 Credits – Th 3, Tu 1)

WOMEN'S WRITING

DSC 19 (4 Credits – Th 3, Tu 1)

AUTOBIOGRAPHY

SEMESTER – 8

DSC 20 (4 Credits – Th 3, Tu 1)

EUROPEAN CLASSICAL LITERATURE

DSC 21 (4 Credits – Th 3, Tu 1)

RESEARCH METHODOLOGY & ESSAY WRITING

DSC 22 (4 Credits – Th 3, Tu 1)

POST-COLONIAL LITERATURES

ADDITIONAL CORE COURSES IN LIEU OF DISSERTATION/RESEARCH WORK

(4 Credits –Th 3, Tu 1)

SEMESTER – 7

RHETORIC, PROSODY AND LITERARY TYPES

SEMESTER – 8

(1) PARTITION LITERATURE

OR

DALIT LITERATURE

(2) TEXT & PERFORMANCES

OR

MEDIA STUDIES

MINOR COURSES FOR OTHER MAJOR STUDENTS

M1 (4 Credits – Th 3, Tu 1)

SAME AS MAJOR DSC I & DSC II

(Either in Semesters 1 & 2 or in Semesters 3 & 4)

M2 (4 Credits – Th 3, Tu 1)

[FOR SEMESTER 5, FROM AMONG MAJOR SEMESTER 3]

(A) INTRODUCTION TO ENGLISH LITERATURE (DRAMA)

(B) INTRODUCTION TO INDIAN WRITING IN ENGLISH

[FOR SEMESTER 6, FROM AMONG MAJOR SEMESTER 4]

IDC (INTER-DISCIPLINARY COURSE)

(3 Credits – Th 2, Tu 1)

Poetry

William Shakespeare: Sonnet 18
William Wordsworth: 'Strange fits of passion'
P.B. Shelley: 'To a Skylark'
John Keats: 'To Autumn'

Short Story

James Joyce: 'Araby'
Katherine Mansfield: 'The Fly'

SEC (SKILL ENHANCEMENT COURSE)

(4 Credits – Th 4, Tu 0)

SEC 1
[FOR SEMESTER 1]

BUSINESS WRITING

What is business communication
Writing reports, letters, curriculum vitae
Writing meeting minutes
E-correspondence

SEC 2
[FOR SEMESTER 3]

ENGLISH LANGUAGE TEACHING

Language Perspectives: First Language Second Language and Foreign Language – Acquisition and Learning
Knowing the Learner: Features of a good language learner
Structure of the English Language
Methods of Teaching English Language
Assessing Language Skills
Materials for Language Teaching

NOTE: SEC for Semester 2: Digital Empowerment

AEC (ABILITY ENHANCEMENT COURSE)

SEMESTER – 1

COMPULSORY ENGLISH

(2 Credits – Th 2, Tu 0)

UNIT 1

POETRY:

LORD TENNYSON, BREAK BREAK BREAK

THOMAS HARDY: AFTERWARDS

RABINDRANATH TAGORE: WHERE THE MIND IS WITHOUT FEAR

UNIT 2

PROSE:

R.K. NARAYAN: OUT OF BUSINESS

PREM CHAND: THE CHILD

MARTIN LUTHER KING, JR: I HAVE A DREAM

SEMESTER – 2

COMPULSORY ENGLISH

(2 Credits – Th 2, Tu 0)

UNIT 1

POETRY:

WILLIAM WORDSWORTH: LUCY GRAY

ELIZABETH BARRET BROWNING: HOW DO I LOVE THEE

WILFRED OWEN: ANTHEM FOR DOOMED YOUTH

UNIT 2

PROSE:

O. HENRY: THE LAST LEAF

RUSKIN BOND: THE THIEF'S STORY

RABINDRANATH TAGORE: RAM MOHAN ROY

SEMESTER – 3

ALTERNATIVE ENGLISH

(2 Credits – Th 2, Tu 0)

UNIT 1

POETRY:

RABINDRANATH TAGORE: GITANJALI: XVIII

JAYANTA MAHAPATRA: DAWN AT PURI

PURUSHOTTAM LAL: LIFE

UNIT 2

PROSE:

BHISHAM SAHANI: THE BOSS CAME TO DINNER

WILLIAM SOMERSET MAUGHAM: THE MAN WITH THE SCAR

J.B. PRIESTLEY: ON DOING NOTHING

SEMESTER – 4

ALTERNATIVE ENGLISH

(2 Credits – Th 2, Tu 0)

UNIT 1

POETRY:

RABINDRANATH TAGORE: GITANJALI: XLV

GAURI DESHPANDE: THE FEMALE OF THE SPECIES

NISSIM EZEKIEL: IN A COUNTRY COTTAGE

UNIT 2

PROSE:

ERNEST HEMINGWAY: A DAY'S WAIT

H.G. WELLS: THE STOLEN BACILLUS

S. RADHAKRISHNAN: INTUITION AND GENIUS

UNIVERSITY OF CALCUTTA

THREE YEAR MULTIDISCIPLINARY SYLLABUS

ENGLISH

2023

COURSE STRUCTURE

SEMESTER 1

INTRODUCTION TO ENGLISH LITERATURE (POETRY)

1. HISTORY OF ENGLISH POETRY (FROM ELIZABETHAN AGE TO MODERN PERIOD)
2. WILLIAM SHAKESPEARE, SONNET 73
3. JOHN DONNE, 'THE SUN RISING'
4. JOHN KEATS, 'TO AUTUMN'
5. W.B. YEATS, 'THE SECOND COMING'
6. TED HUGHES, 'CROW'

SEMESTER 2

INTRODUCTION TO ENGLISH LITERATURE (PROSE)

1. HISTORY OF ENGLISH PROSE (FROM ELIZABETHAN AGE TO MODERN PERIOD)
2. FRANCIS BACON, 'OF STUDIES'
3. D.H. LAWRENCE, 'THE ROCKING HORSE WINNER'
4. JAMES JOYCE, 'ARABY'
5. GEORGE ORWELL, 'SHOOTING AN ELEPHANT'
6. JHUMPA LAHIRI, 'A TEMPORARY MATTER'

SEMESTER 3

INTRODUCTION TO ENGLISH LITERATURE (DRAMA)

SEMESTER 4

INTRODUCTION TO INDIAN WRITING IN ENGLISH

ENGLISH POETRY

SEMESTER 5

ENGLISH PROSE

ENGLISH DRAMA

SEMESTER 6

INDIAN WRITING IN ENGLISH

NOTE: ALL THE ABOVE COURSES ARE OF 4 CREDITS

(Th 3, Tu 1)

SEC

(4 Credits – Th 4, Tu 0)

BUSINESS WRITING

What is business communication
Writing reports, letters, curriculum vitae
Writing meeting minutes
E-correspondence

UNIVERSITY OF CALCUTTA

Notification No.CSR/22/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of her powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 31.07.2023 approved the syllabus of the under mentioned subjects semester wise Four-year (Honours & Honours with Research) /Three-year (Multidisciplinary) /Four-year (Honours with core Vocational) programme of U.G. courses of studies, as applicable under CCF,2022, under this University, as laid down in the accompanying pamphlet.

1. **Geography**
2. **Physical Education**
3. **Film Studies**
4. **Fine Arts**
5. **History (Revised syllabus after incorporating some amendments, in the syllabus published in CSR/13/23, dt.12.7.23)**
6. **Islamic History & Culture (Revised syllabus after incorporating some amendments, in the syllabus published in CSR/13/23,dt.12.7.23)**
7. **Persian (Revised syllabus after incorporating some amendments, in the syllabus published in CSR/20/23, dt.28.7.23)**
8. **Computer Application. (Honours with core Vocational)**

The above shall take effect from the academic session 2023-2024.

SENATE HOUSE

Kolkata-700073

The 2nd August ,2023

2/8/2023

Prof.(Dr.) Debasis Das

Registrar

Curriculum & Credit Framework
for
Undergraduate Courses in Geography

v.1

TO BE EFFECTIVE FROM THE ACADEMIC SESSION 2023-24

University of Calcutta
July, 2023

Note: This page is intentionally kept blank for duplex printing

Curriculum & Credit Framework for Undergraduate Courses in Geography under National Education Policy of 2020

INTRODUCTION: In compliance with directives on the Curriculum & Credit Framework from the University Grants Commission, the undergraduate syllabus for Geography is reframed under the National Education Policy of 2020. In a major deviation from its previous versions, the current syllabus uniquely caters to the students' requirement of education levels that would help them to balance between their professional and educational aspirations.

The four-year curriculum has four exit options that are hierarchically related to the level of education at the end of second, fourth, sixth, and eighth semesters — i.e., at the completion of the first, second, third, and fourth years of the course. These would relate to the award of • certificates, • diplomas, • BA/BSc degrees, and • BA/BSc with honours degrees, respectively. The course would also provide an opportunity to do research in the final year (Semester- 7 & -8) for the meritorious students.

The present curriculum of Geography is designed to give the students a holistic understanding of the subject at every year of exit from the second year onwards, putting equal weightage to the core content and techniques used in Geography. The syllabus also tried to give similar importance to the two main branches of Geography: Physical and Human. Its principal goal of is to enable the students to secure a job at the end of the undergraduate programme. Keeping this in mind and in tune with the changing nature of Geography, adequate emphasis is rendered on applied aspects of the subject such as emerging techniques of mapping and field-based data generation, especially in the honours course.

LEARNING OUTCOMES: The syllabus is designed to impart basic knowledge on geography as a spatial science and train the undergraduates to secure employment in the sectors like geospatial analysis, developmental planning, and environment management.

Contents

Curriculum Structure

Papers & Courses

Honours (H) **Papers**: **25** in 8 Semesters of H-CC-Major (Mj) **4** in 6 Semesters of H-CC-Minor (Mn)	**Multidisciplinary** (MD) **Papers**: **8** in 8 Semesters of MD-CC-Major (Mj) **6** in 4 Semesters of MD-CC-Minor (Mn)	**Semesters**				**Subjects / Subdisciplines:** **25** in 8 Semesters of H-CC-Major (Mj) **4** in 6 Semesters of H-CC-Minor (Mn) **8** in 8 Semesters of MD-CC-Major (Mj) **6** in 4 Semesters of MD-CC-Minor (Mn)	**Paper Components:** Th / P / Tu *	
		H-CC-Mj	H-CC-Mn	MD-CC-Mj	MD-CC-Mn			
GEOG-H-CC**01**	GEOG-MD-CC**01**	1	1/3	1	3	Physical Geography	Th	P
GEOG-H-CC**02**	GEOG-MD-CC**02**	2	2/4	2	4	Human Geography	Th	P
GEOG-H-CC**03**	—	3	—	—	—	Geotectonics	Th	P
GEOG-H-CC**04**	GEOG-MD-CC**03**	3	5	3	5	Economic Geography	Th	P
GEOG-H-CC**05**	GEOG-MD-CC**04**	4	6	4	5	Geomorphology	Th	P
GEOG-H-CC**06**	GEOG-MD-CC**05**	4	—	4	6	Climatology	Th	P
GEOG-H-CC**07**	—	4	—	—	—	Social Geography	Th	P
GEOG-H-CC**08**	—	4	—	—	—	Cartographic Techniques	Th	P
GEOG-H-CC**09**	GEOG-MD-CC**06**	5	—	5/6		Hydrology and Oceanography	Th	P
GEOG-H-CC**10**	GEOG-MD-CC**07**	5	—	5	6	Cultural and Settlement Geography	Th	P
GEOG-H-CC**11**	—	5	—	—	—	Hazard Management	Th	Tu
GEOG-H-CC**12**	—	5	—	—	—	Cartograms, Thematic Mapping and Surveying	Th	P
GEOG-H-CC**13**	—	6	—	—	—	Soil and Biogeography	Th	P
GEOG-H-CC**14**	GEOG-MD-CC**08**	6	—	6	—	India and West Bengal	Th	P
GEOG-H-CC**15**	—	6	—	—	—	Remote Sensing, GIS, and GNSS	Th	P
GEOG-H-CC**16**	—	7	—	—	—	Philosophy of Geography	Th	P
GEOG-H-CC17	—	7	—	—	—	Resource Geography	Th	P
GEOG-H-CC18	—	7	—	—	—	Environmental Issues in Geography	Th	P
GEOG-H-CC19	—	7	—	—	—	Statistical Methods in Geography	Th	P
GEOG-H-CC20	—	7	—	—	—	Research Methodology and Fieldwork	Th	P
GEOG-H-CC21	—	8	—	—	—	Watershed and Coastal Management	Th	P
GEOG-H-CC**22**	—	8	—	—	—	Historical and Political Geography	Th	Tu
GEOG-H-CC**23**	—	8	—	—	—	Population and Welfare Geography	Th	P
GEOG-H-CC**24**	—	8	—	—	—	Rural and Urban Geography	Th	P
GEOG-H-CC**25**	—	8	—	—	—	Regional Development and Planning	Th	P
GEOG-H-SEC**01**	GEOG-MD-SEC**01**	1	1	1/2/3		Methods in Geography	Th	—
GEOG-H-SEC**02**		3	—	—	—	Environmental Impact Assessment and Environment Management Planning	Th	—
GEOG-H-IDC**01**	GEOG-MD-IDC**01**	—	1/2/3	—	—	Geomatics and Spatial Analysis	Th	P

* Paper Components with marks, credits, and minimum number of periods to be allotted:

Th : Theory – 75 Marks / 3 Credits (DSC/CC Papers): [45] Periods; 100 Marks / 4 Credits (SEC Papers): [60] periods; 50 Marks / 2 Credits (IDC Papers): [30] periods

P : Practical – 25 Marks / 1 Credit: [30] Periods

Tu : Tutorial – 25 Marks / 1 Credit: [30] Periods

Papers & Credits: Honours (H) Course [1]

Semester ⇩	**Major Discipline Specific Course** (H-DSC/CC Major)	**Minor Discipline Specific Course** (H-DSC/CC Minor) [2]	**Interdisciplinary Course** (IDC) [3]	**Ability Enhancement Course** (AEC)	**Skill Enhancement Course** (SEC)	**Common Value Added Course** (CVAC)	**Summer internship**	**Dissertation / Research work**	**Total Credit** (incl 2nd DSC Minor course)[2]
	25 papers × 4 credits = 100 credits	4 papers × 4 credits = 16 credits	3 papers × 3 credits = 9 credits	4 papers × 2 credits = 8 credits	3 papers × 4 credits = 12 credits	4 papers × 2 credits = 8 credits	1 paper × 3 credits = 3 credits	(1 × 4 = 4) + (1 × 8 = 8) = 12 credits	172
1	GEOG-H-CC**01**-1-Th & P Physical Geography	GEOG-H-CC**01**-1-Th & P Physical Geography (as 1st minor subject)	GEOG-IDC**01**-Th & P Geomatics and Spatial Analysis	1 × 2 = 2 From central pool	GEOG-H-SEC**01**-1-Th Methods in Geography	2 × 2 = 4 From central pool	—	—	21
2	GEOG-H-CC**02**-2-Th & P Human Geography	GEOG-H-CC**02**-2-Th & P Human Geography (as 1st minor subject)	GEOG-IDC**01**-Th & P Geomatics and Spatial Analysis	1 × 2 = 2 From central pool	1 × 4 = 4 From central pool	2 × 2 = 4 From central pool	Summer Internship to be completed by students exiting after Semester-2	—	21
3	GEOG-H-CC**03**-3-Th & P Geotectonics GEOG-H-CC**04**-3-Th & P Economic Geography	GEOG-H-CC**01**-3-Th & P Physical Geography (as 2nd minor subject)	GEOG-IDC**01**-Th & P Geomatics and Spatial Analysis	1 × 2 = 2 From central pool	GEO-SEC**02**-3-Th EIA & EMP	—	—	—	21
4	GEOG-H-CC**05**-4-Th & P Geomorphology GEOG-H-CC**06**-4-Th & P Climatology GEOG-H-CC**07**-4-Th & P Social Geography GEOG-H-CC**08**-4-Th & P Cartographic Techniques	GEOG-H-CC**02**-4-Th & P Human Geography (as 2nd minor subject)	—	1 × 2 = 2 From central pool	—	—	Summer Internship to be completed by students exiting after Semester-4	—	22
5	GEOG-H-CC**09**-5-Th & P Hydrology and Oceanography GEOG-H-CC**10**-5-Th & P Cultural and Settlement Geography GEOG-H-CC**11**-5-Th & P Hazard Management GEOG-H-CC**12**-5-Th & P Thematic Mapping and Surveying	GEOG-H-CC**04**-5-Th & P Economic Geography	—	—	—	—	—	—	24

NOTES: 1. *Exit Options*: • At the end of Semester 2 for award of *Certificate* (45 credits). • At the end of Semester 4 for award of *Diploma* (88 credits). • At the end of Semester 6 for award of *BA/BSc Single Major Degree* (128 credits)• At the end if Semester-8 for *BA / BSc Honours* degree (172 credits). • Candidates obtaining ≥75% of total credits / marks at the end of Semester 6 may opt for pursuing *BA / BSc Honours with Research* degree — see notes in Semester-7 and -8 rows in the next page. See note 5 in page viii for completion requirement of the 3-credit Summer Internship.

2. Two DSC/CC minor subjects are to be selected from the central pool for Geography Honours students. For students having honours in other subjects, Geography may be selected as 1st minor subject or 2nd minor subject. The first two papers of the minor course are to be taught in Semesters-1 & 2 (Semesters 3 & 4) if Geography is opted as 1st (2nd) minor subject.

3. Three IDC papers are to be selected from a pool of subjects. 'Geomatics and Spatial Science' can be taken in any of the Semesters 1, 2, and 3 by students who do not have Geography as DSC/CC.

Abbreviations: **Th**: Theory, **P**: Practical, **Tu**: Tutorial

Continued ...vii

Semester ⇩	**Major Discipline Specific Course** (H-DSC/CC Major)	**Minor Discipline Specific Course** (H-DSC/CC Minor)	**Interdisciplinary Course** (IDC)	**Ability Enhancement Course**(AEC)	**Skill Enhancement Course** (SEC)	**Common Value Added Course** (CVAC)	**Summer internship** (SI)	**Dissertation / Research work**	**Total Credit** (incl 2nd DSC Minor course)[2]
6	GEOG-H-CC**13**-6-Th & P Soil and Biogeography GEOG-H-CC**14**-6-Th & P India and West Bengal GEOG-H-CC**15**-6-Th & P Remote Sensing, GIS, and GNSS	GEOG-H- CC**05**-6-Th & P Geomorphology	–	–	–	–	Summer Internship to be completed by students exiting after Semester-6	–	23
7	GEOG-H-CC**16**-7-Th & P Philosophy of Geography GEOG-H-CC**17**-7-Th & P Resource Geography GEOG-H-CC**18**-7-Th & P Environmental Issues in Geography GEOG-H-CC**19**-7-Th & P Statistical Methods in Geography GEOG-H-CC**20**-7-Th & P Research Methodology and Fieldwork	–	–	–	–	–	–	1 × 4* NOTE: Candidates who pursue Dissertation / Research Work need not study one DSC Major paper of 4 credits —they will study four DSC papers in all	20
8	GEOG-H-CC**21**-8-Th & P Watershed and Coastal Management GEOG-H-CC**22**-8-Th & Tu Historical and Political Geography GEOG-H-CC**23**-8-Th & P Population and Welfare Geography GEOG-H-CC**24**-8-Th & P Rural and Urban Geography GEOG-H-CC**25**-8-Th & P Regional Development and Planning	–	–	–	–	–	Summer Internship to be completed by students exiting after Semester-8	1 × 8* NOTE: Candidates who pursue Dissertation / Research Work need not study two DSC Major papers of 4 credits each — they will study three DSC papers in all	20
Credits	25 × 4 = 100 / * 22 × 4 = 88	8 × 4 = 32	3 × 3 =9	4 × 2 =8	3 × 4 = 12	4 × 2 =8	1 × 3 = 3	*(1 × 4) + (1 × 8) = 12	172
Marks	25 × 100 = 2500 * 22 × 100 = 2200	8 × 100 = 800	3 × 75 = 225	4 × 50 = 200	3 × 100 = 300	4 × 50 = 200	1 × 75 = 75	*1 × 100 + 1 × 200 = 300	Total Marks: 4300

Papers & Credits: Multidisciplinary (MD) Course [1]

Semester ⇩	Major Discipline Specific Course (MD-DSC/CC Major) [2]	Minor Discipline Specific Course (MD-DSC/CC Minor) [2]	Interdisciplinary Course (IDC) [3]	Ability Enhancement Course (AEC)	Skill Enhancement Course (SEC) [4]	Common Value Added Course (CVAC)	Summer internship [5]	Total Credit (including 2nd DSC Major course) [2]
	8 papers × 4 credits = 32 credits	6 papers × 4 credits = 24 credits	3 papers × 3 credits = 9 credits	4 papers × 2 credits = 8 credits	3 papers × 4 credits = 12 credits	4 papers × 2 credits = 8 credits	1 paper × 3 credits = 3 credits	124
1	GEOG-MD-CC**01**-1-Th & P Physical Geography	—	GEOG-IDC**01**-Th & P Geomatics and Spatial Analysis	1 × 2 = 2 From central pool	GEOG-MD-SEC**01**-1-Th Methods in Geography	2 × 2 = 4 From central pool	—	21
2	GEOG-MD-CC**02**-2-Th & P Human Geography	—	GEOG-IDC**01**-Th & P Geomatics and Spatial Analysis	1 × 2 = 2 From central pool	GEOG-MD-SEC**01**-1-Th Methods in Geography	2 × 2 = 4 From central pool	Summer Internship to be completed by students exiting after Semester-2	21
3	GEOG-MD-CC**03**-3-Th & P Economic Geography	GEOG-MD-CC**01**-3-Th & P Physical Geography	GEOG-IDC**01**-Th & P Geomatics and Spatial Analysis	1 × 2 = 2 From central pool	GEOG-MD-SEC**01**-1-Th Methods in Geography	—	—	21
4	GEOG-MD-CC**04**-4-Th & P Geomorphology GEOG-MD-CC**05**-4-Th & P Climatology	GEOG-MD-CC**02**-4-Th & P Human Geography	—	—	—	—	Summer Internship to be completed by students exiting after Semester-4	22
5	GEOG-MD-CC**06**-5-Th & P Hydrology and Oceanography [6] GEOG-MD-CC**07**-5-Th & P Cultural and Settlement Geography	GEOG-MD-CC**03**-5-Th & P Economic Geography GEOG-MD-CC**04**-5-Th & P Geomorphology	—	—	—	—	—	20
6	GEOG-MD-CC**08**-6-Th & P India and West Bengal	GEOG-MD-CC**05**-6-Th & P Climatology GEOG-MD-CC**07**-6-Th & P Cultural and Settlement Geography	—	—	—	—	Summer Internship to be completed by students exiting after Semester-6	
Credits	8 × 4 = 32	6 × 4 =24	3 × 3 =9	4 × 2 = 8	3 × 4 =12	4 × 2 = 8	3	128
Marks	8 × 100 = 800	6 × 100 = 600	3 × 75 = 225	4 × 50 = 200	3 × 100 = 300	4 × 50 = 200	—	3200

NOTES: 1. *Exit Options*: • At the end of Semester 2 for award of *Certificate* (45 credits). • At the end of Semester 4 for award of *Diploma* (88 credits). • At the end of Semester 6 for award of *BA/BSc Degree* (128 credits).

2. Geography may be selected as one of the three DSC (Core) subjects, as major (eight papers: CC-1 or CC-2) or as minor (six papers: CC-3).
3. Three IDC papers are to be selected from a pool of subjects. 'Geomatics and Spatial Science' can be taken in any of the Semesters 1, 2, and 3 by students who do not have Geography as CC.
4. Three different SEC papers are to be selected in Semester-1, -2, or -3 against the three major and minor subjects
5. The 3-credit Summer Internship is to be completed by the end of the Semester-2, -4, and -6 for the students opting for Certificate Course, Diploma Course, and BA/BSC Degree Course, respectively.
6. If Geography is selected as CC-2 subject, GEOG-MD-CC**6** is to be studied in Semester 6 besides GEOG-MD-CC**8**

Abbreviations: **Th**: Theory, **P**: Practical

DISCIPLINE SPECIFIC COURSES (CC): HONOURS & MULTIDISCIPLINARY

SEMESTERS – 1/3 (for H & MD)

GEOG-H-CC01/MD-CC01-1/3-Th – Physical Geography – 75 Marks / 3 Credits

Unit I: Cartography

1. Concept and applications of scales and projections. Components and classification of maps [5]

Unit II: Geotectonics

2. Seismic waves and internal structure of the earth [3]

Unit III: Geomorphology

3. Classification of weathering and agents of erosion [5]
4. Fluvial processes and landforms [5]

Unit IV: Climatology

5. Nature, composition, and layering of the atmosphere [4]
6. Circulation in the atmosphere: Planetary winds, jet streams, and index cycle [5]

Unit V: Soil Geography

7. Factors of soil formation [4]
8. Evolution of an ideal soil profile [4]

Unit VI: Biogeography

9. Plant adaptation and distribution in relation to water availability [5]

Unit VII: Geography of Hazards

10. Nature and classification of hazards and disasters in Indian context [5]

References

Ahrens, C.D. 2023. Essentials of Meteorology: An Invitation to the Atmosphere. 9th ed, Cengage Learning.

Barry, R.G, Chorley R.J. 2009. Atmosphere Weather and Climate. 9th ed, Routledge.

Coch, N.K. 1994. Geohazards: Natural and Human, Pearson College.

Critchfield, H. J. 1983. General Climatology. Prentice Hall India Ltd (2010 Reprint).

Franzmeier, D.P., McFee, W.W., Graveel, J.G., Kohnke, H. 2016. Soil Science Simplified, 5th ed, Waveland Press.

Hyndman, D., Hyndman, D. 2016. Natural Hazards & Disasters, 5th ed, Cengage Learning.

Huggett, R., Shuttleworth, E., 2022. Fundamentals of Geomorphology, 5th ed, Routledge.

Kale, V.S., Gupta, A. 2001. Introduction to Geomorphology, Orient Blackswan.

Kapur, A. 2010. Vulnerable India: A Geographical Study of Disasters, Sage.

Lal, D.S. 2012. Climatology. Sharda Pustak Bhawan.

Lomolino, M.V., Riddle, B.R., Whittaker, R.J. 2016. Biogeography, 5th ed, Oxford University Press.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Sharma, P.D. 2011. Ecology and Environment, Rastogi Publications.

Singer, M., Munns, D.N. 2005. Soils: An Introduction, 6th ed, Pearson.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

Smith, K. 2013. Environmental Hazards: Assessing Risk and Reducing Disaster, 6th ed, Routledge.

Strahler, A. 2013. Introducing Physical Geography, 6th ed., Wiley.

Weil, R.R., Brady, N.C. 2022. The Nature and Properties of Soils, 15th ed, Pearson Education.

GEOG-H-CC01/MD-CC01-1/3-P – Physical Geography Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Graphical construction of scales: Plain, comparative, diagonal, and vernier [10]
2. Delineation of drainage basins on Survey of India 1:50k topographical maps. Determining stream ordering (Strahler), and bifurcation ratio in a drainage basin (c. 5' x 5') [10]
3. Identification of drainage and channel patterns from Survey of India 1:50k topographical maps [6]
4. Construction and interpretation of wind rose diagram [4]
5. Viva voce based on laboratory notebook (5 Marks)

References

Monkhouse F.J., Wilkinson H.R. 1971. Maps and Diagrams, their compilation and construction, 3rd ed (2017 reprint), Alphaneumera.

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

Vaidyanadhan, R., Subbarao, K.V. 2014. Landforms of India from Topomaps and Images, Geological Society of India.

SEMESTERS – 2 /4 (for H & MD)

GEOG-H-CC02/MD-CC02-2/4-Th – Human Geography – 75 Marks / 3 Credits

Unit I: Scope and Approaches

1. Elements of human geography: Nature, scope, and recent trends [4]
2. Human geography schools of thought: Resource, locational, landscape, environment [6]

Unit II: Social Geography

3. Evolution of human societies: Hunting and food gathering, pastoral nomadism, subsistence farming, and industrial society [6]
4. Human adaptation to the environment: Chenchu, Toda, and Gond [6]
5. Evolution and characteristics of post-industrial urban societies [2]

Unit III: Population Geography

6. Demographic transition. Significance of demographic dividend [3]
7. Distribution, density, and growth of population in India [4]

Unit IV: Settlement Geography

8. Characteristics of settlements: Urban and rural [4]
9. Site, situation, types, and patterns of rural settlements [6]

Unit V: Urban Geography

10. Size-class classification of urban settlements after Census of India [4]

References

Ashok, A., Lakshmaiah, P.V. 2018. Tribes of India, vol. 1 &2, Telugu Akademi.

Bose, N.K. 2020. Tribal Life In India, 5th ed (updated by Tripathi, C.B.), National Book Trust.

Chandna R.C. 2022. Geography of Population, Part 1: Concepts, Determinants and World Patterns, Kalyani Publishers.

Dorrel, D., Henderson, P. 2018. Introduction to Human Geography. University of Georgia Press.

Fouberg, E.H., Nash, A.B., Murphy, A.B., de Blij, H., 2015. Human Geography: People, Place, and Culture, 11th ed, Wiley.

Ghosh S. 1998. An Introduction to Settlement Geography, Sangam Books Ltd.

Gregory, D., Johnston, R., Pratt, G., Watts, K., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley-Blackwell.

Knox, P.L., Marston, S.A. 2014. Human Geography, Places and Regions in Global Context, 6th ed, Pearson Education.

Majumdar, P.K. 2013. India's Demography: Changing Demographic Scenario in India, Rawat Publications.

Mercier, M., Norton, W. 2019. Human Geography, 10th ed, Oxford University Press.

Paul, C., Crang, P., Goodwine, M.G. 2014, Introducing Human Geographies, 3rd ed, Routledge.

Rubenstein J.M., 2018, Contemporary Human Geography, 4th ed, Pearson.

Short, R.J. 2017. Human Geography: A Short Introduction, 2nd ed, Oxford University Press.

Sing, R.Y. 2009, A Geography of Settlements, Rawat Publications.

GEOG-H-CC02/MD-CC02-2/4-P – Human Geography Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. Census of India data are to be used where applicable. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Growth rate of population: Arithmetic growth comparing two decadal datasets [6]
2. Representation and interpretation of population density of Indian states or West Bengal districts by choropleth method [8]
3. Identification of types of settlements according to sites from Survey of India 1:50k topographical maps [8]
4. Construction of proportional squares depicting number of houses [8]
5. Viva voce based on laboratory notebook (5 Marks)

References

BOOKS:

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Monkhouse F.J., Wilkinson H.R. 1971. Maps and Diagrams, their compilation and construction, 3rd ed (2017 reprint), Alphaneumera.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

WEBSITE:

Census of India: https://censusindia.gov.in/census.website/data/census-tables

SEMESTERS – 3/5 (for H & MD)

GEOG-H-CC03-3-Th – Geotectonics – 75 Marks / 3 Credits

1. Relative and absolute dating of rocks [4]
2. The geological time scale with special reference to the events of the Pleistocene[4]
3. Formation and structural differentiation of the earth [4]
4. Isostasy: Models of Airy, Pratt, and their applicability [5]
5. Plate Tectonics as a unified theory of global tectonics. Processes and landforms at plate margins and hotspots [7]
6. Genetic classification of mountains. Types of volcanic eruptions [4]
7. Major relief features of the ocean floor: Characteristics and origin according to Plate Tectonics [5]
8. Folds: Formation and classification [4]
9. Faults: Formation and classification [4]
10. Morphometric indices of tectonic activity: Basin asymmetry factor, transverse topographic symmetry factor, and mountain front sinuosity [4]

References

BOOKS:

Billings, M.P. 1971. Structural Geology, Pearson India.

Burbank, D.W. 2011. Tectonic Geomorphology, 2nd ed, Wiley India.

Frisch, W., Meschede, M., Blakey, R.C. 2022. Plate Tectonics: Continental Drift and Mountain Building, 2nd ed, Springer.

Fossen, H. 2016. Structural Geology, 2nd ed, Cambridge University Press.

Kearey, P., Klepeis, K.A., Vine, F.J. 2011. Global Tectonics, 3rd ed, Wiley-India

Knoll, A.H. 2021. A Brief History of Earth: Four Billion Years in Eight Chapters, Custom House.

Lutgens, F., Tarbuck, E., Tasa, D. 2017. Essentials of Geology, 13th ed, Pearson.

Schumm, S.A., Dumont, J.F., Holbrook, J.M. 2002. Active Tectonics and Alluvial Rivers, Cambridge University Press.

Strahler, A. 2013. Introducing Physical Geography, 6th ed, Wiley.

Summerfield, M.J. 2003. Global Geomorphology: An Introduction to the Study of landforms, Longman.

WEBSITES:

Geological Survey of India: https://www.gsi.gov.in

Geological Society of India: https://www.geosocindia.org

Plaleomap Project: www.scotese.com & www.youtube.com/user/cscotese

'This Dynamic Earth' (USGS): https://pubs.usgs.gov/gip/dynamic/dynamic.html

GEOG-H-CC03-3-P – Geotectonics Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Measurement of dip and strike using clinometer [5]
2. Megascopic identification of mineral samples: Bauxite, calcite, chalcopyrite, feldspar, galena, gypsum, hematite, magnetite, mica, quartz, talc, and tourmaline

   Megascopic identification of rock samples: Granite, dolerite, basalt, laterite, limestone, shale, sandstone, conglomerate, quartzite, slate, marble, schist, phyllite, and gneiss [6]
3. Analysis of tectonic activity from Survey of India 1:50k topographical maps: Basin asymmetry factor and transverse topographic symmetry factor [4]
4. Interpretation of geological maps with uniclinal structure, folds, unconformity, and intrusions [15]
5. Viva voce based on laboratory notebook (5 Marks)

References

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Bolton. T. 2009 (reprint). Geological Maps: Their Solution and Interpretation, Cambridge Univ. Press.

Burbank, D.W. 2011. Tectonic Geomorphology, 2nd ed, Wiley India.

Farndon, J. 2012. The Illustrated Guide to Rocks & Minerals, Southwater.

Pillent, C. 2002. Smithsonian Handbooks: Rocks & Minerals, Dorling Kindersley.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

GEOG-H-CC04/MD-CC03-3/5-Th – Economic Geography – 75 Marks / 3 Credits

Unit I: Concepts

1. Economic Geography: Scope and approaches [4]
2. Concepts in economic geography: Goods and services, production, exchange and consumption; concept of economic man [5]

Unit II: Economic Activities

3. Classification of economic activities: Primary, secondary, tertiary, quaternary, and quinary [4]
4. Location of economic activities: Agriculture (after von Thünen) and industry (after Weber) [6]
5. Primary activities: Agriculture, forestry, fishing, and mining [6]
6. Secondary activities: Classification of manufacturing industries, special economic zones and technology parks [6]
7. Tertiary activities: Transport, trade and services [6]
8. Economic globalisation: Concepts and contemporary issues [2]
9. International trade, role of WTO [2]
10. Emergence of economic blocs (Post WW-II). BRICS: Evolution and significance [4]

References

BOOKS:

Adams, F.G., 2011. Globalization: Today and Tomorrow, Routledge.

Anderson, W.P. 2012. Economic Geography, Routledge.

Aoyama, Y., Murphy, J.T., Hanson, S. 2010. Key Concepts in Economic Geography, Sage.

Coe N. M., Kelly P.F. and Yeung H.W. 2019. Economic Geography: A Contemporary Introduction, 3rd ed, Wiley-Blackwell.

Combes P., Mayer T., Thisse J.F. 2008. Economic Geography: The Integration of Regions and Nations, Princeton University Press.

MacKinnon, D., Cumbers, A. 2019. An Introduction to Economic Geography: Globalisation, Uneven Development and Place, 3rd ed, Routledge.

Waters M. 2001. Globalization, Routledge.

Willington, D. E. 2008. Economic Geography, Husband Press.

Wood, A., Roberts, A. 2010. Economic Geography: Places, Networks and Flows, Routledge.

WEBSITES:

BRICS: http://infobrics.org

World Trade Organisation: https://www.wto.org

United Nations: www.un.org/en

GEOG-H-CC04/MD-CC03-3/5-P – Economic Geography Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. Census of India data are to be used where applicable. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Construction and interpretation of gender-wise bar showing work participation rate [8]
2. Construction and interpretation of proportional divided circles showing state-wise variation in occupational structure [8]
3. Preparation of crop calendar. Construction and interpretation of ergograph [6]
4. Time series analysis of industrial production of India using moving average [8]
5. Viva voce based on laboratory notebook (5 Marks)

References

BOOKS:

Khullar, D.R. 2011. India: A Comprehensive Geography, Kalyani Publishers

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata

Sharma, T.C. 2012. Economic Geography of India, Rawat Publications.

Saxena, H.M. 2005. Transport Geography, Rawat Publications.

WEBSITES:

Census of India: www.censusindia.gov.in

Government of India Data Platform: https://data.gov.in

Planning Commission (West Bengal Development Report 2010): https://www.scribd.com/document/433016798/sdr-wb1909-pdf

Trending Economics (India's industrial production): https://tradingeconomics.com/india/industrial-production

West Bengal District Statistical Handbooks: http://wbpspm.gov.in/publications/District%20Statistical%20Handbook

Wikipedia (Hierarchy of states): https://en.wikipedia.org/wiki/List_of_Indian_states_and_union_territories_by_GDP_per_capita

SEMESTERS – 4/6 (for H) & 4/5 (for MD)

GEOG-H-CC05/MD-CC04-4/5/6-Th – Geomorphology – 75 Marks / 3 Credits

1. Time and space in geomorphology: Schumm and Lichty's model. Landform ordering: Ga Scale of Tricart and Haggett [4]
2. Degradational processes: Classification of mass wasting, and resultant landforms [4]
3. Processes of entrainment, transportation, and deposition by different geomorphic agents [5]
4. Development of river network and landforms on uniclinal and folded structures. Surface expression of faults [6]
5. Development of river network and landforms on granites, basalts, and limestones [6]
6. Coastal processes and landforms [4]
7. Glacial and glacio-fluvial processes and landforms [4]
8. Aeolian and fluvio-aeolian processes and landforms [4]
9. Models on landscape evolution: Views of Davis, Penck, King, and Hack. Significance of systems approach [6]
10. Role of humans in landform development [2]

References

BOOKS:

Bierman, P.R., Montgomery, D.R., 2019. Key Concepts in Geomorphology, 2nd ed, W. H. Freeman.

Goudie, A.S. (Ed) 2004. Encyclopaedia of Geomorphology, vol. 1 & 2, Routledge.

Gregory, K.J., Lewin, J. 2014. The Basics of Geomorphology: Key Concepts, Sage.

Gupta, A. 2011. Tropical Geomorphology, Cambridge University Press.

Harvey, A. 2022. Introducing Geomorphology: A Guide to Landforms and Processes, 2nd ed, Dunedin Academic Press.

Huggett, R., Shuttleworth, E., 2022. Fundamentals of Geomorphology, 5th ed, Routledge.

Kale, V.S., Gupta, A. 2001. Introduction to Geomorphology, Orient Blackswan (2018 reprint).

Knighton, A.D. 1998. Fluvial Forms and Processes: A New Perspective, Edward Arnold.

McCullagh, P. 1978. Modern Concepts in Geomorphology, Oxford University Press.

Szabó, J., Dávid, L., Lóczy, D. (Eds) 2010. Anthropogenic Geomorphology: A Guide to Man-made Landforms, Springer.

Selby, M.J. 1986. Earth's Changing Surface, Oxford University Press.

Strahler, A. 2016. Introducing Physical Geography, 6th ed, Wiley.

Summerfield, M.J. 2003. Global Geomorphology: An Introduction to the Study of landforms, Longman.

Thornbury, W.D. 1969. Principles of Geomorphology, 2nd ed, Wiley-India / CBS.

WEBSITES:

British Society for Geomorphology: www.geomorphology.org.uk

Indian Institute of Geomorphologists: www.indiageomorph.org

International Association of Geomorphologists: www.geomorph.org

GEOG-H-CC05/MD-CC04-4/5/6-P – Geomorphology Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Extraction and interpretation of geomorphic information from Survey of India 1:50k topographical maps of plateau region: Construction of relief profiles (superimposed, projected, and composite) [7]
2. Construction of relative relief map, slope map (after Wentworth), drainage density map on a delineated drainage basin (c. 5' x 5') [9]
3. Construction of hypsometric curve and derivation of hypsometric integer of a drainage basin (c. 5' x 5') of a plateau region [7]
4. Determination of channel sinuosity index (channel length/valley length measured through straight line) and braiding index of rivers from topographical maps (c. 10-km reach) [7]
5. Viva voce based on laboratory notebook (5 Marks)

References

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

McCullagh, P. 1978. Modern Concept in Geomorphology, Oxford University Press.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Sen, P.K. 1989. Geomorphological Analysis of Drainage Basin: An Introduction to Morphometric and Hydrological Parameters, University of Burdwan.

Vaidyanadhan, R., Subbarao, K.V. 2014. Landforms of India from Topomaps and Images, Geological Society of India.

GEOG-H-CC06/MD-CC05-4/5/6-Th – Climatology – 75 Marks / 3 Credits

Unit I: Elements of the Atmosphere

1. Insolation: Controlling factors. Heat budget of the atmosphere [3]
2. Temperature: horizontal and vertical distribution. Inversion of temperature: Types, causes and consequences [4]
3. Overview of climate change: Causes, trends, and predictions of global temperature rise since 1850 CE. Formation, depletion, restoration, and significance of the ozone layer [6]

Unit II: Atmospheric Phenomena and Climatic Classification

4. Condensation: Process and forms. Mechanism of precipitation: Bergeron-Findeisen theory, and collision & coalescence theory. Forms of precipitation [5]
5. Air mass: Typology, origin, characteristics, and modification [4]
6. Types of fronts. Frontogenesis and frontolysis [5]
7. Weather: Stability and instability, barotropic and baroclinic conditions [4]
8. Atmospheric disturbances: Tropical cyclones and thunderstorms [6]
9. Monsoon circulation and mechanism with reference to India [4]
10. Climatic classification after Köppen (1936) and Thornthwaite (1948) [4]

References

BOOKS:

Ahrens, C.D. 2012. Essentials of Meteorology: An Invitation to the Atmosphere. 9th ed, Cengage Learning.

Barry, R.G., Chorley R.J. 2009. Atmosphere Weather and Climate. 9th ed, Routledge.

Critchfield, H. J. 1983. General Climatology. Prentice Hall India (2010 Reprint).

Dessler, A.E. 2021. Introduction to Modern Climate Change, 3rd ed, Cambridge University Press.

Hidore, J.J., Oliver, J.E., Snow, M., Snow, R. 2020. Climatology: An Atmospheric Science, 3rd ed, Pearson.

Lal, D.S. 2012. Climatology. Sharda Pustak Bhawan.

Lutgens, F.K., Tarbuck, E.J. 1998. The Atmosphere: An Introduction to Meteorology, 9th ed, Prentice-Hall.

Oliver, J.E., Hidore J.J. 2002. Climatology: An Atmospheric Science, Pearson Education India.

Rohli, R.V., Vega, A.J., 2017. Climatology, 4th ed, Jones & Bartlett Learning.

WEBSITES:

India Meteorological Department: https://mausam.imd.gov.in

Intergovernmental Panel on Climate Change: https://www.ipcc.ch

World Bank Climate Change Knowledge Portal: https://climateknowledgeportal.worldbank.org

World Meteorological Organization: https://public.wmo.int/en

GEOG-H-CC06/MD-CC05-4/5/6-P – Climatology Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. India Meteorological Department data are to be used where applicable. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Measurement of weather elements using analogue instruments: Mean daily temperature, air pressure, relative humidity, and rainfall [6]
2. Interpretation of a daily weather map of India (any two): Pre-Monsoon, monsoon, and post-monsoon [12]
3. Construction and interpretation of monthly rainfall dispersion diagram (quartile method). Climatic water budget [6]
4. Construction and interpretation of hythergraph and climograph (after Taylor) [6]
5. Viva voce based on laboratory notebook (5 Marks)

References

BOOKS:

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

WEBSITES:

India Meteorological Department: https://mausam.imd.gov.in

Climatological tables of observatories of India: https://www.imdpune.gov.in/library/public/Climatological%20Tables%201991-2020.pdf

GEOG-H-CC07-4-Th –Social Geography – 75 Marks / 3 Credits

Unit I: Concepts

1. Nature, scope, and content of Social Geography [4]
2. Social structure: caste and class. Social process: Urbanisation, industrialisation, and migration [6]
3. Social differentiation and region formation [3]

Unit II: Social Issues

4. Social indicators of development: Education and health [3]
5. Concepts of social justice and social security with examples from India [6]
6. Contemporary social issues: Gender related problems [4]
7. Social problems in urban areas: Poverty and crime [4]
8. Social problems in rural areas: Marginalisation and deprivation [4]
9. Social welfare schemes for tribes, women, and children [6]
10. Social segregation: A comparison between cities of global north and south [5]

References

Chandna, R.C. 2016. Geography of Population: Concepts, Determinants and Patterns, Kalyani Publishers.

Fouberg, E.H., Murphy, A.B., de Blij H.J. 2015. Human Geography: People, Place, and Culture, 11th ed, Wiley.

Gould, W.T.S. 2015. Population and Development, Routledge.

Gregory, D., Johnston, R., Pratt, G., Watts, M., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley.

Knox, P.L., Marston, S.A. 2014. Human Geography: Places and Regions in Global Context, 6th ed, Pearson Education Limited.

Knox, P.L., McCarthy, L.M. 2011. Urbanization: An Introduction to Urban Geography, 3rd ed, Pearson Education.

Mandal, R.B. 2001. Introduction to Rural Settlement, 2nd ed, Concept Pub Co.

Majumdar, P.K. 2013. India's Demography: Changing Demographic Scenario in India, Rawat Publications.

Moseley, W.G., Perramond, E., Hapke, H.M., Laris, P. 2013. An Introduction to Human-Environment Geography: Local Dynamics and Global Processes, Wiley-Blackwell.

Norton, W. 2014. Human Geography, 8th ed, Oxford University Press.

Pickering K. and Owen A. A. (1997): An Introduction to Global Environmental Issues, 2nd edition Rutledge, London.

Rubenstein, J.M. 2016. The Cultural Landscape: An Introduction to Human Geography, 12th ed, Pearson Education Limited.

Short, R.J. 2017. Human Geography: A Short Introduction, 2nd ed, Oxford University Press.

GEOG-H-CC07-4-P –Social Geography Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Preparation of human development index (after UNDP) [8]
2. Preparation of gender development index (after UNDP) [10]
3. Construction and interpretation of cartograms showing distribution of people living below poverty line in India [5]
4. Preparation of a questionnaire on socio-economic status / access to amenities in slum areas (rural or urban, as applicable) [7]
5. Viva voce based on laboratory notebook (5 Marks)

References

Books:

Basu, R., Bhaduri, S. (Eds) 2007. Contemporary Issues and Techniques in Geography, Progressive Publishers.

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Hassan, M.I. 2005. Population Geography, Rawat publications.

Knowles, R., Wareing, J. 1990. Economic and Social Geography, Made Simple Books.

Mahmood, A. 1998. Statistical Methods in Geographical Studies, Rajesh Publication.

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

WEBSITE:

UNDP Human Development Report on India (2016):

https://hdr.undp.org/data-center/specific-country-data#/countries/IND
https://hdr.undp.org/data-center/country-insights#/ranks

GEOG-H-CC08-4-Th – Cartographic Techniques – 75 Marks / 3 Credits

1. Coordinate systems: Polar and rectangular [3]
2. Grids: Angular and linear systems of measurement [3]
3. Bearing: Magnetic and true, whole-circle and reduced [2]
4. Concept of geoid and spheroid with special reference to Everest and WGS-84. Conversion of angular distance to linear distance [4]
5. Map projections: Classification, properties and uses [10]
6. Properties, uses and limitations of projections: Polar Zenithal Stereographic, Simple Conic with one standard parallel, Bonne's, Cylindrical Equal Area, and Mercator's [5]
7. Concept and significance of UTM projection [3]
8. Representation of data using dots, spheres, and divided proportional circles [6]
9. Representation of data using isopleth, choropleth, and chorochromatic maps [6]
10. Survey of India topographical maps: Reference scheme of old and open series. Information on the margin of maps [3]

References

BOOKS

Kennedy, M., Kopp, S. 2001. Understanding Map Projections, Esri Press.

Kimerling, A.J., Buckley, A.R., Muehrcke, P.C., Muehrcke, J.O. 2011. Map Use: Reading, Analysis, Interpretation, 7th ed, Esri Press.

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.

Pearson II, F. 1990. Map Projections: Theory and Applications, 2nd ed, CRC Press.

Robinson, A.H., Morrison, J.L., Phillip, C.M., Kimerling, A.J., Guptill, S.C. 1995. Elements of Cartography, 6th ed, Wiley.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

WEBSITES

Indian National Cartographic Association: www.incaindia.org

Survey of India: www.surveyofindia.gov.in

GEOG-H-CC08-4-P – Cartographic Techniques Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Construction of projections: Polar Zenithal Stereographic, Simple Conic with one standard parallel, Bonne's [8]
2. Construction of projections: Cylindrical Equal Area and Mercator's[6]
3. Construction and interpretation of thematic maps: Simple and composite line and bar graphs bar. Dots and spheres[8]
4. Construction and interpretation of thematic maps: Dasymetric density, isopleth, and chorochromatic maps[8]
5. Viva voce based on laboratory notebook (5 Marks)

References

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Kennedy, M., Kopp, S. 2001. Understanding Map Projections, Esri Press.

Kimerling, A.J., Buckley, A.R., Muehrcke, P.C., Muehrcke, J.O. 2011. Map Use: Reading, Analysis, Interpretation, 7th ed, Esri Press.

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.

Pearson II, F. 1990. Map Projections: Theory and Applications, 2nd ed, CRC Press.

Robinson, A.H., Morrison, J.L., Phillip, C.M., Kimerling, A.J., Guptill, S.C. 1995. Elements of Cartography, 6th ed, Wiley.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

SEMESTERS – 5 (for H) & 5/6 (for MD)

GEOG-H-CC09/MD-CC06-5-Th – Hydrology and Oceanography – 75 Marks / 3 Credits

Unit-I: Hydrology

1. Systems approach in hydrology. Global hydrological cycle: Its physical and biological role [5]
2. Run off: controlling factors. Infiltration and evapotranspiration. Run off cycle [5]
3. Drainage basin as a hydrological unit. Principles of water harvesting and watershed management [5]
4. Groundwater: Occurrence and storage. Factors controlling groundwater recharge, discharge, and movement [5]

Unit-II: Oceanography

5. Physical and chemical properties of ocean water [4]
6. Ocean temperature and salinity: Distribution and determinants [4]
7. Water mass, T–S diagram [3]
8. Ocean circulation, wave, and tide [6]
9. Sea level change: Types, causes, and implications [4]
10. Marine resources: Classification and sustainable utilisation. Issues related to pollution of the ocean [4]

References

Dingman, S.L. 2015. Physical Hydrology, 3rd ed, Macmillan Publishing Co.

Fitts, C.R. 2002. Groundwater Science, Elsevier.

Garrison, T., Ellis, R. 2021. Oceanography: An Invitation to Marine Science, 10th ed, Cengage Learning.

Karanth, K.R., 1988: Ground Water: Exploration, Assessment and Development, Tata- McGraw Hill.

Nicolas, R. 2020. Introducing Hydrogeology, 2nd ed, Dunedin Academic Press.

Pinet, P.R. 2019. Invitation to Oceanography. 8th ed, Jones and Barlett Learning.

Pinneker, E.V. 2010. General Hydrogeology, Cambridge University Press.

Pugh, D., Woodworth, P. 2014. Sea-Level Science: Understanding Tides, Surges, Tsunamis and Mean Sea-Level Changes, 2nd ed, Cambridge University press.

Raghunath, H.M. 2006. Hydrology: Principles, Analysis, Design, 3rd ed, New Age International Publishers.

Reddy, P.J.R. 2014. A Textbook of Hydrology, University of Science Press.

Subramanya, K. 2013. Engineering Hydrology, McGraw Hill Education.

Sverdrup, K.A., Armbrust, E.V. 2008. An Introduction to the World's Oceans, 10th ed, McGraw Hill.

Todd, D.K., Larry, W.M. 2004. Groundwater Hydrology, John Wiley & Sons.

Ward, A.D., Trimble, S.W., Burckhard, S.R., Lyon, J.G. 2016. Environmental Hydrology, 3rd ed, CRC Press.

GEOG-H-CC09/MD-CC06-5-P – Hydrology and Oceanography Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. Central Water Commission and India Meteorological Department data are to be used where applicable. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Construction and interpretation of rating curves [3]
2. Construction and interpretation of hydrographs and unit hydrographs. Derivation of phi index and W index [11]
3. Construction and interpretation of ombrothermic graph and hyetograph [10]
4. Construction of Thiessen polygon from precipitation data [6]
5. Viva voce based on laboratory notebook (5 Marks)

References

BOOKS:

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Sen, P.K. 1989. Geomorphological Analysis of Drainage Basin: An Introduction to Morphometric and Hydrological Parameters, University of Burdwan.

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.

Raghunath, H.M. 2006. Hydrology: Principles, Analysis, Design, 3rd ed, New Age International Publishers.

WEBSITES:

India Meteorological Department: https://mausam.imd.gov.in

Central Water Commission: https://cwc.gov.in

GEOG-H-CC10/MD-CC07-5/6-Th – Cultural and Settlement Geography – 75 Marks/3 Credits

Unit I: Cultural Geography

1. Definition, scope, and content of cultural geography [2]
2. Components and structure of culture [4]
3. Cultural hearths and realms: Distribution and characteristics [3]
4. Cultural diffusion: Types of cultural diffusion, innovation diffusion, Hagerstrand's model [6]
5. Diffusion of major world religions and languages [6]
6. Cultural segregation, diversity, and integration [4]

Unit II: Settlement Geography

7. Rural settlements: Evolution and morphology [5]
8. Rural house types with reference to India, social segregation in rural areas [5]
9. Urban settlements: Evolution; concepts of metropolis, megalopolis, conurbation, and agglomeration [3]
10. Urban morphology: Models of Burgess, Hoyt, and Harris & Ullman [7]

References

Banerjee Guha, S. (Ed.) 2004. Space, Society and Geography, Rawat Publication.

Bjelland, M.D., Montello, D.R., Fellmann, J.D., Getis, A., Getis, J. 2000. Human Geography: Landscape of Human Activity, McGraw Hill.

Carter, H. 1995. The Study of Urban Geography, 4th ed, Arnold.

Dhanagare, D.N. 2004. Themes and Perspectives in Indian Sociology, Rawat Publication.

Fern, R.L. 2002. Nature, God and Humanity, Cambridge University Press.

Fouberg, E.H., Murphy, A.B., de Blij H.J. 2015. Human Geography: People, Place, and Culture, 11th ed, Wiley

Ghosh, S. 1998. Introduction to Settlement Geography, Sangam Books Ltd.

Gottdiener, M., Budd, M. Lehtovuori, P. 2016. Key Concepts in Urban Studies, 2nd ed, Sage.

Gregory, D., Johnston, R., Pratt, G., Watts, M., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley.

Haggett, P. 1975. Geography: A Modern Synthesis, Harper and Row Publishers.

Hudson, F.S. 1970. Geography of Settlements, Macdonald and Evans Ltd.

Hussain, M. 2007. Models in Geography, Rawat Publication.

Jordan, T., Rowntree, L. 1990. Human Mosaic, Harper Collins Publishers.

Knox, P., Pinch, S. 2000. Urban Social Geography, Pearson Education.

Mandal, R.B. 2001. Introduction to Rural Settlement, 2nd ed, Concept Publishing Company.

Mitchell, D. 2000. Cultural Geography: A Critical Introduction, Blackwell.

Singh, R.Y. 2000. Geography of Settlements, Rawat Publication.

GEOG-H-CC10/MD-CC07-5/6-P – Cultural and Settlement Geography Lab– 75 Marks / 3 Credits

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following, is to be prepared and submitted. Census of India data are to be used where applicable. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Mapping state-wise distribution of major Indian languages of any census year using pie graphs [5]
2. Cartograms representing roof materials used in rural houses of any state of India in the census years 1991, 2001, and 2011 [5]
3. Accessibility mapping using detour index from Survey of India 1:50k topographical maps [10]
4. Nearest neighbour analysis from Survey of India 1:50k topographical maps of plain region (c. 5' x 5') [10]
5. Viva voce based on laboratory notebook (5 Marks)

References

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Census of India: 1991 (H2A), 2001 and 2011 (Table H-3A): Census Houses by Predominant Material of the Roof

Monkhouse F.J., Wilkinson H.R. 1971. Maps and Diagrams, their compilation and construction, 3rd ed (2017 reprint), Alphaneumera.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, Orient Blackswan Pvt. Ltd.

WEBSITE:

Census of India: https://censusindia.gov.in

GEOG-H-CC-11-5-Th – Hazard Management – 75 Marks / 3 Credits

Unit I: Concepts

1. Approaches to hazard study: Risk perception and vulnerability assessment. Hazard paradigms and continuum [7]
2. Responses to hazards: Preparedness, trauma, and aftermath. Resilience, capacity building [7]
3. Hazard mapping: Data and geospatial techniques (for hazards enlisted in Unit II and GEOG-H-CC-11-5-Tu) [3]

Unit II: Hazard-specific Study with Focus on West Bengal and India

4. Earthquake: Factors, vulnerability, consequences, and management [4]
5. Landslide: Factors, vulnerability, consequences, and management [4]
6. Land subsidence: Factors, vulnerability, consequences, and management [4]
7. Tropical cyclone: Factors, vulnerability, consequences, and management [4]
8. Riverbank and coastal erosion: Factors, vulnerability, consequences, and management [4]
9. Fire: Factors, vulnerability, consequences, and management [4]
10. Biohazard: Classification, vulnerability, consequences, and management [4]

References

BOOKS:

Basu, R., Bhaduri, S. (Eds) 2007. Contemporary Issues and Techniques in Geography, Progressive Pub.

Coenraads, R. (Ed.) 2006. Natural Disasters and How We Cope, Millennium House.

Coch, N.K. 1994. Geohazards: Natural and Human, Pearson College.

Cutter, S.L. 2006. Hazards Vulnerability and Environmental Justice, Routledge

Government of India. 1997. Vulnerability Atlas of India, Revised ed, Building Materials & Technology Promotion Council, Ministry of Urban Development.

Gupta, H.K. 2013. Disaster Management, University Press.

Hyndman, D., Hyndman, D. 2016. Natural Hazards and Disasters, 5th ed, Cengage Learning.

Kapur, A. 2010. Vulnerable India: A Geographical Study of Disasters, Sage.

Keller. E.A., DeVecchio, D.E. 2014. Natural Hazards: Earth's Processes as Hazards, Disasters, and Catastrophes, 4th ed, Routledge.

Paul, B.K. 2011. Environmental Hazards and Disasters: Contexts, Perspectives and Management, Wiley-Blackwell.

Pine, J.C. 2014. Hazards Analysis: Reducing the Impact of Disasters, 2nd ed, CRC Press.

Robbins, P., Hintz, J., Moore, S.A. 2014. Environment and Society: A Critical Introduction 2nd ed, Wiley.

Smith, K. 2013. Environmental Hazards: Assessing Risk and Reducing Disaster, 6th ed, Routledge.

WEBSITES:

AGU landslide Blog: https://blogs.agu.org/landslideblog

Dartmouth Flood Observatory: https://floodobservatory.colorado.edu

Disaster News Network: http://www.disasternews.net

India Meteorological Department Cyclone Page: https://mausam.imd.gov.in/imd_latest/contents/cyclone.php

USGS Earthquake Hazards Programme: https://www.usgs.gov/programs/earthquake-hazards

GEOG-H-CC-11-5-Tu – Hazard Management Report – 25 Marks / 1 Credit

A Group Project Report is to be prepared and submitted based on any one case study among the following hazards from India, incorporating a preparedness plan:

1. Earthquake
2. Landslide
3. Land subsidence
4. Thunderstorm
5. Tropical Cyclone
6. Flood
7. Riverbank / Coastal erosion
8. Fire
9. Industrial accident
10. Road / Railway accident
11. Structural collapse
12. Environmental pollution
13. Biohazard

One case study will be done by a group of five to ten students. Different groups may choose different case studies from any one or different types of disasters. The report should be prepared on secondary data and handwritten on A4- or letter-size pages in candidates' own words not exceeding 2,000 words excluding references. The report should contain a proper title. The report should incorporate relevant tables, maps, diagrams, and references, not exceeding ten pages. Photographs are optional and should not exceed three. A copy of the stapled / spiral-bound report in a transparent cover, duly signed by the concerned teacher, is to be submitted during examination. Without the report the candidates will not be evaluated for GEOG-H-CC-11-5-Tu.

Marks division: 20 on report + 5 on viva-voce = 25

GEOG-H-CC12-5-Th – Thematic Mapping and Surveying – 75 Marks / 3 Credits

1. Concepts of rounding and scientific notation, logarithm and anti-logarithm, natural and log scales. [4]
2. Preparation and interpretation of geological maps [5]
3. Preparation and interpretation land use land cover maps [5]
4. Preparation and interpretation of socio-economic maps [5]
5. Principal national agencies producing thematic maps in India: NATMO, GSI, NBSSLUP, NHO, and NRSC / Bhuvan [4]
6. Basic concepts of surveying and survey equipment: Prismatic compass [5]
7. Basic concepts of surveying and survey equipment: Dumpy level [5]
8. Basic concepts of surveying and survey equipment: Theodolite [5]
9. Basic concepts of surveying and survey equipment: Abney level [2]
10. Basic concepts of surveying and survey equipment: Total Station & Echosounder [5]

References

BOOKS:

Basak, N.N. 2017. Surveying and Levelling, 2nd ed, McGraw Hill Education.

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Kanetkar, T.P., Kulkarni, S.V. 1988. Surveying and Levelling, Part I, Pune Vidyarthi Griha Prakashan.

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.

Robinson, A.H., Morrison, J.L., Phillip, C.M., Kimerling, A.J., Guptill, S.C. 1995. Elements of Cartography, 6th ed, Wiley.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

Subramanian, R. 2012. Surveying and Levelling, 2nd ed, Oxford University Press

WEBSITES:

Geological Survey of India: www.gsi.gov.in

Indian Naval Hydrographic Department: www.hydrobharat.nic.in

ISRO Bhuvan 2D Platform: https://bhuvan.nrsc.gov.in/home/index.php

National Atlas and Thematic Mapping Organisation: https://portal.natmo.gov.in/en

National Bureau of Soil Survey and Land Use planning: https://nbsslup.in

National Remote Sensing Centre: https://www.nrsc.gov.in

Survey of India: https://www.surveyofindia.gov.in

GEOG-H-CC12-5-P – Thematic Mapping and Surveying Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Traverse survey using prismatic compass [8]
2. Profile survey using dumpy level [8]
3. Profile survey using Abney level [4]
4. Height determination of base accessible and inaccessible objects by theodolite (same vertical plane method) [10]
5. Viva voce based on laboratory notebook (5 Marks)

References

Basak, N.N. 2017. Surveying and Levelling, 2nd ed, McGraw Hill Education.

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Kanetkar, T.P., Kulkarni, S.V. 1988. Surveying and Levelling, Part I, Pune Vidyarthi Griha Prakashan.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

Subramanian, R. 2012. Surveying and Levelling, 2nd ed, Oxford University Press

SEMESTER – 6 (for H & MD)

GEOG-H-CC13-6-Th – Soil and Biogeography – 75 Marks / 3 Credits

Unit I: Soil Geography

1. Definition and significance of soil properties: Texture, structure, and moisture [5]
2. Definition and significance of soil properties: pH, organic matter, and NPK [5]
3. Origin and profile characteristics of lateritic, podsol, and chernozem soils [3]
4. Principles of soil classification: Genetic and USDA. Concept of land capability and its classification [4]
5. Soil erosion and degradation: Factors, processes and management measures. Humans as active agents of soil transformation [4]

Unit II: Biogeography

6. Concepts of biosphere, ecosystem, biome, ecotone, community, and ecology [5]
7. Concepts of trophic structure, food chain and food web. Energy flow in ecosystems [5]
8. Classification of world biomes (after Whittaker). Geographical extent and characteristics of tropical rain forest, savanna, hot desert, taiga, and coral reef biomes [7]
9. Bio-geochemical cycles with special reference to carbon dioxide and nitrogen [3]
10. Deforestation: Causes, consequences, and management [4]

References

Chapman J.L., Reiz, M.J. 1993. Ecology: Principle and Applications, Cambridge University Press.

Chiras, D.D., Reganold, J.P. 2009. Natural Resource Conservation: Management for a Sustainable Future, 10th ed, Pearson.

Cox, B., Moore, P.D., Ladle, R. 2016. Biogeography: An Ecological and Evolutionary Approach, 9th ed, Wiley-Blackwell.

Daji, J.A., Kadam, J.R., Patil, N.D. 1996. A Textbook of Soil Science, Media Promoters and Publishers.

Dash, M.C. 2001. Fundamental of Ecology, 2nd ed, Tata McGrawHill.

De, N. K., Ghosh. P. 1993. India: A Study in Soil Geography, Sribhumi Pub Co.

Franzmeier, D.P., McFee, W.W., Graveel, J.G., Kohnke, H. 2016. Soil Science Simplified, 5th ed, Waveland Press.

Gerrard, J. 2000. Fundamentals of Soils, Routledge.

Huggett, R. 1998. Fundamentals of Biogeography, Routledge.

Lomolino, M.V., Riddle, B.R., Whittaker, R.J. 2016. Biogeography, 5th ed, Oxford University Press.

MacDonald, G. 2001. Biogeography: Introduction to Space, Time and Life, Wiley

Morgan, R.P.C. 2005. Soil Erosion and Conservation, 3rd ed, Wiley-Blackwell.

Santra. A. 2006. Handbook on Wild and Zoo Animals, International Book Distributing Co.

Sharma, P.D. 2011. Ecology and Environment, Rastogi Publications.

Singer, M., Munns, D.N. 2005. Soils: An Introduction, 6th ed, Pearson.

Weil, R.R. and Brady, N.C. 2022. The Nature and Properties of Soil, 15th ed, Pearson.

White, R. 2006. Principles and Practice of Soil Science: The Soil as a Natural Resource, Blackwell.

Whittaker, R.H. 1975. Communities and Ecosystems, McMillan.

GEOG-H-CC13-6-P – Soil and Biogeography Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Determination of soil pH, organic matter, and NPK using field kit [8]
2. Determination of soil type by ternary diagram textural plotting [7]
3. Plant species diversity determination by matrix method [8]
4. Time series analysis of biogeography data [7]
5. Viva voce based on laboratory notebook (5 Marks)

References

Stohlgren, T.J. 2007. Measuring Plant Diversity: Lessons from the Field. Oxford University Press.

USDA: United States Department of Agriculture. 2014. Soil Survey and Laboratory Methods Manual, Soil Survey Investigations Report No. 51.

Walters, M., Scholes, R.J. (Eds.) 2017. The GEO Handbook on Biodiversity Observation Networks, Springer International Publishing.

Weil, R.R. and Brady, N.C. 2022. The Nature and Properties of Soil, 15th ed, Pearson.

Xiao, M. 2009. Soil Testing Laboratory Manual, Bent Tree Press.

GEOG-H-CC14/MD-CC08-6-Th – India and West Bengal – 75 Marks / 3 Credits

Unit I: India

1. Physiographic divisions with reference to tectonic provinces [4]
2. Climate, soil, and vegetation regions [6]
3. Green revolution (Phases I and II), white revolution, and their impacts [4]
4. Industrial development: Automobile and information technology sectors [4]
5. Regionalisation of India: Basis of classification with reference to economic regions (after P. Sengupta) [4]

Unit II: West Bengal

6. Physiographic divisions: Tectonic and geomorphic evolution [4]
7. Drainage system. Water resources and related issues [5]
8. Changing pattern of industrialisation in West Bengal. Development of SEZs [4]
9. Population: Growth, distribution, migration, and human development [4]
10. Darjiling Himalaya as a physiographic region, Sundarban as an ecological region, and Haldia as an industrial region [6]

References

BOOKS:

Chand, M. and Puri, V.K. 2013 (*reprint*) Regional Planning in India, Allied Publishers.

Johnson, B.L.C. (Ed) 2001. Geographical Dictionary of India, Vision Books.

Khullar, D.R. 2011. India: A Comprehensive Geography, Kalyani Publishers.

Rudra, K. 2018. Rivers of the Ganga-Brahmaputra-Meghna Delta: A Fluvial Account of Bengal, Springer.

Sharma, T.C. 2012. Economic Geography of India, Rawat Publications.

Singh, J. 2003. India: A Comprehensive & Systematic Geography, Gyanodaya Prakashan.

Singh, R.L. 1971. India: A Regional Geography, National Geographical Society of India.

Spate, O.H.K., Learmonth, A.T.A. 1967. India and Pakistan: A General and Regional Geography, Methuen.

Tiwari, R.C. 2007. Geography of India, Prayag Pustak Bhawan.

Vaidyanadhan, R. (Ed) Rejuvenation of Surface Water Resources of India: Potential, Problems and Prospects, Geological Society of India Special Publication.

Valdiya, K.S. 2010. The Making of India: Geodynamic Evolution, Macmillan India.

Wadia. D.N. 1926. Geology of India, Macmillan and Co. Ltd.

West Bengal Pollution Control Board. 2021. State of Environment Report: West Bengal, Vol I and II, GoWB.

WEBSITES:

Census of India: https://censusindia.gov.in/census.website

Geological Survey of India: https://www.gsi.gov.in

Indian Council of Agricultural Research: https://icar.org.in

National Atlas and Thematic Mapping Organisation: https://portal.natmo.gov.in/en

National Bureau of Soil Survey and Land Use planning: https://www.nbsslup.in

GEOG-H-CC14/MD-CC08-6-P – India and West Bengal Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following, is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Monthly temperature and rainfall graphs of five select stations from different physiographic regions of India [8]
2. Graphical representation of annual trends of production: Manufacturing goods over any two decades from India or West Bengal [8]
3. Preparation of composite index (Kendall's Method): Comparison of developed and less-developed states of India [7]
4. Change in mean centre of population of West Bengal over any three census years [7]
5. Viva voce based on laboratory notebook (5 marks)

References

BOOKS:

Datt, R. and Sundharam, K.P.M. 2015. Indian Economy, 50th ed, S. Chand.

Khullar, D.R. 2011. India: A Comprehensive Geography, Kalyani Publishers.

Mahmood, A. 1977. Statistical Methods in Geographical Studies, Rajesh Publications.

WEBSITES:

Census of India: https://censusindia.gov.in/census.website

Government of India Data Platform: https://data.gov.in

Hierarchy of states:
https://en.wikipedia.org/wiki/List_of_states_and_union_territories_of_India_by_population
https://en.wikipedia.org/wiki/List_of_Indian_states_and_union_territories_by_GDP_per_capita
https://en.wikipedia.org/wiki/List_of_Indian_states_and_union_territories_by_Human_Development_Index

India Meteorological Department: https://mausam.imd.gov.in

India Meteorological Department Climatological Tables:
https://www.imdpune.gov.in/library/public/Climatological%20Tables%201991-2020.pdf

ISRO Bhuvan 2D Platforms: https://bhuvan-app1.nrsc.gov.in/bhuvan2d/bhuvan/bhuvan2d.php

Planning Commission (West Bengal Development Report 2010):
https://www.scribd.com/document/433016798/sdr-wb1909-pdf

Trending Economics (India's industrial production): https://tradingeconomics.com/india/industrial-production

UNDP Human Development Report on India (2016):
https://hdr.undp.org/data-center/specific-country-data#/countries/IND
https://hdr.undp.org/data-center/country-insights#/ranks

West Bengal District Statistical Handbooks:
http://wbpspm.gov.in/publications/District%20Statistical%20Handbook

GEOG-H-CC15-6-Th – Remote Sensing, GIS, and GNSS – 75 Marks / 3 Credits

Unit I: Remote Sensing

1. Types of remote sensing platforms, satellites, and sensors [5]
2. Sensor resolutions and their applications with reference to IRS and Landsat missions [4]
3. Image referencing schemes and acquisition procedure of free geospatial data from NRSC / Bhuvan and USGS [3]
4. Preparation of standard and other types of FCCs from IRS LISS-3 and Landsat TM / OLI data [5]
5. Principles of image interpretation. Preparation of inventories of land use land cover (LULC) features from standard FCCs [6]

Unit II: Geographical Information Systems and Global Navigation Satellite System

6. GIS data structures types: Spatial and non-spatial, raster and vector [5]
7. Principles of preparing attribute tables, data manipulation, and query [6]
8. Principles and significance of buffer preparation [2]
9. Principles and significance of overlay analysis [4]

Unit III: Global Navigation Satellite System (GNSS)

10. Principles of GNSS positioning and waypoint collection [5]

References

BOOKS:

Bhatta, B. 2011. Global Navigation Satellite Systems: Insights into GPS, GLONASS, Galileo, Compass and Others, CRC Press.

Bhatta, B. 2020. Remote Sensing and GIS, 3rd ed, Oxford Univ. Press.

Bolstad, P. 2016. GIS Fundamentals: A First Text on Geographic Information Systems, 5th ed, XanEdu Publishing.

Brewer, C.A. 2015. Designing Better Maps: A Guide for GIS Users, 2nd ed, Esri Press.

Harvey, F. 2015. A Primer of GIS: Fundamental Geographic and Cartographic Concepts, 2nd ed, The Guilford Press.

Jensen, J.R., 2013. Remote Sensing of the Environment: An Earth Resource Perspective, Pearson Education India.

Joseph, G. and Jegannathan, C. 2018. Fundamentals of Remote Sensing, 3rd ed, Orient Blackswan.

Lillesand, T.M., Kiefer, R.W., Chipman, J.W. 2015. Remote Sensing and Image Interpretation, 7th ed, Wiley.

Indian Space Research Organisation. 2017. Effective Use of Space Technology.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 2nd ed, Orient Blackswan.

WEBSITES:

Indian Society of Remote Sensing: https://www.isrs-india.org

International Society for Photogrammetry and Remote Sensing: https://www.isprs.org

ISRO Bhuvan 2D and 3D Platforms:
https://bhuvan-app1.nrsc.gov.in/bhuvan2d/bhuvan/bhuvan2d.php
https://bhuvan-app1.nrsc.gov.in/globe/3d.php

National Remote Sensing Centre: www.nrsc.gov.in

National Remote Sensing Centre Bhoonidhi: https://bhoonidhi.nrsc.gov.in/bhoonidhi/index.html

Space Applications Centre: https://www.sac.gov.in/Vyom

USGS Earth Explorer: https://earthexplorer.usgs.gov

USGS Global Visualization Viewer: https://glovis.usgs.gov

USGS Landsat Missions: https://www.usgs.gov/landsat-missions

GEOG-H-CC15-6-P – Remote Sensing, GIS, and GNSS Lab – 25 Marks / 1 Credit

An A4- or letter-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be represented as computer prints from Q-GIS / Garmin Basecamp / MS Excel software as applicable. Methods and interpretations are to be handwritten.

1. Image georeferencing and enhancement. Preparation of spectral reflectance libraries of LULC features across different image bands of IRS L3 or Landsat OLI data [8]
2. Supervised image classification, class editing, and post-classification analysis [8]
3. Digitisation of features and administrative boundaries. Data attachment, vector overlay, and preparation of annotated thematic maps [8]
4. Waypoint collection from GNSS receivers, exporting to GIS database and plotting [6]
5. Viva voce based on laboratory notebook (5 Marks)

References

BOOKS:

Bhatta, B. 2011. Global Navigation Satellite Systems: Insights into GPS, GLONASS, Galileo, Compass and Others, CRC Press.

Bhatta, B. 2020. Remote Sensing and GIS, 3rd ed, Oxford Univ. Press.

Bolstad, P. 2016. GIS Fundamentals: A First Text on Geographic Information Systems, 5th ed, XanEdu Publishing.

Brewer, C.A. 2015. Designing Better Maps: A Guide for GIS Users, 2nd ed, Esri Press.

Chang, K-t. 2015. Introduction to Geographical Information System, McGraw-Hill Education.

Harvey, F. 2015. A Primer of GIS: Fundamental Geographic and Cartographic Concepts, 2nd ed, The Guilford Press.

Jensen, J.R., 2013. Remote Sensing of the Environment: An Earth Resource Perspective, Pearson Education India.

Joseph, G. and Jegannathan, C. 2018. Fundamentals of Remote Sensing, 3rd ed, Universities Press.

Lillesand, T.M., Kiefer, R.W., Chipman, J.W., 2015. Remote Sensing and Image Interpretation, 7th ed, Wiley.

Sarkar, A. 2015. Practical Geography: A Systematic Approach. 2nd ed, Orient Blackswan.

WEBSITES:

Garmin: https://support.garmin.com/en-US/?productID=52801&tab=manuals

ISRO Bhuvan 2D and 3D Platforms:

https://bhuvan-app1.nrsc.gov.in/bhuvan2d/bhuvan/bhuvan2d.php
https://bhuvan-app1.nrsc.gov.in/globe/3d.php

National Remote Sensing Centre: www.nrsc.gov.in

National Remote Sensing Centre Bhoonidhi: https://bhoonidhi.nrsc.gov.in/bhoonidhi/index.html

Q-GIS: https://www.qgis.org/en/site

USGS Earth Explorer: https://earthexplorer.usgs.gov

USGS Global Visualization Viewer: https://glovis.usgs.gov

SEMESTER – 7 (for H)

GEOG-H-CC16-7-Th – Philosophy of Geography – 75 Marks / 3 Credits

Unit I: Nature of Geography

1. Development of Ancient Geography: Contributions of Greek, Roman, and Indian geographers [5]
2. Development of Medieval Geography: Arab geographers [2]
3. Contributions of Varenius and Kant [2]
4. Contributions of Humboldt and Ritter [2]
5. Contributions of Richthofen, Ratzel, Hettner, de la Blaché, and Hartshorne [5]
6. Dualism and Dichotomies: General vs. Particular, Physical vs. Human, Regional (Ideographic) vs. Systematic (Nomothetic), and Determinism vs. Possibilism [5]

Unit II: Geography in the 20th Century

7. Trends of geography in the post-World War-II period: Positivism, Hartshorne-Schaefer debate, quantitative revolution [6]
8. Philosophical basis of radicalism: Historical and dialectical materialism, structuralism [5]
9. Behavioural, humanistic, and critical approaches in Geography [7]
10. Concept of space: Absolute, relative, and relational with special reference to Lefebvre [6]

References

Adhikari, S. 2015. Fundamentals of Geographical Thought, Orient Blackswan.

Clifford, N. Holloway S.L., Rice, S.P., Valentine, G. 2009. Key Concepts in Geography, 2nd ed, Sage.

Couper, P. 2015. A Student's Introduction to Geographical Thought: Theories, Philosophies, Methodologies, Sage.

Cresswell, T. 2013. Geographic Thought: A Critical Introduction, Wiley-Blackwell.

Dickinson, R.E. 2015. The Makers of Modern Geography, Routledge

Dikshit, R.D. 2004. Geographical Thought: A Contextual History of Ideas, Prentice Hall India.

Holt-Jensen, A. 2018. Geography: History and Concepts: A Student's Guide, 5th ed, Sage.

Husain, M. 2015. Evolution of Geographical Thought, 6th ed, Rawat Publications.

Gregory, D., Johnston, R., Pratt, G., Watts, M., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley.

Jeffrey A. and Nayek, A. 2013. Geographical Thought: An Introduction to Ideas in Human Geography, Routledge.

Johnston, R. and Sidaway, J.D. 2015 Geography and Geographers: Anglo-American Human Geography since 1945, 7th ed, Routledge.

Peet, P. 1998. Modern Geographical Thought, Wiley-Blackwell.

GEOG-H-CC16-7-P – Philosophy of Geography Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of topics 1, 2, and 4 is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten. Posters related to topic 3 should be of 59.4 x 84.1 cm size (A1), approximately. Technique of preparing the posters can be manual, digital or blended. They should carry signatures of teacher(s) responsible for supervising their preparation.

1. Changing perception of maps of the world: Ptolemy and Mercator [5]
2. Mapping voyages: Columbus, Vasco da Gama, Magellan, and James Cook [5]
3. Group Presentation of five to ten students on any selected paradigm in geographical thought by using poster [10]
4. A Book Review within 1000 words to be selected from Couper, Dickinson, Johnston, and Sidaway [10]
5. Viva voce based on laboratory notebook (5 marks)

References

Black, J. 2003. Visions of the World: A History of Maps, Mitchell Beazley.

Couper, P. 2015. A Student's Introduction to Geographical Thought: Theories, Philosophies, Methodologies, Sage.

Holt-Jensen, A. 2011. Geography: History and Concepts: A Student's Guide, Sage.

Whitfield, P. 2017. Charting the Oceans, British Library.

GEOG-H-CC17-7-Th – Resource Geography – 75 Marks / 3 Credits

Unit I: Resource and Development

1. Natural resources: Concept, significance, and classification [4]
2. Approaches to resource utilization: Utilitarian, conservational, community based, and adaptive [5]
3. Crisis of resource availability: Global scenario of forest and water [4]
4. An overview on conservation of forest and water resources [4]

Unit II: Resource Conflict and Management

5. Agricultural resource conflicts: Issues of productivity and resilience of indigenous species and genetically modified crops [5]
6. Distribution, utilisation, problems, and management of metallic mineral resources: Iron ore, bauxite, and copper [5]
7. Distribution, utilisation, problems, and management of non-metallic mineral resources: Limestone, mica, and gypsum [5]
8. Distribution, utilisation, problems, and management of energy resources: Conventional and non-conventional [4]
9. Significance of human resource: Issues related to capability development[4]
10. Limits to growth and sustainable use of resources with reference to relevant sustainable development goals [5]

References

Chiras, D.D., Reganold, J.P. 2009. Natural Resource Conservation: Management for a Sustainable Future, 10th ed, Pearson.

Cutter, S.N., Renwich, H.L., Renwick, W. 1991. Exploitation, Conservation, and Preservation: A Geographical Perspective on Natural Resources Use, John Wiley and Sons.

Gadgil, M., Guha, R. 2005. The Use and Abuse of Nature: Incorporating this Fissured Land: An Ecological History of India and Ecology and Equity, Oxford University Press.

Gregory, D., Johnston, R., Pratt, G., Watts, M., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley.

Holechek, J.L.C., Richard, A., Fisher, J.T., Valdez, R. 2003. Natural Resources: Ecology, Economics and Policy, Prentice Hall.

Jones, G., Hollier, G. 1997. Resources, Society and Environmental Management, Paul Chapman.

Klee, G. 1991. Conservation of Natural Resources, Prentice Hall.

Mather, A.S., Chapman, K. 1995. Environmental Resources, John Wiley and Sons.

Mitchell, B. 1997. Resource and Environmental Management, Longman Harlow.

Owen, S., Owen, P.L. 1991. Environment, Resources and Conservation, Cambridge University Press.

Rees, J. 1990. Natural Resources: Allocation, Economics and Policy, Routledge.

GEOG-H-CC17-7-Pr– Resource Geography Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following, is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Mapping and area estimate of changes in forest cover from maps and/or satellite images [8]
2. Mapping and number estimate of changes in water bodies from maps and/or satellite images [8]
3. Crop combination: Comparison of any two contrasting districts from West Bengal using Weaver's method [8]
4. Graphical representation of decadal changes in state-wise production of coal and iron ore [6]
5. Viva voce based on laboratory notebook (5 Marks)

References

Books:

Bhatta, B. 2020. Remote Sensing and GIS, 3rd ed, Oxford Univ. Press

Datta, R., Sundharam, K.P.M. 2015. Indian Economy, Chand.

Fukuda-Parr, S., Kumar, S.A.K. 2005. Readings in Human Development, Oxford University Press.

Khullar, D.R. 2011. India: A Comprehensive Geography, Kalyani Publishers

Lillesand, T.M., Kiefer, R.W., Chipman, J.W., 2015. Remote Sensing and Image Interpretation, 7th ed, Wiley.

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.

Websites:

Government of India Data Platform: https://data.gov.in

West Bengal District Statistical Handbooks: http://wbpspm.gov.in/publications/District%20Statistical%20Handbook

GEOG-H-CC18-7-Th – Environmental Issues in Geography – 75 Marks / 3 Credits

1. Geographers' approach to environmental studies [3]
2. Concept of holistic environment and systems approach [3]
3. Ecosystems and their relationship with habitats [5]
4. Wetland ecosystem with special reference to East Kolkata Wetlands [4]
5. Rural environmental issues with special reference to sanitation and public health [6]
6. Urban environmental issues with special reference to waste management [4]
7. Ocean environmental issues with special reference to plastic pollution [5]
8. Environmental policies – Club of Rome, earth summits (special reference to Stockholm, Rio, and Johannesburg). National Action Plan on Climate Change [5]
9. Conference of the Parties: Global initiatives for environmental management (special reference to Montreal, Kyoto, and Paris) [5]
10. Overview of principal environment-related regulations of India. Review of their achievements [5]

References

BOOKS:

Basu, R., Bhaduri, S. (Eds) 2007. Contemporary Issues and Techniques in Geography, Progressive Publishers.

Chandna, R.C. 2002. Environmental Geography, Kalyani Press.

Chapman, J.L., Reiz, M.J. 1993. Ecology: Principle and Applications, Cambridge University Press.

Cunningham, W.P., Cunningham, M.A. 2004. Principals of Environmental Science: Inquiry and Applications, Tata McGraw Hill.

Goudie, A. 2001. 2013. The Human Impact on the Natural Environment: Past, Present, and Future, 7th ed, Wiley-Blackwell.

Gilpin, A., 1994. Environmental Impact Assessment: Cutting Edge for the 21st Century, Cambridge University Press.

Miller, G.T. 2004. Environmental Science: Working with the Earth, Thomson Brooks.

Odum, E.P., Barrett, G.W. 2005. Fundamentals of Ecology, Cengage Learning.

Raven, P.H., Hassenzahl, D.M., Hager, M.C., Gift, N.Y., Berg, L.R. 2015. Environment, 9th ed, Wiley.

Sharma, P.D. 2011. Ecology and Environment, Rastogi Publications.

Singh, S. 2013. Environmental Geography, Prayag Pustak Bhawan.

Withgott, J.H., Laposata, M. 2017. Environment: The Science behind the Stories, 6th ed, Pearson.

WEBSITES:

BBC – Science & Environment: https://www.bbc.com/news/science_and_environment

Central Pollution Control Board: https://cpcb.nic.in/

Centre for Science and Environment: https://www.cseindia.org

Ministry of Environment, Forest and Climate Change: https://moef.gov.in/en

The Energy and Resources Institute: https://www.teriin.org

The World Bank – Environment: https://www.worldbank.org/en/topic/environment

United Nations Environment:

https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop

West Bengal Pollution Control Board: https://www.wbpcb.gov.in/

GEOG-H-CC18-7-P– Environmental Issues in Geography Lab – 25 Marks / 1 Credit

An A4- or letter-size laboratory notebook, comprising class assignments of the following, is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Preparation of questionnaire for perception survey on environmental problems [7]
2. Preparation of check-list for Environmental Impact Assessment for urban / industrial development projects [7]
3. Quality assessment of water using portable tester: pH, salinity, and hardness [10]
4. Interpretation of changes in air quality using multi-seasonal and multi-city or multi locational (within a single city) CPCB / WBPCB data [6]
5. Viva voce based on laboratory notebook (5 marks)

References

BOOKS:

Clifford, N., Cope, M., Gillespie,.T.W., French, S. (Eds) 2016. Key Methods in Geography, 3rd ed, Sage

Gilpin, A., 1994. Environmental Impact Assessment: Cutting Edge for the 21st Century, Cambridge University Press.

Northey, N., Draper, D., Knight, D.B. 2015. Making Sense in Geography and Environmental Sciences: A Student's Guide to Research and Writing, 6th ed, Oxford University Press.

WEBSITES:

Central Pollution Control Board: https://cpcb.nic.in/indexeng.php

West Bengal Pollution Control Board: https://www.wbpcb.gov.in

GEOG-H-CC19-7-Th – Statistical Methods in Geography – 75 Marks / 3 Credits

Unit I: Frequency Distribution and Sampling

1. Discrete and continuous data, population and samples, scales of measurement (nominal, ordinal, interval and ratio) [4]
2. Collection of data and preparation of statistical tables [4]
3. Sampling: Need, types, significance, and methods of random sampling [4]
4. Theoretical distribution: Frequency, cumulative frequency, normal, and probability [5]

Unit II: Numerical Data Analysis

5. Central tendency: Mean, median, mode, and partition values [4]
6. Measures of dispersion range, mean deviation, standard deviation, and coefficient of variation [6]
7. Association and correlation: Product moment correlation and rank correlation [6]
8. Regression: Linear and non-linear. Residuals [4]
9. Time series analysis [4]
10. Hypothesis testing: Chi-square test and T-test [4]

References

Acevedo, M.F. 2012. Data Analysis and Statistics for Geography, Environmental Science and Engineering, CRC Press.

Harris, R., Jarvis, C. 2011. Statistics for Geography and Environmental Science, Prentice Hall.

Mahmood, A. 1999. Statistical Methods in Geographical Studies, Rajesh Publications.

McGrew Jr., J.C., Lembo Jr., A.J., Monroe, C.B. 2014. An Introduction to Statistical Problem Solving in Geography, 3rd ed, Waveland Press.

Pal, S.K. 1998. Statistics for Geoscientists: Techniques and Applications, Concept Pub Co.

Rogerson, P.A. 2015. Statistical Methods for Geography: A Student's Guide, 4th ed, Sage.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

GEOG-H-CC19-7-P – Statistical Methods in Geography Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Construction of data matrix with each row representing an area unit (districts / blocks / *mouzas* / towns) and corresponding columns of relevant attributes [8]
2. Based on the above, a frequency table, measures of central tendency, and dispersion would be computed and interpreted using histogram and frequency curve [7]

3. From the data matrix, a sample set (20%) would be drawn using random, systematic, and stratified methods of sampling and the samples would be located on a map with an explanation of the methods used [8]
4. Based on the sample set and using two relevant attributes, a scatter diagram and linear regression line would be plotted and residual from regression would be mapped and interpreted [7]
5. Viva voce based on laboratory notebook (5 Marks)

References

Books:

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Acevedo, M.F. 2012. Data Analysis and Statistics for Geography, Environmental Science and Engineering, CRC Press.

Harris, R., Jarvis, C. 2011. Statistics for Geography and Environmental Science, Prentice Hall.

Mahmood, A. 1999. Statistical Methods in Geographical Studies, Rajesh Publications.

McGrew Jr., J.C., Lembo Jr., A.J., Monroe, C.B. 2014. An Introduction to Statistical Problem Solving in Geography, 3rd ed, Waveland Press.

Pal, S.K. 1998. Statistics for Geoscientists: Techniques and Applications, Concept Pub Co.

Rogerson, P.A. 2015. Statistical Methods for Geography: A Student's Guide, 4th ed, Sage.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Websites:

Government of India data platform: https://data.gov.in

Census of India: https://censusindia.gov.in/census.website

West Bengal District Statistical Handbooks: http://wbpspm.gov.in/publications/District%20Statistical%20Handbook

GEOG-H-CC20-7-Th – Research Methodology and Fieldwork – 75 Marks / 3 Credits

Unit I: Research Methodology

1. Research in geography: Meaning, types, and significance [4]
2. Literature review and formulation of research design, objectives, and hypothesis [4]
3. Research materials and methods [4]
4. Techniques of writing scientific reports: Preparing notes, references, bibliography, abstract, keywords, and sectioning [5]
5. Research ethics with special reference to plagiarism [4]

Unit II: Fieldwork

6. Fieldwork in Geographical studies: Role and significance. Selection of study area and objectives. Pre-field academic preparations. Ethics of fieldwork [5]
7. Field techniques and tools: Observation (participant, non-participant), questionnaires (open, closed, structured, non-structured), interview [5]
8. Field techniques and tools: Landscape survey using transects and quadrants, records through sketches, photo and videos. Field logistics and handling of emergencies [6]
9. Positioning and collection of samples. Preparation of inventory from field data [4]
10. Post-field tabulation, processing and analysis of quantitative and qualitative data [5]

References

Clifford, N., Cope, M., Gillespie,.T.W., French, S. (Eds) 2016. Key Methods in Geography, 3rd ed, Sage

Gomes, B., Jones III, J.P. (Eds) 2010. Research Methods in Geography: A Critical Introduction, Wiley-Blackwell.

Lenon, B., Cleves, P. 2015. Geography Fieldwork and Skills, Harper-Collins.

Montello, D.R, Sutton, P. 2012. An Introduction to Scientific Research Methods in Geography and Environmental Studies, 2nd ed, Sage.

Murthy, K.L.N. 2004. Research Methodology in Geography: A Text Book, Concept Publishing Co.

Northey, N., Draper, D., Knight, D.B. 2015. Making Sense in Geography and Environmental Sciences: A Student's Guide to Research and Writing, 6th ed, Oxford University Press.

Parsons, T., Knight, P.G. 2015. How To Do Your Dissertation in Geography and Related Disciplines, 3rd ed, Routledge.

Riordan, D. 2013. Technical Report Writing Today, 10th ed, Wadsworth Publishing.

Phillips, R., Johns, J. 2012. Fieldwork for Human Geography, Sage.

Thornbush, M.J., Allen, C.D., Fitzpatrick, F.A. (Eds) 2014. Geomorphological Fieldwork, Elsevier.

GEOG-H-CC20-7-P – Research Methodology and Fieldwork Lab – 25 Marks / 1 Credit

Every student needs to participate in fieldwork and prepare a field report according to the following guideline, failing which he/she will not be evaluated for GEOG-H-CC20-7-P.

1. Each student will prepare a report based on primary data collected from field survey and secondary data collected from different sources.
2. Students will select either one rural area (*mouza*) or an urban area (municipal ward) for the study, with the primary objective of evaluating the relation between physical and cultural landscape.
3. A specific problem or a special feature should be identified based on which, the study area will be selected.
4. The report should be handwritten in English on A4 size paper in candidate's own words within 5000 words (Introductory Chapter: 1000 words; Physical Aspects: 1500 words; Socio-economic Aspects: 1500 words; Concluding Chapter: 500 words, approximately) excluding tables, photographs, maps, diagrams, references and appendices.
5. Photographs, maps and diagrams should not exceed 15 pages.
6. A copy of the bound report, duly signed by the concerned teacher, will be submitted during examination.
7. The field work and post-field work will include:
    a. Collection of primary data on physical aspects (relief and soil) of the study area. Students should use survey instruments like prismatic compass, dumpy level, Abney level or clinometer wherever necessary.
    b. Collection of soil samples from different land cover land use regions of the study area for determining pH and NPK values with help of a soil kit.
    c. Collection of socio-economic data, at the household level (with the help of a questionnaire) in the selected study area.
    d. Plot to plot land use survey for preparation of a land use map, covering whole or part of the selected area.
    e. Visit to different organisations and departments for collection of secondary data.
    f. Any other survey relevant to the objective of the study.
8. The Field Report should contain the following sections (a→e).
    a. Introduction: Study area extent and space relations, reasons for selection of the study area on the basis of a specific problem or special feature, objectives, methods of data collection, analyses and presentation, sources of information, etc.
    b. Physical aspects: Lithology and geological structure, relief, slope, drainage, climate, soil, vegetation, environmental issues, proneness to natural hazards, etc.
    c. Socio-economic aspects:
        i. Population attributes: Number, sex ratio, literacy, occupational structure, ethnic and religious composition, language, per capita income, etc.

ii. Settlement characteristics: Number of houses, building materials, number and size of rooms, amenities, etc.
iii. Agriculture: General land use, crop-combination, use of fertiliser and irrigational facilities, production and marketing etc.
iv. Other economic activities: Fishing, horticulture, brick-making, household and other industries, etc.

d. Conclusions: Relation between physical and cultural landscape. Evaluation of problems and prospects. General recommendations.

e. Bibliography.

9. The students will prepare (i) a chorochromatic land use land cover map on the basis of plot-to-plot survey; (ii) a profile of suitable length, surveyed and plotted, with different land use land cover superimposed on it.

10. All sections of the report should contain relevant maps, diagrams and photographs using primary and secondary data, clearly citing sources.

11. All surveys should pertain to the objective of the study. Surveys not relevant for establishing the relation between physical and cultural landscape should be avoided.

Marks division: 20 on report + 10 on viva voce = 30

SEMESTER –8 (for H)

GEOG-H-CC21-8-Th – Watershed and Coastal Management – 75 Marks / 3 Credits

Unit I: Watershed Management

1. Concept and demarcation of watersheds, their utility as units of hydrological, environmental, and landuse planning and management [4]
2. Water conservation: Micro-catchment water harvesting, evaporation suppression and seepage reduction, supplemental irrigation, groundwater recharge, afforestation [6]
3. Management of soil erosion: Overland flow and gullies [4]
4. Preparation of a watershed development plan, administrative arrangements and agency selection for plan implementation, monitoring and evaluation system [4]
5. Programmes on watershed management: Govt. of India guidelines on watershed development. Watershed-based rural development and the role of NGOs in watershed management [4]

Unit II: Coastal Planning and Management

6. Concept of coastal zone in the perspective of physical and human systems. Processes involved in a tropical coast. [4]
7. Coastal management issues: Resource exploitation, infrastructure, tourism and recreation, pollution, loss of biodiversity, shoreline retreat [5]
8. Concepts of coastal planning and management: Rational, incremental, adaptive and consensual planning approaches. Administrative arrangements and agency selection for plan implementation [6]
9. Components of coastal planning and management: Administrative, social, and technical [4]
10. Case studies of coastal management: Digha Sankarpur Development Authority area and Gangasagar Bakkhali Development Authority area [4]

References

Clark, J.R. 1998. Coastal Seas: The Conservation Challenge, Blackwell Science

Kay, R. and Alder, 1999. A. Coastal Planning and Management, E & FN Spon.

Mitchell, C.W. 2014. Terrain Evaluation, end ed, Routledge.

Morgan, R.P.C. 2005. Soil Erosion and Conservation, 3rd ed, Wiley-Blackwell.

Murthy, V.V.N. 2005. Land and Water Management, Kalyani Pub.

Pethick, J. 1984. An Introduction to Coastal Geomorphology. Arnold.

Tideman, E.M. 1996. Watershed Management, Omega Scientific Publishers.

Woodroffe, C.D. 2002. Coasts: Form, Process and Evolution, Cambridge University Press.

Yousuf, A. and Singh, M. 2021. Watershed Hydrology: Management and Modeling, CRC Press.

GEOG-H-CC21-8 -P – Watershed and Coastal Management Lab – 25 Marks / 1 Credit

An A3 or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. Census of India data are to be used where applicable. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Land capability analysis using additive parameters in a watershed demarcated from Survey of India 1:50k topographical map [6]
2. Calculation of velocity and discharge using Manning equation [8]
3. Flood frequency analysis from long-term discharge data [8]
4. Determination of breaker types by empirical equations [8]
5. Viva voce based on laboratory notebook (5 marks)

References

Mitchell, C.W. 2014. Terrain Evaluation, end ed, Routledge.

Murthy, V.V.N. 2005. Land and Water Management, Kalyani Pub.

Yousuf, A. and Singh, M. 2021. Watershed Hydrology, Management and Modeling, CRC Press.

GEOG-H-CC22-8-Th – Historical and Political Geography – 75 Marks / 3 Credits

Unit I: Historical Geography

1. Nature, scope, content, and approaches of historical geography [4]
2. Source materials and travel accounts: Huen Tsang, Ibn-Batuta, and Bernier [4]
3. Phases of development: Agricultural (medieval and modern India) and industrial (colonial and independent India) [5]
4. Trade, commerce, and transport: Development of gateway cities in colonial India [5]
5. Evolution of Indian societies. Tribes and castes in modern India [4]

Unit I: Political Geography

6. Nature, scope and approaches of political geography [4]
7. Concept of core–periphery: Wallerstein's World Systems Theory [4]
8. Concept of nation, nation-state, borders, boundaries, frontiers, buffer-zones, and landlocked states. Federalism and regional integration [6]
9. Post-colonialism, end of cold-war, disintegration of Soviet Union and East Europe; shift from bi-polar to multi-polar world [5]
10. Chinese strategy of expansionism: Belt and Road initiative and power sharing in South China Sea [4]

References

Adhikari, S. 1997. Political Geography, Rawat Pub.

Baker, A.R.H., Gregory, D. 1984. Explorations in Historical Geography: Interpretative Essays. Cambridge University Press.

Baker, A.R.H., Pacione, M. (Eds) 1982. Period and Place: Research Methods in Historical Geography, Cambridge University Press, Cambridge.

Benko, G, Stromayer, U. (Eds) 2004: Human Geography: A History for the 21st Century, Edward Arnold (Publishers) Ltd. London.

Cohn, S.B. 2003. Geopolitics of the World System, Lanham.

Dikshit, R.D. 1982. Political Geography: A Contemporary Perspective, Tata McGrow Hill.

Gibb, H. A. :1929: "Ebn-Batuta's Travels in Asia and Africa 1325-1354", Routledge and Kegan Paul Ltd. London.

McLeod, J. 2004. The History of India, Greenwood Press.

Mittal, P., Dua, G., Swarup, G. 2015. Historical Geography of India, Low Price Publications.

Morrissey, J., Nally, D., Strohmayer, U., Whelan, Y. 2014. Key Concepts in Historical Geography, Sage.

Peet, R. 1998. Modern Political Thought, Blackwell, Oxford.

Sanyal, S., Rajendran, S. 2015. The Incredible History of India's Geography, Penguin Books.

Tamaskar, B.G. 1985. Contributions to Historical Geography of India, Inter India Publication.

GEOG-H-CC22-8-Tu – Historical and Political Geography Report – 25 Marks / 1 Credit

One case study on historical geography or political geography will be done by a group of five to ten students. The report should be prepared on secondary data and handwritten on A4- / letter-size pages in candidates' own words not exceeding 2000 excluding references. The report should contain a proper title. The report should incorporate relevant tables, maps, diagrams, and references, not exceeding 10 pages. Photographs are optional and should not exceed three. A copy of the stapled / spiral-bound report in a transparent cover, duly signed by the concerned teacher, is to be submitted during examination. Without the report the candidates will not be evaluated for GEOG-H-CC22-8-Tu.

Marks division: 15 on report + 10 on viva-voce = 25

GEOG-H-CC23-8-Th – Population and Welfare Geography – 75 Marks / 3 Credits

1. Interdisciplinary nature of population geography. Relationship between demography and population studies [3]
2. Factors influencing spatial distribution and density of population [4]
3. Population growth: Global trends, patterns, and projections [4]
4. Theories of population growth: Malthus and Marx [4]
5. Population structure and composition: Age- and sex-specific, occupational and ethnic [5]
6. Determinants and measures of fertility, morbidity, and mortality [6]
7. Migration: types, causes, and impacts [4]
8. Population policies: Sweden, China, and India [5]
9. Welfare issues: Child labour, unemployment, and human trafficking [6]
10. Ageing population: issues and challenges [4]

References

Barrett, H.R. 1995. Population Geography, Oliver and Boyd.

Bhende, A.A., Kanitkar, T. 2008. Principles of Population Studies, Himalaya Publications.

Chandna, R.C. 2022a. Geography of Population Part-1: Concepts, Determinants and World Patterns, Kalyani Publications.

Chandna, R.C. 2022b. Geography of Population Part-2: India – Population and Patterns, Kalyani Publications.

Clarke, J. 1972. Population Geography, Elsevier.

Clarke, J.I. 1965. Population Geography and the Developing countries, Elsevier.

Hussain, M. 1994. Population Geography, Vol. 1 & 2, Anmol Publications.

Jones, H. 1990. Population Geography, SLE Pound.

Nag, P., Debnath, G.C. 2021. Population Geography, Bharati Prakashan.

Newbold, K.B. 2017. Population Geography: Tools and Issues, Rowman and Littlefield.

Srivastava, O.S. (Ed) 1994. Demography and Population Studies, Vikas Pub.

Trewartha, G.T. 1969. A Geography of Population: World Patterns, John Wiley & Sons.

Weeks, J.R. 2018. Population: An introduction to Concepts and Issues, Cengage.

William, F.H., 1993. An Introduction to Population Geography, Cambridge University Press.

Wood, R. 1979. Population Analysis in Geography. Longman.

Wood, R. 1982. Theoretical Population Geography. Longman.

GEOG-H-CC23-8-P – Population and Welfare Geography Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. Census of India data are to be used where applicable. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Linear and exponential trends of growth rate of population [6]
2. Construction and interpretation of age-sex pyramid: Progressive and regressive [8]
3. Construction and interpretation of choropleths showing distribution of infant mortality rates [8]
4. Graphical representation and interpretation of spatial distribution of total fertility rate [8]
5. Viva voce based on laboratory notebook (5 marks)

References

Books:

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Mahmood, A. 1999. Statistical Methods in Geographical Studies, Rajesh Publications.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

Website:

Census of India: https://censusindia.gov.in/census.website/data/census-tables

National Sample Survey: https://mospi.gov.in/national-sample-survey-officensso

GEOG-H-CC24-8-Th – Rural and Urban Geography – 75 Marks / 3 Credits

Unit I: Rural Geography

1. Paradigms of rural development: Modernisation paradigm, holistic development paradigm, Gandhian approach to rural development [5]
2. Approaches to Rural Development: Area-based (DPAP) and Target based (NFFWP) [6]
3. Rural Employment policies and programmes in India, PMGSY, SJSY, MNREGA, Jan Dhan Yojana [3]
4. 73rd Constitutional Amendment of India and its implications for governance [2]
5. Participatory rural planning and management with reference to JFM, Watershed Management, SHGs [5]

Unit II: Urban Geography

6. Approaches and recent trends in urban geography [6]
7. Origin of urban places in ancient, medieval, modern, and post-modern periods: Factors, stages, and characteristics [4]
8. Patterns of urbanisation in developed and developing countries [4]
9. Patterns and trends of urbanisation in India [4]
10. Urban issues: urban poverty and crime, housing, and civic amenities [6]

References

BOOKS:

Carter, H. 1995. The Study of Urban Geography, 4th ed, Arnold.

Gilg, A.W. 1985. An Introduction to Rural Geography, Edwin Arnold.

Gottdiener, M., Budd, M. Lehtovuori, P. 2016. Key Concepts in Urban Studies, 2nd ed, Sage.

Jonas, A.E.G., McCann, E., Thomas, M. 2015. Urban Geography: A Critical Introduction, Wiley-Blackwell.

Kaplan, D., Holloway, S. 2014. Urban Geography, 3rd ed, Wiley.

Knox, P.L., McCarthy, L.M. 2011. Urbanization: An Introduction to Urban Geography, 3rd ed, Pearson.

Krishnamurthy, J. 2000. Rural Development: Problems and Prospects, Rawat Publications.

Latham, A., McCormack, D., McNamara, K. McNeill, D. 2009. Key Concepts in Urban Geography, Sage.

Lee, D.A., Chaudhri, D.P. (Eds) 1983. Rural Development and State, Methuen Publishing.

LeGates, R.T., Stout, F. (Eds) 2015. The City Reader, 6th ed, Routledge.

Levy, J.M. 2016. Contemporary Urban Planning, 11th ed, Routledge.

Macionis, J.J., Parrillo, V.N. 2016. Cities and Urban Life, 7th ed, Pearson.

Misra, R.P. (Ed) 2002 (Reprint). Regional Planning: Concepts, Techniques, Policies and Case Studies, Concept Pub. Co.

Misra, R.P., Sundaram, K.V. (Eds) 1979. Rural Area Development: Perspectives and Approaches, Sterling Publishers.

Pacione, M. 2009. Urban Geography: A Global Perspective, Routledge.

Potter, R.B., Lloyd-Evans, S. 2014. The City in the Developing World, Routledge.

Ramachandran, H., Guimaraes, J.P.C. 1991. Integrated Rural Development in Asia: Leaning from Recent Experience, Concept Publishing.

Ramachandran, R. 1989. Urbanisation and Urban Systems in India, Oxford University Press.

Ramachandran, R., 1992: The Study of Urbanisation, Oxford University Press

Robb, P. (Ed) 1983. Rural South Asia: Linkages, Change and Development, Curzon Press.

Singh, K., Shishodia, A. 2016. Rural Development: Principles, Policies, and Management, 4th ed, Sage.

Singh, R.B. (Ed) 2015. Urban Development, Challenges, Risks and Resilience in Asian Megacities. Advances in Geographical and Environmental Studies, Springer

Wanmali, S. 1992. Rural Infrastructure, the Settlement System and Development of the Regional Economy in Southern India, International Food Policy Research Institute.

Yugandhar, B.N., Mukherjee, N. (Eds) 1991. Studies in Village India: Issues in Rural Development, Concept Pub Co.

GEOG-H-CC24-8-P – Rural and Urban Geography Lab – 25 Marks / 1 Credit

An A4- or letter-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. Census of India data are to be used where applicable. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten. In addition, a project report is to be submitted, as detailed under point 3, below.

1. Linear and exponential trends of growth rate of population [5]
2. Standardisation of data using Z Score [5]
3. A case study on evaluation of any selected programme in a village or ward using secondary and/or primary data to be done by a group of five to ten students. The report should be handwritten on A4 page in candidates' own words not exceeding 1000 excluding references. The report should contain a proper title and incorporate relevant tables, maps, diagrams, and references, not exceeding 8 pages. Photographs are optional and should not exceed three [20]

Marks division: 10 on topics 1 and/or 2 + 5 on topic 3 (project report) + 10 on viva-voce based on laboratory notebook and project report = 25

References

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Alvi, Z. 2002. Statistical Geography: Methods and Applications, Rawat Publications.

Croxton, F.E., Cowden, D.J. 1994. Applied General Statistics, Prentice Hall.

Mahmood, A., Reza, M. 1998. Statistical Methods in Geographical Studies, Rajesh Publications.

Pal, S.K. 1998. Statistics for Geoscientists: Techniques and Applications, Concept Pub Co.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

GEOG-H-CC25-8-Th – Regional Development and Planning – 75 Marks / 3 Credits

Unit I: Regional Development

1. Regions: Concept, types, and delineation [4]
2. Concepts of growth and development. Indicators of development: Economic, demographic, and environmental [4]
3. Theories and models for regional development: Cumulative causation (after Myrdal), stages of development (after Rostow), and growth pole model (after Perroux) [5]
4. Underdevelopment: Concept and causes [2]
5. Regional disparities in India: Economic and social [4]

Unit I: Regional Planning

6. Regional planning: Principles, objectives, and approaches [4]
7. Types of planning: Temporal, sectoral, spatial, and non-spatial [6]
8. Centralised and decentralised planning. Multi-level planning in India [7]
9. Planning issues in hill area (as formal region) and city region (as functional region) [4]
10. Planning strategies: Participatory planning and governance [5]

References

Bhargava, G. 2001. Development of India's Urban, Rural, and Regional Planning in 21st Century: Policy Perspective, Gyan Publishing House.

Chand, M., Puri, V.K. 2000. Regional Planning In India, Allied Publishers Ltd.

Chandana, R.C. 2016. Regional Planning and Development, 6th ed, Kalyani Publishers.

Glasson, J. 2017. Contemporary Issues in Regional Planning, Routledge.

Gore, C. 2011. Regions in Question: Space, Development Theory, and Regional Policy, Routledge.

Gregory, D., Johnston, R., Pratt, G., Watts, M., Whatmore, S. (Eds) 2009. The Dictionary of Human Geography, 5th ed, Wiley.

Hall, P., Tewdwr-Jones, M. 2010. Urban and Regional Planning, Routledge.

Higgins, B., Savoie, D.J. 2017. Regional Development: Theories and Their Application, Routledge.

Kulshetra, S.K. 2012. Urban and Regional Planning in India: A Handbook for Professional Practitioners, Sage.

Kumar, A., Meshram, D.S., Gowda, K. (Eds) 2016. Urban and Regional Planning Education: Learning for India, Springer.

Misra, R.P. 1992. Regional Planning: Concepts, Techniques, Policies and Case Studies, Concept Pub Co.

Ray, J. 2001. Introduction to Development & Regional Planning, Orient Blackswan.

Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press.

Wheeler, J.O., Muller, P.O., Thrall, G.I., Fik, T.J. 1998. Economic Geography, 3rd ed, Wiley.

Willington D. E., 2008: Economic Geography, Husband Press.

Wood, A., Roberts, A. 2010. Economic Geography: Places, Networks and Flows, Routledge.

GEOG-H-CC25-8-P – Regional Development and Planning Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Delineation of formal regions by weighted index method [8]
2. Delineation of functional regions by breaking point analysis [8]
3. Measurement of inequality by location quotient [6]
4. Preparation of an interview schedule for any Gram Panchayat member on a relevant development issue [8]
5. Viva voce based on laboratory notebook (5 Marks)

References

Glasson, J. 2017. Contemporary Issues in Regional Planning, Routledge.

Knowles, R, Wareing, J. 1990. Economic and Social Geography, Made Simple Books, Rupa.

Mahmood, A. 1998. Statistical Methods in Geographical Studies, Rajesh Publication.

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera.

SKILL ENHANCEMENT COURSE (SEC)

SEMESTERS – 1 (for H) & 1/2/3 (for MD)

GEOG-H-SEC01/MD-SEC01-1/2/3-Th – Methods in Geography – 100 Marks / 4 Credits

Unit I: Field Data Collection and Compilation

1. Designing of primary survey based on diverse research problems. Relevance of pilot survey [4]
2. Sampling types and strategy based on diverse research problems [4]
3. Preparation of questionnaire and interview schedule [4]
4. Data compilation into master table [4]
5. Computer-assisted field data entry; tabulation of data into frequency distribution tables [4]
6. Statistical analysis of data: measures of central tendency and dispersion [4]

Unit II: Methods in Physical Geography

7. Use of minor survey instruments: Brunton compass, distometer, smartphone levelling applications [4]
8. Textural analysis of grains using sieves [4]
9. Mapping and extraction of flooded areas from satellite images and digital elevation models [5]
10. Mapping areal and linear extents of riverbank and coastline shift from Survey of India 1:50k maps and/or satellite images [5]

Unit III: Methods in Human Geography

11. Dominant and distinctive functions [4]
12. Ternary diagram showing occupational patterns (after Ashok Mitra) [4]
13. Preparation of accessibility map [5]
14. Preparation of flowcharts using transportation data [5]

References

Clifford, N., Cope, M., Gillespie, T.W. (Eds) 2023. Key Methods in Geography, 4th ed, Sage.

Jones III, J.P., Gomez, B. (Eds) 2010. Research Methods in Geography: A Critical Introduction, Wiley.

Lenon B., Cleves, P. 2015. Geography of Fieldwork and Skills, Harper Collins.

Lindholm, R.C. 1987 A Practical Approach to Sedimentology, Springer.

Murthy, K.L.N. 2004. Research Methodology in Geography: A Text Book, Concept Pub Co.

Phillips, R., John J. 2012. Fieldwork for Human Geography, Sage

Mahmood, A. 1999, Statistical Methods in Geographical Studies, Rajesh Publication.

Sarkar, A. ,2015, Practical Geography, A systematic Approach, Orient Blackswan.

Singh, R.L., Singh, R.P.B., 2012. Elements of Practical Geography, Kalyani Publishers

SEMESTER –3 (for H)

GEOG-H-SEC02-3-Th – Environmental Impact Assessment and Environmental Management Planning – 100 Marks / 4 Credits

Unit I: Conceptual Framework

1. Definition and scope of Environmental Impact Assessment (EIA) and Environmental Management Planning (EMP) [4]
2. Legal and Policy Framework for Management: Air, Water, Forest. Environment Protection Act (EPA) [5]
3. Structure of governance and implementation strategies [4]

Unit II: Processes

4. Environmental appraisal: Concept and objectives [4]
5. Stages of conducting EIA: Scoping and screening using Environmental Information System (EIS) [5]
6. Preparation of inventory and matrices [4]

Unit III: Methods

7. Methodologies for EIA: Impact assessment, risk assessment, cost-benefit analysis [5]
8. Stakeholders' participation: Local bodies, citizens, relevant experts [4]
9. Prediction scenarios and mitigation, assessing alternatives [4]
10. Environmental Impact (EI) reporting [4]
11. EI monitoring and review [5]
12. Environmental audit: Relevance and process [4]
13. EIA/EMP case study of a metro rail project [4]
14. EIA/EMP case study of a highway project [4]

References

BOOKS:

Gilpin, A. 1994. Environmental Impact Assessment: Cutting Edge for the 21st Century, Cambridge University Press

Khandeshwar, S.R., Raman, N.S., Gajbhiye, A.R. 2019. Environmental Impact Assessment, Dreamtech Press

Tinsley, S. 2001. Environmental Management Plans Demystified, Rutledge.

Yerramilli, A., Manickam, V. 2020. Environmental Impact Assessment Methodologies, 3rd ed, BS Publication.

WEBSITES:

National Accreditation Board for Education & Training — EIA Accreditation: https://nabet.qci.org.in/eia_consultant

Example of an EIA report: Bengaluru Metro Rail Project:
https://www.adb.org/sites/default/files/project-documents/53326/53326-001-eia-en.pdf

Example of an EIA report: Vadodara–Mumbai Expressway Project:
https://www.mpcb.gov.in/sites/default/files/public_hearing/exe_summary/2021-01/nationalhighwayexesummmaryeng21012021.pdf

INTERDISCIPLINARY COURSE (IDC)

SEMESTERS – 1/2/3 (for H)

GEO-H-IDC01-1/2/3-Th – Geomatics and Spatial Analysis – 50 Marks / 2 Credits

Unit I: Cartography

1. Concept and applications of scales and projections. Components and classification of maps [4]
2. Bearing: Magnetic and true, whole-circle and reduced. Concept of geoid and spheroid with special reference to WGS-84. [3]
3. Map projections: Classification, properties and uses with special reference to simple conical projection and Universal Transverse Mercator (UTM) [5]

Unit II: Surveying

4. Basic concepts of surveying, survey equipment, and their capabilities: Dumpy level, theodolite, total station, and Global Navigation Satellite System (GNSS) [10]

Unit III: Remote Sensing and Geographical Information System

5. Principles of remote sensing (RS). Types of RS satellites and sensors with reference to IRS and Landsat missions [5]
6. Principles of • preparing standard false colour composites (FCCs) and • supervised image classification [4]
7. GIS data types: Spatial and non-spatial (attribute table and metadata), raster and vector [2]
8. Principles of preparing attribute tables, data manipulation, query, and overlay [7]

References

BOOKS:

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Bhatta, B. 2011. Global Navigation Satellite Systems: Insights into GPS, GLONASS, Galileo, Compass and Others, CRC Press.

Bhatta, B. 2020. Remote Sensing and GIS, 3rd ed, Oxford University Press.

Bolstad, P. 2016. GIS Fundamentals: A First Text on Geographic Information Systems, 5th ed, XanEdu Publishing.

Joseph, G., Jagannathan, C. 2018. Fundamentals of Remote Sensing, 3rd ed, Orient Blackswan.

Kennedy, M., Kopp, S. 2001. Understanding Map Projections, Esri Press.

Kimerling, A.J., Buckley, A.R., Muehrcke, P.C., Muehrcke, J.O. 2011. Map Use: Reading, Analysis, Interpretation, 7th ed, Esri Press.

Lillesand, T.M., Kiefer, R.W., Chipman, J.W., 2015. Remote Sensing and Image Interpretation, 7th ed, Wiley.

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.

Pearson II, F. 1990. Map Projections: Theory and Applications 2nd ed, CRC Press.

Robinson, A.H., Morrison, J.L., Phillip, C.M., Kimerling, A.J., Guptill, S.C. 1995. Elements of Cartography, 6th ed, Wiley.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

Vaidyanadhan, R., Subbarao, K.V. 2014. Landforms of India from Topomaps and Images, Geological Society of India.

WEBSITES

ISRO Bhuvan 2D and 3D Platforms:
https://bhuvan-app1.nrsc.gov.in/bhuvan2d/bhuvan/bhuvan2d.php
https://bhuvan-app1.nrsc.gov.in/globe/3d.php

National Remote Sensing Centre: www.nrsc.gov.in

Survey of India: https://www.surveyofindia.gov.in

USGS Global Visualization Viewer: https://glovis.usgs.gov

USGS Landsat Missions: https://www.usgs.gov/landsat-missions

GEO-H-IDC01-1/2/3-P – Geomatics and Spatial Analysis Lab – 25 Marks / 1 Credit

An A3- or tabloid-size laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Construction of simple conical projection with one standard parallel [6]
2. Traverse survey and plotting UTM coordinates using smartphone GNSS application [8]
3. Identification of land use / land cover features from standard FCCs and preparation of inventories [8]
4. Change detection of riverbank or coastline shift from multi-dated maps and images [8]
5. Viva voce based on laboratory notebook (5 Marks)

References

Basu, P. 2021. Advanced Practical Geography — a Laboratory Manual, 4 ed, Books and Allied.

Basu, R., Bhaduri, S. (Eds) 2007. Contemporary Issues and Techniques in Geography, Progressive Pub.

Bhatta, B. 2020. Remote Sensing and GIS, 3rd ed, Oxford Univ. Press.

Kennedy, M., Kopp, S. 2001. Understanding Map Projections, Esri Press.

Kimerling, A.J., Buckley, A.R., Muehrcke, P.C., Muehrcke, J.O. 2011. Map Use: Reading, Analysis, Interpretation, 7th ed, Esri Press.

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.

Pearson II, F. 1990. Map Projections: Theory and Applications 2nd ed, CRC Press.

Robinson, A.H., Morrison, J.L., Phillip, C.M., Kimerling, A.J., Guptill, S.C. 1995. Elements of Cartography, 6th ed, Wiley.

Sarkar, A. 2015. Practical Geography: A Systematic Approach, 3rd ed, Orient Blackswan.

Singh, R.L., Singh, R.P.B. 2008. Elements of Practical Geography, Kalyani Publishers.

v.1: 26/07/2023

UNIVERSITY OF CALCUTTA

Notification No.CSR/22/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of her powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 31.07.2023 approved the syllabus of the under mentioned subjects semester wise Four-year (Honours & Honours with Research) /Three-year (Multidisciplinary) /Four-year (Honours with core Vocational) programme of U.G. courses of studies, as applicable under CCF,2022, under this University, as laid down in the accompanying pamphlet.

1. **Geography**
2. **Physical Education**
3. **Film Studies**
4. **Fine Arts**
5. **History (Revised syllabus after incorporating some amendments, in the syllabus published in CSR/13/23, dt.12.7.23)**
6. **Islamic History & Culture (Revised syllabus after incorporating some amendments, in the syllabus published in CSR/13/23,dt.12.7.23)**
7. **Persian (Revised syllabus after incorporating some amendments, in the syllabus published in CSR/20/23, dt.28.7.23)**
8. **Computer Application. (Honours with core Vocational)**

The above shall take effect from the academic session 2023-2024.

SENATE HOUSE,

Kolkata-700073

The 2nd August ,2023

2/8/2023

Prof.(Dr.) Debasis Das

Registrar

NEP SYLLABUS

IN

HISTORY

CALCUTTA UNIVERSITY

2023

The four - year B.A. in History will comprise 8 Semesters. The curriculum will consist of 22 Discipline Specific Elective Core Courses/ (H/CC), courses each carrying 4 credits, 8 Minor Courses each carrying 4 credits, 3 Interdisciplinary Courses,(IDC) each carrying 3 credits 4 Ability Enhancement Compulsory Courses (AEC) each carrying 2 credits, 3 Skill Enhancement Courses (SEC) each carrying 4 credits and 4 Common Value Added Courses (CVAC) each carrying 2 credits. There will be one Summer Internship of 3 credits and Dissertation /Research Work in the 7 Semester carrying 4 credits and 8 credits in the final Semester (8^{th})

- **Discipline- specific Courses Core Courses H CC**

[Twenty two courses. Each course: 4 credits (Total: 88 credits. Marks 22x100 =2200)

- Each course carries 100 marks.
- 75 marks for theoretical segment.
- 25 marks for tutorial - related segments as suggested below (any one from each mode):
- Any one of the following modes: upto 1000 words for one Term Paper/ Project/ Book Review/ --based on syllabus .[The modes and themes and/or topics are be decided and assessed by the concerned faculty of respective colleges.]
- **Minor Courses 8 Courses:** 4 credits (Total: 32 credits. Marks 8x100=800)
- Each course carries 100 marks.
- 75 marks for theoretical segment.
- 25 marks for tutorial - related segments as suggested below (any one from each mode):
- Any one of the following modes: upto 1000 words for one Term Paper/ Project/ Book Review/ --based on syllabus. [The modes and themes and/or topics are be decided and assessed by the concerned faculty of respective colleges.]
- **Skill Enhancement/Skill-based Courses SEC** Each Course: 4 credits .
- Each course carries 100 marks.

- 50 marks for theoretical segment.

- 50 marks for tutorial - related segments as suggested below (any one from each mode):

- Any one of the following modes: upto 1000 words each for two Term Papers/ Projects/ Book Reviews/ --based on syllabus. [The modes and themes and/or topics are be decided and assessed by the concerned faculty of respective colleges.]

- IMPORTANT NOTES:
  The Readings provided below include many of those of the UGC Model NEP Syllabus in History. For further details of Course Objectives and additional references it is advised that the UGC model NEP syllabus concerning relevant courses and topics should be given due importance and primarily consulted.
- Cited advanced texts in Bengali are not necessarily substitutes, but supplementary to the English books.

- The format is subject to the common structural NEP format of the University.

COURSE STRUCTURE-CCF 2022

	H -CC	Minor Course	IDC	AEC	SEC	CVAC	Summer Internship	Research Work/ Dissertation	Total Credits
Semesters	22x 4=88	8x4=32	3x3=9	4x2=8	3x4=12	4x2=8	1x3=3	(1x4=4)+ (1x8=8)=12	172
Semester-1	1x4= 4 3Th+1Tu/ Prac	1x4= 4 (m1) 3Th+1Tu/ Prac	1x3= 3 2TH +l P/TU	1x2= 2 2TH + 0 P/TU	1x4= 4 2Th+2Tu/ Prac	2x2			21
Semester-2	1x4= 4 3Th+1Tu/ Prac	1x4= 4 (m1) 3Th+1Tu/ Prac	1x3= 3 2TH +l P/TU	1x2= 2 2TH + 0 P/TU	1x4= 4 2Th+2Tu/ Prac	2x2			21
Semester-3	2x4= 8 3Th+1Tu/ Prac	1x4= 4(m2) 3Th+1Tu/ Prac	1x3= 3 2TH +l P/TU	1x2= 2 2TH + 0P/TU	1x4= 4 2Th+2Tu/ Prac				21
Semester-4	4x4= 16 3Th+1Tu/ Prac	1x4= 4(m2) 3Th+1Tu/ Prac		1x2= 2 2TH + 0 P/TU					22
Semester-5	4x4= 16 3Th+1Tu/ Prac	2x4= 8 m1+m2 3Th+1Tu/ Prac							24
Semester-6	3x4= 12 3Th+1Tu/ Prac	2x4=8 m1+m2 3Th+1Tu/ Prac					1x3		23
Semester-7	4x4= 16 3Th+1Tu/ Prac							1x4*	20
Semester-8	3x4= 12 3Th+1Tu/ Prac							1x8*	20
Credits	22x4= 88	8x4= 32	3x3= 9	4x2= 8	3x4= 12	4x2= 8	1x3=3	(1x4)+ (1X8)= 12	172
Marks	22x100=2200	8x100=800	3x75=225	4x50=200	3x100=300	4x50=200	1x 75	1x100+ 1x200=300	Total Marks =4300

Please note: *Candidates who would not pursue Dissertation/Research work would have to study 1 additional H/CC paper in Semester 7 and 2 H/CC papers in Semester 8 of 4 credits each.

Structure of B.A History Courses under NEP
HIS-DSC -1-22 TH &TU

➢ Discipline- specific Courses H /CC

HIS-H-CC 1 **SEM -1**: HISTORY OF INDIA (FROM THE EARLIEST TIMES TO C 300 BCE)
HIS- H -CC 2 **SEM-2**: SOCIAL FORMATIONS AND CULTURAL PATTERNS OF THE ANCIENT WORLD OTHER THAN INDIA.
HIS- H CC 3 **SEM-3**: HISTORY OF INDIA (C 300 BCE TO C.750 CE)
HIS- H CC 4 **SEM-3**: SOCIAL FORMATIONS AND CULTURAL PATTERNS OF THE MEDIEVAL WORLD OTHER THAN INDIA
HIS- H CC 5 **SEM-4**: HISTORY OF INDIA (C.750 – 1206)
HIS- H CC 6 **SEM-4**: HISTORY OF EUROPE (C.1453-1650)
HIS- H CC 7 **SEM-4**: HISTORY OF INDIA (C.1206 – 1526)
HIS- H CC 8 **SEM-4**: HISTORY OF EUROPE–(C. 1650-1780)
HIS- H CC 9 **SEM-5**: HISTORY OF INDIA (C.1526-1605)
HIS- H CC 10 **SEM-5** HISTORY OF INDIA (C.1605 – 1750)
HIS- H CC 11 **SEM-5:** HISTORY OF MODERN EUROPE (C.1780-1939)
HIS- H CC 12 **SEM-5**: HISTORY OF INDIA (C.1750– 1857)
HIS- H CC 13 **SEM-6**: HISTORY OF INDIA (C. 1857 – 1964)
HIS- H CC 14 **SEM-6** : HISTORY OF WORLD POLITICS: (1945-1994)
HIS- H CC 15 **SEM- 6:** HISTORY OF MODERN EAST ASIA – I CHINA (C.1840 – 1949)
HIS- H CC 1 6 **SEM-7**: HISTORY OF MODERN EAST ASIA – II JAPAN (C.1868 – 1945)
HIS- H CC 1 7 **SEM-7**: HISTORY OF BENGAL (C.1757-1905)
HIS- H CC 18 **SEM-7:** HISTORY OF BENGAL (C.1905-1947)
HIS- H CC 19 **SEM -7:** WOMEN IN COLONIAL INDIA
** **HIS- H CC** 20 **SEM -7:** HISTORICAL TOURISM: THEORY &PRACTICE
HIS- H CC 21 **SEM -8** : MAJOR DEBATES IN HISTORY .
HIS- H CC 22 **SEM -8** : THEMES IN CONTEMPORARY HISTORY OF INDIA (1947-1991)
** **HIS- H CC** 23 **SEM -8**: ART APPRECIATION: AN INTRODUCTION TO INDIAN ART.
HIS- H CC 24 **SEM -8** HISTORIOGRAPHY AND TOOLS OF HISTORICAL RESEARCH
** **HIS- H CC** 25 **SEM -8** NATIONAL LIBERATION MOVEMENTS IN 20TH CENTURY WORLD.

Please note: ***Candidates who would not pursue Dissertation/Research work would have to study 1 additional H/CC paper in Semester 7 and 2 H/CC papers in Semester 8 of 4 credits each. These courses are indicated in asterisk marks ****

MINOR COURSES m1m2

HIS-m1- 1 **SEM -1**: HISTORY OF INDIA (FROM THE EARLIEST TIMES TO C 300 BCE)

HIS-m1 2 **SEM-2**: SOCIAL FORMATIONS AND CULTURAL PATTERNS OF THE ANCIENT WORLD OTHER THAN INDIA
HIS-m1 3 **SEM-5**: HISTORY OF INDIA (C 300 BCE TO C.750 CE)

HIS-m1 4 **SEM -6** HISTORY OF EUROPE (C.1453-1650)

INTER DISCIPLINARY COURSES (IDC)

HIS-IDC-1: Making of Contemporary India (1919 -1964)

SKILL ENHANCEMENT COURSES (SEC)

HIS- SEC-1: SEM -1 Museum and Archives
HIS- SEC-2 SEM -2 Understanding Cultural Heritage and Tourism
HIS- SEC- 3 SEM -3 Understanding Popular Culture of Bengal

Detailed Syllabus History
HIS- H –1- 22 TH&TU

HIS-H/CC 1 : History of India From the earliest times to C 300 BCE

Learning Objectives:

This course intends to provide an extensive and deeper understanding of early Indian history to students. They will be introduced to the manner in which diverse aspects of ancient Indian history have been recovered from a rich variety of sources, archaeological, literary, numismatic, epigraphist. Students will become familiar with the tools required for studying history and explore the diverse histories and regional variations in the Indian subcontinent and also study various facets of ancient India- social, cultural, political, environmental concerns. This course, with an interdisciplinary approach, will help students' trace elements of continuity and changes in processes spanning over several millennia, from pre-historic times up to the 300 BCE. The emphasis on historiography will allow students to understand how historians have approached ancient India and how our present knowledge and perceptions have played a role in interpreting the past.

I. Reconstructing Ancient Indian History:

a) Early Indian notions of history and the idea of Bharat
b) Sources and tools of historical reconstruction.
c) Historical interpretations (with special reference to gender, environment, technology and regions)

II. Hunter-gatherers and the advent of food products

a)Paleolithic cultures- sequence and distribution; stone industries and other technological developments.
b) Mesolithic cultures – regional and chronological distribution; new developments in technology and economy; rock art.
c) Neolithic and Chalcolithic cultures: distribution and subsistence pattern

III. The Harappan civilization:

Origins; settlement patterns and town planning; agrarian base; craft productions and trade; social and political organization; religious beliefs and practices; art; the problem of urban decline and the late/post-Harappan traditions.

IV. Cultures in transition

Settlement patterns, technological and economic developments; social stratification; political relations; religion and philosophy; the Aryan problem.
a) North India (circa 1500 BCE – 300 BCE)
b) Central India and the Deccan (circa 1000 BCE – circa 300 BCE)
c) Tamilakam (circa 300 BCE to circa CE 300)

Essential Readings

Agarwal D.P, The Archaeology of India, London, 1982.
Basham A.L, The Wonder That Was India, London, 1954.
Chakrabarti Dilip Kumar, An Oxford Companion to Indian Archaeology, New Delhi, 2006.
Chakrabarti Dilip Kumar, India, An Archaeological History, Delhi, 1999
Sharma R.S, Looking for the Aryans, 1995.
Sharma R.S, Material Cultures and Social Formations in Ancient India, New Delhi, 1983.

Thapar Romila, Early India: From the Origins to AD 1300, London, 2002

Suggested Readings

Basham A.L ed. A Cultural History of India, New Delhi, 1975.

Ghosh Amalananda, The City in Early Historic India, Shimla, 1973.

Altekar A.S, The Position of Women in Hindu Civilization from Pre-historic times to the Present Day, New Delhi, 1962.

Chattopadhyaya B.D, Studying Early India: Archaeology, Texts and Historical Issues. New Delhi, 2003.

Sircar D.C, Indian Epigraphy, New Delhi, 1965.

Kosambi D.D, An Introduction to the Study of Indian History, Bombay, 1956

Kosambi D.D, Combined Methods in Indology and Other Writings, Edited and Introduced By B.D Chattopadhyaya

Jha D.N, Ancient India: An Introduction, New Delhi, 1998

Chattopadhyay D.P, Science and Society in Ancient India, Calcutta, 1977.

Erdosy George, Urbanization in Early Historic India, Oxford, 1988.

Allchin F.R. (ed). The Archaeology of Early Historic South Asia: The Emergence of Cities and States, Cambridge, 1995.

Staal Frits, Discovering the Vedas : Origins, Mantras, Rituals Insights, New Delhi, 2008.

Possehl G.L, ed. Harappan Civilization- A Recent Perspective, Delhi, 1993 (second edition).

Michell George, The Penguin Guide to the Monuments of India. London, 1989.

Raychaudhuri H.C, Political History of Ancient India with a commentary by B.N.Mukherjee, New Delhi, 1996 (8th edition)

Habib Irfan (General Editor), A People's History of India (Volume 1,2,3), New Delhi.

Shastri K.A Nilakantha, A History of South India, Madras, 1974 (4th Edition)

Lahiri Nayanjyot, The Decline and Fall of the Indus Civilization, New Delhi, 2000.

Ray Nihar Ranjan, Brajadulal Chattopadhyaya, V.R. Mani and Ranabii Chakravarti eds. A Source Book of Indian Civilization, Kolkata, 2000.

Sahu Bhairabi Prasad (ed.). Iron and Social Change in Early India. New Delhi: Oxford University Press, 2006.

Chakraborty Ranabir, Exploring early India, upto circa AD 1300

Kochar R., The Vedic People, New Delhi. 2000.

Majumdar R.C (General Editor), The History & Culture of the Indian People, Volumes I – III, Bombay, 1951,1968, 1970

Sharma R.S, Advent of the Aryans, Manohar, 1999.

Sharma R.S, Aspects of Political Ideas and Institutions in Ancient India. New Delhi, 2005 (reprint).

Sharma R.S, India's Ancient Past, New Delhi, 2005.

Sharma R.S, Perspectives in the Social and Economic History of Early India, New Delhi, 1983.

Sharma R.S, Sudras in Ancient India.

Salomon Richard, Indian Epigraphy: A Guide to the Study of Inscriptions in Sanskrit, Prakrit, and Other Indo-Aryan Languages. New York, 1998.

Thapar Romila (et al). India: Historical Beginnings and the Concept of the Aryan, New Delhi, 2006

Thapar Romila, From Lineage to State, Delhi, 1996 (2nd Edition)

Ratnagar Shireen, (ed), Women in Early Indian Societies. New Delhi, 1999.

Ratnagar Shireen, The End of the Great Harappan Tradition, Delhi, 2000

Roy Kumkum, The Emergence of Monarchy in North India: eighth to fourth centuries BC, NewDelhi, 1994

Ratnagar Shireen, Understanding Harappa, Delhi 2001
Saraswati S.K, A Survey of Indian Sculpture, New Delhi, 1975 (second edition)
Bhattacharji Sukumar, Women and Society in Ancient India. Calcutta, 1994.
Singh Upinder, A History of Ancient and Early Medieval India. Delhi, 2008.
বাশাম এ এল, অতীতের উজ্জ্বল ভারত, (The Wonder That Was India), প্রগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৫
চক্রবর্তী রণবীর, ভারত ইতিহাসের আদি পর্ব, কলকাতা, ২০০৭
হাবিব ইরফান, ভারতবর্ষের সাধারণ মানুষের ইতিহাস
প্রথম খন্ড – প্রাক-ইতিহাস, (Pre-history) এন বি এ, কলকাতা, ২০০২
দ্বিতীয় খন্ড: সিন্ধু সভ্যতা, (The Indus Civilisation) এন বি এ, কলকাতা, ২০০২
তৃতীয় খন্ড – বৈদিক সভ্যতা, (The Vedic Age) এন বি এ, কলকাতা, ২০০২
ঝা ডি এন, আদি ভারত – একটি সংক্ষিপ্ত ইতিহাস, (Ancient India: An Introduction), প্রগ্রেসিভ পাবলিশার্স, কলকাতা
কোশাম্বী ডি ডি, ভারত ইতিহাস চর্চার ভূমিকা (An Introduction to the Study of Indian History) বাগচি কে পি এন্ড কোং, কলকাতা, ২০০২
রত্নাগর শিরিণ, হরপ্পা সভ্যতার সন্ধানে (Understanding Harappa) এন বি এ, কলকাতা, ২০০৩
রায়চৌধুরী হেমচন্দ্র, প্রাচীন ভারতের রাজনৈতিক ইতিহাস, (Political History of Ancient India), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা
থাপার রোমিলা, ভারতবর্ষের ইতিহাস, ওরিয়েন্ট লংম্যান, কলকাতা
ভট্টাচার্য নরেন্দ্রনাথ, প্রাচীন ভারতে ধর্ম, কলকাতা, ১৯৮৮
ভট্টাচার্য নরেন্দ্রনাথ, প্রাচীন ভারতীয় সমাজ, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা
ভট্টাচার্য সুকুমারী, ইতিহাসের আলোকে বৈদিক সাহিত্য, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা
ভট্টাচার্য সুকুমারী, প্রাচীন ভারত- সমাজ ও সাহিত্য, আনন্দ পাবলিশার্স, কলকাতা
চক্রবর্তী দিলীপ কুমার - ভারতবর্ষের প্রাক্ ইতিহাস আনন্দ পাবলিশার্স, কলকাতা, ১৯৯৯
গঙ্গোপাধ্যায় দিলীপ কুমার - ভারত ইতিহাসের সন্ধানে, (২ খন্ডে), ২০০৭
চক্রবর্তী রণবীর, প্রাচীন ভারতের অর্থনৈতিক ইতিহাসের সন্ধানে, আনন্দ পাবলিশার্স, কলকাতা ২০০২ (সংশোধিত সংস্করণ)
চানানা দেবরাজ, প্রাচীন ভারতে দাস প্রথা, (Slavery in Ancient India as depicted in Pali and Sanskrit Texts), কে পি বাগচি এন্ড কোং, কলকাতা ১৯৯৫
রায় নীহাররঞ্জন, বাঙালির ইতিহাস, কলকাতা, ১৯৮০(দ্বিতীয় সংস্করণ)
শর্মা রামশরণ, প্রাচীন ভারতে বস্তুগত সংস্কৃতি ও সমাজ সংগঠন, (Material Cultures and Social Formations in Ancient India), ওরিয়েন্ট লংম্যান, ১৯৯৮
শর্মা রামশরণ, আদি মধ্যযুগের ভারতীয় সমাজ : সমস্ত-প্রক্রিয়া বিষয়ে এক সমীক্ষা (Early Medieval Indian Society : A Study in Feudalism) ওরিয়েন্ট লংম্যান, ২০০৩
শর্মা রামশরণ, ভারতের সমাজতন্ত্র, (Indian Feudalism), কে পি বাগচি এন্ড কোং, কলকাতা
শর্মা রামশরণ, আর্যদের অনুসন্ধান, (Looking for the Aryans), প্রগ্রেসিভ পাবলিশার্স, কলকাতা
শর্মা রামশরণ, আর্যদের ভারতে আগমন, (Advent of the Aryans), ওরিয়েন্ট লংম্যান, ২০০১
শর্মা রামশরণ, প্রাচীন ভারতে শূদ্র, (Sudras in Ancient India), কে পি বাগচি এন্ড কোং, কলকাতা
থাপার রোমিলা, অশোক ও মৌর্যদের পতন, (Asoka and the Decline of the Mauryas), কে পি বাগচি এন্ড কোং, কলকাতা

চট্টোপাধ্যায় সুনীল, প্রাচীন ভারতের ইতিহাস (১ম খন্ড), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, একাদশ মুদ্রণ, এপ্রিল ২০০৪
চট্টোপাধ্যায় সুনীল, প্রাচীন ভারতের ইতিহাস (২য় খন্ড), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ৮ম মুদ্রণ, ফেব্রুয়ারি ২০০৪
মুখোপাধ্যায় হীরেন্দ্রনাথ, ভারতবর্ষের ইতিহাস (১ম খন্ড) (প্রাচীন ও মধ্যযুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, প্রথম মুদ্রণ নভেম্বর ১৯৯৭

HIS- H CC -2 : Social Formations and Cultural Patterns of the Ancient World other than India

Learning Objectives:

This course aims to introduce the students to the significant developments in world history that have shaped the complexity of human existence. To begin with it offers a historical survey of human evolution. It details the transition from hunting gathering subsistence pattern to more advanced adaptations to a sedentary farming economy. The course content is premised on the understanding that the pace and nature of change differed in different parts of the ancient world.

I. Evolution of human kind: Paleolithic and Mesolithic cultures – Role of social Institutions in the development of early societies.

II. Food production: Debate on the origins of food production, Neolithic cultures in West Asia and Europe

III. Bronze Age civilizations, Egypt (Old Kingdom); economy, social stratification, state structure, religion architecture.

IV. Nomadic groups- Debate on the advent of iron and its implications in Central and West Asia.

V. Ancient Rome: Polity and society- slavery, agrarian economy, urbanization, & trade.

VI. Polis in ancient Greece: Athens and Sparta - Polity and society- Slavery, Athenian democracy, Greek culture- Sophists, Drama - Tragedy and Comedy, Art and architecture.

Essential Readings

Rakesh Kumar, Ancient and Medieval World From Evolution of Humans to the Crisis of Feudalism, Sage Texts, 2018
Farooqui Amar, Early Social Formations. Manak Publications Pvt. Ltd. 2002
B.Fagan, People of the Earth. : an introduction to world prehistory
New York, NY HarperCollins College Publishers 1977
B.Trigger, Ancient Egypt : A Social History. Cambridge University Press, 1983
Bai Shaoyi, An Outline History of China. Beijing : Foreign Languages Press, 1982.
Burns and Ralph, World Civilisations.
Cambridge History of Africa, Vol.I. Cambridge University Press ,1982
G.Clark, World Prehistory: A New Perspective Cambridge University Press, 1977.
Yuval Noah Harari , Sapiens A Brief History of Humankind, Vintage,2015
Norman Davies, Europe A History , Oxford 1996
Jacquetta Hawkes, First Civilisations. life in Mesopotamia, the Indus Valley and Egypt.
The history of human society. New York: Knopf, 1973.
M.I.Finley, The Ancient Economy. University of California Press 1999.
R.J.Wenke, Patterns in Prehistory Oxford University Press, USA; 5th edition 2006
UNESCO Series: History of Mankind, Vols. I –III/ or New ed. History of Humanity.1963
V.Gordon Childe, What happened in History. Peregrine Books 1985

Suggested Readings

A.Hauser, A Social History of Art, Vol I. Routledge, 1999.
Glyn Daniel, First Civilisations. New. York: Thomas Y. Crowell (Apollo. Editions), 1968
J.D. Bernal, Science in History, Vol.I. Cambridge: The MIT Press, Massachusetts Institute of Technology, 1971
Salia Ikram, Death & Burial in Ancient Egypt (American University in Cairo Press, 2015)
V.Gordon Childe, Social Evolution.
Martin Bernal, Black Athena; the Afro Asiatic Roots of Classical Civilization Brunswick: Rutgers University Press, 1991.
গর্ডন চাইল্ড, সোশ্যাল ইভলিউশন, অসিত চৌধুরী (ভাষান্তর), দীপায়ন, কলকাতা, ১৪০৫ বঙ্গাব্দ
গর্ডন চাইল্ড, ম্যান মেক্স হিমসেলফ, মগন দাস (ভাষান্তর), দীপায়ন, কলকাতা, ১৯৯৯
গর্ডন চাইল্ড,হোয়াট হ্যাপেনড ইন হিস্ট্রি, দীপায়ন, কলকাতা
জন ডেসমন্ড বার্নাল, ইতিহাসে বিজ্ঞান, আনন্দ, কলকাতা
কুণাল চট্টোপাধ্যায় ও সুজাত ভদ্র, প্রাচীন গ্রীসের সমাজ ও স্নগস্কৃতি, প্রগ্রেসিভ, কলকাতা

HIS- H CC-3 : History of India C 300 BCE to C 750 CE

Learning Objectives:

This paper focusses on the formation of polity, society, economy and religion of ancient India tracing the growth of empires from the Mauryas, to the Kushanas, the Satavahanas the Guptas, and also the post- Gupta polities such as the Pallavas, Chalukyas, and Vardhanas.

I. Economy and Society (circa 300 BCE to circa CE 300)

a)Expansion of agrarian economy : production relations
b) Urban growth: north India, central India and the Deccan; craft Production: trade and trade routes; coinage
c)Social stratification: class, Varna, Jati, untouchability; gender; marriage and property relations.

II. Changing political formations (circa 300 BCE to circa CE 300) :

a)The Mauryan Empire
b)Post-Mauryan Poliities with special reference to the Kushanas and the Satavahanas; Gana-Sanghas

III. Towards early medieval India (circa CE fourth century to CE 750):

a) Agrarian expansion: land grants, changing production relations; graded land rights and peasantry.
b)The problem of urban decline: patterns of trade, currency, and urban settlements.
c)Varna, proliferation of Jatis: changing norms of marriage and property
d) The nature of polities: the Gupta empire and its contemporaries: post-Gupta polities- Pallavas, Chalukyas, and Vardhanas.

IV. Religion, philosophy and society (circa 300 BCE – CE 750)

a)Consolidation of the Brahmanical tradition : dharma, Varnashram, Purushastras, Samskaras.
b)Theistic cults (from circa second century BC): Mahayana; the Puranic tradition.
c) The beginnings of Tantricism.

V. Cultural developments (circa 300 BCE to circa CE 750):

a)A brief survey of Sanskrit, Pali, Prakrit and Tamil literature. Scientific and technical treatises.
b)Art and architecture and forms and patronage; Mauryan , Post-Mauryan, Gupta , Post-Gupta

Essential Readings

Chattopadhyaya B.D, The making of early Medieval India, 1994.
Chattopadhyaya B.D, Bharatvarsha and other Essays, Permanent Black, Delhi, 2017.
Chattopadhyaya D.P, History of Science and Technology in Ancient India, 1986.
Chakravarti Ranabir, Exploring Early India upto AD 1300, Primus, Delhi, 2016.
Huntington Susan, The Art of Ancient India: Buddhist, Hindu, and Jain, New York, 1985.
Kosambi D.D, An Introduction to the Study of Indian History, 1975.
Maity S.K, Economic Life in Northern India in the Gupta Period, 1970.
Sahu B.P (ed.), Land System and Rural Society in Early India, 1997.
Sastri K.A.N, A History of South India.
Sharma R.S, Indian Feudalism, 1980.
Sharma R.S, Urban Decay in India, c.300- c1000, Delhi, Munshiram Manohar Lal, 1987
Singh Upinder, A history of Ancient and early Medieval India, 2008.
Thapar Romila, Asoka and the Decline of the Mauryas, 1997

Suggested Readings

Agarwal Asvini, The Rise and Fall of the Imperial Guptas, New Delhi,1988.
Bhattacharya N.N, Ancient Indian Rituals ad Their Social Contents, 2nd ed., 1996.
Bhattacharya N.N, History of Tantric Religion, 1982
Chakravarti Uma, The Social Dimensions of Buddhism. New Delhi: Oxford University Press, 1987.
Chakravarti Uma, Trade and Traders in Early Indian Society, New Delhi, 2007 (revised edition)
Champakalakshmi R, Trade, Ideology and Urbanization: South India: 300BC to AD 1300, Delhi, 1996.
Chanana D., Slavery in Ancient India as Depicted in Pali and Sanskrit Texts, Delhi, 1960.
Gupta P.L, Coins, 4th ed., 1996.
Harle J.C, The Art and Architecture of the Indian Subcontinent, 1987.
Lahiri Nayanjot, Ashoka in Ancient India, 2015
Majumdar R.C and Altekar A.S eds. The Vakataka Gupta Age, Varanasi, 1955.
Mukherjee B.N, Kushana Studies, New Perspectives, Kolkata, 2004
Mukherjee B.N, The Character of the Maurya Empire, Kolkata, 2000
Mukherjee B.N, The Rise and Fall of the Kushana Empire, Calcutta, 1989.
Pollock Sheldon, The Language of the Gods in the World of Men. Sanskrit, Culture and Power in Pre-modern India. New Delhi, 2006.
Ray H.P, Winds of Change, 1994.
Ray Nihar Ranjan, Maurya and Post Maurya Art, New Delhi, 1975.
Sharma R.S, Perspectives in the Social and Economic History of Early India, New Delhi, 1983.
Shastri A.M ed. The Age of the Vakatakas, Delhi, 1992.
Singh Upinder, A History of Ancient and Early Medieval India. Delhi, 2008.
Smith Bardwell ed., Essays in Gupta Culture, New Delhi, 1983.
Thapar Romila, Asoka and the Decline of the Mauryas, New Delhi, 2000
Thapar Romila, Early India: From the origins to 1300, London, 2002
Thapar Romila, The Mauryas Revisited, Calcutta,1987.

Veluthat Kesavan, The Early Medieval in South India, New Delhi, 2009

রোমিলা থাপার, অশোক ও মৌর্যদের পতন, (Asoka and the Decline of the Mauryas), কে পি বাগচি এন্ড কোং, কলকাতা
সুনীল চট্টোপাধ্যায়, প্রাচীন ভারতের ইতিহাস (১ম খন্ড), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, একাদশ মুদ্রণ, এপ্রিল ২০০৪
সুনীল চট্টোপাধ্যায়, প্রাচীন ভারতের ইতিহাস (২য় খন্ড), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ৮ম মুদ্রণ, ফেব্রুয়ারি ২০০৪
হীরেন্দ্রনাথ মুখোপাধ্যায়, ভারতবর্ষের ইতিহাস (১ম খন্ড) (প্রাচীন ও মধ্যযুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, প্রথম মুদ্রণ নভেম্বর ১৯৯৭

HIS- H -CC-4 : Social Formations and Cultural Patterns of the Medieval World other than India

Learning Objectives: This course seeks to understand the transition of Ancient Europe into the medieval world. It therefore looks at the crisis caused by the decline of Roman Empire, the rise of religious organizations such as the Church and Monastery, the Carolingian and 12th century renaissance, and the rise of Universities and Towns. It addresses the ushering of Feudalism and its breakdown and finally deals with the crisis of Judaism and Christianity facing the advent of Islam and the counter attack, Crusades.

I. Crisis of the Roman Empire and its principal causes: Historiography

II. Religion in Medieval Europe: Religious organizations (Church and Monastery), Struggle between the Empire and Papacy.

III. Culture in Medieval Europe: Carolingian renaissance 12th century renaissance, Rise of University, Medieval art and architecture.

IV. Society in Medieval Europe: Feudal society its origins, Manorialism, Growth of towns.

V. Origins of the crisis of Feudalism: historiography.

VI. Judaism and Christianity under Islam
Crusades

Essential Reading:

1. Baker, Simon, Ancient Rome The Rise and Fall of an Empire, Ebury Publishing, 2006.
2. Bloch, Marc, Feudal Society (2 Vols), Aakar Books, Revised Edition, July, 2017.
3. Brundage (ed.), The Crusades, Marquette University Press, 1962.
4. Burke, Edmund, III & Ira M. Lapidus, Islam, Politics and Social Movements, University of California Press, 1988.
5. Chris Wickham,Medieval Europe, Yale University, 2016
6. Cohen, Mark, Under Crescent and Cross The Jews in the Middle Ages, Princeton University Press, 2008.

7. Deansley, Margaret, A History of Early Medieval Europe, 476 to 911, Methuen, 1956.
8. Dobb, Maurice Dobb, Studies in the Development of Capitalism, Routledge, First Edition, March, 1965.
9. Lewis, Bernard, The Arabs in History, Oxford University Press, 6th Edition, May 2002.
10. Lewis, Bernard, The Jews of Islam, 1984.
11. Man, John, The Mongol Empire, Penguin Random House, May 2015.
12. Maurice Keen, The Penguin History of Medieval Europe, 1991
13. Pirenne, Heim, Medieval Cities, Princeton University Press, 1969.
14. Smith, Leslie and Leyser, Conrad; Motherhood, Women and Society in Medieval Europe (400-1400), Ashgate Publishing Ltd, 2011.
15. Stuard, Susan Mosher (Ed.), Women in Medieval History and Historiography, University of Pennsylvania Press; New edition, December, 1988.

HIS- H CC 5 SEM-4: HISTORY OF INDIA (C.750 – 1206)

Learning Objectives: This course seeks to provide an understanding of early medieval India - its polity, economy, society, religion and culture.

I. Studying Early Medieval India:

Historical geography sources: texts, epigraphic and numismatic data. Debates on Indian Feudalism, rise of the Rajputs and the nature of the state.

II. Political Structures:

a) Evolution of political structures: Rashtrakutas, Palas, Pratiharas, Rajputs and Cholas.
b) Legitimization of kingship; Brahmanas and temples; royal genealogies and rituals
c) Arab conquest of Sindh : nature and impact of the new set-up; Ismaili Dawah
d) Cause and consequences of early Turkish invasions : Mamud of Ghazna; Shahab-ud-Din of Ghur.

III. Agrarian structure and social change:

a) Agricultural expansion; crops
b) Landlords and peasants
c) Proliferation of castes: status of untouchables
d) Tribes as peasants and their place in the Varna order

IV. Trade and Commerce

a) Inter-regional trade
b) Maritime trade
c) Forms of exchange
d)Process of urbanization

e)Merchant guilds of South India

V. Religious and Cultural developments:

a)Bhakti, Tantrism, Puranic traditions; Buddhism and Jainism; Popular religious cults.
b) Islamic intellectual traditions: Al-Beruni; Al-Hujwiri
c) Regional languages and literature
d)Art and architecture: Evolution of regional styles.

Essential Readings

Chattopadhyaya, B.D, The Making of Early Medieval India, 1994.
Karashima, N., South Indian History and Society (Studies from Inscriptions, AD 850 – 1800)
Kulke, Hermann, ed., The State in India (AD 1000 – AD 1700)
Sharma, R.S and Shrimali, K.M eds., Comprehensive History of India, Vol. IV (A & B)
Sharma, R.S. Indian Feudalism (circa 300 – 1200)
Singh,Vipul Interpreting Medieval India, Volume-I, Early Medieval, Delhi Sultanate and Regions (circa 750 – 1550), 2009.

Suggested Readings :

Basham, A.L., (ed.), A Cultural History of India
Basham, A.L., The Wonder that was India
Bose Mandakranta (ed.), Faces of Feminine in Ancient Medieval and Modern India, New York, 2000
Chakravarti Ranabir, Exploring Early India upto Circa AD 1300
Chakravarti, R(ed.), Trade in Early India, Delhi
Champalakshmi, R, Trade, Ideology and Urbanisation :South India 300 BC – AD 1300, Delhi, 1966
Chandra, S, History of Medieval India (800 -1700)
Chattopadhyay, B.D, Aspects of Rural settlements and Rural Society in Early Medieval India
Chattopadhyay, B.D, Science and Society in Ancient India, Calcutta, 1977
Chattopadhyay, B.D, Studying Early India: Arcchaeology, Texts and Historical Issues, New Delhi, 2003
Chaudhuri, K.N, Trade and Civilisation in the Indian Ocean : An Economic History from the Rise of Islam to 1750
Gopal Lalanji, The Economic Life of Northern India ,Varanasi, 1965
Habib, Irfan, Economic History of Medieval India: A Survey, New Delhi, 2001
Habib, Irfan, Medieval India: The Study of a Civilisation ,New Delhi, 2008
Habib, Md. And Nizami KA (eds), A Comprehensive History of India Vol. V
Habibullah, A.B.M, The Foundation of Muslim Rule in India
Jackson, Peter, The Delhi Sultanate: A Political & Military History, Cambridge, 1999
Jha D.N (ed), The Feudal Order, New Delhi, 2000
Kulke, H., The State in India (1000- 1700)
Majumdar R.C and Dasgupta K.K.(eds), A Comprehensive History of India Vol.Ill

Majumdar R.C. et al (eds), History and Culture of the Indian People Vol. IV and Vol. V
Meister M.M & Dhaky MA, Indian Temple Architecture, Delhi, 1983
Mukherjee B.N, Post-Gupta Coinages of Bengal, Calcutta, 1989
Mukhia, H., The Feudalism Debate
Rakaswami Vijaya, Walking Naked: Women,Society, Spirituality in South India (Simla, 1997)
Ray H.C, Dynastic History of Northern India (New Delhi, 1973)
Ray Nihar Ranjan et al ed., A Source Book of Indian Civilisation (Kolkata, 2000)
Rizvi, S.A.A, The Wonder that was India, Vol. II
Roy Kumkum (ed), Women in Early Indian Societies (New Delhi, 1999)
Sastri , K.A. Nilkanta, A History of South India from Prehistoric Times to the Fall of Vijaynagar,
Sastri K.A. Nilkantha, The Cholas (Madras, 1975 [reprint])
Sastri, K.A. Nilkanta (ed), A Comprehensive History of India Vol. II
Sharma R.S, Early Medieval Indian Society: A Study in Feudalisation, Delhi, 2001.
Sharma R.S, Indian Feudalism, University of Calcutta, 1965.
Sharma R.S, Perspectives in the Social and Economic History of Early India, New Delhi, 1983.
Sharma, R.S, Early Medieval Indian Society: A Study in Feudalisation (Delhi, 2001)
Sharma, R.S, Indian Feudalism
Singh Upinder ed., Rethinking Early Medieval India : A Reader, 2011
Singh Upinder, A History of Ancient and Early Medieval India. Delhi, 2008.
Thapar Romila, Early India: From the Origins to AD 1300, London, 2002
Thapar, R; Early India
Veluthat, K; The Political Structure of Early Medieval South India
India and the Expansion of Islam 7-11 century, 1990
Yadava, B.N.S, Society & Culture in North India in the 12th century
Yazdani, G., (ed), The Early History of the Deccan

বাশাম এ এল, অতীতের উজ্জ্বল ভারত, (The Wonder That Was India), প্রগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৫
মুখোপাধ্যায় হীরেন্দ্রনাথ, ভারতবর্ষের ইতিহাস (১ম খন্ড) (প্রাচীন ও মধ্যযুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, প্রথম মুদ্রণ নভেম্বর ১৯৯৭
ভট্টাচার্য, নরেন্দ্রনাথ, ধর্ম ও সংস্কৃতিক: প্রাচীন ভারতীয় প্রেক্ষাপট
চক্রবর্তী রণবীর, প্রাচীন ভারতের অর্থনৈতিক ইতিহাসের সন্ধানে, আনন্দ পাবলিশার্স, কলকাতা ২০০২
চক্রবর্তী রণবীর, ভারত ইতিহাসের আদি পর্ব, ওরিয়েন্ট লংম্যান, কলকাতা, ২০০৭
সেন সমরেন্দ্রনাথ, বিজ্ঞানের ইতিহাস, শৈব্যা প্রকাশন, ১৯৯৬
শর্মা রামশরণ, ভারতের সামন্ততন্ত্র, (Indian Feudalism), কে পি বাগচি এন্ড কোং, কলকাতা
শর্মা রামশরণ, আদি মধ্যযুগের ভারতীয় সমাজ: সামন্ত-প্রক্রিয়া বিষয়ে এক সমীক্ষা (Early Medieval Indian Society: A Study in Feudalisation), ওরিয়েন্ট লংম্যান, ২০০৩

HIS- H CC- 6 SEM-4: HISTORY OF EUROPE (C.1453-1650)

Learning Objectives: This paper explains the transition of Europe from feudalism to capitalism, illustrating the various forces that saw the culmination of this process. It thus includes geographical discoveries, Renaissance, Reformation, economic developments and finally the emergence of the national monarchies.

Module 1
1.1 Transition Debate : transition from feudalism to capitalism, problems and theories.

Module II
2.1 The exploration of the new world: motives
2.2 Portugese and Spanish voyages.

Module III
3.1 Renaissance : its social roots
3.2 Renaissance humanism
3.3 Rediscovery of classics
3.4 Italian renaissance and its impact on art, culture, education and political thought.
3.5 Its spread in Europe

Module IV
4.1 Reformation movements: Origins & courses
4.2 Martin Luther & Lutheranism
4.3 John Calvin & Calvinism
4.4 Radical reformation: Anabaptists and Huguenots
4.5 English reformation and the role of the state
4.6 Counter Reformation

Module V
5.1 Economic developments
5.2 Shift of economic balance from the Mediterranean to the Atlantic
5.3 Commercial Revolution
5.4 Price Revolution
5.5 Agricultural Revolution and the Enclosure Movement

Module VI
6.1 Development of national monarchy
6.2 Emergence of European state system

Essential Readings
Butterfield H., The Origins of Modern Science. The Macmillan Company. 1959

Cipolla Carlo M., Fontana Economic History of Europe, Vols. II and III Collins/ Fontana Books; 1978
Cipolla Carlo M., Before the Industrial Revolution, European Society and Economy, 1000-1700, W. W. Norton & Company; 3rd edition 1994
Coleman D.C (ed.), Revisions in Mercantilism Methuen & Co, 1969.
Davis Ralph, The Rise of the Atlantic Economics. Cornell University Press, 1973
Dobb Maurice, Studies in the Development of Capitalism, International Publishers, 1947
Parker G., Europe in Crisis, 1598-1648 Ithaca, N.Y. : Cornell University Press. 1980
Parry, J.H., The Age of Reconnaissance University of California Press, 1981
Phukan Meenaxi, Rise of the Modern West: Social and Economic History of Early Modern Europe. Laxmi Publications 2013
Poliensky.V, war and Society in Europe, 1618-48 Cambridge University Press, 2008
Rabb Theodore K., The Struggle for Stability in Early Modern Europe. Oxford University Press, 1975
Scammell V., The First Imperial Age: European Overseas expansion, 1400-1715. Routledge, 2003
Vries Jan de, Economy of Europe in an Age of Crisis 1600-1750. New York: Cambridge University Press, 1976

Suggested Readings :

Anderson M.S, Europe in the Eighteenth Century Holt, Rinehart and Winston, 1961
Anderson, Perry, The lineages of the Absolutist States. Verso, 1979
Arvind Sinha, Europe in transition: From Feudalism to industrialization.Manohar,2019.

Aston, T.H and Philipin C.H.E (eds.), The Brenner Debate: Agrarian Class Structure and Economic Development in Pre-Industrial Europe, Cambridge University Press, 2005.
Bernal J.D, Science in History Cambridge: The MIT Press, 1954
Burke, Peter, The Renaissance . Humanities Press International, 1987
Camerson, Euan (ed.), Early Modern Europe: An Oxford History, Oxford University Press 2001.
Dunn Rechard S., The Age of Religious Wars, 1559-1715, W.W.Norton & Company, 2004
Elton, G.R., Reformation Europe, 1517-1559 Wiley, 1999
Gilmore, M.P., The World of Humanism, 1453-1517 New York, Harper 1952
Hall, R., From Galileo to Newton Courier Corporation, 1981
Hill, Christopher, A century of Revolutions. Psychology Press, 2002
Hilton, Rodney, Transition from feudalism to Capitalism, Aakar Books, 2006
Koenigsberger, H.G and Mosse, G.L., Europe in the Sixteenth Century. Longmans, 1961

Lee, Stephen J., Aspects of European History, 1494-1789 Routledge, 1982
Parker, G. and Smith, L.M., General Crisis of the Seventeenth Century. Boston : Routledge & Kegan Paul, 1978.
Pennington, D.H., Seventeenth Century Europe. Longman, 1972

Rabb, Theodore K., The Struggle for Stability in Early Modern Europe. Oxford University Press, 1975
Rohit Majumdar, History of Europe: From Renaissance to the end of cold war.Sage,2020
Rice, Eugene F. and Grafton, Anthony, The Foundations of Early Modern Europe, 1460-1559, W.W.Norton & Company, 2004.
The Cambridge Economic History of Europe, Vol.I, IV Cambridge University Press 1944
The New Cambridge Economic History of Europe, Vol.VII. Part I 1978

ত্রিপাঠী অমলেশ, ইতালির রেনেসাঁস বাঙালির সংস্কৃতি, আনন্দ পাবলিশার্স, কলকাতা ১৯৯৪
দাশগুপ্ত অশীন, ভারত মহাসাগরে বাণিজ্য ও রাজনীতি ১৫০০-১৮০০, আনন্দ পাবলিশার্স, কলকাতা, ১৯৯৯
বার্নাল জে ডি, ইতিহাসে বিজ্ঞান, (Science in History), আনন্দ পাবলিশার্স, কলকাতা, ২০০৫
সেন সমরেন্দ্র, বিজ্ঞানের ইতিহাস, শৈব্যা প্রকাশন, কলকাতা, ১৯৯৬
ভট্টাচার্য স্নেহাদ্রি, ইংলন্ডের ইতিহাস (টিউডর যুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা, ১৯৯৫
চক্রবর্তী ভাস্কর, চক্রবর্তী সুভাষ রঞ্জন এবং চট্টোপাধ্যায় কিংশুক, ইউরোপে যুগান্তর, নবভারতী প্রকাশনী, কলকাতা, ২০০৫
মুখার্জী রীলা, রূপান্তরিত ইউরোপ(৯০০ – ১৮০০), প্রগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৪

HIS- H CC-7 : HISTORY OF INDIA (c.1206-1526)

Learning Objectives : This paper focusses on the polity , society and economy , culture and religion of the Delhi Sultanate.

I. Interpreting the Delhi Sultanate:
Survey of sources: Persian tarikh tradition; vernacular histories; epigraphy

II. Sultanate Political Structures:
a. Foundation, expansion and consolidation of the Sultanate of Delhi; the Khaljis and the Tughluqs; Mongol threat and Timur's invasion; Rise and fall of Syed dynasty; The Lodis; Conquest of Bahlul and Sikandar; Ibrahim Lodi and the battle of Panipat;
b. Theories of Kingship; Ruling elites; Sufis, Ulama and the political authority; imperial monuments and coinage
c. Emergence of provincial dynasties: Bahamanis, Vijayanagar, Gujarat, Malwa, Jaunpur and Bengal
d. Consolidation of regional identities: regional art, architecture and literature

III. Society and Economy:
a. Iqta and the revenue-free grants

b. Agriculture production; technology
c. Changes in rural society; revenue systems
d. Monetization; market regulations; growth of urban centres; trade and commerce; Indian Ocean trade

IV. Religion and Culture:

a. Sufi silsilas: Chishtis and Suhrawardis; doctrines and practices; social roles.
b. Bhakti movements and monotheistic traditions in South and North India; Women Bhaktas;
Nathpanthis; Kabir, Nanak and the Sant tradition
c. Sufi literature; Malfuzat; Premakhayans
d. Architecture of the Delhi Sultanate

ESSENTIAL READINGS:

Asher, Catherine and Talbot Cynthia, India before Europe, Cambridge University Press, March 2006.
Chandra Satish, Medieval India I, Har Anand Publication, New Delhi, July 2007.
Habib Mohammad and Nizami K.A., eds, Comprehensive History of India, Vol. V, The Delhi Sultanate, People's Publishing House, 2nd Edition, 1992.
Hasan Mohibul, Historians of Medieval India, Meenakshi Prakashan, 1968.
Jackson Peter, The Delhi Sultanate, Cambridge University Press, Revised Edition, 2003.
Schomer, Karine, and McLeod W.H., (Eds), The Sants Studies in A Devotional Tradition of India, Motilal Banarsidas, Delhi, 1987.
Nizami K.A., Some Aspects of Religion and Politics in India During the 13th Century, Aligarh, 1961.
Raychaudhuri Tapan and Habib Irfan, (Eds), Cambridge Economic History of India, Vol. I: c. 1200 – c. 1750, Cambridge University Press, Cambridge, 1982, 1987 (reprint).
Rizvi S.A.A., A History of Sufism in India, Vol. I, Munshiram Manoharlal, New Delhi, 1978.
□□□□□□□ □□□□□□ □□□□, □□□□□□□□□□□□□ □□□□□□ □ □□□□□□□□□, □□□□□ □□□□□□□□□□, □□□□□□□

Suggested Readings

Ashraf K.M, Life and Conditions of the People of Hindusthan (1250 – 1550), Gyan Publishing House, 2000.
Eaton, R.M, The Rise of Islam and the Bengal Frontier (1204- 1760), University of California Press, July 1996.
Habib, Irfan, Medieval India: The Study of a Civilization, National Book Trust, July 2008.
Karashima, Noboru, South Indian History and Society: studies from inscriptions, A.D. 850 - 1800, Oxford, 1984.
Karashima, Noboru, Towards a New Formation: South Indian Society under Vijayanagara, Oxford University Press, 1992.
Kumar Sunil, The Emergence of the Sultanate of Delhi, Permanent Black, Delhi, First edition, 2010.

Stein, Burton, Peasant State and Society in Medieval South India, Oxford University Press, Oxford, February 1995.
Sherwani, H.K., Joshi, P.M. (eds), The History of Medieval Deccan (1295 - 1724), Government of Andhra Pradesh, Hyderabad, 1973-74.
Singh,Vipul, Interpreting Medieval India, Volume-I, Early Medieval, Delhi Sultanate and Regions (circa 750 – 1550), Macmillan Publishers India Ltd, 2009.
Tripathi, R.P; Some Aspects of Muslim Administration, The Indian Press Ltd., 1936.
Wink, Andre, Al Hind; The Making of the Indo Islamic World, Volume I – Early Medieval, Brill Academic Publishers, 2nd Edition, 1991.

রায় মিহিরকুমার, ভারতের ইতিহাস (তুরক-আফগান যুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, দ্বিতীয় মুদ্রণ, ফেব্রুয়ারী ১৯৯২
হাবিব ইরফান, মধ্যযুগের ভারতের অর্থনৈতিক ইতিহাস, (Economic History of Medieval India: A Survey), প্রগ্রেসিভ পাবলিশার্স
হাবিব ইরফান, মধ্যকালীন ভারত ১-৪ খন্ড (Medieval India) কে পি বাগচি এন্ড কোং, কলকাতা
হাবিবুল্লাহ এ বি এম, ভারতে মুসলিম শাসনের প্রতিষ্ঠা ১২০৬-১২৯০, (The Foundation of Muslim Rule in India), প্রগ্রেসিভ পাবলিশার্স, কলকাতা
রায় অনিরুদ্ধ ও চট্টোপাধ্যায় রত্নাবলী, মধ্যযুগে বাংলার সমাজ ও সংস্কৃতি, কে পি বাগচি এন্ড কোং, কলকাতা ১৯৯২
রায় অনিরুদ্ধ, মধ্যযুগের ভারতের ইতিহাস : সুলতানি আমল, ওরিয়েন্ট লংম্যান, কলকাতা
করিম আব্দুল, বাংলার ইতিহাস : সুলতানি আমল, ঢাকা

HIS- H CC 8 SEM-4: HISTORY OF EUROPE–(C. 1650-1780)

Learning Objectives: This course looks at some of the major path breaking changes that took place around the mid 17th and late 18th century Europe such as the impact of the Print revolution, revolution in war techniques, Scientific Revolution, the growth of Mercantilism and its impact on the European economics, leading to a prelude to the industrial revolution, the growth of Parliamentary monarchy with patterns of absolutism that ushered in dramatic changes in the history of Europe.

Module 1
1.1 Printing Revolution.
1.2 Revolution in war techniques

Module II
2.1 Crisis in Europe in the 17th century
2.2 Its economic, social and political dimensions

Module III
3.1 The English Revolution : major issues
3.2 Political and intellectual issues

Module IV
4.1 Scientific Revolution
4.2 Emergence of scientific academies
4.3 Origins of Enlightenment

Module V
5.1 Mercantilism and European economics
5.2 Preludes to the Industrial Revolution

Module VI
6.1 European Politics in the 17th & 18th Century
6.2 Parliamentary monarchy
6.3 Patterns of Absolutism in Europe

Essential Readings
Butterfield H., The Origins of Modern Science. The Macmillan Company. 1959
Cipolla Carlo M., Fontana Economic History of Europe, Vols. II and III Collins/ Fontana Books; 1978
Cipolla Carlo M., Before the Industrial Revolution, European Society and Economy, 1000-1700, W. W. Norton & Company; 3rd edition 1994
Coleman D.C (ed.), Revisions in Mercantilism Methuen & Co, 1969.
Davis Ralph, The Rise of the Atlantic Economics. Cornell University Press, 1973
Dobb Maurice, Studies in the Development of Capitalism, International Publishers, 1947
Parker G., Europe in Crisis, 1598-1648 Ithaca, N.Y. : Cornell University Press. 1980
Parry, J.H., The Age of Reconnaissance University of California Press, 1981
Phukan Meenaxi, Rise of the Modern West: Social and Economic History of Early Modern Europe. Laxmi Publications 2013
Poliensky.V, war and Society in Europe, 1618-48 Cambridge University Press, 2008
Rabb Theodore K., The Struggle for Stability in Early Modern Europe. Oxford University Press, 1975
Scammell V., The First Imperial Age: European Overseas expansion, 1400-1715. Routledge, 2003
Vries Jan de, Economy of Europe in an Age of Crisis 1600-1750. New York: Cambridge University Press, 1976

Suggested Readings :
Anderson M.S, Europe in the Eighteenth Century Holt, Rinehart and Winston, 1961
Anderson, Perry, The lineages of the Absolutist States. Verso, 1979
Arvind Sinha,Europe in transition: From Feudalism to industrialization.Manohar,2019.
Aston, T.H and Philipin C.H.E (eds.), The Brenner Debate: Agrarian Class Structure and Economic Development in Pre-Industrial Europe, Cambridge University Press, 2005.
Bernal J.D, Science in History Cambridge: The MIT Press, 1954
Burke, Peter, The Renaissance . Humanities Press International, 1987

Camerson, Euan (ed.), Early Modern Europe: An Oxford History, Oxford University Press 2001.
Dunn Rechard S., The Age of Religious Wars, 1559-1715, W.W.Norton & Company, 2004
Elton, G.R., Reformation Europe, 1517-1559 Wiley, 1999
Gilmore, M.P., The World of Humanism, 1453-1517 New York, Harper 1952
Hall, R., From Galileo to Newton Courier Corporation, 1981
Hill, Christopher, A century of Revolutions. Psychology Press, 2002
Hilton, Rodney, Transition from feudalism to Capitalism, Aakar Books, 2006
Koenigsberger, H.G and Mosse, G.L., Europe in the Sixteenth Century. Longmans, 1961

Lee, Stephen J., Aspects of European History, 1494-1789 Routledge, 1982
Parker, G. and Smith, L.M., General Crisis of the Seventeenth Century. Boston : Routledge & Kegan Paul, 1978.
Pennington, D.H., Seventeenth Century Europe. Longman, 1972
Rabb, Theodore K., The Struggle for Stability in Early Modern Europe. Oxford University Press, 1975
Rohit Majumdar,History of Europe: From Renaissance to the end of cold war.Sage,2020
Rice, Eugene F. and Grafton, Anthony, The Foundations of Early Modern Europe, 1460-1559, W.W.Norton & Company, 2004.
The Cambridge Economic History of Europe, Vol.I, IV Cambridge University Press 1944
The New Cambridge Economic History of Europe, Vol.I, VII.

ত্রিপাঠী অমলেশ, ইতালির রেনেসাঁস বাঙালির সংস্কৃতি, আনন্দ পাবলিশার্স, কলকাতা ১৯৯৪
দাশগুপ্ত অশীন, ভারত মহাসাগরে বাণিজ্য ও রাজনীতি ১৫০০-১৮০০, আনন্দ পাবলিশার্স, কলকাতা, ১৯৯৯
বার্নাল জে ডি, ইতিহাসে বিজ্ঞান, (Science in History), আনন্দ পাবলিশার্স, কলকাতা, ২০০৫
সেন সমরেন্দ্র, বিজ্ঞানের ইতিহাস, শৈব্যা প্রকাশন, কলকাতা, ১৯৯৬
ভট্টাচার্য স্নেহাদ্রি, ইংলন্ডের ইতিহাস (টিউডর যুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা, ১৯৯৫
চক্রবর্তী ভাস্কর, চক্রবর্তী সুভাষ রঞ্জন এবং চট্টোপাধ্যায় কিংশুক, ইউরোপে যুগান্তর, নবভারতী প্রকাশনী, কলকাতা, ২০০৫
মুখার্জী রীলা, রূপান্তরিত ইউরোপ(৯০০ – ১৮০০), প্রগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৪চক্রবর্তী

HIS- H CC-9 : HISTORY OF INDIA (C.1526-1605)

Learning outcome: Students will be able to identify the major political developments in the history of India during the period between the sixteenth and the early seventeenth century. Outline the changes and continuities in the field of an eclectic political and religious ideology in connection with the bhakti movement and sufi movements, and also to delineate the development of trade and urban complexities of the aforesaid period.

UNIT I- Sources and the Historiography
I. Important sources of Mughal Indian History: Persian and vernacular

II. Different Interpretations of the Mughal state

UNIT II- Establishment of the Mughal rule
I. India on the Eve of Babur's Invasion

II. Mughal- Afghan contest for Supremacy-Sher Shah and his administrative and revenue reforms III. Re-establishment of Mughal Rule under Akbar

UNIT III-Consolidation of Mughal Rule under Akbar
I. Campaigns and conquests with special reference to Gujarat, Deccan and Bengal - Resistance of Hemu Vikramaditya, Rana Pratap, Rani Durgavati, Chand Bibi

II. Evolution of administrative institutions: Zabt, Mansab, Jagir, Madaad-i-Mash
III. Incorporation of the Rajputs, creation of the Mughal nobility and growth of a dynastic ideology

IV. Revolts and resistance, pressure from the Ulemas

UNIT IV- Society and Economy
I. Conditions of Agriculture and Industry-agricultural productions, zamindars, peasants, rural tensions, non-agricultural productions
II. Development of Trade and Commerce- patterns of internal commerce, trade routes, overseas trade.

UNIT V- Religion and Culture
I. Religious tolerance and principle of Suhl-i-Kul; Sufi mystical movement

II. Bhakti movement.

Suggested Readings

Essential Readings

Alam Muzaffar and Subramaniam Sanjay , eds., The Mughal state, 1526-1750
Ali Athar M., The Mughal Nobility under Aurangzeb
Chandra Satish, Essays on Medieval Indian History
Dasgupta Ashin, Indian Merchants and the Decline of Surat, 1700 – 1750
Gordon Stewart, The Marathas 1600 – 1818
Habib Irfan, Agrarian System of Mughal India, 1526 – 1701
Koch Ebba, Mughal Art and Imperial Ideology
Qanungo, K.R, Dara Shukoh
Richards, J.F, The Mughal Empire
Rizvi, S.A.A, Muslim Revivalist Movements in Northern India.

Suggested Readings

Alam, Muzaffar-The Crisis of Empire in Mughal North India: Awadh and Punjab-1707-1748.
Alavi,Seema (ed.),The Eighteenth Century in India
Ali, M. Athar, Mughal India: Studies in Polity, Ideas, society and Culture.
Arasaratnam S., Maritime India in the Seventeenth Century
Asher Catherine, Architecture of Mughal India
Bandyopadhya S, From Plassey to Partition
Barnett,R.B, North India between Empires: Awadh, the Mughals and the British.
Bashir, Ahmed, Akbar, the Mughal Emperor.
Bayly, Susan, Caste, Society and Politics in India from the 18th century to the modern age.
Bayly,C.A., Indian Society and the Making of the British Empire;
Beach Milo, Mughal and Rajpur Paintings
Bernier, F, Travels in Mughal India.
Chandra Satish, Parties and Politics at the Mughal Court
Chandra, Satish, A History of Medieval India (Part II)
Chandra, Satish, Historiography, Religion and State in Medieval India
Chandra, Satish, Mughal Religious Policies, the Rajputs and the Deccan.
Chandra, Satish, The 18th century in India: Its economy and the Role of the Marathas, the jats and the Sikhs and the Afghans and Supplement (K.P.Bagchi)
Chaudhuri, K.N.,Trade & Civilization: An Economic History from the Rise of Islam to 1750.
Eaton, R.M., The Rise of Islam and the Bengal Frontier 1204-1760;
Eaton, R.M., The Sufis of Bijapur
Fukuzawa,H., The Medieval Deccan: Peasants, Social systems and States 16th to 18th centuries.
Gordon S.,The Marathas 16oo-1818
Grewal J.S.,The Sikhs of the Punjab
Habib Irfan(ed.), Medieval India
Habib Irfan (ed), Resistance and Modernization under Haider Ali and Tipu Sultan
Hasan S., Nurul,Thoughts on Agrarian Relations in Mughal India
Hasan S.Nurul, Reliogn, State, and Society in Medieval India
Husain Iqbal, Ruhela Chieftancies in 18th Century India
Kulke, H.(ed.),The State in India 1000-1700.
Malik, Z.U, The Reign of Muhammad Shah
Marshall P J., (Edited) , The Eighteenth century in Indian history: Evolution or revolution
Marshall P J.,East Indian Fortunes: the British in Bengal in the 18th Cent,
Mukhia Harbans, The Mughals of India
Nizami K.A., (ed.) Politics and society during the early Medieval Period : The collected Works of Prof. Md. Habib (2 vols.)
Raychoudhuri T.K. & Habib I. (eds.)-The Cambridge Economic History of India Vol.l

Richards J.F.,The Mughal Empire
Richards, J.F, Mughal Administration in Golconda
Rizvi S.A.A., A History of Sufism in India
Rizvi S.A.A., The Wonder that was India (vol.2);
Sarkar, Sir J.N., History of Aurangzeb 5 vols.
Sarkar, Sir J.N.,The Fall of the Mughal Empire, 4 vols.
Siddiqi. N.A., Land Revenue Administration Under the Mughals (1700- 1750)
Stein, Burton, Eighteenth Century in India: Another view (Studies in History, No.I, 1989)
Stein, Burton, Peasant, State and Society in Medieval South India (Oxford University Press)
Streusand D.F., The Formation of the Mughal Empire
Tripathi R.P., Some Aspects of Muslim Administration
Tripathi R.P.,The Rise & Fall of the Mughal Empire
Wink, Andre, Land and Sovereignty in India: Agrarian society and politics under the eighteenth century Maratha Swarajya.
Arnisha Ashraf, Tarikh-e Aasham: Astudy of Ahom-Mughal Conflict in the 17th Century,in
Asiatic Society for Social Science Research,Vol.No. 2,Issue No.1 June 2020.
S.L. Baruah, A Comprehensive History of Assam, 1985
K.N.Chitnis, Socio- Economic History of Medieval India,2002
Rekha Pande, Religious Movements in Medieval India,2005
Meena Bhargava, Uunderstanding Mughal India .Orient Blackswan 2020

আলি এম আথার, আওরঙ্গজেবের সময়ে মুঘল অভিজাত শ্রেণী(The Mughal Nobility under Aurangzeb) কে পি বাগচি এন্ড কোং, কলকাতা
বন্দ্যোপাধ্যায় শেখর, অষ্টাদশ শতকের মুঘল সংকট ও আধুনিক ইতিহাস চিন্তা, কলকাতা,১৯৮৩
ভদ্র গৌতম, মুঘল যুগে কৃষি অর্থনীতি ও কৃষক বিদ্রোহ, সুবর্ণরেখা, কলকাতা, ১৯৮৩
চন্দ্র সতীশ, মুঘল দরবারে দল ও রাজনীতি, (Parties and politics at the Mughal Court 1707-1740) কে পি বাগচি এন্ড কোং, কলকাতা
চৌধুরী বিনয় ভূষণ ও অন্যান্যরা, বাংলার কৃষি সমাজের গঠন, কে পি বাগচি এন্ড কোং, কলকাতা
হাবিব ইরফান, মধ্যকালীন ভারত, খন্ড ১-৪, কে পি বাগচি এন্ড কোং, কলকাতা
হাবিব ইরফান, মুঘল সাম্রাজ্য ও তার পতন- একটি সমীক্ষা, পশ্চিমবঙ্গ ইতিহাস সংসদ,২০০০
হাবিব ইরফান, মুঘল ভারতের কৃষি ব্যবস্থা, (The Agrarian System of Mughal India(1556-1707)), কে পি বাগচি এন্ড কোং, কলকাতা
হাবিব ইরফান, মধ্যযুগের ভারতের অর্থনৈতিক ইতিহাস, (Economic History of Medieval India: A Survey), প্রগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৯
হাবিব ইরফান, ভারতের ইতিহাস প্রসঙ্গঃ মার্কসীয় চেতনার আলোকে(Essays in Indian History: Towards a Marxist Perception), ন্যাশনাল বুক এজেন্সি, কলকাতা, ১৯৯৯
রায় অনিরুদ্ধ, মধ্যযুগের ভারতের অর্থনৈতিক ইতিহাস, ১২০০-১৭৫৭, প্রগ্রেসিভ পাবলিশার্স, কলকাতা
রায় অনিরুদ্ধ, মুঘল যুগের অর্থনৈতিক ইতিহাস, কে পি বাগচি এন্ড কোং, কলকাতা

সরকার জগদীশ নারায়ণ, মুঘল অর্থনীতিঃ সংগঠন এবং কার্যক্রম, (Mughal Economy : Organisation and Working) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা ১৯৯১
সিদ্দিকী নোমান আহমেদ, মোঘল রাজত্বে ভুমিরাজস্ব পরিচালন ব্যবস্থা (১৭০০ – ১৭৫০)(Land Administration Under the Mughals (1700 -1750) পার্ল পাবলিশার্স, কলকাতা, ১৯৮০
মুখোপাধ্যায় হীরেন্দ্রনাথ, ভারতবর্ষের ইতিহাস (২য় খন্ড)
(মুঘল ও ব্রিটিশ ভারত,পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ,কলকাতা ১৯৯৮
চট্টোপাধ্যায় রত্নাবলী, মুঘল যুগের দরবারি চিত্রকলা, থীমা, কলকাতা

HIS- H CC10: HISTORY OF INDIA (1605-1750)

Learning outcome: Students will be able to identify the major political developments in the history of India during the period between the seventeenth and mid-eighteenth century. Outline the changes and continuities in the field of culture, especially with regard to art, architecture and literature and finally to delineate the developments in trade and urban complexes of the period under review.

UNIT I.Sources: Persian and vernacular literary cultures, histories, memoirs and travelogues

UNIT II. Political culture under Jahangir and Shahjahan

a) Extension of Mughal rule: changes in Mansab and Jagir systems;
b) Orthodoxy and syncretism-Naqshbandi sufis, Miyan Mir, Dara Sukoh

UNIT III-Aurangzeb, Shivaji and Other Powers

I. State and religion under Aurangzeb: policies regarding religious groups and institutions,

II. Conquests and limits of expansion; Resistance of Assam, Mewar and Marwar

II. Rise of Marathas under Shivaji ; Maratha administration, concept of Hindu Pad Padshahi

III. Beginning of crisis: agrarian and jagir crises; resistance of Sikhs, Jats and Bundelas
IV. Mughal decline: debates

UNIT IV- Society and Economy

I. Hindu and MuslimSociety: Caste and Occupational groups, Lifestyle, Education, Customs and Traditions
II. Condition of agriculture, crafts and industry; Monetary system
III. Development of Trade and Commerce: Indian Ocean trade network

UNIT V- Religion and Culture

I. Sikhism and other Sects in South India, Bengal and Kashmir

II. Development of Mughal Art, architecture, literature.

Suggested Readings

Essential Readings

Alam Muzaffar and Subramaniam Sanjay , eds., The Mughal state, 1526-1750
Ali Athar M., The Mughal Nobility under Aurangzeb
Chandra Satish, Essays on Medieval Indian History
Dasgupta Ashin, Indian Merchants and the Decline of Surat, 1700 – 1750
Gordon Stewart, The Marathas 1600 – 1818
Habib Irfan, Agrarian System of Mughal India, 1526 – 1701

Koch Ebba, Mughal Art and Imperial Ideology
Qanungo, K.R, Dara Shukoh
Richards, J.F, The Mughal Empire
Rizvi, S.A.A, Muslim Revivalist Movements in Northern India.

Suggested Readings

Alam, Muzaffar-The Crisis of Empire in Mughal North India: Awadh and Punjab-1707-1748.
Alavi,Seema (ed.),The Eighteenth Century in India
Ali, M. Athar, Mughal India: Studies in Polity, Ideas, society and Culture.
Arasaratnam S., Maritime India in the Seventeenth Century
Asher Catherine, Architecture of Mughal India
Bandyopadhya S, From Plassey to Partition
Barnett,R.B, North India between Empires: Awadh, the Mughals and the British.
Bashir, Ahmed, Akbar, the Mughal Emperor.
Bayly, Susan, Caste, Society and Politics in India from the 18th century to the modern age.
Bayly,C.A., Indian Society and the Making of the British Empire;
Beach Milo, Mughal and Rajpur Paintings
Bernier, F, Travels in Mughal India.
Chandra Satish, Parties and Politics at the Mughal Court
Chandra, Satish, A History of Medieval India (Part II)
Chandra, Satish, Historiography, Religion and State in Medieval India
Chandra, Satish, Mughal Religious Policies, the Rajputs and the Deccan.
Chandra, Satish, The 18th century in India: Its economy and the Role of the Marathas, the jats and the Sikhs and the Afghans and Supplement (K.P.Bagchi)
Chaudhuri, K.N.,Trade & Civilization: An Economic History from the Rise of Islam to 1750.
Eaton, R.M., The Rise of Islam and the Bengal Frontier 1204-1760;
Eaton, R.M., The Sufis of Bijapur
Fukuzawa,H., The Medieval Deccan: Peasants, Social systems and States 16th to 18th centuries.
Gordon S.,The Marathas 16oo-1818
Grewal J.S.,The Sikhs of the Punjab
Habib Irfan(ed.), Medieval India
Habib Irfan (ed), Resistance and Modernization under Haider Ali and Tipu Sultan
Hasan S., Nurul,Thoughts on Agrarian Relations in Mughal India
Hasan S.Nurul, Reliogn, State, and Society in Medieval India
Husain Iqbal, Ruhela Chieftancies in 18th Century India
Kulke, H.(ed.),The State in India 1000-1700.
Malik, Z.U, The Reign of Muhammad Shah
Marshall P J., (Edited) , The Eighteenth century in Indian history: Evolution or revolution

Marshall P J.,East Indian Fortunes: the British in Bengal in the 18th Cent,
Mukhia Harbans, The Mughals of India
Nizami K.A., (ed.) Politics and society during the early Medieval Period : The collected Works of Prof. Md. Habib (2 vols.)
Raychoudhuri T.K. & Habib I. (eds.)-The Cambridge Economic History of India Vol.l
Richards J.F.,The Mughal Empire
Richards, J.F, Mughal Administration in Golconda
Rizvi S.A.A., A History of Sufism in India
Rizvi S.A.A., The Wonder that was India (vol.2);
Sarkar, Sir J.N., History of Aurangzeb 5 vols.
Sarkar, Sir J.N.,The Fall of the Mughal Empire, 4 vols.
Siddiqi. N.A., Land Revenue Administration Under the Mughals (1700- 1750)
Stein, Burton, Eighteenth Century in India: Another view (Studies in History, No.I, 1989)
Stein, Burton, Peasant, State and Society in Medieval South India (Oxford University Press)
Streusand D.F., The Formation of the Mughal Empire
Tripathi R.P., Some Aspects of Muslim Administration
Tripathi R.P.,The Rise & Fall of the Mughal Empire
Wink, Andre, Land and Sovereignty in India: Agrarian society and politics under the eighteenth century Maratha Swarajya.
Arnisha Ashraf, Tarikh-e Aasham: Astudy of Ahom-Mughal Conflict in the 17th Century,in
Asiatic Society for Social Science Research,Vol.No. 2,Issue No.1 June 2020.
S.L. Baruah, A Comprehensive History of Assam, 1985
K.N.Chitnis, Socio- Economic History of Medieval India,2002
Rekha Pande, Religious Movements in Medieval India,2005

আলি এম আথার, আওরঙ্গজেবের সময়ে মুঘল অভিজাত শ্রেণী(The Mughal Nobility under Aurangzeb) কে পি বাগচি এন্ড কোং, কলকাতা
বন্দ্যোপাধ্যায় শেখর, অষ্টাদশ শতকের মুঘল সংকট ও আধুনিক ইতিহাস চিন্তা, কলকাতা,১৯৮৩
ভদ্র গৌতম, মুঘল যুগে কৃষি অর্থনীতি ও কৃষক বিদ্রোহ, সুবর্ণরেখা, কলকাতা, ১৯৮৩
চন্দ্র সতীশ, মুঘল দরবারে দল ও রাজনীতি, (Parties and politics at the Mughal Court 1707-1740) কে পি বাগচি এন্ড কোং, কলকাতা
চৌধুরী বিনয় ভূষণ ও অন্যান্যরা, বাংলার কৃষি সমাজের গঠন, কে পি বাগচি এন্ড কোং, কলকাতা
হাবিব ইরফান, মধ্যকালীন ভারত, খন্ড ১-৪, কে পি বাগচি এন্ড কোং, কলকাতা
হাবিব ইরফান, মুঘল সাম্রাজ্য ও তার পতন- একটি সমীক্ষা, পশ্চিমবঙ্গ ইতিহাস সংসদ,২০০০
হাবিব ইরফান, মুঘল ভারতের কৃষি ব্যবস্থা, (The Agrarian System of Mughal India(1556-1707)), কে পি বাগচি এন্ড কোং, কলকাতা
হাবিব ইরফান, মধ্যযুগের ভারতের অর্থনৈতিক ইতিহাস, (Economic History of Medieval India: A Survey), প্রগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৯
হাবিব ইরফান, ভারতের ইতিহাস প্রসঙ্গঃ মার্কসীয় চেতনার আলোকে(Essays in Indian History: Towards a Marxist Perception), ন্যাশনাল বুক এজেন্সি, কলকাতা, ১৯৯৯

রায় অনিরুদ্ধ, মধ্যযুগের ভারতের অর্থনৈতিক ইতিহাস, ১২০০-১৭৫৭, প্রগ্রেসিভ পাবলিশার্স, কলকাতা
রায় অনিরুদ্ধ, মুঘল যুগের অর্থনৈতিক ইতিহাস, কে পি বাগচি এন্ড কোং, কলকাতা
সরকার জগদীশ নারায়ণ, মুঘল অর্থনীতিঃ সংগঠন এবং কার্যক্রম, (Mughal Economy : Organisation and Working) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা ১৯৯১
সিদ্দিকী নোমান আহমেদ, মোঘল রাজত্বে ভুমিরাজস্ব পরিচালন ব্যবস্থা (১৭০০ – ১৭৫০)(Land Administration Under the Mughals (1700 -1750) পার্ল পাবলিশার্স, কলকাতা, ১৯৮০
মুখোপাধ্যায় হীরেন্দ্রনাথ, ভারতবর্ষের ইতিহাস (২য় খন্ড)
(মুঘল ও ব্রিটিশ ভারত,পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ,কলকাতা ১৯৯৮
চট্টোপাধ্যায় রত্নাবলী, মুঘল যুগের দরবারি চিত্রকলা, থীমা, কলকাতা

HIS- H CC- 11 SEM-5: HISTORY OF MODERN EUROPE (C.1780-1939)

Learning Objectives:

This paper studies the watersheds in European history beginning with the 1780s to the French revolution and its aftermath, the restoration of old hierarchies, the emergence of Capitalist industrialization and social and economic transformation in the late 18th century to 1914. It also looks at the varieties of Nationalism and the remaking of States in the 19th and 20th centuries leading to imperialism, war and crisis between c.1880 and 1918 and finally provides a picture of Europe between the two World Wars.

I. The French Revolution and its European repercussions:

a) Crisis of *ancien regime*
b) Intellectual currents
c) Social classes and emerging gender relations.
d) Phases of the French Revolution
e)Art and Culture of French Revolution
f)Napoleonic consolidation – reform and empire.

II. Restoration and Revolution: c.1815 - 1848

a) Forces of conservatism and restoration of old hierarchies.
b) Social, Political and intellectual currents.
c) Revolutionary and Radical movements, 1830 -1848

III. Capitalist Industrialization and Social and Economic Transformation (Late 18th century to AD 1914)

a) Process of capitalist development in industry and agriculture: case studies of Britain, France, the German States and Russia.
b) Evolution and Differentiation of social classes : Bourgeoisie, proletariat, Land Owning classes and peasantry.
c) Changing trends in demography and urban patterns

d)Family, gender and process of industrialization.

IV. Varieties of Nationalism and the Remaking of States in the 19th and 20th centuries.

a)Intellectual currents, popular movements and the formation of National identities in Germany, Italy, Ireland and the Balkans.
b) Specifications of economic development, political and administrative Reorganization – Italy; Germany.
c) Revolutions of 1905; the Bolshevik Revolution of 1917
d) Programme of Socialist Construction and the Soviet Union during the inter-war period 1918-39.

V. Imperialism, War and Crisis: c.1880 - 1918

a) Theories and mechanisms of imperialism;
b) Growth of Militarism;
c) Power blocks and alliances;
d) Expansion of European empires
e) War of 1914 - 1918

VI. Europe between Two World Wars:

a) Post War Europe: A Diplomatic History
b) The Great Depression
c) Rise of Fascism in Italy and Nazism in Germany
d) The Spanish Civil War
e) Policy of Appeasement and Russo German Non-Aggression Pact
f) Origins and Course of the Second World War

Essential Readings

Brennan Gerald, The Spanish Labyrinth: An Account of the Social and Political Background of the Civil War.
Cipolla C.M, Fontana Economic History of Europe, Volume III: The Industrial Revolution
Davies Norman, Europe
Evans J., The Foundations of a Modern State in 19th Century Europe
Hamerow T.S, Restoration, Revolution and Reaction : Economics and Politics in Germany [1815 – 1871]
Hobsbawn, E.J, The Age of Revolution
Hunt Lynn, Politics, Culture and Class in the French Revolution
Joll James, Europe Since 1870
Landes David; Prometheus Unbound
Lefebvre George, Coming of the French Revolution
Lichteim, A Short History of Socialism
Mathias Peter, First Industrial Revolution
Nove, Alec; An Economic History of the USSR

Porter Andrew, European Imperialism, 1876 – 1914
Wood Anthony, History of Europe, 1815 – 1960
Woolf Stuart, History of Italy, 1700 to 1860

Suggested Readings

Barraclough G., An Introduction to Contemporary History
Blanning, T.C.W, The French Revolution: Class War or Culture Clash
Braudel Fernand, History and the Social Science in M. Aymard and Mukhia H. ed., French Studies in History, Vol.I (1989)
Briggs Asa and Clavin Patricia, Modern Europe: 1789 – Present
Calleo D, German Problem Reconsidered
Carr E.H, International Relations between the Two World Wars
Carr E.H, The Bolshevik Revolution (Vol. I, II, III)
Cobban, Alfred, History of Modern France, Volume I – III
Dobb Maurice, Soviet Economic Development since 1917
Doyle, William, Origins of the French Revolution
Droz. Jacques, Europe Between Revolutions
Ellis G., The Napoleonic Empire
Evans, J., The Foundations of a Modern State in 19th Century Europe
Hamerow, T.S, Restoration, Revolution and Reaction : Economics and Politics in Germany (1815 – 1871)
Hanham H.J, Nineteenth Century Constitution, 1815-1914
Hobsbawm, E.J, Age of Capital
Hobsbawm, E.J, Age of Empire
Hobsbawm, E.J, Age of Revolution
Hobsbawm, E.J, Nation and Nationalism
Hufton, Olwen, Europe: Privilege and Protest
Jelavich Charles and Jelavich Barbara, Establishment of the Balkan National States, 1840 – 1920
Joll James, Europe Since 1870
Joll James, Origins of the First World War, 1989
Landes Jaon B., Women and the Public Sphere in the Age of the French Revolution
Lee Stephen J., Aspects of European History 1789 – 1980
Licas Colin, The French Revolution and the Making of Modern Political Culture
Lowenthal David, The Past is a Foreign Country
Lyon Martin, Napoleon Bonaparte & the Legacy of the French Revolution
Mansergh Nicholas, The Irish Question, 1840 – 1921
Morgan K.O, Oxford Illustrated History of Britain, Volume 3 (1789-1983)
Morgan R.P, German Social Democracy and the First International
Perrot M. and Duby G. [eds.], A History of Women in the West, Volumes 4 and 5
Renton Dave, Fascism: Theory and Practice
Riasanovsky N.V, A History of Russia
Robert J.M, Europe 1880 to 1985
Roth J.J (ed), World War I: A Turning Point in Modern History

Rude, George, Revolutionary Europe
Schamma Simon , Citizens: A chronicle of the French Revolution
Soboul Albert, History of the French Revolution (in two Volumes)
Stone Lawrence, History and the Social Sciences in the twentieth Century, The Past and the Present, 1981
Taylor A.J.P, Europe: Grandeur and Decline
Taylor A.J.P, The Course of German History
Taylor A.J.P, The Origin of the Second World War
Taylor, A.J.P, The Struggle for Mastery in Europe
Thompson Dorothy; Chartists: Popular Politics in the Industrial Revolution
Thompson, E.P, Making of the English Working Class
Thomson, David, Europe Since Napoleon
Vovelle Michael, Fall of the French Monarchy, 1984.
Watson H. Seton, The Russian Empire
Watson, Seton, The Russian Empire
Williams Raymond, Culture and Society

গৌতম চট্টোপাধ্যায় সম্পাদিত: দু'শো বছরের আলোকে, পশ্চিমবঙ্গ ইতিহাস সংসদ, ১৯৮৯
চক্রবর্তী সুভাষ রঞ্জন, ফরাসী বিপ্লব, পশ্চিমবঙ্গ পুস্তক পর্ষদ, কলকাতা
চক্রবর্তী সুভাষ রঞ্জন, ইউরোপের ইতিহাস, পশ্চিমবঙ্গ পুস্তক পর্ষদ, কলকাতা, ১৯৮৬
জ্যাকসন টি এ, ফরাসী বিপ্লব – দশ দিগন্ত, কে পি বাগচি এন্ড কোং, কলকাতা ২০০৪
টমসসন ডেভিড, বিশ্ব ইতিহাসের প্রেক্ষাপটে ইউরোপ, ১ম খন্ড (১৭৮৯-১৮৫০), ২য় খন্ড (১৮৫১-১৯১৪) প্রগ্রেসিভ পাবলিশার্স, কলকাতা ২০০২ ও ২০০৩
রায় সিদ্ধার্থ গুহ, আধুনিক ইউরোপঃ ফরাসী বিপ্লব থেকে দ্বিতীয় বিশ্বযুদ্ধ, প্রগতিশীল প্রকাশক, কলকাতা, ২০১৩
সুভাষ রঞ্জন, ফরাসী বিপ্লব, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ,
কলকাতা চক্রবর্তী সুভাষ রঞ্জন, ইউরোপের ইতিহাস, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা, ১৯৮৬

HIS - H CC 12 SEM -6: HISTORY OF INDIA (C.1750s– 1857)

Learning Objectives: This course would engage with the process of transformation of India during the eighteenth century into a colonial power. It would highlight British imperialist expansion in India, together with the setting up of an apparatus of governance of the British Raj, and its impact on the indigenous society and culture. The changes introduced in the rural economy and society, together with trade and industry would also be studied. Finally, the reactions and revolts against the colonial impositions would be addressed as well in this course.

I. India in the mid 18th Century; Society, Economy, Polity

II. Expansion and Consolidation of Colonial Power:
a) Mercantilism, foreign trade and early forms of exactions from Bengal
b) Dynamics of expansion, with special reference to Bengal, Mysore, Western India, Awadh, Punjab and Sindh.

III. Colonial State and Ideology:
a) Arms of the colonial state : army, police, law
b) Ideologies of the Raj and racial attitudes.
c) Education : indigenous and western.

IV. Rural Economy and Society:
a) Land revenue systems and forest policy
b) Commercialization and indebtedness
c) Rural society : change and continuity.
d) Famines
e)Pastoral economy and shifting cultivation.

V. Trade and Industry
a)De industrialization
b)Trade and fiscal policy
c) Drain of Wealth
d) Growth of modern industry

VI. Popular Resistance:
a) Santhal uprising (1855); b) Uprising of 1857

Essential Readings

Bayly C.A, Indian Society and the Making of the British Empire, New Cambridge History of India.
Bhattacharya, Sabyasachi.ed., Rethinking 1857, Delhi, Orient Longman, 2007
Chakravarty Suhash, The Raj Syndrome: A study in Imperial Perceptions, 1989
Chandra Bipan, Rise and Growth of Economic Nationalism in India
Choudhury, Sushil, Prelude to Empire Plassey Revolution of 1757, Delhi: Manohar, 2000
Cohn, B., Colonialism and its Forms of Knowledge, Princeton, New Jersey, Princeton University Press, 2001
Dirks, Nicholas B., Castes of Mind, Princeton, New Jersey, Princeton University Press, 1996
Ghosh Suresh Chandra, The History of Education in Modern India 1757-2012, Delhi, Orient Blackswan, 4th Edition, 2013
Grewal, J.S, The Sikhs of the Punjab, New Cambridge History of India
Guha Ranajit, ed., A Subaltern Studies Reader

Guha, Ranajit, Elementary Aspects of Peasant Insurgency in Colonial India, New Delhi, Oxford University Press, 1983
Kumar Dharma and Raychaudhuri Tapan, eds., The Cambridge Economic History of India, Vol.II
Majumdar, R.C,ed., History and Culture of Indian People, Vols. IX and X, British Paramountcy and Indian Renaissance.
Marshall, P.J, Bengal: The British Bridgehead, New Cambridge History of India
Metcalfe, Thomas, Ideologies of the Raj, Cambridge, Cambridge University Press, 1995
Ray, Rajat K., ed., Entrepreneurship and Industry in India, 1800-1947, Oxford In India Readings.
Sinha, N.K.ed, The history of Bengal 1757-1905, Calcutta, Calcutta University Press, 1967
Stokes, Eric, English Utilitarians and India
Stokes, Eric, The Peasant Armed: The Indian Rebellion of 1857, ed. Bayly, C.A, New Delhi, Oxford University Press, 1986

Suggested Readings

Arnold David and Guha Ramchandra , eds., Nature, Culture and Imperialism
Bagchi, Amiya, Private Investment in India
Chandra Bipan, Panikkar, K.K, Mukherjee Mridula, Mahajan Sucheta and Mukherjee Aditya, India's Struggles for Independence.
Dadabhai Naroji, Poverty and Un-British Rule in India.
Desai, A.R, Peasant Struggles in India
Dutt, R.P, India today
Fisher, M.J, ed., Politics of Annexation (Oxford in India Readings).
Guha Ranajit, Elementary Aspects of Peasant Insurgency in Colonial India(1983)
Krishnamurti, J., Women in Colonial India.

বন্দ্যোপাধ্যায় শেখর, অষ্টাদশ শতকের মুঘল সংকট ও আধুনিক ইতিহাস চিন্তা, কলকাতা,১৯৮৩
বন্দ্যোপাধ্যায় শেখর, পলাশী থেকে পার্টিশন: আধুনিক ভারতের ইতিহাস, ওরিয়েন্ট লংম্যান, ২০০৪
ভট্টাচার্য সব্যসাচী, ঔপনিবেশিক ভারতের অর্থনীতি, কলকাতা, ২০০০
সুনীল সেন, ভারতে কৃষিকার্য ১৭৯৩-১৯৪৭, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ১৯৮৫
চৌধুরী বিনয় ভূষণ, ঔপনিবেশিক আমলে বাংলার কৃষি ইতিহাস, কে পি বাগচি এন্ড কোং, কলকাতা
ইসলাম, সিরাজুল, বাংলার ইতিহাস ঔপনিবেশিক শাসনকাঠামো, চয়নিকা, ঢাকা, ২০০২
চক্রবর্তী মৃণাল, সিরাজ-উদ্-দৌলা, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ,কলকাতা, ১৯৮১
রায় রজতকান্ত, পলাশীর ষড়যন্ত্র ও সেকালের সমাজ, আনন্দ পাবলিশার্স, কলকাতা
চৌধুরী সুশীল, পলাশীর অজানা কাহিনী, আনন্দ পাবলিসার্স,কলকাতা

HIS - H CC 13 SEM-6: HISTORY OF INDIA (C. 1857 – 1964)

Learning Objectives: This course introduces the student to India's freedom struggle. Beginning with the cultural, social and religious reform movements that provided the ideological basis of the national movement, it moves on to the role of associations, the moderate and extremist politics, to the Gandhian movements - Rowlett Satyagraha and Jalianwala Bagh, Non-Cooperation, Civil Disobedience, Quit India and INA revolt. It deliberates on the ideologies and practices, of RSS , Hindu Maha Sabha, and the Muslim League. It also covers negotiations for independence and partition, popular movements, partition riots and finally the emergence of a New State, making of the Constitution, integration of princely states, Land reforms and beginnings of planning, during the Nehru years.

I. Cultural changes and Social and Religious Reform Movements:

a) Growth of a new intelligentsia – the Press and Public Opinion
b) Reform and Revival: Brahmo Samaj, Prarthana Samaj, and Ramakrishna and Vivekananda, Arya Samaj, Wahabi, Deoband, Aligarh and Singh Sabha Movements.
c)Debates around gender
d)Making of religious and linguistic identities
e)Caste : Sanskritising and anti Brahmanical trends

II. Nationalism : Trends up to 1919

a) Formation of early political organizations
b) Moderates and extremists
c) Swadeshi movement
d) Revolutionaries

III. Gandhian nationalism after 1919 : Ideas and Movements:

a) Mahatma Gandhi : his Perspectives and Methods
b) Impact of the First World War
ii) Rowlatt Satyagraha and Jalianwala Bagh
iii) Non-Cooperation and Civil Disobedience
iv) Provincial Autonomy, Quit India and INA
c) Left wing movements
d)Princely India : States people movements

IV. Nationalism and Social Groups: Interfaces:

a) Landlords, Professionals and Middle Classes
b) Peasants
c) Tribals
d) labours
e) Dalits
f) Women
g) Business groups

V.Communalism : Ideologies and practices, RSS , Hindu Maha Sabha, Muslim League

VI. Independence and Partition

a) Negotiations for independence and partition
b) Popular movements
c) Partition riots

VII. Emergence of a New State:

a) Making of the Constitution
b) Integration of princely states
c) Land reform and beginnings of planning
d) The Nehru years.

Essential Readings

Bandyopadhyay Sekhar, From Plassey to Partition and After
Brass Paul, The Politics of India since Independence, OUP, 1990
Brown Judith, Gandhi's rise to power, 1915-22
Brown Judith, Gandhi and Civil Disobedience
Brown Judith,Nehru : A political Life. New Delhi: Oxford University Press 2003
Chandra Bipan, et Al., India's Struggle for Independence
Chandra Bipan, et Al. India after Independence
Chandra Bipan, Communalism in Modern India (2nd Ed., 1987)
Chandra Bipan, Nationalism and Colonialism in Modern India (1979)
Chandra Bipan, Rise and Growth of Economic Nationalism in India
Chatterjee Joya, Bengal Divided : Hindu Communalism and Partition 1932 – 1947, O.U.P, 1994
Desai, A.R, Social Background to Indian Nationalism
Desai, A.R Peasant Struggles in India
Dutta, R.P, India Today
Gallagher J., Johnson, G. Seal, A Locality, Province and Nation
Hardy Peter, Muslims of British India
Heimsath Charles, Indian Nationalism and Hindu Social Reform
Hassan Mushirul ed., India's Partition, Oxford in India Readings
Hutchins F., Illusion of Permanence
Kumar Ravinder, Social History of Modern India
Krishnamurty J., Women in Colonial India
Low D.A (ed.) Congress and the Raj
McLane J.R, Indian Nationalism and Early Congress
Pandey Gyanendra, The Construction of Communalism in Colonial North India
Sarkar Sumit , Swadeshi Movement in Bengal

Sarkar Sumit, Modern India, 1885-1947
Sarkar Susobhan, Notes on Bengal Renaissance
Seal Anil, Emergence of Indian Nationalism
Sen S.N, An Advanced History of Modern India, Kolkata, 2010
Stokes Eric, Peasants and the Raj : Studies in Agrarian Society and Peasant Rebellion in Colonial India
Tripathi Amales, The Extremist Challenge
Zelliot Elleanor, From Untouchables to Dalit : Essays on the Ambedkar Movement

বন্দ্যোপাধ্যায় শেখর, পলাশি থেকে পার্টিশান ও তারপর (From Plassey to Partition and after), ওরিয়েন্ট লংম্যান
চন্দ্র বিপান এবং অন্যান্য, ভারতের স্বাধীনতা সংগ্রাম, (India's Struggle for Independence) কে পি বাগচি এন্ড কোং, কলকাতা
চন্দ্র বিপান এবং অন্যান্য, ভারতবর্ষ – স্বাধীনতার পরে, (India after Independence), আনন্দ পাবলিশার্স, কলকাতা
দেশাই এ আর, ভারতীয় জাতীয়তাবাদের সামাজিক পটভূমি, (Social Background to Indian Nationalism) কে পি বাগচি এন্ড কোং, কলকাতা
জয়া চ্যাটার্জী, বাংলা ভাগ হলঃ হিন্দু সাম্প্রদায়িকতা ও দেশ-বিভাগ, ১৯৩২-১৯৪৭ (Bengal Divided : Hindu Communalism and Partition 1932 – 1947) এল আলমা পাবলিকেশনস, কলকাতা, ২০০৩
দত্ত রজনী পাম, আজিকার ভারত (India Today)
সরকার সুশোভন, বাংলার রেনেসাঁস, (Notes on Bengal Renaissance), দীপায়ন, কলকাতা
ত্রিপাঠী অমলেশ, ভারতের মুক্তিসংরামে চরমপন্থী পর্ব, (The Extremist Challenge) আনন্দ পাবলিশার্স, কলকাতা
মুখোপাধ্যায় হীরেন্দ্রনাথ, ভারতবর্ষের ইতিহাস(২য় খন্ড) (মুঘল ও ব্রিটিশ ভারত) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ৪র্থ মুদ্রণ, ১৯৯৮
সুর নিখিল, ভারতীয় জাতীয়তাবাদী আন্দোলনের পটভূমি, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ১৯৮৯
চট্টোপাধ্যায় প্রণবকুমার, আধুনিক ভারত (১৮৫৮-১৯২০) (১ম খন্ড) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ১৯৯৮
চট্টোপাধ্যায় প্রণবকুমার, আধুনিক ভারত (১৯২০-১৯৪৭) (২য় খন্ড) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ১৯৯৯
সেন সুনীল, ভারতে কৃষিসম্পর্ক(১৭৯৩-১৯৪৭)(Agrarian Relations in India (1793-1847) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ১৯৮৫
ত্রিপাঠী অমলেশ, স্বাধীনতা সংগ্রামে ভারতের জাতীয় কংগ্রেস, আনন্দ পাবলিশার্স, কলকাতা
চন্দ্র বিপান, আধুনিক ভারতঃ ঔপনিবেশিকতাবাদ ও জাতীয়তাবাদ (Nationalism and Colonialism), কে পি বাগচি এন্ড কোং, কলকাতা

HIS- H CC-14 : History of World Politics: 1945-1994

Learning Objectives: This course seeks to delineate some important aspects of the twentieth-century world highlighting the impact of a shift from Eurocentric to ideologically polarized Super Power centric politics. It thus focusses on world politics in the post war period that saw a new type of war as manifested in the Cold war. Students will also get to know how nationalism, a core issue of 20th century contemporary world history, triggered national liberation movements that saw the emergence of the Third World on the one hand as well as the end of the Cold war on the other- culminating in the rise of a unipolar world system.

1. Bipolarism and Debates on the origins of the Cold War –Yalta and Potsdam Conference
2. The USA in World Politics: Truman Doctrine, Marshall Plan, NATO.
3. The USSR in World Politics: Molotov Plan, COMECON, Sovietisation of Eastern Europe, Berlin Blockade, Warsaw Pact.
4. Manifestation of Cold War: The Korean Crisis, end of French Colonial rule in Indo-China and the Vietnam War, Cuban Missile Crisis
5. Emergence of the Third World World and Non –Aligned Movement
6. De-Stalinisation and its aftermath in the East European Countries, Détente-Thaw in Cold War.
7. Impact of the emergence of Peoples' Republic of China on World Politics: Sino-Soviet and Sino –USA relations (1950's-1970's)
8. Emergence of Independent Nations in Asia and Africa: Algeria, Kenya Bangladesh.
9. West Asian Crisis: Birth of Israel, Arab-Israel conflict(1948-1973)Camp David Accord(1978).
10. Disintegration and Decline of the Soviet Union: Glasnost, Perestroika,,Crisis of Socialist Regimes in other socialist countries(Reunification of Germany, Velvet Revolution in Czechoslovakia), End of Cold War and the Rise of a Unipolar World System, Globalisation since 1990s.
11. Protest Politics: Civil Rights Movement and Second Wave Feminist Movement in the USA, End of Anti-Apartheid Movement in South Africa (1994).

Selected Readings

Asa Briggs and Patricia Clavin, Modern Europe 1789 – Present, Delhi, 2009.

Andreas Wenger and Doron Zimmermann, International Relations From the Cold War to the Globalized World, New Delhi, 2010.

David Raynolds,One world divisible: A global history since 1945. New York, 2000

Edward Crankshaw, The New Cold War : Moscow vs. Peking, Penguin Books, 1963.

Issac Dentscher, Russia, China, and the West, Penguin Books, 1949.

Eric Hobsbawm, The Age of Extremes : The Short Twentieth Century, London, 1994.

Eric Hobsbawm, Globalisation, Democracy and Terrorism, London, 2007.

Gail Collins, When Everything Changed: the Amazing Journey of American Women from 1960 to the Present, New York : Little, Brown and Co., 2009.

Henry Heller, The Cold War and the New Imperialism, New York, 2007.

John Merriman, A History of Modern Europe From Renaissance to the Present, London, 1996.

Joseph E. Stiglitz, Globalization and its discontents. Penguin 2002

Kathleen A. Laughlin and Jacqueline L. Castledine, Breaking the wave : women, their organizations, and feminism, 1945-1985 New York : Routledge, 2011.

Mark Newman , The Civil Rights Movement , Edinburgh University Press, 2004

Norman Lowe, Mastering Modern World History, Hampshire, Palgrave Macmillan 2013.

Peter Calvocoressi, World Politics 1945 – 2000, New Delhi, 2006.

P. Eric Louw, The Rise, Fall, and Legacy of Apartheid, Praeger, 2004

Ryan M. Irwin Gordian Knot: Apartheid and the Unmaking of the Liberal World Order, Oxford University Press, 2012

Wayne C. Mcwilliam and Harry Piotrowsky, The World since 1945: A History of International Relations, New Delhi, 2018.

Wini Breines, Trouble Between Us: an Uneasy History of White and Black Women in the Feminist Movement New York : Oxford University Press, 2006.

চক্রবর্তী রাধারমণ ও চক্রবর্তী সুকল্পা, সমসাময়িক আন্তর্জাতিক সম্পর্ক , প্রগ্রেসিভ পাবলিশার্স, কলিকাতা।

চট্টোপাধ্যায় প্রণবকুমার, আন্তর্জাতিক সম্পর্কের ইতিহাস, কলিকাতা ১৯৯৪।

HIS- H CC 15 SEM- 6: HISTORY OF MODERN EAST ASIA – I CHINA (C.1840 – 1949)

Learning Objectives: This course seeks to trace the nature and structure of the traditional Chinese society and to analyze its transformation into a modern state. The students will also learn how the Chinese were united against the foreign colonial powers and attempted to thwart the forces of imperial domination through its Self-Strengthening (Tzu-Chiang) movement. Subsequently with the dawn of nationalism and still later the Communist revolution they were able achieve freedom.

I. Imperialism and China during the 19th and early 20th century

a)Chinese feudalism : Gentry, Bureaucracy and peasantry; the Confucian value system; Sinocentrism; the canton commercial system
b)The transformation of China into an informal colony; the Opium Wars; the Unequal Treaties; the scramble for concessions; Finance Imperialism; the Open Door policy.
c)Agrarian and Popular Movements : Taiping and Yi Ho Tuan
d) Attempts at Self-Strengthening (Tzu-Chiang): Reforms of 1860-95; 1898; and 1901-08.
ii) The Emergence of Nationalism in China
a)The Revolution of 1911: Causes , nature and significance; the social composition of the Revolution; Sun Yat-sen and his contribution; the formation of the Republic; Yuan Shih Kai; War Lordism.
b) May Fourth Movement of 1919: Nature and Significance

II. History of China (cc.1919 – 1949)

i) Nationalism and Communism in China (1921 – 1937)
a) Formation of CCP; and the
b) The First United Front
i)The Communist Movement (1938-1949)
ii)The Jiangxi Period and the rise of Mao Tse Tung

Essential Readings

Beckamann George M., Modernization of China and Japan Harper & Row, 1962
Bianco Lucien, Origins of the Chinese Revolution, 1915 -1949 Stanford University Press, 1973
Chesneaux Jean, et al, China from Opium War to 1911 Revolution to Liberation. Hassocks, Sussex : The Harvester Press, cop.1976
Chesneaux Jean, Peasant Revolts in China, 1840 – 1949 W. W. Norton ,1973
Chung Tan, China and the Brave New World : A Study of the Origins of the Opium War, 1840 - 42
Chung Tan, Triton and Dragon : Studies on the Nineteenth Century China and Imperialisms Gian Publishing House, 1986
Fairbank J.K (ed), The Cambridge History of China, Vol. X Cambridge University Press, 1978
Fairbank John K., et al, and East Asia: Modern Transformation London : Allen & Unwin,1965
Franke Wolfgang, A Century of Chinese Revolution University of South Carolina Press, 1980
Hsu Y.Immanuel, The Rise of Modern China OUP 1995
Jansen M.B., Japan and China: From War to Peace, 1894 – 1972 Chicago : Rand McNally College Pub. Co., [1975

Johnson Chalmers A, Peasant Nationalism and Communist Power: The Emergence of Red China, 1937 -1945 Stanford, 1962
Michael Franz, The Taiping Rebellion Seattle and London: University of Washington Press, 1971
Peffer Nathaniel, The Far East: A Modern History. University of Michigan Press, 1958
Purcell Victor, The Boxer Uprising: A Background Study. Cambridge University Press, 2010
Schifrin Harold Z, Sun Yat-Sen and the Origin of the Chinese Revolution. University of California Press, 1968
Schuramann Franz and Schell Orville (eds.), China Readings, 2 Volumes, (Imperial China, and Republican China) Penguin; First edition 1967
Schwartz Benjamin I., Mao and the Rise of Chinese Communism. Stanford, Stanford University Press,. 1951.
Sheng Hu, Imperialism and Chinese Politics. Foreign Languages Press, 1981
The Yi Ho Tuan Movement, The Revolution of 1911, Foreign Language Press, Beijing.
Tse Tung Chow, The May Fourth Movement: Intellectual Revolution in Modern China. Stanford University Press: Stanford, 1967
Wright Mary C., China in Revolution : The First Phase, 1900 – 1913. New Haven: Yale University Press, 1968
Yu-teng Ssu and K. Fairbank John, China's Response to the West. Cambridge: Harvard University Press, 1954

চৌধুরী দেবপ্রসাদ-আধুনিক যুগে পূর্ব এশিয়ার সংক্ষিপ্ত ইতিহাস, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ,, কলকাতা, ১৯৮৬
ভট্টাচার্য অমিত- চীনের রূপান্তরের ইতিহাস, ১৮৪০-১৯৮৯, কলকাতা, ২০০৪
চট্টোপাধ্যায় হরপ্রসাদ, চীনের ইতিহাস, কলকাতা, ১৯৮৮
সেন জহর, এ যুগের চীনকথা, কলকাতা, ২০০৭

MINOR COURSES m1

HIS m1 CC 1 History of India from Earliest Times up to 300 CE (m1) same as HIS- H CC -1 SEM -1

HIS m1 2 Social Formations and Cultural Patterns of the Ancient World other than India (m1) Same as HIS- H CC -2 SEM -2

HIS m1 3 History of India (C300BCE-750CE) (m1) same as HIS- H CC 3 SEM -3

HIS m1 4 History of Europe (C1453-1650) (m1) same as HIS- H CC 6 SEM -4

MINOR COURSES m1 in detail

HIS m1- CC1 : History of India From the earliest times to C 300 BCE

Learning Objectives:

This course intends to provide an extensive and deeper understanding of early Indian history to students. They will be introduced to the manner in which diverse aspects of ancient Indian history have been recovered from a rich variety of sources, archaeological, literary, numismatic, epigraphist. Students will become familiar with the tools required for studying history and explore the diverse histories and regional variations in the Indian subcontinent and also study various facets of ancient India- social, cultural, political, environmental concerns. This course, with an interdisciplinary approach, will help students' trace elements of continuity and changes in processes spanning over several millennia, from pre-historic times up to the 300 BCE. The emphasis on historiography will allow students to understand how historians have approached ancient India and how our present knowledge and perceptions have played a role in interpreting the past.

I. Reconstructing Ancient Indian History:

a) Early Indian notions of history and the idea of Bharat
b) Sources and tools of historical reconstruction.
c) Historical interpretations (with special reference to gender, environment, technology and regions)

II. Hunter-gatherers and the advent of food products

a)Paleolithic cultures- sequence and distribution; stone industries and other technological developments.
b) Mesolithic cultures – regional and chronological distribution; new developments in technology and economy; rock art.
c) Neolithic and Chalcolithic cultures: distribution and subsistence pattern

III. The Harappan civilization:

Origins; settlement patterns and town planning; agrarian base; craft productions and trade; social and political organization; religious beliefs and practices; art; the problem of urban decline and the late/post-Harappan traditions.

IV. Cultures in transition

Settlement patterns, technological and economic developments; social stratification; political relations; religion and philosophy; the Aryan problem.
a) North India (circa 1500 BCE – 300 BCE)
b) Central India and the Deccan (circa 1000 BCE – circa 300 BCE)
c) Tamilakam (circa 300 BCE to circa CE 300)

Essential Readings

Agarwal D.P, The Archaeology of India, London, 1982.
Basham A.L, The Wonder That Was India, London, 1954.

Chakrabarti Dilip Kumar, An Oxford Companion to Indian Archaeology, New Delhi, 2006.
Chakrabarti Dilip Kumar, India, An Archaeological History, Delhi, 1999
Sharma R.S, Looking for the Aryans, 1995.
Sharma R.S, Material Cultures and Social Formations in Ancient India, New Delhi, 1983.
Thapar Romila, Early India: From the Origins to AD 1300, London, 2002

Suggested Readings

Basham A.L ed. A Cultural History of India, New Delhi, 1975.
Ghosh Amalananda, The City in Early Historic India, Shimla, 1973.
Altekar A.S, The Position of Women in Hindu Civilization from Pre-historic times to the Present Day, New Delhi, 1962.
Chattopadhyaya B.D, Studying Early India: Archaeology, Texts and Historical Issues. New Delhi, 2003.
Sircar D.C, Indian Epigraphy, New Delhi, 1965.
Kosambi D.D, An Introduction to the Study of Indian History, Bombay, 1956
Kosambi D.D, Combined Methods in Indology and Other Writings, Edited and Introduced By B.D Chattopadhyaya
Jha D.N, Ancient India: An Introduction, New Delhi, 1998
Chattopadhyay D.P, Science and Society in Ancient India, Calcutta, 1977.
Erdosy George, Urbanization in Early Historic India, Oxford, 1988.
Allchin F.R. (ed). The Archaeology of Early Historic South Asia: The Emergence of Cities and States, Cambridge, 1995.
Staal Frits, Discovering the Vedas : Origins, Mantras, Rituals Insights, New Delhi, 2008.
Possehl G.L, ed. Harappan Civilization- A Recent Perspective, Delhi, 1993 (second edition).
Michell George, The Penguin Guide to the Monuments of India. London, 1989.
Raychaudhuri H.C, Political History of Ancient India with a commentary by B.N.Mukherjee, New Delhi, 1996 (8th edition)
Habib Irfan (General Editor), A People's History of India (Volume 1,2,3), New Delhi.
Shastri K.A Nilakantha, A History of South India, Madras, 1974 (4th Edition)
Lahiri Nayanjyot, The Decline and Fall of the Indus Civilization, New Delhi, 2000.
Ray Nihar Ranjan, Brajadulal Chattopadhyaya, V.R. Mani and Ranabii Chakravarti eds. A Source Book of Indian Civilization, Kolkata, 2000.
Sahu Bhairabi Prasad (ed.). Iron and Social Change in Early India. New Delhi: Oxford University Press, 2006.
Chakraborty Ranabir, Exploring early India, upto circa AD 1300
Kochar R., The Vedic People, New Delhi. 2000.
Majumdar R.C (General Editor), The History & Culture of the Indian People, Volumes I – III, Bombay, 1951,1968, 1970
Sharma R.S, Advent of the Aryans, Manohar, 1999.
Sharma R.S, Aspects of Political Ideas and Institutions in Ancient India. New Delhi, 2005 (reprint).
Sharma R.S, India's Ancient Past, New Delhi, 2005.
Sharma R.S, Perspectives in the Social and Economic History of Early India, New Delhi, 1983.

Sharma R.S, Sudras in Ancient India.
Salomon Richard, Indian Epigraphy: A Guide to the Study of Inscriptions in Sanskrit, Prakrit, and Other Indo-Aryan Languages. New York, 1998.
Thapar Romila (et al). India: Historical Beginnings and the Concept of the Aryan, New Delhi, 2006
Thapar Romila, From Lineage to State, Delhi, 1996 (2nd Edition)
Ratnagar Shireen, (ed), Women in Early Indian Societies. New Delhi, 1999.
Ratnagar Shireen, The End of the Great Harappan Tradition, Delhi, 2000
Roy Kumkum, The Emergence of Monarchy in North India: eighth to fourth centuries BC, NewDelhi, 1994
Ratnagar Shireen, Understanding Harappa, Delhi 2001
Saraswati S.K, A Survey of Indian Sculpture, New Delhi, 1975 (second edition)
Bhattacharji Sukumar, Women and Society in Ancient India. Calcutta, 1994.
Singh Upinder, A History of Ancient and Early Medieval India. Delhi, 2008.
বাশাম এ এল, অতীতের উজ্জ্বল ভারত, (The Wonder That Was India), প্রগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৫
চক্রবর্তী রণবীর, ভারত ইতিহাসের আদি পর্ব, কলকাতা, ২০০৭
হাবিব ইরফান, ভারতবর্ষের সাধারণ মানুষের ইতিহাস
প্রথম খন্ড – প্রাক-ইতিহাস, (Pre-history) এন বি এ, কলকাতা, ২০০২
দ্বিতীয় খন্ড: সিন্ধু সভ্যতা, (The Indus Civilisation) এন বি এ, কলকাতা, ২০০২
তৃতীয় খন্ড – বৈদিক সভ্যতা, (The Vedic Age) এন বি এ, কলকাতা, ২০০২
ঝা ডি এন, আদি ভারত – একটি সংক্ষিপ্ত ইতিহাস, (Ancient India: An Introduction), প্রগ্রেসিভ পাবলিশার্স, কলকাতা
কোশাম্বী ডি ডি, ভারত ইতিহাস চর্চার ভূমিকা (An Introduction to the Study of Indian History) বাগচি কে পি এন্ড কোং, কলকাতা, ২০০২
রত্নাগর শিরিণ, হরপ্পা সভ্যতার সন্ধানে (Understanding Harappa) এন বি এ, কলকাতা, ২০০৩
রায়চৌধুরী হেমচন্দ্র, প্রাচীন ভারতের রাজনৈতিক ইতিহাস, (Political History of Ancient India), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা
থাপার রোমিলা, ভারতবর্ষের ইতিহাস, ওরিয়েন্ট লংম্যান, কলকাতা
ভট্টাচার্য নরেন্দ্রনাথ, প্রাচীন ভারতে ধর্ম, কলকাতা, ১৯৮৮
ভট্টাচার্য নরেন্দ্রনাথ, প্রাচীন ভারতীয় সমাজ, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা
ভট্টাচার্য সুকুমারী, ইতিহাসের আলোকে বৈদিক সাহিত্য, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা
ভট্টাচার্য সুকুমারী, প্রাচীন ভারত- সমাজ ও সাহিত্য, আনন্দ পাবলিশার্স, কলকাতা
চক্রবর্তী দিলীপ কুমার - ভারতবর্ষের প্রাক্ ইতিহাস আনন্দ পাবলিশার্স, কলকাতা, ১৯৯৯
গঙ্গোপাধ্যায় দিলীপ কুমার - ভারত ইতিহাসের সন্ধানে, (২ খন্ডে), ২০০৭
চক্রবর্তী রণবীর, প্রাচীন ভারতের অর্থনৈতিক ইতিহাসের সন্ধানে, আনন্দ পাবলিশার্স, কলকাতা ২০০২ (সংশোধিত সংস্করণ)
চানানা দেবরাজ, প্রাচীন ভারতে দাস প্রথা, (Slavery in Ancient India as depicted in Pali and Sanskrit Texts), কে পি বাগচি এন্ড কোং, কলকাতা ১৯৯৫
রায় নীহাররঞ্জন, বাঙালির ইতিহাস, কলকাতা, ১৯৮০(দ্বিতীয় সংস্করণ)

শর্মা রামশরণ, প্রাচীন ভারতে বস্তুগত সংস্কৃতি ও সমাজ সংগঠন, (Material Cultures and Social Formations in Ancient India), ওরিয়েন্ট লংম্যান, ১৯৯৮
শর্মা রামশরণ, আদি মধ্যযুগের ভারতীয় সমাজ : সমস্ত-প্রক্রিয়া বিষয়ে এক সমীক্ষা (Early Medieval Indian Society : A Study in Feudalism) ওরিয়েন্ট লংম্যান, ২০০৩
শর্মা রামশরণ, ভারতের সমাজতন্ত্র, (Indian Feudalism), কে পি বাগচি এন্ড কোং, কলকাতা
শর্মা রামশরণ, আর্যদের অনুসন্ধান, (Looking for the Aryans), প্রগ্রেসিভ পাবলিশার্স, কলকাতা
শর্মা রামশরণ, আর্যদের ভারতে আগমন, (Advent of the Aryans), ওরিয়েন্ট লংম্যান, ২০০১
শর্মা রামশরণ, প্রাচীন ভারতে শূদ্র, (Sudras in Ancient India), কে পি বাগচি এন্ড কোং, কলকাতা
থাপার রোমিলা, অশোক ও মৌর্যদের পতন, (Asoka and the Decline of the Mauryas), কে পি বাগচি এন্ড কোং, কলকাতা
চট্টোপাধ্যায় সুনীল, প্রাচীন ভারতের ইতিহাস (১ম খন্ড), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, একাদশ মুদ্রণ, এপ্রিল ২০০৪
চট্টোপাধ্যায় সুনীল, প্রাচীন ভারতের ইতিহাস (২য় খন্ড), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ৮ম মুদ্রণ, ফেব্রুয়ারি ২০০৪
মুখোপাধ্যায় হীরেন্দ্রনাথ, ভারতবর্ষের ইতিহাস (১ম খন্ড) (প্রাচীন ও মধ্যযুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, প্রথম মুদ্রণ নভেম্বর ১৯৯৭

HIS- m1 CC-2 : Social Formations and Cultural Patterns of the ancient world other than India

Learning Objectives:

This course aims to introduce the students to the significant developments in world history that have shaped the complexity of human existence. To begin with it offers a historical survey of human evolution. It details the transition from hunting gathering subsistence pattern to more advanced adaptations to a sedentary farming economy. The course content is premised on the understanding that the pace and nature of change differed in different parts of the ancient world.

I. Evolution of human kind: Paleolithic and Mesolithic cultures – Role of social Institutions in the development of early societies.

II. Food production: Debate on the origins of food production, Neolithic cultures in West Asia and Europe

III. Bronze Age civilizations, Egypt (Old Kingdom); economy, social stratification, state structure, religion architecture.

IV. Nomadic groups- Debate on the advent of iron and its implications in Central and West Asia.

V. Ancient Rome: Polity and society- slavery, agrarian economy, urbanization, & trade.

VI. Polis in ancient Greece: Athens and Sparta - Polity and society- Slavery, Athenian democracy, Greek culture- Sophists, Drama - Tragedy and Comedy, Art and architecture.

Essential Readings

Rakesh Kumar, Ancient and Medieval World From Evolution of Humans to the Crisis of Feudalism, Sage Texts, 2018

Farooqui Amar, Early Social Formations. Manak Publications Pvt. Ltd. 2002

B.Fagan, People of the Earth. : an introduction to world prehistory New York, NY HarperCollins College Publishers 1977

B.Trigger, Ancient Egypt : A Social History. Cambridge University Press, 1983

Bai Shaoyi, An Outline History of China. Beijing : Foreign Languages Press, 1982.

Burns and Ralph, World Civilisations.

Cambridge History of Africa, Vol.I. Cambridge University Press ,1982

G.Clark, World Prehistory: A New Perspective Cambridge University Press, 1977.

Yuval Noah Harari , Sapiens A Brief History of Humankind, Vintage,2015

Norman Davies, Europe A History , Oxford 1996

Jacquetta Hawkes, First Civilisations. life in Mesopotamia, the Indus Valley and Egypt. The history of human society. New York: Knopf, 1973.

M.I.Finley, The Ancient Economy._University of California Press 1999.

R.J.Wenke, Patterns in Prehistory Oxford University Press, USA; 5th edition 2006

UNESCO Series: History of Mankind, Vols. I –III/ or New ed. History of Humanity.1963

V.Gordon Childe, What happened in History. Peregrine Books 1985

Suggested Readings

A.Hauser, A Social History of Art, Vol I. Routledge, 1999.

Glyn Daniel, First Civilisations. New. York: Thomas Y. Crowell (Apollo. Editions), 1968

J.D. Bernal, Science in History, Vol.I. Cambridge: The MIT Press, Massachusetts Institute of Technology, 1971

Salia Ikram, Death & Burial in Ancient Egypt (American University in Cairo Press, 2015)

V.Gordon Childe, Social Evolution.

Martin Bernal, Black Athena; the Afro Asiatic Roots of Classical Civilization Brunswick: Rutgers University Press, 1991.

গর্ডন চাইল্ড, সোশ্যাল ইভলিউশন, অসিত চৌধুরী (ভাষান্তর), দীপায়ন, কলকাতা, ১৪০৫ বঙ্গাব্দ

গর্ডন চাইল্ড, ম্যান মেক্‌স হিমসেলফ, মগন দাস (ভাষান্তর), দীপায়ন, কলকাতা, ১৯৯৯

গর্ডন চাইল্ড,হোয়াট হ্যাপেনড ইন হিস্ট্রি, দীপায়ন, কলকাতা

জন ডেসমন্ড বার্নাল, ইতিহাসে বিজ্ঞান, আনন্দ, কলকাতা

কুণাল চট্টোপাধ্যায় ও সুজাত ভদ্র, প্রাচীন গ্রীসের সমাজ ও স্নগস্কৃতি, প্রগ্রেসিভ, কলকাতা

সুপ্রতিম দাস, গ্রীস অনুসন্ধান, প্রগ্রেসিভ, কলকাতা

HIS- m1 CC-3 : History of India C 300 BCE to C 750 CE

Learning Objectives:

This paper focusses on the formation of polity, society, economy and religion of ancient India tracing the growth of empires from the Mauryas, to the Kushanas, the Satavahanas the Guptas, and also the post- Gupta polities such as the Pallavas, Chalukyas, and Vardhanas.

I. Economy and Society (circa 300 BCE to circa CE 300)

a)Expansion of agrarian economy : production relations

b) Urban growth: north India, central India and the Deccan; craft Production: trade and trade routes; coinage

c)Social stratification: class, Varna, Jati, untouchability; gender; marriage and property relations.

II. Changing political formations (circa 300 BCE to circa CE 300) :

a)The Mauryan Empire

b)Post-Mauryan Poliities with special reference to the Kushanas and the Satavahanas; Gana-Sanghas

III. Towards early medieval India (circa CE fourth century to CE 750):

a) Agrarian expansion: land grants, changing production relations; graded land rights and peasantry.

b)The problem of urban decline: patterns of trade, currency, and urban settlements.

c)Varna, proliferation of Jatis: changing norms of marriage and property

d) The nature of polities: the Gupta empire and its contemporaries: post-Gupta polities- Pallavas, Chalukyas, and Vardhanas.

IV. Religion, philosophy and society (circa 300 BCE – CE 750)

a)Consolidation of the Brahmanical tradition : dharma, Varnashram, Purushastras, Samskaras.
b)Theistic cults (from circa second century BC): Mahayana; the Puranic tradition.
c) The beginnings of Tantricism.

V. Cultural developments (circa 300 BCE to circa CE 750):
a)A brief survey of Sanskrit, Pali, Prakrit and Tamil literature. Scientific and technical treatises.
b)Art and architecture and forms and patronage; Mauryan , Post-Mauryan, Gupta , Post-Gupta

Essential Readings
Chattopadhyaya B.D, The making of early Medieval India, 1994.
Chattopadhyaya B.D, Bharatvarsha and other Essays, Permanent Black, Delhi, 2017.
Chattopadhyaya D.P, History of Science and Technology in Ancient India, 1986.
Chakravarti Ranabir, Exploring Early India upto AD 1300, Primus, Delhi, 2016.
Huntington Susan, The Art of Ancient India: Buddhist, Hindu, and Jain, New York, 1985.
Kosambi D.D, An Introduction to the Study of Indian History, 1975.
Maity S.K, Economic Life in Northern India in the Gupta Period, 1970.
Sahu B.P (ed.), Land System and Rural Society in Early India, 1997.
Sastri K.A.N, A History of South India.
Sharma R.S, Indian Feudalism, 1980.
Sharma R.S, Urban Decay in India, c.300- c1000, Delhi, Munshiram Manohar Lal, 1987
Singh Upinder, A history of Ancient and early Medieval India, 2008.
Thapar Romila, Asoka and the Decline of the Mauryas, 1997

Suggested Readings
Agarwal Asvini, The Rise and Fall of the Imperial Guptas, New Delhi,1988.
Bhattacharya N.N, Ancient Indian Rituals ad Their Social Contents, 2nd ed., 1996.
Bhattacharya N.N, History of Tantric Religion, 1982
Chakravarti Uma, The Social Dimensions of Buddhism. New Delhi: Oxford University Press, 1987.
Chakravarti Uma, Trade and Traders in Early Indian Society, New Delhi, 2007 (revised edition)
Champakalakshmi R, Trade, Ideology and Urbanization: South India: 300BC to AD 1300, Delhi, 1996.
Chanana D., Slavery in Ancient India as Depicted in Pali and Sanskrit Texts, Delhi, 1960.
Gupta P.L, Coins, 4th ed., 1996.
Harle J.C, The Art and Architecture of the Indian Subcontinent, 1987.
Lahiri Nayanjot, Ashoka in Ancient India, 2015
Majumdar R.C and Altekar A.S eds. The Vakataka Gupta Age, Varanasi, 1955.
Mukherjee B.N, Kushana Studies, New Perspectives, Kolkata, 2004
Mukherjee B.N, The Character of the Maurya Empire, Kolkata, 2000
Mukherjee B.N, The Rise and Fall of the Kushana Empire, Calcutta, 1989.

Pollock Sheldon, The Language of the Gods in the World of Men. Sanskrit, Culture and Power in Pre-modern India. New Delhi, 2006.
Ray H.P, Winds of Change, 1994.
Ray Nihar Ranjan, Maurya and Post Maurya Art, New Delhi, 1975.
Sharma R.S, Perspectives in the Social and Economic History of Early India, New Delhi, 1983.
Shastri A.M ed. The Age of the Vakatakas, Delhi, 1992.
Singh Upinder, A History of Ancient and Early Medieval India. Delhi, 2008.
Smith Bardwell ed., Essays in Gupta Culture, New Delhi, 1983.
Thapar Romila, Asoka and the Decline of the Mauryas, New Delhi, 2000
Thapar Romila, Early India: From the origins to 1300, London, 2002
Thapar Romila, The Mauryas Revisited, Calcutta,1987.
Veluthat Kesavan, The Early Medieval in South India, New Delhi, 2009

রোমিলা থাপার, অশোক ও মৌর্যদের পতন, (Asoka and the Decline of the Mauryas), কে পি বাগচি এন্ড কোং, কলকাতা
সুনীল চট্টোপাধ্যায়, প্রাচীন ভারতের ইতিহাস (১ম খন্ড), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, একাদশ মুদ্রণ, এপ্রিল ২০০৪
সুনীল চট্টোপাধ্যায়, প্রাচীন ভারতের ইতিহাস (২য় খন্ড), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ৮ম মুদ্রণ, ফেব্রুয়ারি ২০০৪
হীরেন্দ্রনাথ মুখোপাধ্যায়, ভারতবর্ষের ইতিহাস (১ম খন্ড) (প্রাচীন ও মধ্যযুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, প্রথম মুদ্রণ নভেম্বর ১৯৯৭

HIS- m1 CC- 4 SEM-4: HISTORY OF EUROPE (C.1453-1650)

Learning Objectives: This paper explains the transition of Europe from feudalism to capitalism, illustrating the various forces that saw the culmination of this process. It thus includes geographical discoveries, Renaissance, Reformation, economic developments and finally the emergence of the national monarchies.

Module 1
1.1 Transition Debate on transition from feudalism to capitalism: problems and theories.

Module II
2.1 The exploration of the new world: motives
2.2 Portuguese and Spanish voyages.

Module III
3.1 Renaissance: its social roots
3.2 Renaissance humanism
3.3 Rediscovery of classics
3.4 Italian renaissance and its impact on art, culture, education and political thought.
3.5 Its spread in Europe

Module IV

4.1 Reformation movements: Origins & courses
4.2 Martin Luther & Lutheranism
4.3 John Calvin & Calvinism
4.4 Radical reformation: Anabaptists and Huguenots
4.5 English reformation and the role of the state
4.6 Counter Reformation

Module V

5.1 Economic developments
5.2 Shift of economic balance from the Mediterranean to the Atlantic
5.3 Commercial Revolution
5.4 Price Revolution
5.5 Agricultural Revolution and the Enclosure Movement

Module VI

6.1 Development of national monarchy
6.2 Emergence of European state system

Essential Readings

Butterfield H., The Origins of Modern Science. The Macmillan Company. 1959
Cipolla Carlo M., Fontana Economic History of Europe, Vols. II and III Collins/ Fontana Books; 1978
Cipolla Carlo M., Before the Industrial Revolution, European Society and Economy, 1000-1700, W. W. Norton & Company; 3rd edition 1994
Coleman D.C (ed.), Revisions in Mercantilism Methuen & Co, 1969.
Davis Ralph, The Rise of the Atlantic Economics. Cornell University Press, 1973
Dobb Maurice, Studies in the Development of Capitalism, International Publishers, 1947
Parker G., Europe in Crisis, 1598-1648 Ithaca, N.Y. : Cornell University Press. 1980
Parry, J.H., The Age of Reconnaissance University of California Press, 1981
Phukan Meenaxi, Rise of the Modern West: Social and Economic History of Early Modern Europe. Laxmi Publications 2013
Poliensky.V, war and Society in Europe, 1618-48 Cambridge University Press, 2008
Rabb Theodore K., The Struggle for Stability in Early Modern Europe. Oxford University Press, 1975
Scammell V., The First Imperial Age: European Overseas expansion, 1400-1715. Routledge, 2003
Vries Jan de, Economy of Europe in an Age of Crisis 1600-1750. New York: Cambridge University Press, 1976

Suggested Readings :

Anderson M.S, Europe in the Eighteenth Century Holt, Rinehart and Winston, 1961
Anderson, Perry, The lineages of the Absolutist States. Verso, 1979

Aston, T.H and Philipin C.H.E (eds.), The Brenner Debate: Agrarian Class Structure and Economic Development in Pre-Industrial Europe, Cambridge University Press, 2005.
Bernal J.D, Science in History Cambridge: The MIT Press, 1954
Burke, Peter, The Renaissance . Humanities Press International, 1987
Camerson, Euan (ed.), Early Modern Europe: An Oxford History, Oxford University Press 2001.
Dunn Rechard S., The Age of Religious Wars, 1559-1715, W.W.Norton & Company, 2004
Elton, G.R., Reformation Europe, 1517-1559 Wiley, 1999
Gilmore, M.P., The World of Humanism, 1453-1517 New York, Harper 1952
Hall, R., From Galileo to Newton Courier Corporation, 1981
Hill, Christopher, A century of Revolutions. Psychology Press, 2002
Hilton, Rodney, Transition from feudalism to Capitalism, Aakar Books, 2006
Koenigsberger, H.G and Mosse, G.L., Europe in the Sixteenth Century. Longmans, 1961

Lee, Stephen J., Aspects of European History, 1494-1789 Routledge, 1982
Parker, G. and Smith, L.M., General Crisis of the Seventeenth Century. Boston: Routledge & Kegan Paul, 1978.
Pennington, D.H., Seventeenth Century Europe. Longman, 1972
Rabb, Theodore K., The Struggle for Stability in Early Modern Europe. Oxford University Press, 1975
Rice, Eugene F. and Grafton, Anthony, The Foundations of Early Modern Europe, 1460-1559, W.W.Norton & Company, 2004.
The Cambridge Economic History of Europe, Vol.I, IV Cambridge University Press 1944
The New Cambridge Economic History of Europe, Vol.I, VII.

ত্রিপাঠী অমলেশ, ইতালির রেনেসাঁস বাঙালির সংস্কৃতি, আনন্দ পাবলিশার্স, কলকাতা ১৯৯৪
দাশগুপ্ত অশীন, ভারত মহাসাগরে বাণিজ্য ও রাজনীতি ১৫০০-১৮০০, আনন্দ পাবলিশার্স, কলকাতা, ১৯৯৯
বার্নাল জে ডি, ইতিহাসে বিজ্ঞান, (Science in History), আনন্দ পাবলিশার্স, কলকাতা, ২০০৫
সেন সমরেন্দ্র, বিজ্ঞানের ইতিহাস, শৈব্যা প্রকাশন, কলকাতা, ১৯৯৬
ভট্টাচার্য স্নেহাদ্রি, ইংলন্ডের ইতিহাস (টিউডর যুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা, ১৯৯৫
চক্রবর্তী ভাস্কর, চক্রবর্তী সুভাষ রঞ্জন এবং চট্টোপাধ্যায় কিংশুক, ইউরোপে যুগান্তর, নবভারতী প্রকাশনী, কলকাতা, ২০০৫
মুখার্জী রীলা, রূপান্তরিত ইউরোপ(৯০০ – ১৮০০), প্রগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৪

Skill Enhancement Courses: 4 Credits.

HIS -SEC –1 Museum and Archives

This course introduces students to the institutions that house and maintain documentary, visual and material remains of the past. Museums and archives are among the most important such repositories and this course explains their significance and how they work. Students will be encouraged to undertake collection, documentation and exhibition of such materials in their localities and colleges. Visit to National Archives and National Museum are an integral part of the course.

I. Definition and history of development (with special reference to India)

II. **Types of archives and museums**: Understanding the traditions of preservation in India Collection policies, ethics and procedures Collection: field exploration, excavation, purchase, gift and bequests, loans and deposits, exchanges, treasure trove confiscation and others. Documentation: accessioning, indexing, cataloguing, digital documentation and de-accessioning Preservation: curatorial care, preventive conservation, chemical preservation and restoration

III. Museum Presentation and Exhibition:

IV. **IV. Museums, Archives and Society:** (Education and communication Outreach activities

Essential Readings:

Agrawal, O.P., Essentials of Conservation and Museology,Sundeep Prakashan, New *Delhi*, India, 2007.

Choudhary, R.D. Museums of India and their maladies. Calcutta: Agam Kala Prakashan, New Delhi, 1998(In Bengali).

Guha, Thakurta, Tapati, Monuments, Objects, Histories: Institution of Art in Colonial Post Colonial India, New York, 2004

Kathpalia, Y. P. Conservation and Restoration of Archive Materials. UNESCO, 1973

Mathur Saloni, India by Design: Colonial History and Cultural Display, University of California, 2007

Nair, S.M. Bio-Deterioration of Museum Materials.2011

Roychowdhury, Madhuparna. Displaying India's Heritage : Archaelogy and the Museum Movement in Colonial India. Delhi: Orient Blackswan 2015

Sengupta, S. Experiencing History Through Archives. Delhi: Munshiram Manoharlal.2004.

HIS SEC Course:2 Sem- 2 (4 Credits.)

Understanding Cultural Heritage and Tourism

Learning Objectives: This course will enable students to explore the various aspects of cultural heritage and cultural diversity in historical perspective that discusses numerous cultural practices that have evolved over centuries. It will also address the questions of legalities and institutional frameworks for heritage, and finally deal with the issue of heritage tourism.

UNIT I Indian Cultural Heritage: An Introduction

I. Meaning, Definition and Historical background of Cultural Heritage

II. Concepts, Characteristics types of Indian Cultural Heritage: Tangible, intangible Oral

and Living traditions.

UNIT II :Evolution of Heritage Legislation and the Institutional framework: Conventions and Acts— national Heritage-related government departments, Museums, regulatory bodies etc. Conservation Initiatives.

UNIT III : Fairs Festivals, Rituals: Ethnic Indian Cultural Construct

a) Significance, concepts, historical background of fairs, festivals, rituals and their importance in Human life and their general Introduction of social, cultural and religious culture of India.

b) Festivals: Regional, Folk, Tribal, National; Some major festivals of India.

UNIT IV: Heritage and tourism: Tours to Heritage Sites, The relationship with cultural heritage.

Suggested Readings

- David Lowenthal, Possessed By The Past: The Heritage Crusade and The Spoils of History, Cambridge, 2010 Layton, R. P. Stone and J. Thomas. Destruction and Conservation of Cultural Property. London: Rutledge, 2001
- Lahiri, N. Marshaling the Past - Ancient India and its Modern Histories.Ranikhet: Permanent Black. 2012, Chapters 4 and 5.
- S.S. Biswas, Protecting the Cultural Heritage (National Legislations and International Conventions). New Delhi: INTACH, 1999.
- Acts, Charters and Conventions are available on the UNESCO and ASI websites (www.unesco.org; www.asi.nic.in)90
- Agrawal, O.P., Essentials of Conservation and Museology, Delhi, 2006Chainani, S. 2007. Heritage and Environment. Mumbai: Urban Design Research Institute, 2007

Skill Enhancement Courses: 4 Credits.
HIS SEC –3 Sem -3 Understanding Popular Culture of Bengal

Learning Objective:

This paper seeks to provide an opportunity to the students to explore the various facets of popular culture within their region in different genres such as the performing arts, audio-visual entertainments that would provide them with a better understanding of the cultural diversity of Bengal.

Unit I

(i) Defining Popular Culture
(ii) Approaches to the study of Popular Culture

Unit II

Performance :

(i) Jatra as a popular medium of performing art.
(i) Dance - Folk dances of Bengal-Gambhira, Santhali ,Chhau.
(ii) Music – Folk songs of Bengal –Baul, Bhawaia.

Unit III

Audio- Visual :

(i) Cinema –Some award winning Bengali films of– Satyajit Ray, Tarun Mazumdar, Tapan Sinha, Ajay Kar, Ritwik Ghatak, Arundhuti Debi.
(ii) Role of Television and documentary films in promoting popular culture.
(iii) Digital Photography.

Unit IV

(i) Impact of the social media on popular culture.

Suggested Readings:

Sumanta Banerjee, The Parlour and the Street – Elite and Popular Culture in Nineteenth Century Calcutta. Kolkata: Seagull Books, 2019
John Storey, Cultural Theory and Popular Culture, Pearson, 2001
W. Dissayanayake and K.M.Gokul Singh ,Popular Culture in a Globalised India, Trentham,2019
V.Lal, Ashis Nandy, Fingerprinting Popular Culture: The Myth and the Iconic in Indian Cinema, Oxford ,2006

A.Rajadhyaksha and P.Willemen, Encylopaedia of Indian Cinema, Routledge 2012.
A. Deshpande, Class, Power and Consciousness in Indian Cinema and Television, Primus,2014
Mira K. Desai ed., Regional Language Television in India Profiles and Perspectives Routledge,2022
Blain Brown,The Basics of Filmmaking, Routledge, 2020
Darius Cooper, The Cinema of Satyajit Ray Between Tradition and Modernity, Cambridge,2000
Sukhbilas Barma, 'Indian Folk Music' Global Vision Publishing House, 2004.
Dinesh Chandra Sen 'The Folk - Literature of Bengal'. Gyan Publishing House, 2006.
□□□□□ □□□□□□□□□, □□□□ □□□□ □□□ , **Ananda Publishers Ltd. 2014**
□□□□□ □□□□□□□□□, □□□□, □□□□□□□ **2015**
□□□ □□□□□□□ □□□□□□□□, □□□□□□ □□□□□□□□□□ , □□□□□ **2014**

Inter disciplinary/ courses (IDC): 3 Credits

HIS -IDC Making of Contemporary India (1919 -1964)

Making of Contemporary India (1919 -1964)

Learning Objective

This course focusses on the major national movements that led on to India's independence in 1947 .It also discusses the impact of Partition on society and culture and finally the evolution of Parliamentary democracy and Indian foreign policy during its early days.

1. Gandhian Movements – Non –cooperation movement, Civil Disobedience, Quit India Movement
2. Road to Independence and Partition: Movements outside the Gandhian fold-Revolutionary nationalism, Subhas Chandra Bose and role of INA, RIN Mutiny.
3. Challenges of Communalism –Pakistan Resolution (1940)
4. Constitutional formulas –Wavell plan, Cripps and Cabinet Mission-Mountbatten Plan
5. Impact of Partition on Indian society and culture.
6. Evolution of Parliamentary Democracy
7. India's foreign policy in the Nehruvian era.

Suggested Readings:

1.Sekhar Bandyopadhay, From Plassey to Partition and After, Orient Blackswan
2. Bipan Chandra ,et. al, India ' s Struggle for Independence, Penguin1988
3. Sugata Bose and Ayesha Jalal, Modern South Asia History,Culture,Political Economy ,Oxford 1999
4. Rudrangshu Mukherjee et.al. A New History o f India, Aleph 2023.
5.বন্দ্যোপাধ্যায় শেখর, পলাশি থেকে পার্টিশান ও তারপর (From Plassey to Partition and after), ওরিয়েন্ট লংম্যান
6.চন্দ্র বিপান এবং অন্যান্য, ভারতের স্বাধীনতা সংগ্রাম, (India's Struggle for Independence) কে পি বাগচি এন্ড কোং, কলকাতা
7. চন্দ্র বিপান এবং অন্যান্য, ভারতবর্ষ – স্বাধীনতার পরে, (India after Independence), আনন্দ পাবলিশার্স, কলকাতা
8.দেশাই এ আর, ভারতীয় জাতীয়তাবাদের সামাজিক পটভূমি, (Social Background to Indian Nationalism) কে পি বাগচি এন্ড কোং, কলকাতা
9.জয়া চ্যাটার্জী, বাংলা ভাগ হলঃ হিন্দু সাম্প্রদায়িকতা ও দেশ-বিভাগ, ১৯৩২-১৯৪৭ (Bengal Divided : Hindu Communalism and Partition 1932 – 1947) এল আলমা পাবলিকেশনস, কলকাতা, ২০০৩
10.দত্ত রজনী পাম, আজিকার ভারত (India Today)
11.সরকার সুশোভন, বাংলার রেনেসাঁস, (Notes on Bengal Renaissance), দীপায়ন, কলকাতা
12. ত্রিপাঠী অমলেশ, ভারতের মুক্তিসংরামে চরমপন্থী পর্ব, (The Extremist Challenge) আনন্দ পাবলিশার্স, কলকাতা
13.সুর নিখিল, ভারতীয় জাতীয়তাবাদী আন্দোলনের পটভূমি, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ১৯৮৯
চট্টোপাধ্যায় প্রণবকুমার, আধুনিক ভারত (১৮৫৮-১৯২০) (১ম খন্ড) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ১৯৯৮
14.চট্টোপাধ্যায় প্রণবকুমার, আধুনিক ভারত (১৯২০-১৯৪৭) (২য় খন্ড) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ১৯৯৯
15.সেন সুনীল, ভারতে কৃষিসম্পর্ক(১৭৯৩-১৯৪৭)(Agrarian Relations in India (1793-1847) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, ১৯৮৫
16.ত্রিপাঠী অমলেশ, স্বাধীনতা সংগ্রামে ভারতের জাতীয় কংগ্রেস, আনন্দ পাবলিশার্স, কলকাতা
17. চন্দ্র বিপান, আধুনিক ভারতঃ ঔপনিবেশিকতাবাদ ও জাতীয়তাবাদ (Nationalism and Colonialism), কে পি বাগচি এন্ড কোং, কলকাতা .

THREE YEAR B.A.

MULTIDISCIPLINARY

COURSES OF STUDIES

IN HISTORY

2023

Semester-wise Three Year B.A./B.Sc. Multidisciplinary courses of studies in History (under CCF, 2022).

The Three -year B.A. Course in Multi Disciplinary courses of Studies will comprise 6 Semesters. The curriculum will consist of 8x2 Core Course (CC) of 4 credits each: i.e., Courses, to be compulsorily studied by a student as the requirement of Core subjects.

One Minor: A subject to be studied by the student with lesser number of courses than the two core subjects. Total number of courses for minor will be 6. Each course will be of 4 credits.

4 Ability Enhancement Compulsory Courses (AEC) each carrying 2 credits.

3 Skill Enhancement Courses (SEC) each carrying 4 credits (each discipline will contribute one Course) and

4 Compulsory Value Addition Courses (CVAC) each carrying 2 credits. There will be one Summer Internship of 3 credits. Each course will be of 100 Marks.

Course Structure - MDC

	CC1	CC2	Minor	IDC	AEC	SEC	CVAC	Summer Internship	Total Credit
Semester	8x4= 32	8x4= 32	6x4= 24	3x3=9	4x2= 8	3x4=12	4x2=8	1x3= 3	125
1	1x4= 4 3TH+ 1P/TU	1x4= 4 3TH+ 1P/TU		1x3=3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4	2x2=4		21
2	1x4= 4 3TH+ 1P/TU	1x4= 4 3TH+ 1P/TU		1x3=3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4	2x2=4		21
3	1x4= 4 (3TH+ 1P/TU)	1x4= 4 3TH+ 1P/TU	1x4= 4 3TH+1P/TU	1x3=3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4			21
4	2x4=8 4x(3TH+ 1P/TU)	2x4= 8 2x(3TH+ 1P/TU	1x4= 4 (3TH+1P/TU)		1x2= 2 2TH +0P/TU				22
5	2x4= 8 2x(3TH+ 1P/TU)	1x4= 4 3TH+ 1P/TU	2x4= 8 2x(3TH+ 1P/TU						20
6	1x4= 4 (3TH+ 1P/TU)	2x4= 8 2x(3TH+ 1P/TU)	2x4= 8 2x(3TH+ 1P/TU)						20
Credits	8x4= 32	8x4= 32	6x4= 24	3x3= 9	4x2= 8	3x4= 12	4x2= 8		125+3 =128
Marks	8x100= 800	8x100= 800	6x100= 600	3x75= 225	4x50= 200	3x100= 300	4x50= 200		Total MarKs =3200

Multi Disciplinary Core Courses in History MD -CC
Each Course: 4 Credits

HIS- MD- CC 1 SEM -1: HISTORY OF INDIA (FROM THE EARLIEST TIMES TO C 300 BCE)

HIS - MD-CC 2 SEM-2: SOCIAL FORMATIONS AND CULTURAL PATTERNS OF THE ANCIENT WORLD OTHER THAN INDIA.

HIS- MD- CC 3 SEM- 3: HISTORY OF INDIA (C 300 BCE TO C.750 CE)

HIS - MD-CC 4 SEM -4: HISTORY OF EUROPE (C.1453-1650)

HIS- MD- CC 5 SEM-4: HISTORY OF INDIA (C.1206 – 1526)

HIS - MD-CC 6 SEM-5: HISTORY OF INDIA (C.1526-1605)

HIS- MD- CC 7 SEM-5: HISTORY OF MODERN EUROPE (C.1780-1939)

HIS- MD- CC 8 SEM -6: HISTORY OF INDIA (C.1750s– 1857)

****Courses from MD-CC-1 to MD-CC-8 are to be offered in the chronological order**

Detailed Syllabus for Multi Disciplinary Core Courses in History

HIS - MD-CC- 1 : History of India From the earliest times to C 300 BCE

Learning Objectives:

This course intends to provide an extensive and deeper understanding of early Indian history to students. They will be introduced to the manner in which diverse aspects of ancient Indian history have been recovered from a rich variety of sources, archaeological, literary, numismatic, epigraphist. Students will become familiar with the tools required for studying history and explore the diverse histories and regional variations in the Indian subcontinent and also study various facets of ancient India- social, cultural, political, environmental concerns. This course, with an interdisciplinary approach, will help students' trace elements of continuity and changes in processes spanning over several millennia, from pre-historic times up to the 300 BCE. The emphasis on historiography will allow students to understand how historians have

approached ancient India and how our present knowledge and perceptions have played a role in interpreting the past.

I. Reconstructing Ancient Indian History:

a) Early Indian notions of history and the idea of Bharat
b) Sources and tools of historical reconstruction.
c) Historical interpretations (with special reference to gender, environment, technology and regions)

II. Hunter-gatherers and the advent of food products

a)Paleolithic cultures- sequence and distribution; stone industries and other technological developments.
b) Mesolithic cultures – regional and chronological distribution; new developments in technology and economy; rock art.
c) Neolithic and Chalcolithic cultures: distribution and subsistence pattern

III. The Harappan civilization:

Origins; settlement patterns and town planning; agrarian base; craft productions and trade; social and political organization; religious beliefs and practices; art; the problem of urban decline and the late/post-Harappan traditions.

IV. Cultures in transition

Settlement patterns, technological and economic developments; social stratification; political relations; religion and philosophy; the Aryan problem.
a) North India (circa 1500 BCE – 300 BCE)
b) Central India and the Deccan (circa 1000 BCE – circa 300 BCE)
c) Tamilakam (circa 300 BCE to circa CE 300)

Essential Readings

Agarwal D.P, The Archaeology of India, London, 1982.
Basham A.L, The Wonder That Was India, London, 1954.
Chakrabarti Dilip Kumar, An Oxford Companion to Indian Archaeology, New Delhi, 2006.
Chakrabarti Dilip Kumar, India, An Archaeological History, Delhi, 1999
Sharma R.S, Looking for the Aryans, 1995.
Sharma R.S, Material Cultures and Social Formations in Ancient India, New Delhi, 1983.
Thapar Romila, Early India: From the Origins to AD 1300, London, 2002

Suggested Readings

Basham A.L ed. A Cultural History of India, New Delhi, 1975.
Ghosh Amalananda, The City in Early Historic India, Shimla, 1973.
Altekar A.S, The Position of Women in Hindu Civilization from Pre-historic times to the Present Day, New Delhi, 1962.
Chattopadhyaya B.D, Studying Early India: Archaeology, Texts and Historical Issues. New Delhi, 2003.
Sircar D.C, Indian Epigraphy, New Delhi, 1965.
Kosambi D.D, An Introduction to the Study of Indian History, Bombay, 1956

Kosambi D.D, Combined Methods in Indology and Other Writings, Edited and Introduced By B.D Chattopadhyaya
Jha D.N, Ancient India: An Introduction, New Delhi, 1998
Chattopadhyay D.P, Science and Society in Ancient India, Calcutta, 1977.
Erdosy George, Urbanization in Early Historic India, Oxford, 1988.
Allchin F.R. (ed). The Archaeology of Early Historic South Asia: The Emergence of Cities and States, Cambridge, 1995.
Staal Frits, Discovering the Vedas : Origins, Mantras, Rituals Insights, New Delhi, 2008.
Possehl G.L, ed. Harappan Civilization- A Recent Perspective, Delhi, 1993 (second edition).
Michell George, The Penguin Guide to the Monuments of India. London, 1989.
Raychaudhuri H.C, Political History of Ancient India with a commentary by B.N.Mukherjee, New Delhi, 1996 (8th edition)
Habib Irfan (General Editor), A People's History of India (Volume 1,2,3), New Delhi.
Shastri K.A Nilakantha, A History of South India, Madras, 1974 (4th Edition)
Lahiri Nayanjyot, The Decline and Fall of the Indus Civilization, New Delhi, 2000.
Ray Nihar Ranjan, Brajadulal Chattopadhyaya, V.R. Mani and Ranabii Chakravarti eds. A Source Book of Indian Civilization, Kolkata, 2000.
Sahu Bhairabi Prasad (ed.). Iron and Social Change in Early India. New Delhi: Oxford University Press, 2006.
Chakraborty Ranabir, Exploring early India, upto circa AD 1300
Kochar R., The Vedic People, New Delhi. 2000.
Majumdar R.C (General Editor), The History & Culture of the Indian People, Volumes I – III, Bombay, 1951,1968, 1970
Sharma R.S, Advent of the Aryans, Manohar, 1999.
Sharma R.S, Aspects of Political Ideas and Institutions in Ancient India. New Delhi, 2005 (reprint).
Sharma R.S, India's Ancient Past, New Delhi, 2005.
Sharma R.S, Perspectives in the Social and Economic History of Early India, New Delhi, 1983.
Sharma R.S, Sudras in Ancient India.
Salomon Richard, Indian Epigraphy: A Guide to the Study of Inscriptions in Sanskrit, Prakrit, and Other Indo-Aryan Languages. New York, 1998.
Thapar Romila (et al). India: Historical Beginnings and the Concept of the Aryan, New Delhi, 2006
Thapar Romila, From Lineage to State, Delhi, 1996 (2nd Edition)
Ratnagar Shireen, (ed), Women in Early Indian Societies. New Delhi, 1999.
Ratnagar Shireen, The End of the Great Harappan Tradition, Delhi, 2000
Roy Kumkum, The Emergence of Monarchy in North India: eighth to fourth centuries BC, NewDelhi, 1994
Ratnagar Shireen, Understanding Harappa, Delhi 2001
Saraswati S.K, A Survey of Indian Sculpture, New Delhi, 1975 (second edition)
Bhattacharji Sukumar, Women and Society in Ancient India. Calcutta, 1994.
Singh Upinder, A History of Ancient and Early Medieval India. Delhi, 2008.

□□□□□ □ □□, □□□□□□ □□□□□□□ □□□□, (The Wonder That Was India), □□□□□□□□□□
□□□□□□□□□□, □□□□□□, □□□□
□□□□□□□□□ □□□□□, □□□□ □□□□□□□□ □□□ □□□□, □□□□□□, □□□□
□□□□□ □□□□□, □□□□□□□□□□ □□□□□□ □□□□□□□ □□□□□□
□□□□□ □□□□ – □□□□□-□□□□□□, (Pre-history) □□ □□ □, □□□□□□, □□□□
□□□□□□□ □□□□: □□□□□□ □□□□□□, (The Indus Civilisation) □□ □□ □, □□□□□□, □□□□
□□□□□ □□□□ – □□□□□ □□□□□□, (The Vedic Age) □□ □□ □, □□□□□□, □□□□
□□ □□ □□, □□□ □□□□ – □□□□ □□□□□□□□□ □□□□□□, (Ancient India: An Introduction),
□□□□□□□□□□ □□□□□□□□□□, □□□□□□
□□□□□□□□ □□ □□, □□□□ □□□□□□ □□□□□□ □□□□□□ (An Introduction to the Study of Indian History) □□□□□ □□ □□ □□□□ □□□, □□□□□□, □□□□
□□□□□□□ □□□□□, □□□□□□ □□□□□□□ □□□□□□□ (Understanding Harappa) □□ □□ □,
□□□□□□, □□□□
□□□□□□□□□ □□□□□□□□□, □□□□□□□ □□□□□□ □□□□□□□□ □□□□□□, (Political History of Ancient India), □□□□□□□□□□ □□□□□ □□□□□□ □□□□□, □□□□□□
□□□□□ □□□□□□, □□□□□□□□□□ □□□□□□, □□□□□□□□ □□□□□□□, □□□□□□
□□□□□□□□□□ □□□□□□□□□□□□, □□□□□□□ □□□□□ □□□□, □□□□□□, □□□□
□□□□□□□□□□ □□□□□□□□□□□□, □□□□□□□ □□□□□□ □□□□, □□□□□□□□□□ □□□□□
□□□□□□ □□□□□, □□□□□□
□□□□□□□□□□ □□□□□□□□□, □□□□□□□□ □□□□□ □□□□□ □□□□□□□, □□□□□□□□□□
□□□□□ □□□□□□ □□□□□, □□□□□□
□□□□□□□□□□ □□□□□□□□□, □□□□□□□□ □□□□- □□□□ □ □□□□□□□□, □□□□□
□□□□□□□□□□, □□□□□□
□□□□□□□□□□ □□□□□ □□□□□ - □□□□□□□□□□ □□□□□□ □□□□□□ □□□□□ □□□□□□□□□□,
□□□□□□, □□□□
□□□□□□□□□□□□ □□□□□ □□□□□ - □□□□ □□□□□□□□ □□□□□□□, (□ □□□□□), □□□□
□□□□□□□□□ □□□□□, □□□□□□□ □□□□□□ □□□□□□□□□ □□□□□□□□ □□□□□□□, □□□□□
□□□□□□□□□□, □□□□□□ □□□□ (□□□□□□□ □□□□□□□)
□□□□□□ □□□□□□, □□□□□□□ □□□□□ □□□ □□□□□, (Slavery in Ancient India as depicted in Pali and Sanskrit Texts), □□ □□ □□□□□ □□□□ □□□, □□□□□□ □□□□
□□□ □□□□□□□□□□, □□□□□□□ □□□□□□, □□□□□□, □□□□(□□□□□□□ □□□□□□□)
□□□□□ □□□□□□, □□□□□□□ □□□□□ □□□□□□□ □□□□□□□□ □ □□□□ □□□□□, (Material Cultures and Social Formations in Ancient India), □□□□□□□□ □□□□□□□, □□□□
□□□□□ □□□□□□, □□□ □□□□□□□□□ □□□□□□ □□□□ : □□□□□-□□□□□□□□□ □□□□□ □□ □□□□□□□ (Early Medieval Indian Society : A Study in Feudalism) □□□□□□□□ □□□□□□□,
□□□□
□□□□□ □□□□□□, □□□□□□ □□□□□□□□□□, (Indian Feudalism), □□ □□ □□□□□ □□□□ □□□,
□□□□□□
□□□□□ □□□□□□, □□□□□□□ □□□□□□□□□, (Looking for the Aryans), □□□□□□□□□□
□□□□□□□□□□, □□□□□□

□□□□□ □□□□□□, □□□□□□□ □□□□□ □□□□, (Advent of the Aryans), □□□□□□□□ □□□□□□□, □□□□
□□□□□ □□□□□□, □□□□□□□ □□□□□ □□□□□, (Sudras in Ancient India), □□ □□ □□□□□ □□□□ □□□, □□□□□□
□□□□□ □□□□□□, □□□□ □ □□□□□□□□ □□□, (Asoka and the Decline of the Mauryas), □□ □□ □□□□□ □□□□ □□□, □□□□□□
□□□□□□□□□□□□ □□□□□, □□□□□□□ □□□□□□ □□□□□□ (□□ □□□□), □□□□□□□□□□ □□□□□ □□□□□□ □□□□□, □□□□□ □□□□□□, □□□□□□ □□□□
□□□□□□□□□□□□ □□□□□, □□□□□□□ □□□□□□ □□□□□□ (□□ □□□□), □□□□□□□□□□ □□□□□ □□□□□□ □□□□□, □□ □□□□□□, □□□□□□□□□□ □□□□
□□□□□□□□□□□□ □□□□□□□□□□□□□, □□□□□□□□□□ □□□□□□ (□□ □□□□) (□□□□□□□ □ □□□□□□□), □□□□□□□□□□ □□□□□ □□□□□□ □□□□□, □□□□□ □□□□□□ □□□□□□□ □□□□

HIS- MD-CC-2 : Social Formations and Cultural Patterns of the ancient world other than India

Learning Objectives:

This course aims to introduce the students to the significant developments in world history that have shaped the complexity of human existence. To begin with it offers a historical survey of human evolution. It details the transition from hunting gathering subsistence pattern to more advanced adaptations to a sedentary farming economy. The course content is premised on the understanding that the pace and nature of change differed in different parts of the ancient world.

I. Evolution of human kind: Paleolithic and Mesolithic cultures – Role of social Institutions in the development of early societies.

II. Food production: Debate on the origins of food production, Neolithic cultures in West Asia and Europe

III. Bronze Age civilizations, Egypt (Old Kingdom); economy, social stratification, state structure, religion architecture.

IV. Nomadic groups- Debate on the advent of iron and its implications in Central and West Asia.

V. Ancient Rome: Polity and society- slavery, agrarian economy, urbanization, & trade.

VI. Polis in ancient Greece: Athens and Sparta - Polity and society- Slavery, Athenian democracy, Greek culture- Sophists, Drama - Tragedy and Comedy, Art and architecture.

Essential Readings

Rakesh Kumar, Ancient and Medieval World From Evolution of Humans to the Crisis of Feudalism, Sage Texts, 2018

Farooqui Amar, Early Social Formations. Manak Publications Pvt. Ltd. 2002

B.Fagan, People of the Earth. : an introduction to world prehistory

New York, NY HarperCollins College Publishers 1977

B.Trigger, Ancient Egypt : A Social History. Cambridge University Press, 1983

Bai Shaoyi, An Outline History of China. Beijing : Foreign Languages Press, 1982.

Burns and Ralph, World Civilisations.

Cambridge History of Africa, Vol.I. Cambridge University Press ,1982

G.Clark, World Prehistory: A New Perspective Cambridge University Press, 1977.

Yuval Noah Harari , Sapiens A Brief History of Humankind, Vintage,2015

Norman Davies, Europe A History , Oxford 1996

Jacquetta Hawkes, First Civilisations. life in Mesopotamia, the Indus Valley and Egypt.

The history of human society. New York: Knopf, 1973.

M.I.Finley, The Ancient Economy. University of California Press 1999.

R.J.Wenke, Patterns in Prehistory Oxford University Press, USA; 5th edition 2006

UNESCO Series: History of Mankind, Vols. I –III/ or New ed. History of Humanity.1963

V.Gordon Childe, What happened in History. Peregrine Books 1985

Suggested Readings

A.Hauser, A Social History of Art, Vol I. Routledge, 1999.

Glyn Daniel, First Civilisations. New. York: Thomas Y. Crowell (Apollo. Editions), 1968

J.D. Bernal, Science in History, Vol.I. Cambridge: The MIT Press, Massachusetts Institute of Technology, 1971

Salia Ikram, Death & Burial in Ancient Egypt (American University in Cairo Press, 2015)

V.Gordon Childe, Social Evolution.

Martin Bernal, Black Athena; the Afro Asiatic Roots of Classical Civilization Brunswick: Rutgers University Press, 1991.

□□□□□ □□□□□□, □□□□□□□ □□□□□□□, □□□□ □□□□□□ (□□□□□□□□), □□□□□□, □□□□□□, □□□□ □□□□□□□□□

□□□□□ □□□□□□, □□□□□ □□□□□ □□□□□□□, □□□ □□□ (□□□□□□□□), □□□□□□, □□□□□□, □□□□□

□□□□□ □□□□□□,□□□□□ □□□□□□□□ □□ □□□□□□□□, □□□□□□, □□□□□□□

□□ □□□□□□□ □□□□□□□, □□□□□□□ □□□□□□□, □□□□□, □□□□□□□

□□□□□ □□□□□□□□□□□□ □ □□□□□ □□□□, □□□□□□□ □□□□□□□ □□□□ □ □□□□□□□□□□, □□□□□□□□□□, □□□□□□ □

□□□□□□□□ □□□, □□□□□ □□□□□□□□□□, □□□□□□□□□□, □□□□□□ □

HIS- MD-CC-3 : History of India C 300 BCE to C 750 CE

Learning Objectives:

This paper focusses on the formation of polity, society, economy and religion of ancient India tracing the growth of empires from the Mauryas, to the Kushanas, the Satavahanas the Guptas, and also the post- Gupta polities such as the Pallavas, Chalukyas, and Vardhanas.

I. Economy and Society (circa 300 BCE to circa CE 300)

a)Expansion of agrarian economy : production relations

b) Urban growth: north India, central India and the Deccan; craft Production: trade and trade routes; coinage

c)Social stratification: class, Varna, Jati, untouchability; gender; marriage and property relations.

II. Changing political formations (circa 300 BCE to circa CE 300) :

a)The Mauryan Empire

b)Post-Mauryan Poliities with special reference to the Kushanas and the Satavahanas; Gana-Sanghas

III. Towards early medieval India (circa CE fourth century to CE 750):

a) Agrarian expansion: land grants, changing production relations; graded land rights and peasantry.

b)The problem of urban decline: patterns of trade, currency, and urban settlements.

c)Varna, proliferation of Jatis: changing norms of marriage and property

d) The nature of polities: the Gupta empire and its contemporaries: post-Gupta polities- Pallavas, Chalukyas, and Vardhanas.

IV. Religion, philosophy and society (circa 300 BCE – CE 750)

a)Consolidation of the Brahmanical tradition : dharma, Varnashram, Purushastras, Samskaras.
b)Theistic cults (from circa second century BC): Mahayana; the Puranic tradition.
c) The beginnings of Tantricism.

V. Cultural developments (circa 300 BCE to circa CE 750):
a)A brief survey of Sanskrit, Pali, Prakrit and Tamil literature. Scientific and technical treatises.
b)Art and architecture and forms and patronage; Mauryan , Post-Mauryan, Gupta , Post-Gupta

Essential Readings
Chattopadhyaya B.D, The making of early Medieval India, 1994.
Chattopadhyaya B.D, Bharatvarsha and other Essays, Permanent Black, Delhi, 2017.
Chattopadhyaya D.P, History of Science and Technology in Ancient India, 1986.
Chakravarti Ranabir, Exploring Early India upto AD 1300, Primus, Delhi, 2016.
Huntington Susan, The Art of Ancient India: Buddhist, Hindu, and Jain, New York, 1985.
Kosambi D.D, An Introduction to the Study of Indian History, 1975.
Maity S.K, Economic Life in Northern India in the Gupta Period, 1970.
Sahu B.P (ed.), Land System and Rural Society in Early India, 1997.
Sastri K.A.N, A History of South India.
Sharma R.S, Indian Feudalism, 1980.
Sharma R.S, Urban Decay in India, c.300- c1000, Delhi, Munshiram Manohar Lal, 1987
Singh Upinder, A history of Ancient and early Medieval India, 2008.
Thapar Romila, Asoka and the Decline of the Mauryas, 1997

Suggested Readings
Agarwal Asvini, The Rise and Fall of the Imperial Guptas, New Delhi,1988.
Bhattacharya N.N, Ancient Indian Rituals ad Their Social Contents, 2nd ed., 1996.
Bhattacharya N.N, History of Tantric Religion, 1982
Chakravarti Uma, The Social Dimensions of Buddhism. New Delhi: Oxford University Press, 1987.
Chakravarti Uma, Trade and Traders in Early Indian Society, New Delhi, 2007 (revised edition)
Champakalakshmi R, Trade, Ideology and Urbanization: South India: 300BC to AD 1300, Delhi, 1996.
Chanana D., Slavery in Ancient India as Depicted in Pali and Sanskrit Texts, Delhi, 1960.
Gupta P.L, Coins, 4th ed., 1996.
Harle J.C, The Art and Architecture of the Indian Subcontinent, 1987.
Lahiri Nayanjot, Ashoka in Ancient India, 2015
Majumdar R.C and Altekar A.S eds. The Vakataka Gupta Age, Varanasi, 1955.
Mukherjee B.N, Kushana Studies, New Perspectives, Kolkata, 2004
Mukherjee B.N, The Character of the Maurya Empire, Kolkata, 2000
Mukherjee B.N, The Rise and Fall of the Kushana Empire, Calcutta, 1989.

Pollock Sheldon, The Language of the Gods in the World of Men. Sanskrit, Culture and Power in Pre-modern India. New Delhi, 2006.
Ray H.P, Winds of Change, 1994.
Ray Nihar Ranjan, Maurya and Post Maurya Art, New Delhi, 1975.
Sharma R.S, Perspectives in the Social and Economic History of Early India, New Delhi, 1983.
Shastri A.M ed. The Age of the Vakatakas, Delhi, 1992.
Singh Upinder, A History of Ancient and Early Medieval India. Delhi, 2008.
Smith Bardwell ed., Essays in Gupta Culture, New Delhi, 1983.
Thapar Romila, Asoka and the Decline of the Mauryas, New Delhi, 2000
Thapar Romila, Early India: From the origins to 1300, London, 2002
Thapar Romila, The Mauryas Revisited, Calcutta,1987.
Veluthat Kesavan, The Early Medieval in South India, New Delhi, 2009

□□□□□□ □□□□□, □□□□ □ □□□□□□□□ □□□, (Asoka and the Decline of the Mauryas), □□ □□ □□□□□ □□□□ □□□, □□□□□□
□□□□□ □□□□□□□□□□□□□, □□□□□□□ □□□□□□ □□□□□□ (□□ □□□□), □□□□□□□□□□
□□□□□ □□□□□□ □□□□□, □□□□□ □□□□□□, □□□□□□ □□□□
□□□□□ □□□□□□□□□□□□□, □□□□□□□ □□□□□□ □□□□□□ (□□ □□□□), □□□□□□□□□□
□□□□□ □□□□□□ □□□□□, □□ □□□□□□, □□□□□□□□□□ □□□□
□□□□□□□□□□□□ □□□□□□□□□□□□, □□□□□□□□□□ □□□□□□ (□□ □□□□) (□□□□□□□□ □ □□□□□□□□), □□□□□□□□□□ □□□□□ □□□□□□ □□□□□, □□□□□ □□□□□□ □□□□□□□□ □□□□

HIS- MD-CC- 4 SEM-4: HISTORY OF EUROPE (C.1453-1650)

Learning Objectives: This paper explains the transition of Europe from feudalism to capitalism, illustrating the various forces that saw the culmination of this process. It thus includes geographical discoveries, Renaissance, Reformation, economic developments and finally the emergence of the national monarchies.

Module 1
1.1 Transition Debate on transition from feudalism to capitalism: problems and theories.

Module II
2.1 The exploration of the new world: motives
2.2 Portugese and Spanish voyages.

Module III
3.1 Renaissance : its social roots
3.2 Renaissance humanism
3.3 Rediscovery of classics
3.4 Italian renaissance and its impact on art, culture, education and political thought.
3.5 Its spread in Europe

Module IV

4.1 Reformation movements: Origins & courses
4.2 Martin Luther & Lutheranism
4.3 John Calvin & Calvinism
4.4 Radical reformation: Anabapists and Huguenots
4.5 English reformation and the role of the state
4.6 Counter Reformation

Module V

5.1 Economic developments
5.2 Shift of economic balance from the Mediterranean to the Atlantic
5.3 Commercial Revolution
5.4 Price Revolution
5.5 Agricultural Revolution and the Enclosure Movement

Module VI

6.1 Development of national monarchy
6.2 Emergence of European state system

Essential Readings

Butterfield H., The Origins of Modern Science. The Macmillan Company. 1959
Cipolla Carlo M., Fontana Economic History of Europe, Vols. II and III Collins/ Fontana Books; 1978
Cipolla Carlo M., Before the Industrial Revolution, European Society and Economy, 1000-1700, W. W. Norton & Company; 3rd edition 1994
Coleman D.C (ed.), Revisions in Mercantilism Methuen & Co, 1969.
Davis Ralph, The Rise of the Atlantic Economics. Cornell University Press, 1973
Dobb Maurice, Studies in the Development of Capitalism, International Publishers, 1947
Parker G., Europe in Crisis, 1598-1648 Ithaca, N.Y. : Cornell University Press. 1980
Parry, J.H., The Age of Reconnaissance University of California Press, 1981
Phukan Meenaxi, Rise of the Modern West: Social and Economic History of Early Modern Europe. Laxmi Publications 2013
Poliensky.V, war and Society in Europe, 1618-48 Cambridge University Press, 2008
Rabb Theodore K., The Struggle for Stability in Early Modern Europe. Oxford University Press, 1975
Scammell V., The First Imperial Age: European Overseas expansion, 1400-1715. Routledge, 2003
Vries Jan de, Economy of Europe in an Age of Crisis 1600-1750. New York: Cambridge University Press, 1976

Suggested Readings :

Anderson M.S, Europe in the Eighteenth Century Holt, Rinehart and Winston, 1961
Anderson, Perry, The lineages of the Absolutist States. Verso, 1979

Aston, T.H and Philipin C.H.E (eds.), The Brenner Debate: Agrarian Class Structure and Economic Development in Pre-Industrial Europe, Cambridge University Press, 2005.
Bernal J.D, Science in History Cambridge: The MIT Press, 1954
Burke, Peter, The Renaissance . Humanities Press International, 1987
Camerson, Euan (ed.), Early Modern Europe: An Oxford History, Oxford University Press 2001.
Dunn Rechard S., The Age of Religious Wars, 1559-1715, W.W.Norton & Company, 2004
Elton, G.R., Reformation Europe, 1517-1559 Wiley, 1999
Gilmore, M.P., The World of Humanism, 1453-1517 New York, Harper 1952
Hall, R., From Galileo to Newton Courier Corporation, 1981
Hill, Christopher, A century of Revolutions. Psychology Press, 2002
Hilton, Rodney, Transition from feudalism to Capitalism, Aakar Books, 2006
Koenigsberger, H.G and Mosse, G.L., Europe in the Sixteenth Century. Longmans, 1961

Lee, Stephen J., Aspects of European History, 1494-1789 Routledge, 1982
Parker, G. and Smith, L.M., General Crisis of the Seventeenth Century. Boston : Routledge & Kegan Paul, 1978.
Pennington, D.H., Seventeenth Century Europe. Longman, 1972
Rabb, Theodore K., The Struggle for Stability in Early Modern Europe. Oxford University Press, 1975
Rice, Eugene F. and Grafton, Anthony, The Foundations of Early Modern Europe, 1460-1559, W.W.Norton & Company, 2004.
The Cambridge Economic History of Europe, Vol.I, IV Cambridge University Press 1944
The New Cambridge Economic History of Europe, Vol.I, VII.

□□□□□□□□ □□□□□, □□□□□□ □□□□□□□□ □□□□□□□ □□□□□□□□, □□□□□ □□□□□□□□□□, □□□□□□ □□□□
□□□□□□□□ □□□□, □□□□ □□□□□□□□ □□□□□□□ □ □□□□□□□ □□□□-□□□□, □□□□□ □□□□□□□□□□, □□□□□□, □□□□
□□□□□□□ □□ □□, □□□□□□□ □□□□□□□, (Science in History**)**, □□□□□ □□□□□□□□□□, □□□□□□, □□□□
□□□ □□□□□□□□□, □□□□□□□□□ □□□□□□, □□□□□□ □□□□□□□, □□□□□□, □□□□ □□□□□□□□□□ □□□□□□□□□□, □□□□□□□□ □□□□□□ (□□□□□ □□□), □□□□□□□□□□ □□□□□ □□□□□□ □□□□□, □□□□□□, □□□□
□□□□□□□□□ □□□□□□, □□□□□□□□□ □□□□□ □□□□□ □□□ □□□□□□□□□□□□ □□□□□□, □□□□□□ □□□□□□□□, □□□□□□□ □□□□□□□□, □□□□□□, □□□□
□□□□□□□□ □□□□, □□□□□□□□□□ □□□□□(□□□ – □□□□), □□□□□□□□□□ □□□□□□□□□□, □□□□□□, □□□□

HIS- MD-CC-5 : HISTORY OF INDIA (c.1206-1526)

Learning Objectives : This paper focusses on the polity , society and economy , culture and religion of the Delhi Sultanate.

I. Interpreting the Delhi Sultanate:

Survey of sources: Persian tarikh tradition; vernacular histories; epigraphy

II. Sultanate Political Structures:

a. Foundation, expansion and consolidation of the Sultanate of Delhi; the Khaljis and the Tughluqs; Mongol threat and Timur's invasion; Rise and fall of Syed dynasty; The Lodis; Conquest of Bahlul and Sikandar; Ibrahim Lodi and the battle of Panipat;
b. Theories of Kingship; Ruling elites; Sufis, Ulama and the political authority; imperial monuments and coinage
c. Emergence of provincial dynasties: Bahamanis, Vijayanagar, Gujarat, Malwa, Jaunpur and Bengal
d. Consolidation of regional identities: regional art, architecture and literature

III. Society and Economy:

a. Iqta and the revenue-free grants
b. Agriculture production; technology
c. Changes in rural society; revenue systems
d. Monetization; market regulations; growth of urban centres; trade and commerce; Indian Ocean trade

IV. Religion and Culture:

a. Sufi silsilas: Chishtis and Suhrawardis; doctrines and practices; social roles.
b. Bhakti movements and monotheistic traditions in South and North India; Women Bhaktas;
Nathpanthis; Kabir, Nanak and the Sant tradition
c. Sufi literature; Malfuzat; Premakhayans
d. Architecture of the Delhi Sultanate

ESSENTIAL READINGS:

Asher, Catherine and Talbot Cynthia, India before Europe, Cambridge University Press, March 2006.
Chandra Satish, Medieval India I, Har Anand Publication, New Delhi, July 2007.
Habib Mohammad and Nizami K.A., eds, Comprehensive History of India, Vol. V, The Delhi Sultanate, People's Publishing House, 2nd Edition, 1992.
Hasan Mohibul, Historians of Medieval India, Meenakshi Prakashan, 1968.
Jackson Peter, The Delhi Sultanate, Cambridge University Press, Revised Edition, 2003.
Schomer, Karine, and McLeod W.H., (Eds), The Sants Studies in A Devotional Tradition of India, Motilal Banarsidas, Delhi, 1987.

Nizami K.A., Some Aspects of Religion and Politics in India During the 13th Century, Aligarh, 1961.
Raychaudhuri Tapan and Habib Irfan, (Eds), Cambridge Economic History of India, Vol. I: c. 1200 – c. 1750, Cambridge University Press, Cambridge, 1982, 1987 (reprint).
Rizvi S.A.A., A History of Sufism in India, Vol. I, Munshiram Manoharlal, New Delhi, 1978.

Suggested Readings

Ashraf K.M, Life and Conditions of the People of Hindusthan (1250 – 1550), Gyan Publishing House, 2000.
Eaton, R.M, The Rise of Islam and the Bengal Frontier (1204- 1760), University of California Press, July 1996.
Habib, Irfan, Medieval India: The Study of a Civilization, National Book Trust, July 2008.
Karashima, Noboru, South Indian History and Society: studies from inscriptions, A.D. 850 - 1800, Oxford, 1984.
Karashima, Noboru, Towards a New Formation: South Indian Society under Vijayanagara, Oxford University Press, 1992.
Kumar Sunil, The Emergence of the Sultanate of Delhi, Permanent Black, Delhi, First edition, 2010.
Stein, Burton, Peasant State and Society in Medieval South India, Oxford University Press, Oxford, February 1995.
Sherwani, H.K., Joshi, P.M. (eds), The History of Medieval Deccan (1295 - 1724), Government of Andhra Pradesh, Hyderabad, 1973-74.
Singh,Vipul, Interpreting Medieval India, Volume-I, Early Medieval, Delhi Sultanate and Regions (circa 750 – 1550), Macmillan Publishers India Ltd, 2009.
Tripathi, R.P; Some Aspects of Muslim Administration, The Indian Press Ltd., 1936.
Wink, Andre, Al Hind; The Making of the Indo Islamic World, Volume I – Early Medieval, Brill Academic Publishers, 2nd Edition, 1991.

□□□ □□□□□□□□□□, □□□□□□ □□□□□□ (□□□□-□□□□□ □□□), □□□□□□□□□□ □□□□□ □□□□□□ □□□□□, □□□□□□□ □□□□□□, □□□□□□□□□□ □□□□
□□□□□ □□□□□, □□□□□□□□□□ □□□□□□ □□□□□□□□□□ □□□□□□, (Economic History of Medieval India: A Survey), □□□□□□□□□□ □□□□□□□□□□
□□□□□ □□□□□, □□□□□□□□□□ □□□□ □-□ □□□□ (Medieval India) □□ □□ □□□□□ □□□□ □□□, □□□□□□
□□□□□□□□□□□ □ □□ □□, □□□□□ □□□□□□ □□□□□□ □□□□□□□□□□ □□□□-□□□□, (The Foundation of Muslim Rule in India), □□□□□□□□□□ □□□□□□□□□□, □□□□□□
□□□ □□□□□□□□ □ □□□□□□□□□□□□ □□□□□□□□, □□□□□□□□ □□□□□□ □□□□ □ □□□□□□□□, □□ □□ □□□□□ □□□□ □□□, □□□□□□ □□□□
□□□ □□□□□□□□, □□□□□□□□□□ □□□□□□ □□□□□□ : □□□□□□□ □□□, □□□□□□□□ □□□□□□□, □□□□□□

□□□□ □□□□□□, □□□□□□ □□□□□□ : □□□□□□□ □□□, □□□□

HIS- MD-CC-6 : HISTORY OF INDIA (C.1526-1605)

Learning outcome: Students will be able to identify the major political developments in the history of India during the period between the sixteenth and the early seventeenth century. Outline the changes and continuities in the field of an eclectic political and religious ideology in connection with the bhakti movement and sufi movements, and also to delineate the development of trade and urban complexities of the aforesaid period.

UNIT I- Sources and the Historiography
I. Important sources of Mughal Indian History: Persian and vernacular

II. Modern Interpretations

UNIT II- Establishment of the Mughal rule
I. India on the Eve of Babur's Invasion

II. Mughal- Afghan contest for Supremacy-Sher Shah and his administrative and revenue reforms III. Re-establishment of Mughal Rule under Akbar

UNIT III-Consolidation of Mughal Rule under Akbar
I. Campaigns and conquests with special reference to Gujarat, Deccan and Bengal - Resistance of Hemu Vikramaditya, Rana Pratap, Rani Durgavati, Chand Bibi

II. Evolution of administrative institutions: Zabt, Mansab, Jagir, Madaad-i-Mash
III. Incorporation of the Rajputs, creation of the Mughal nobility and growth of a dynastic ideology

IV. Revolts and resistance, pressure from the Ulemas

UNIT IV- Society and Economy
I. Conditions of Agriculture and Industry-agricultural productions, zamindars, peasants, rural tensions, non-agricultural productions
II. Development of Trade and Commerce- patterns of internal commerce, trade routes, overseas trade.

UNIT V- Religion and Culture
I. Religious tolerance and principle of Suhl-i-Kul; Sufi mystical movement

II. Bhakti movement.

Suggested Readings

Essential Readings

Alam Muzaffar and Subramaniam Sanjay , eds., The Mughal state, 1526-1750
Ali Athar M., The Mughal Nobility under Aurangzeb
Chandra Satish, Essays on Medieval Indian History
Dasgupta Ashin, Indian Merchants and the Decline of Surat, 1700 – 1750
Gordon Stewart, The Marathas 1600 – 1818
Habib Irfan, Agrarian System of Mughal India, 1526 – 1701
Koch Ebba, Mughal Art and Imperial Ideology
Qanungo, K.R, Dara Shukoh
Richards, J.F, The Mughal Empire
Rizvi, S.A.A, Muslim Revivalist Movements in Northern India.

Suggested Readings

Alam, Muzaffar-The Crisis of Empire in Mughal North India: Awadh and Punjab-1707-1748.
Alavi,Seema (ed.),The Eighteenth Century in India
Ali, M. Athar, Mughal India: Studies in Polity, Ideas, society and Culture.
Arasaratnam S., Maritime India in the Seventeenth Century
Asher Catherine, Architecture of Mughal India
Bandyopadhya S, From Plassey to Partition
Barnett,R.B, North India between Empires: Awadh, the Mughals and the British.
Bashir, Ahmed, Akbar, the Mughal Emperor.
Bayly, Susan, Caste, Society and Politics in India from the 18th century to the modern age.
Bayly,C.A., Indian Society and the Making of the British Empire;
Beach Milo, Mughal and Rajpur Paintings
Bernier, F, Travels in Mughal India.
Chandra Satish, Parties and Politics at the Mughal Court
Chandra, Satish, A History of Medieval India (Part II)
Chandra, Satish, Historiography, Religion and State in Medieval India
Chandra, Satish, Mughal Religious Policies, the Rajputs and the Deccan.
Chandra, Satish, The 18th century in India: Its economy and the Role of the Marathas, the jats and the Sikhs and the Afghans and Supplement (K.P.Bagchi)
Chaudhuri, K.N.,Trade & Civilization: An Economic History from the Rise of Islam to 1750.
Eaton, R.M., The Rise of Islam and the Bengal Frontier 1204-1760;
Eaton, R.M., The Sufis of Bijapur
Fukuzawa,H., The Medieval Deccan: Peasants, Social systems and States 16th to 18th centuries.
Gordon S.,The Marathas 16oo-1818
Grewal J.S.,The Sikhs of the Punjab

Habib Irfan(ed.), Medieval India
Habib Irfan (ed), Resistance and Modernization under Haider Ali and Tipu Sultan
Hasan S., Nurul,Thoughts on Agrarian Relations in Mughal India
Hasan S.Nurul, Reliogn, State, and Society in Medieval India
Husain Iqbal, Ruhela Chieftancies in 18th Century India
Kulke, H.(ed.),The State in India 1000-1700.
Malik, Z.U, The Reign of Muhammad Shah
Marshall P J., (Edited) , The Eighteenth century in Indian history: Evolution or revolution
Marshall P J.,East Indian Fortunes: the British in Bengal in the 18th Cent,
Mukhia Harbans, The Mughals of India
Nizami K.A., (ed.) Politics and society during the early Medieval Period : The collected Works of Prof. Md. Habib (2 vols.)
Raychoudhuri T.K. & Habib I. (eds.)-The Cambridge Economic History of India Vol.l
Richards J.F.,The Mughal Empire
Richards, J.F, Mughal Administration in Golconda
Rizvi S.A.A., A History of Sufism in India
Rizvi S.A.A., The Wonder that was India (vol.2);
Sarkar, Sir J.N., History of Aurangzeb 5 vols.
Sarkar, Sir J.N.,The Fall of the Mughal Empire, 4 vols.
Siddiqi. N.A., Land Revenue Administration Under the Mughals (1700- 1750)
Stein, Burton, Eighteenth Century in India: Another view (Studies in History, No.I, 1989)
Stein, Burton, Peasant, State and Society in Medieval South India (Oxford University Press)
Streusand D.F., The Formation of the Mughal Empire
Tripathi R.P., Some Aspects of Muslim Administration
Tripathi R.P.,The Rise & Fall of the Mughal Empire
Wink, Andre, Land and Sovereignty in India: Agrarian society and politics under the eighteenth century Maratha Swarajya.
Arnisha Ashraf, Tarikh-e Aasham: Astudy of Ahom-Mughal Conflict in the 17th Century,in
Asiatic Society for Social Science Research,Vol.No. 2,Issue No.1 June 2020.
S.L. Baruah, A Comprehensive History of Assam, 1985
K.N.Chitnis, Socio- Economic History of Medieval India,2002
Rekha Pande, Religious Movements in Medieval India,2005
Meena Bhargava, Uunderstanding Mughal India .Orient Blackswan 2020

□□□ □□ □□□□, □□□□□□□□□□□ □□□□ □□□□ □□□□□□ □□□□□□(The Mughal Nobility under Aurangzeb) □□ □□ □□□□□ □□□□ □□□, □□□□□□
□□□□□□□□□□□□□□□ □□□□, □□□□□□□ □□□□□ □□□□ □□□□ □ □□□□□□ □□□□□□ □□□□□□, □□□□□□,□□□□
□□□□ □□□□, □□□□ □□□□ □□□□ □□□□□□□□ □ □□□□ □□□□□□□, □□□□□□□□□□, □□□□□□, □□□□

□□□□□□ □□□□, □□□□ □□□□□□ □□ □ □□□□□□□, (Parties and politics at the Mughal Court 1707-1740) □□ □□ □□□□□ □□□□ □□□, □□□□□□
□□□□□□ □□□□ □□□□ □ □□□□□□□□□□, □□□□□□ □□□□ □□□□□□ □□□, □□ □□ □□□□□ □□□□ □□□, □□□□□□
□□□□□ □□□□□, □□□□□□□□□□ □□□□, □□□□ □-□, □□ □□ □□□□□ □□□□ □□□, □□□□□□
□□□□□ □□□□□, □□□□ □□□□□□□□□□ □ □□□ □□□- □□□□ □□□□□□□, □□□□□□□□□□
□□□□□□ □□□□,□□□□
□□□□□ □□□□□, □□□□ □□□□□□ □□□□ □□□□□□□□, (The Agrarian System of Mughal India(1556-1707)), □□ □□ □□□□□ □□□□ □□□, □□□□□□
□□□□□ □□□□□, □□□□□□□□□□ □□□□□□ □□□□□□□□□□ □□□□□□, (Economic History of Medieval India: A Survey), □□□□□□□□□□ □□□□□□□□□□, □□□□□□, □□□□
□□□□□ □□□□□, □□□□□□ □□□□□□ □□□□□□□□ □□□□□□□□ □□□□□□ □□□□□(Essays in Indian History: Towards a Marxist Perception), □□□□□□□□ □□□ □□□□□□□, □□□□□□, □□□□ □□□ □□□□□□□□, □□□□□□□□□□ □□□□□□ □□□□□□□□□□ □□□□□□, □□□□-□□□□, □□□□□□□□□□ □□□□□□□□□□, □□□□□□
□□□ □□□□□□□□, □□□□ □□□□□ □□□□□□□□□□ □□□□□□, □□ □□ □□□□□ □□□□ □□□, □□□□□□
□□□□□ □□□□□ □□□□□□, □□□□ □□□□□□□□□□ □□□□□ □□□ □□□□□□□□□□, (Mughal Economy : Organisation and Working) □□□□□□□□□□ □□□□□ □□□□□□ □□□□□, □□□□□□ □□□□
□□□□□□□□ □□□□□ □□□□□, □□□□ □□□□□□□ □□□□□□□□□□ □□□□□□□ □□□□□□□□ (□□□□ – □□□□)(Land Administration Under the Mughals (1700 -1750) □□□□□ □□□□□□□□□□□, □□□□□□□, □□□□
□□□□□□□□□□□□ □□□□□□□□□□□□□, □□□□□□□□□□□ □□□□□□ (□□ □□□□)
(□□□□ □ □□□□□□□□ □□□□,□□□□□□□□□□□ □□□□□ □□□□□□ □□□□□,□□□□□□□ □□□□ □□□□□□□□□□□□ □□□□□□□□□, □□□□ □□□□□ □□□□□□ □□□□□□□□□, □□□□, □□□□□□

HIS- MD-CC- 7 SEM-5: HISTORY OF MODERN EUROPE (C.1780-1939)

Learning Objectives:

This paper studies the watersheds in European history starting with the French revolution and its aftermath, the restoration of old hierarchies, the emergence of Capitalist industrialization and social and economic transformation in the late 18th century to 1914. It also looks at the varieties of Nationalism and the remaking of states in the 19th and 20th centuries leading to imperialism, war and crisis between c.1880 and 1918 and finally provides a picture of Europe between two World Wars.

I. The French Revolution and its European repercussions:

a) Crisis of *ancien regime*

b) Intellectual currents
c) Social classes and emerging gender relations.
d) Phases of the French Revolution
e)Art and Culture of French Revolution
f)Napoleonic consolidation – reform and empire.

II. Restoration and Revolution: c.1815 - 1848
a) Forces of conservatism and restoration of old hierarchies.
b) Social, Political and intellectual currents.
c) Revolutionary and Radical movements, 1830 -1848

III. Capitalist Industrialization and Social and Economic Transformation (Late 18th century to AD 1914)
a) Process of capitalist development in industry and agriculture: case studies of Britain, France, the German States and Russia.
b) Evolution and Differentiation of social classes: Bourgeoisie, proletariat, Land Owning classes and peasantry.
c) Changing trends in demography and urban patterns
d)Family, gender and process of industrialization.

IV. Varieties of Nationalism and the Remaking of States in the 19th and 20th centuries.
a)Intellectual currents, popular movements and the formation of National identities in Germany, Italy, Ireland and the Balkans.
b) Specifications of economic development, political and administrative Reorganization – Italy; Germany.
c) Revolutions of 1905; the Bolshevik Revolution of 1917
d) Programme of Socialist Construction and the Soviet Union during the inter-war period 1918-39.

V. Imperialism, War and Crisis: c.1880 - 1918
a) Theories and mechanisms of imperialism;
b) Growth of Militarism;
c) Power blocks and alliances;
d) Expansion of European empires
e) War of 1914 - 1918

VI. Europe between Two World Wars:
a) Post War Europe: A Diplomatic History
b) The Great Depression
c) Rise of Fascism in Italy and Nazism in Germany
d) The Spanish Civil War
e) Policy of Appeasement and Russo German Non-Aggression Pact
f) Origins and Course of the Second World War

Essential Readings

Brennan Gerald, The Spanish Labyrinth: An Account of the Social and Political Background of the Civil War.
Cipolla C.M, Fontana Economic History of Europe, Volume III: The Industrial Revolution
Davies Norman, Europe
Evans J., The Foundations of a Modern State in 19th Century Europe
Hamerow T.S, Restoration, Revolution and Reaction : Economics and Politics in Germany [1815 – 1871]
Hobsbawn, E.J, The Age of Revolution
Hunt Lynn, Politics, Culture and Class in the French Revolution
Joll James, Europe Since 1870
Landes David; Prometheus Unbound
Lefebvre George, Coming of the French Revolution
Lichteim, A Short History of Socialism
Mathias Peter, First Industrial Revolution
Nove, Alec; An Economic History of the USSR
Porter Andrew, European Imperialism, 1876 – 1914
Wood Anthony, History of Europe, 1815 – 1960
Woolf Stuart, History of Italy, 1700 to 1860

Suggested Readings

Barraclough G., An Introduction to Contemporary History
Blanning, T.C.W, The French Revolution: Class War or Culture Clash
Braudel Fernand, History and the Social Science in M. Aymard and Mukhia H. ed., French Studies in History, Vol.I (1989)
Briggs Asa and Clavin Patricia, Modern Europe: 1789 – Present
Calleo D, German Problem Reconsidered
Carr E.H, International Relations between the Two World Wars
Carr E.H, The Bolshevik Revolution (Vol. I, II, III)
Cobban, Alfred, History of Modern France, Volume I – III
Dobb Maurice, Soviet Economic Development since 1917
Doyle, William, Origins of the French Revolution
Droz. Jacques, Europe Between Revolutions
Ellis G., The Napoleonic Empire
Evans, J., The Foundations of a Modern State in 19th Century Europe
Hamerow, T.S, Restoration, Revolution and Reaction : Economics and Politics in Germany (1815 – 1871)
Hanham H.J, Nineteenth Century Constitution, 1815-1914
Hobsbawm, E.J, Age of Capital
Hobsbawm, E.J, Age of Empire

Hobsbawm, E.J, Age of Revolution
Hobsbawm, E.J, Nation and Nationalism
Hufton, Olwen, Europe: Privilege and Protest
Jelavich Charles and Jelavich Barbara, Establishment of the Balkan National States, 1840 – 1920
Joll James, Europe Since 1870
Joll James, Origins of the First World War, 1989
Landes Jaon B., Women and the Public Sphere in the Age of the French Revolution
Lee Stephen J., Aspects of European History 1789 – 1980
Licas Colin, The French Revolution and the Making of Modern Political Culture
Lowenthal David, The Past is a Foreign Country
Lyon Martin, Napoleon Bonaparte & the Legacy of the French Revolution
Mansergh Nicholas, The Irish Question, 1840 – 1921
Morgan K.O, Oxford Illustrated History of Britain, Volume 3 (1789-1983)
Morgan R.P, German Social Democracy and the First International
Perrot M. and Duby G. [eds.], A History of Women in the West, Volumes 4 and 5
Renton Dave, Fascism: Theory and Practice
Riasanovsky N.V, A History of Russia
Robert J.M, Europe 1880 to 1985
Roth J.J (ed), World War I: A Turning Point in Modern History
Rude, George, Revolutionary Europe
Schamma Simon , Citizens: A chronicle of the French Revolution
Soboul Albert, History of the French Revolution (in two Volumes)
Stone Lawrence, History and the Social Sciences in the twentieth Century, The Past and the Present, 1981
Taylor A.J.P, Europe: Grandeur and Decline
Taylor A.J.P, The Course of German History
Taylor A.J.P, The Origin of the Second World War
Taylor, A.J.P, The Struggle for Mastery in Europe
Thompson Dorothy; Chartists: Popular Politics in the Industrial Revolution
Thompson, E.P, Making of the English Working Class
Thomson, David, Europe Since Napoleon
Vovelle Michael, Fall of the French Monarchy, 1984.
Watson H. Seton, The Russian Empire
Watson, Seton, The Russian Empire
Williams Raymond, Culture and Society

□□□□ □□□□□□□□□□□□□ □□□□□□□□□: □□'□□ □□□□□ □□□□□, □□□□□□□□□□□ □□□□□□□ □□□□, □□□□

□□□□□□□□□□ □□□□□ □□□□□, □□□□□ □□□□□□□, □□□□□□□□□□□ □□□□□□□ □□□□□, □□□□□□

□□□□□□□□□□ □□□□□ □□□□□, □□□□□□□□ □□□□□□□, □□□□□□□□□□□ □□□□□□□ □□□□□, □□□□□□, □□□□

□□□□□□□ □□ □, □□□□□ □□□□□□ – □□ □□□□□□, □□ □□ □□□□□ □□□□ □□□, □□□□□□ □□□□

□□□□□ □□□□□, □□□□□ □□□□□□□□ □□□□□□□□□□□ □□□□□, □□ □□□□ (□□□□-□□□□), □□ □□□□ (□□□□-□□□□) □□□□□□□□□□ □□□□□□□□□□, □□□□□□ □□□□ □ □□□□ □□□ □□□□□□□□□ □□□, □□□□□□ □□□□□□ □□□□□ □□□□□□ □□□□ □□□□□□□ □□□□□□□□□□, □□□□□□□□□ □□□□□□□, □□□□□□, □□□□

HIS - MD-CC 8 SEM -6: HISTORY OF INDIA (C.1750s– 1857)

Learning Objectives: This course would engage with the process of transformation of India during the eighteenth century into a colonial power. It would highlight British imperialist expansion in India, together with the setting up of an apparatus of governance of the British Raj, and its impact on the indigenous society and culture. The changes introduced in the rural economy and society, together with trade and industry would also be studied. Finally, the reactions and revolts against the colonial impositions would be addressed as well in this course.

I. India in the mid 18th Century; Society, Economy, Polity

II. Expansion and Consolidation of Colonial Power :
a) Mercantilism, foreign trade and early forms of exactions from Bengal
b) Dynamics of expansion, with special reference to Bengal, Mysore, Western India, Awadh, Punjab and Sindh.

III. Colonial State and Ideology:
a) Arms of the colonial state : army, police, law
b) Ideologies of the Raj and racial attitudes.
c) Education : indigenous and modern.

IV. Rural Economy and Society:
a) Land revenue systems and forest policy
b) Commercialization and indebtedness
c) Rural society : change and continuity.
d) Famines
e)Pastoral economy and shifting cultivation.

V. Trade and Industry
a)De industrialization
b)Trade and fiscal policy
c) Drain of Wealth
d) Growth of modern industry

VI. Popular Resistance:
a) Santhal uprising (1857); b) Uprising of 1857

Essential Readings

Bayly C.A, Indian Society and the Making of the British Empire, New Cambridge History of India.
Bhattacharya, Sabyasachi.ed., Rethinking 1857, Delhi, Orient Longman, 2007
Chakravarty Suhash, The Raj Syndrome: A study in Imperial Perceptions, 1989
Chandra Bipan, Rise and Growth of Economic Nationalism in India
Choudhury, Sushil, Prelude to Empire Plassey Revolution of 1757, Delhi: Manohar, 2000
Cohn, B., Colonialism and its Forms of Knowledge, Princeton, New Jersey, Princeton University Press, 2001
Dirks, Nicholas B., Castes of Mind, Princeton, New Jersey, Princeton University Press, 1996
Ghosh Suresh Chandra, The History of Education in Modern India 1757-2012, Delhi, Orient Blackswan, 4th Edition, 2013
Grewal, J.S, The Sikhs of the Punjab, New Cambridge History of India
Guha Ranajit, ed., A Subaltern Studies Reader
Guha, Ranajit, Elementary Aspects of Peasant Insurgency in Colonial India, New Delhi, Oxford University Press, 1983
Kumar Dharma and Raychaudhuri Tapan, eds., The Cambridge Economic History of India, Vol.II
Majumdar, R.C,ed., History and Culture of Indian People, Vols. IX and X, British Paramountcy and Indian Renaissance.
Marshall, P.J, Bengal: The British Bridgehead, New Cambridge History of India
Metcalfe, Thomas, Ideologies of the Raj, Cambridge, Cambridge University Press, 1995
Ray, Rajat K., ed., Entrepreneurship and Industry in India, 1800-1947, Oxford In India Readings.
Sinha, N.K.ed, The history of Bengal 1757-1905, Calcutta, Calcutta University Press, 1967
Stokes, Eric, English Utilitarians and India
Stokes, Eric, The Peasant Armed: The Indian Rebellion of 1857, ed. Bayly, C.A, New Delhi, Oxford University Press, 1986

Suggested Readings

Arnold David and Guha Ramchandra , eds., Nature, Culture and Imperialism
Bagchi, Amiya, Private Investment in India
Chandra Bipan, Panikkar, K.K, Mukherjee Mridula, Mahajan Sucheta and Mukherjee Aditya, India's Struggles for Independence.
Dadabhai Naroji, Poverty and Un-British Rule in India.
Desai, A.R, Peasant Struggles in India

Dutt, R.P, India today
Fisher, M.J, ed., Politics of Annexation (Oxford in India Readings).
Guha Ranajit, Elementary Aspects of Peasant Insurgency in Colonial India(1983)
Krishnamurti, J., Women in Colonial India.

□□□□□□□□□□□□□□□ □□□□, □□□□□□□□ □□□□□ □□□□ □□□□ □ □□□□□□□ □□□□□□□ □□□□□□□, □□□□□□□,□□□□□
□□□□□□□□□□□□□□□ □□□□, □□□□□ □□□□ □□□□□□□□□: □□□□□□□ □□□□□□□ □□□□□□□, □□□□□□□□□ □□□□□□□□, □□□□□
□□□□□□□□□□□ □□□□□□□□□, □□□□□□□□□□ □□□□□□□ □□□□□□□□□, □□□□□□□, □□□□□ □□□□□ □□□, □□□□□ □□□□□□□□□□ □□□□□-□□□□□, □□□□□□□□□□□ □□□□□ □□□□□□□ □□□□□, □□□□□
□□□□□□□ □□□□□ □□□□□, □□□□□□□□□□ □□□□□ □□□□□□□ □□□□□ □□□□□□□, □□ □□ □□□□□ □□□□□ □□□, □□□□□□□
□□□□□, □□□□□□□□, □□□□□□□ □□□□□□□ □□□□□□□□□□ □□□□□□□□□□□, □□□□□□□, □□□□□, □□□□□
□□□□□□□□□□ □□□□□□, □□□□□□-□□□-□□□□□, □□□□□□□□□□□ □□□□□□ □□□□□□□ □□□□□□,□□□□□□□, □□□□□
□□□ □□□□□□□□□, □□□□□□□ □□□□□□□□□ □ □□□□□□□□ □□□□□, □□□□□□ □□□□□□□□□□□, □□□□□□□
□□□□□□□ □□□□□□, □□□□□□□ □□□□□□ □□□□□□□, □□□□□□ □□□□□□□□□□□,□□□□□□□

Skill Enhancement Courses (SEC) 4 Credits.

HIS-SEC-1: SEM -1 Repositories of History: Museum and Archives

Learning Objective:

This course introduces students to the institutions that house and maintain documentary, visual and material remains of the past. Museums and archives are among the most important such repositories and this course explains their significance and how they work. Students will be encouraged to undertake collection, documentation and exhibition of such materials in their localities and colleges. Visit to National Archives and National Museum are an integral part of the course.

I. Definition and history of development (with special reference to India)

II. **Types of archives and museums**: Understanding the traditions of preservation in India Collection policies, ethics and procedures Collection: field exploration, excavation, purchase, gift and bequests, loans and deposits, exchanges, treasure trove confiscation and others. Documentation: accessioning,

indexing, cataloguing, digital documentation and de-accessioning Preservation: curatorial care, preventive conservation, chemical preservation and restoration

III. Museum Presentation and Exhibition:

IV. **IV. Museums, Archives and Society:** (Education and communication Outreach activities

Essential Readings:

Agrawal, O.P., Essentials of Conservation and Museology,Sundeep Prakashan, New *Delhi*, India, 2007.

Choudhary, R.D. Museums of India and their maladies. Calcutta: Agam Kala Prakashan, New Delhi, 1998(In Bengali).

Guha, Thakurta, Tapati, Monuments, Objects, Histories: Institution of Art in Colonial Post Colonial India, New York, 2004

Kathpalia, Y. P. Conservation and Restoration of Archive Materials. UNESCO, 1973

Mathur Saloni, India by Design: Colonial History and Cultural Display, University of California, 2007

Nair, S.M. Bio-Deterioration of Museum Materials.2011

Roychowdhury, Madhuparna. Displaying India's Heritage : Archaelogy and the Museum Movement in Colonial India. Delhi: Orient Blackswan 2015

Sengupta, S. Experiencing History Through Archives. Delhi: Munshiram Manoharlal.2004.

UNIVERSITY OF CALCUTTA

NotificationNo.CSR/13/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of his powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 11.07.2023 approved the Syllabi of the under mentioned subjects for semester wise Four-year (Honours & Honours with Research) / Three-year (Multidisciplinary) programme of U.G. courses of studies, as applicable under CCF,2022 . under this University, as laid down in the accompanying pamphlet.

Name of Subject:

1.Anthropology
2.BBA
3.Bengali
4.BFAD
5.Bio Chemistry
6.Botany
7.Chemistry
8.Commerce
9.Economics
10.Education
11.English
12.Geology
13.Hindi
14.History,Islamic History & Culture
15.Home Science
16.Human Rights
17.Journalism & Mass Communication
18.Mathematics
19.Microbiology (Honours)
20.Molecular Biology
21.Philosophy
22.Physiology
23.Political Science
24.Psychology
25.Social Science
26.Sociology
27.Urdu
28.Women's Studies
29.Zoology

The above shall be effective from the academic session 2023-2024.

12/7/2023

SENATE HOUSE

KOLKATA-700 073

Prof.(Dr.) Debasis Das

Registrar

SYLLABUS
FOR
FOUR -YEAR (EIGHT-SEMESTER) B.SC. DEGREE COURSE IN MATHEMATICS UNDER THE UNIVERSITY OF CALCUTTA

Odd Semester: July to December

Even Semester: January to June

Syllabus for the 4 Year B.Sc. course in Mathematics effective from the academic year **2023-2024.**

COURSE STRUCTURE-CCF

	DSC/ Core	Minor (m1 & m2)	IDC/MDC	AEC	SEC	CVAC	Summer Internship	Dissertation/ Research work	Total Credit
Semester	22x4= 88	8x4= 32	3x3= 9	4x2= 8	3x4= 12	4x2= 8	1x3= 3	(1x4= 4)+(1x8= 8)= 12	172
1	1x4= 4 3TH+1P/TU	1x4= 4 (m1) 3TH+1P/TU	1x3= 3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4	2x2= 4			21
2	1x4= 4 3TH+1P/TU	1x4= 4 (m1) 3TH+1P/TU	1x3= 3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4	2x2= 4			21
3	2x4= 8 2x(3TH+1P/TU)	1x4= 4 (m2) 3TH+1P/TU	1x3= 3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4				21
4	4x4= 16 4x(3TH+1P/TU)	1x4= 4 (m2) 3TH+1P/TU		1x2= 2 2TH +0P/TU					22
5	4x4= 16 4x(3TH+1P/TU)	m1+m2 2x4= 8 2x(3TH+1P/TU)							24
6	3x4= 12 3x(3TH+1P/TU)	2x4= 8 m1+m2 2x(3TH+1P/TU)					1x3		23
7	4x4= 16 4x(3TH+1P/TU)							1x4*	20
8	3x4= 12 3x(3TH+1P/TU)							1x8 *	20
Credits	22x4= 88	8x4= 32	3x3= 9	4x2= 8	3x4= 12	4x2= 8	1x3=3	(1x4)+(1X8)= 12	172
Marks	22x100=2200	8x100=800	3x75=225	4x50=200	3x100=300	4x50=200	1x75=75	1x100+1x200=300	Total Marks =4300

Marks= 25 marks per credit. Credit for Summer Internship has been adjusted from 4 to 3 to adjust the total marks

*Candidates who will not pursue Dissertation/ Research work then he/she will have to study additional 1 DSC/Core paper o f 4 credits in the 7th Semester & 2 DSC/ Core Papers of 4 Credits each in the 8th Semester.

Note: Tutorial marks will be awarded based on internal assessment– byevaluation of internal assignments for SEC papers and by internal examination for Core, Minor, IDC papers.

NAMES OF DSCC/ MAJOR PAPERS (Each carries 4 credits or 100 marks)

SEMESTER	COURSE CODE	COURSE NAME
I	MATh-H-CC1-1-Th	Calculus, Geometry & Vector Analysis
II	MATH-H-CC2-2-Th	Basic Algebra
III	MATH-H-CC3-3-Th MATH-H-CC4-3-Th	Real Analysis Ordinary Differential Equations – I & Group Theory - I
IV	MATH-H-CC5-4-Th MATH-H-CC6-4-Th MATH-H-CC7-4-Th MATH-H-CC8-4-Th	Theory of Real Functions Mechanics – I Partial Differential Equations -I & Multi-variate Calculus – I Group Theory – II & Ring Theory - I
V	MATH-H-CC9-5-Th MATH-H-CC10-5-Th MATH-H-CC11-5-Th MATH-H-CC12-5-Th	Probability & Statistics Ring Theory -II & Linear Algebra – I Riemann Integration & Series of Functions Mechanics - II

NAMES OF MINOR PAPERS(Each carries 4 credits or 100 marks)

SEMESTER	COURSE CODE	COURSE NAME
I	MINOR 1	Calculus, Geometry & Vector Analysis
II	MINOR 2	Basic Algebra
III	MINOR 3	Ordinary Differential Equations – I & Group Theory - I
IV	MINOR 4	Mechanics – I
V	MINOR 5	Real Analysis
VI	MINOR 6	Partial Differential Equations -I & Multi-variate Calculus – I

NAMES OF SEC PAPERS(Each carries 4 credits or 100 marks)

SEMESTER	COURSE CODE	COURSE NAME
I	MATH-H-SEC1-1-Th	C Language with Mathematical Applications
II	MATH-H-SEC2-2-Th (Any one out of 2 Courses on Right Column)	SEC 2.1 : Python Programming and Introduction to Latex SEC 2.2 :Artificial Intelligence
III	MATH-H-SEC3-3-Th	Linear Programming & Rectangular Games

NAMES OF IDC PAPERS (Each carries 3 credits or 75 marks)

SEMESTER	COURSE CODE	COURSE NAME
I	MATH-H-IDC1-1-Th	Mathematical Logic
II	MATH-H-IDC2-2-Th	Financial Mathematics
III	MATH-H-IDC3-3-Th	Bio – Mathematics

SYLLABUS IN DETAIL

MATH-H-CC1-1-Th
Calculus, Geometry & Vector Analysis

Full Marks: 100 (Theory: 75 and Tutorial: 25)

Group A: Calculus
[Marks:20] [16 classes]

• Differentiability of a function at a point and in an interval. Meaning of sign of derivative. Differentiating hyperbolic functions, higher order derivatives, Leibnitz rule and its applications to functions of type e^{ax+b}sin x, e^{ax+b}cos x, $(ax + b)^n$ sin x, $(ax + b)^n$ cos x. Indeterminate forms. L'Hospital's rule (statement and example).
• Reduction formulae, derivations and illustrations of reduction formulae of the type $\int \sin^n x\, dx$, $\int \cos^n x\, dx$, $\int \tan^n x\, dx$, $\int \sec^n x\, dx$, $\int (log\, x)^n dx$, $\int \sin^n x \sin^m x\, dx$, $\int \sin^n x \cos^m x\, dx$. Parametric equations, parametrizing a curve, arc length of a curve, arc length of parametric curves, area under a curve, area and volume of surface of revolution.

Group B: Geometry
[Marks:35] [28 classes]

• Rotation of axes and second degree equations, classification of conics using the discriminant, reduction to canonical form, tangent and normal, polar equations of conics.
• Spheres. Cylindrical surfaces. Central conicoids, paraboloids, plane sections of conicoids, generating lines, identification of quadric surfaces like cone, cylinder, ellipsoid, hyperboloid, classification of quadrics.

Group C: Vector Analysis
[Marks: 20] [16 classes]
• Triple product, vector equations, applications to geometry and mechanics — concurrent forces in a plane, theory of couples, system of parallel forces. Introduction to vector functions, operations with vector-valued functions, limits and continuity of vector functions, differentiation and integration of vector functions of one variable.

References:

[1] G.B. Thomas and R.L. Finney, Calculus, 14th Ed., Pearson Education, Delhi, 2018.
[2] M.J. Strauss, G.L. Bradley and K. J. Smith, Calculus, 3rd Ed., Dorling Kindersley

(India) P. Ltd. (Pearson Education), Delhi, 2022.
[3] H. Anton, I. Bivens and S. Davis, Calculus, 10th Ed., John Wiley and Sons (Asia) P. Ltd., Singapore, 2015.
[4] R. Courant and F. John, Introduction to Calculus and Analysis (Volumes I & II), Springer- Verlag, New York, Inc., 1998.
[5] T. Apostol, Calculus, Volumes I and II, Wileyand Sons, 1969
[6] R. R. Goldberg, Methods of Real Analysis, Oxford & IBH Publishing, 2020.
[7] Marsden, J., and Tromba, Vector Calculus, W. H. Freeman & Co., 6th edition, 2011.
[8] M.R. Speigel, Schaum's outline of Vector AnalysisTata McGraw Hill Ed., 2011.
[9] S. L. Loney, Co-ordinate Geometry, 6th Edition, Arihant Publications, 2016.
[10] Robert J. T. Bell, Co-ordinate Geometry of Three Dimensions, Macmillan and Co., Ltd., London, 2018.

MATH-H-CC2-2-TH
Basic Algebra

Full Marks: 100 (Theory: 75 and Tutorial:25)

Group A
[Marks:25[] [20 classes]

• Polar representation of complex numbers, n^{th} roots of unity, De Moivre's theorem for rational indices and its applications. Exponential, logarithmic, trigonometric and hyperbolic functions of complex variable.
•Theory of equations: Relation between roots and coefficients, transformation of equation, Descartes rule of signs, Application of Sturm's theorem, cubic equation (solution by Cardan's method) and biquadratic equation (solution by Ferrari's method).
•Inequalities: The inequality involving $AM \geq GM \geq HM$, Cauchy-Schwartz inequality.

Group B
[Marks: 25] [20 classes]

•Relation: equivalence relation, equivalence classes & partition, partial order relation, poset, linear order relation.
•Mapping: composition of mappings, relation between composition of mappings and various set theoretic operations. Meaning and properties of $f^{-1}(B)$, for any mapping $f : X \to Y$ and $B \subseteq Y$.
•Well-ordering property of positive integers, Principles of Mathematical induction, equivalence of Wellordering property and Principles of Mathematical induction (statement only), division algorithm, divisibility and Euclidean algorithm. Prime numbers and their properties, Euclid's theorem. Congruence relation between integers. Fundamental Theorem of Arithmetic. Chinese remainder theorem. Arithmetic functions, some arithmetic functions such as ϕ, τ, σ and their properties.

Group C
[Marks:25] [20 classes]

•Systems of linear equations, homogeneous and non-homogeneous systems. Existence and Uniqueness of solution. The matrix equation $Ax = b$, row reduction and echelon forms, uniqueness of reduced echelon form. Rank of a matrix and characterization of invertible matrices, Pivot positions, basic and free variables, parametric description of the solution set. Existence and uniqueness theorem.

•Vectors in R^n , algebraic and geometric properties of the vectors. Vector form of a linear system and the column picture. Existence of solutions and linear combination of vectors. Geometry of linear combination and subsets spanned by some vectors. Uniqueness of solution and linear independence of vectors. Algebraic and geometric characterizations of linearly independent subsets.

References

[1] Titu Andreescu and DorinAndrica, Complex Numbers from A to Z, 2nd Ed., Springer Nature, 2014.

[2] Edgar G. Goodaire and Michael M. Parmenter, Discrete Mathematics with Graph Theory, 3rd Ed., Pearson Education (Singapore) P. Ltd., Indian Reprint, 2005.

[3] David C. Lay, Linear Algebra and its Applications, 3rd Ed., Pearson Education Asia, Indian Reprint, 2007.

[4] Gilbert Strang; Introduction to Linear Algebra (5th Edition); Wellesley-Cambridge Press, 2019.

[5] Anton Howard and Chris Rorres; Elementary Linear Algebra with Supplemental Applications (11th Edition); Wiley, 2014.

[6] K. Hoffman, R. Kunze, Linear algebra, Prentice Hall India Learning Pvt. Ltd., 2015.

[7] W.S. Burnside and A.W. Panton, Theory of equations, Dublin University Press Series, S. Chand and Company Pvt. Ltd., 1986.

MATH-H-SEC1-1-Th

C Language with Mathematical Applications

Full marks: 100
(Theory: 75 and Tutorial: 25)
(60 classes)

Overview of architecture of computer, compiler, assembler, machine language, high level language, object oriented language, programming language, higher level language

• Constants, Variables and Data type of C-Program: Character set. Constants and variables data types, expression, assignment statements, declaration.

• Operation and Expressions: Arithmetic operators, relational operators, logical operators.

• Decision Making and Branching: decision making with if statement, if-else statement, Nesting if statement, switch statement, break and continue statement.

• Control Statements: While statement, do-while statement, for statement.

•Arrays: One-dimension, two-dimension and multidimensional arrays, declaration of arrays, initialization of one and multi-dimensional arrays.

• User-defined Functions: Definition of functions, Scope of variables, return values and their types, function declaration, function call by value, Nesting of functions, passing of arrays to functions, Recurrence of function.

• Introduction to Library functions: stdio.h, math.h, string.hstdlib.h, time.h etc.

Sample problems:

1. Display first 15 natural numbers.
2. Compute the sum of first 10 natural numbers.
3. Read 10 numbers from keyboard and find their average.
4. Find the sum of first 15 even natural numbers.
5. Write a program to find factorial of a number using recursion.
6. Write a program to make a pyramid pattern with numbers increased by 1.

7. From the terminal read three values, namely, length, width, height. Print a message whether the box is a cube or rectangle or semi-rectangle.
8. Find the AM, GM, HM of a given set of numbers.
9. Write a program to print multiplication table.
10. Write a program that generates a data file containing the list of customers and their contact numbers.
11. Find the maximum and minimum element of a given array.
12. Sort the elements of an array in ascending order
13. Write a program to read in an array of names and to sort them in alphabetical order.
14. Write a program for addition of two matrices.
15. Find the transpose of a given matrix.
16. Find the product of two matrices.
17. Write a program to check whether two given strings are an anagram.
18. Write a program to check Armstrong and Perfect numbers.
19. Write a program to check whether a number is a prime number or not.
20. Prepare a code for summing a Series.
21. Compute approximate value of pi .
22. Compute the area under a given curve.
23. Solve a quadratic equation.
24. Write a program to solve a system of two linear equations in two unknowns.
25. Write a program to find the shortest distance between two straight lines (parallel or intersecting or skew) in space.
26. Prepare an investment report by calculating compound interest.

Note: A practical note book is to be prepared with the internal assignments and to be submitted for the partial fulfilment of the course.

References

[1] B. W. Kernighan and D. M. Ritchi : The C-Programming Language, 2nd Edi.(ANSI Refresher), Prentice Hall, 1977.
[2] E. Balagurnsamy : Programming in ANSI C, Tata McGraw Hill, 2004.
[3] Y. Kanetkar : Let Us C ; BPB Publication, 1999.
[4] C. Xavier : C-Language and Numerical Methods, New Age International, 2007.
[5] V. Rajaraman : Computer Oriented Numerical Methods, Prentice Hall of India, 1980

MATH-H-SEC 2.1-2-Th
Python Programming and Introduction to Latex

Full marks: 100
(Theory: 75 and Tutorial: 25)

Group A: Python Programming
[Marks: 50][40 classes]

Python Programming Language, features, Installing Python. Running Code in the Interactive Shell, IDLE. Input, Processing and Output, Editing, Saving, and Running a Script, Debugging: Syntax Errors, Runtime Errors, Semantic Errors.

Data types and expressions: Variables and the Assignment Statement, Program Comments and Doc strings. Data Types-Numeric integers and Floating-point numbers. Boolean string. Mathematical operators, PEMDAS.Arithmetic expressions, Mixed-Mode Arithmetic and type Conversion, type( ). Input( ), print( ), program comments. id( ), int( ), str( ), float( ).

Loops and selection statements: Definite Iteration: for Loop, Executing statements a given number of times, Specifying steps using range( ) , Loops that count down, Boolean and Comparison operators and Expressions, Conditional and alternative statements- Chained and Nested Conditionals: if, if-else, if-elseif-else, nested if, nested if-else. Compound Boolean Expressions, Conditional Iteration: while Loop –with True condition, break Statement. Random Numbers. Loop Logic, errors and testing.

Strings, Lists, Tuple, Dictionary: Accessing characters, indexing, slicing, replacing.Concatenation (+), Repetition (*).Searching a substring with the 'in' Operator, Traversing string using while and for. String methods- find, join, split, lower, upper. len( ).

Lists – Accessing and slicing, Basic Operations (Comparison, +),List membership and for loop.Replacing element (list is mutable). List methods- append, extend, insert, pop, sort. Max( ), min( ). Tuples. Dictionaries-Creating a Dictionary, Adding keys and replacing Values , dictionary - key( ), value( ), get( ), pop( ), Traversing a Dictionary. Math module: sin(), cos(),exp(), sqrt(), constants- pi, e.

Design with functions: Defining Simple Functions- Parameters and Arguments, the return Statement, tuple as return value. Boolean Functions. Defining a main function. Defining and tracing recursive functions.

Working with Numbers: Calculating the Factors of an Integer, Generating Multiplication Tables, converting units of measurement, Finding the roots of a quadratic equation

Algebra and Symbolic Math with SymPy: symbolic math using the SymPy library. Defining Symbols and Symbolic Operations, factorizing and expanding expressions, Substituting in Values, Converting strings to mathematical expressions. Solving equations, Solving quadratic equations, Solving for one variable in terms of others, Solving a system of linear equations.

Plotting using SymPy , Plotting expressions input by the user, Plotting multiple functions

Sample problems:

1. Convert number from decimal to binary system.
2. Convert number from decimal to octal system.
3. Convert from Hexadecimal to binary system.
4. Write a program to read one subject mark and print pass or fail. Use single returnvalues function with argument.
5. Find the median of a given set of numbers.
6. Write a Python function that takes two lists and returns True if they have at least one common member.
7. Write a program for Enhanced Multiplication Table Generator.
8. Write down Unit converter code.
9. Write down Fraction Calculator code.
10. Write down Factor Findercode.
11. Write down Graphical Equation Solver code.
12. Write down a code for solving Single-Variable Inequalities.
13. Prepare an investment report by calculating compound interest.
14. Write a python program to open and write the content to file and read it.
15. Write a python program to check whether a given year is leap year or not and also print all the months of the given year.

Group B: Introduction to Latex
[Marks: 25] [20 classes]

Introduction to LATEX: Preparing a basic LATEX file. Compiling LATEX file.

Document classes: Different type of document classes, e.g., article, report, book etc.

Page Layout: Titles, Abstract, Chapters, Sections, subsections, paragraph, verbatim, References, Equation references, citation.

List structures: Itemize, enumerate, description etc.

Representation of mathematical equations: Inline math, Equations, Fractions, Matrices, trigonometric, logarithmic, exponential functions, line, surface, volume integrals with and without limits, closed line integral, surface integrals, Scaling of Parentheses, brackets etc.

Customization of fonts: Bold fonts, emphasise, mathbf, mathcal etc. Changing sizes Large, Larger, Huge, tiny etc.

Writing tables: Creating tables with different alignments, placement of horizontal, vertical lines.

Figures: Changing and placing the figures, alignments

Packages: amsmath,amssymb, graphics, graphicx, Geometry, algorithms, color, Hyperref etc. Use of Different LATEX commands and environments, Changing the type style, symbols from other languages. special characters.

Sample Projects:

1. Write down aresearch article.
2.Write down a given mathematical derivation.
3. Writea book chapter.
4. Write a report on a practical done in laboratory with results, tables and graphs.
5. Present graphical analysis taking graphs plotted in gnuplot.

Note: A practical note book is to be prepared with the internal assignments and to be submitted for the partial fulfilment of the course.

References

[1] Kenneth A Lambert, Fundamentals of Python: First programs, 2nd edition – Cengage Learning India, 2019.
[2] Saha Amit, Doing Math with Python - No starch press, San Francisco, 2015.

[3] E. Balgurusamy, Problem solving and Python programming- Tata McGraw Hill, 2017.
[4] LATEX- A Document Preparation System, Leslie Lamport, Addison-Wesley, 1994.
[5] E. Krishnan, LATEXTutorials A PRIMER, Indian TEXusers group, 2003.
[6] GeorgeGratzer,Practical LATEX, Springer, 2014.

MATH-H-SEC 2.2-2-Th

Artificial Intelligence

Full marks: 100
(Theory: 75 and Tutorial: 25)
(60classes)

Course Description:
This course aims to introduce the fundamental concepts of artificial intelligence (AI) to individuals from all academic backgrounds. Participants will develop a broad understanding of AI technologies, their implications, and their potential applications in various fields. The course will emphasize practical examples and real-world case studies to facilitate comprehension and inspire innovative thinking.

Course Objectives:

- Understand the basics of artificial intelligence and its subfields.
- Explore real-world applications of AI across different industries.
- Gain insights into the ethical, social, and economic implications of AI.
- Develop an appreciation for the potential of AI to drive innovation and transformation.

Course Outcome:

- Define and explain the fundamental concepts and subfields of AI.
- Identify real-world applications of AI across various industries.
- Analyze the ethical, social, and economic implications of AI.
- Recognize the potential of AI to drive innovation and transformation in different domains.

Unit 1: Introduction to Artificial Intelligence

- Definition and scope of AI
- Historical overview and key milestones
- Differentiating AI from human intelligence

Unit 2: AI Subfields and Technologies

- Machine learning: Supervised, unsupervised, and reinforcement learning
- Deep learning and neural networks
- Natural language processing (NLP) and computer vision

Unit 3: Applications of AI

- AI in healthcare: Diagnosis, treatment, and medical imaging
- AI in finance: Fraud detection, algorithmic trading, and risk assessment
- AI in transportation: Autonomous vehicles and traffic optimization
- AI in customer service and chatbots
- AI in education: Personalized learning and intelligent tutoring systems

Unit 4: Ethical and Social Implications of AI

- Bias and fairness in AI systems
- Privacy and data protection concerns
- Impact of AI on employment and the workforce
- AI and social inequality

Unit 5: Other Important Issues

- Ethical guidelines and responsible AI practices
- AI and Innovation
- Emerging trends and future directions in AI
- AI and creativity: Generative models and artistic applications

MATH-H-SEC3-3-Th
Linear Programming and Rectangular Games

Full Marks: 100 (Theory : 75 marks and Tutorial: 25 marks)
(60classes)

• Definition of Linear Programming Problem (L.P.P.). Formation of L.P.P. from daily life involving inequations. Graphical solution of L.P.P. Basic solutions and

Basic Feasible Solution (B.F.S) with reference to L.P.P. Matrix formulation of L.P.P. Degenerate and Non-degenerate B.F.S.

• Hyperplane, Convex set, Cone, extreme points, convex hull and convex polyhedron. Supporting and Separating hyperplane. The collection of a feasible solutions of an L.P.P. constitutes a convex set. The extreme points of the convex set of feasible solutions correspond to its B.F.S. and conversely. The objective function has its optimal value at an extreme point of the convex polyhedron generated by the set of feasible solutions (the convex polyhedron may also be unbounded). In the absence of degeneracy, if the L.P.P. admits of an optimal solution then at least one B.F.S. must be optimal. Reduction of a F.S. to a B.F.S.

• Slack and surplus variables. Standard form of L.P.P. theory of simplex method. Feasibility and optimality conditions. Algorithm. Two phase method. Degeneracy in L.P.P. and its resolution.

• Duality theory: The dual of dual is the primal. Relation between the objective values of dual and the primal problems. Relation between their optimal values.

Post-optimal Analysis**:** Discrete changes in the cost vector, Discrete changes in the requirement vector, Discrete changes in the coefficient matrix, Addition of a variable, Addition of a constraint.

• Transportation and Assignment problems. Mathematical justification for optimality criterion. Hungarian method. Traveling Salesman problem.

• Concept of game problem. Rectangular games. Pure strategy and Mixed strategy. Saddle point and its existence. Optimal strategy and value of the game. Necessary and sufficient condition for a given strategy to be optimal in a game. Concept of Dominance. Fundamental Theorem of rectangular games. Algebraic method. Graphical method and Dominance method to solveRectangular games. Inter-relation between theory of games and L.P.P.

Note:1. Students will learn formulation of L.P.P. and obtaining optimal solution of L.P.P. using software package.

2. A practical note book is to be prepared with the internal assignments and to be submitted for the partial fulfilment of the course.

References

[1] Mokhtar S. Bazaraa, John J. Jarvis and Hanif D. Sherali, Linear Programming and Network Flows, 2nd Ed., John Wiley and Sons, India, 2004.
[2] F.S. Hillier and G.J. Lieberman, Introduction to Operations Research, 9th

Ed., Tata McGraw Hill, Singapore, 2009.
[3] Hamdy A. Taha, Operations Research, An Introduction, 8th Ed., Prentice-Hall India, 2006.
[4] G. Hadley, Linear Programming, Narosa Publishing House, New Delhi, 2002.
[5] Churchman, Ackoff, Arnoff, Introduction to Operations Research, John Wiley and Sons Inc., 1957.
[6] Billy, E. Gillet, Introduction to Operations Research: A Computer Oriented Algorithmatic Approach, TMH Edition, 1979.
[7] Swarup K., Gupta P.K., Man Mohan, Operations Research, Sultan Chand and Sons, 2020.
[8] Chakraborty J. G. and Ghosh, P.R., Linear Programming and Game Theory, Moulik Library, 1979.

MATH-H-IDC1-1-Th

Mathematical Logic

Full marks: 75 (Theory: 50 and Tutorial: 25)
(45classes)

Introduction: propositions, truth table, negation, conjunction and disjunction. Implications, biconditional propositions.

General Notions: Formal language, object and meta language, general definition of a Formal Theory/Formal Logic.

Propositional Logic: Formal theory for propositional calculus, derivation, proof, theorem, deduction theorem, conjunctive and disjunctive normal forms, semantics, truth tables, tautology, adequate set of connectives, applications to switching circuits, logical consequence, consistency, maximal consistency, Lindenbaum lemma, soundness and completeness theorems, algebraic semantics.

Modal PropositionalLogic: Introduction, modal operators, well formed formulas, axioms of systems K, T, B, S4, S5, Rules of inference, interpretation in Kripke frame, validity, connection of accessibility relation with the systems, Statements of soundness and completeness theorems.

Predicate Logic: First order language, symbolizing ordinary sentences into first order formulae, free and bound variables, interpretation and satisfiability, models, logical validity, formal theory for predicate calculus.

Fuzzy Logic: Many-valued logic, 3-valued logic of Lukasiewich, the truth tables of conjunction, disjunction, negation and implication, tautology and validity, Infinite valued logic, calculation of truth values of the logical connectives.

Applications (briefidea): Applicationsof Modal Logic in Artificial Intelligence, database theory, distributed system, cryptography. Applications of Fuzzy Logic in Artificial Intelligence, Soft computing, Decision theory, NLP, Pattern recognition.

References

[1] Elliott Mendelson; Introduction to mathematical logic; Chapman & Hall; London, 1997.
[2] Angelo Margaris; First order mathematical logic; Dover publications, Inc, New York ,1990.
[3] S.C.Kleene; Introduction to Metamathematics; Amsterdam; Elsevier, 1952.
[4] J.H.Gallier; Logic for computer science; John.Wiley& Sons, 1987.
[5] H.B.Enderton; A mathematical introduction to logic; Academic Press; New York 1972.
[6] Chakraborty, M., Lecture note: A journey through the logic wonderland, IIEST, Shibpur, 2016.

MATH-H-IDC2-2-Th
Financial Mathematics

Full marks: 75 (Theory: 50 and Tutorial: 25)
(45classes)

- Profit, Loss and discount, Dividend, Calculation of income tax, Tabulations, Bar graphs, Pie charts, Line graphs.

- Introduction to Financial Markets and Instruments: Money Market and Capital Market, Financial Instruments – Stock, Bonds, Derivatives; Concept of Value (intrinsic) vs. Price of Financial Instruments, Concept of Arbitrage.

- Time Value of Money: Interest (simple and compound, discrete and continuous), Annuities, net present value, internal rate of return (calculation by bisection and Newton-Raphson methods), Comparison of NPV and IRR.
- Bonds: Bond Valuation; Bond Prices and Yields; Duration, Convexity, Interest Rate Risk; Fixed vs. Floating Rate Bonds, Immunization.
- Portfolio Theory: Brief introduction to expectation, variance, covariance and correlation; Asset Return and Risk; Portfolio Risk (Variance) and Return– Historical and Ex-Ante; Diversification and Risk Reduction; Feasible and Optimal Portfolio – Efficient Frontier; Markowitz model (review of Lagrange multipliers for 1 and 2 constraints).

References

[1] David G. Luenberger; Investment Science; Oxford University Press, Delhi, 1998.

[2] John C. Hull; Options, Futures and Other Derivatives, 6th Ed.; Prentice-Hall India, Indian reprint, 2006.

[3] Sheldon Ross; An Elementary Introduction to Mathematical Finance, 2nd Ed, Cambridge University Press, USA, 2003.

[4] Chandra P., Investment Analysis and Portfolio Management; McGraw Hill Education, 5th Ed., 2017.

[5] Ales Cerny: Mathematical Techniques in Finance: Tools for incomplete markets, PrincetonUniversity Press, 2009.

[6]S.R. Pliska, Introduction to Mathematical Finance: Discrete time model, 1st Ed., Wiley, 1997.

[7] Karatzas and S. Shreve, Method of Mathematical Finance, Springer, New York, 2016.

MATH-H-IDC3-3-Th

Bio - Mathematics

Full marks: 75 (Theory: 50 and Tutorial: 25)
(45 classes)

Mathematical biology and the modelling process: What is a model? Essential features of a modelling approach, Identification of variables, parameters, constants for a model; type of models (linear-nonlinear and continuous – discrete).

Simple single-species continuous population growth models:
Malthus model (1798): deduction (basic assumptions), analytic solution, doubling time; behavior of population size as $t \to \infty$, Stability analysis of the steady states of the Malthus model; limitations.

Logistic model (Verhulst 1838): motivation (Gause's 1934 Experiments) and formulation (basic assumptions), analytic solution, behavior of population size as $t \to \infty$ for different initial population size, carrying capacity. Effects of harvesting in a single species population: Constant-yield harvesting, constant-effort harvesting.

One dimensional models, fixed points, stability analysis of fixed points, phase diagrams.
Non-dimensionalization and re-parametrization in a model: Necessity and applications.

Bifurcation: Saddle-node, transcritical and pitchfork bifurcations in one-dimensional case.

Insect outbreak model (Morris, 1963): The spruce budworm model – deduction (basic assumptions), analysis of steady states, presence of saddle-node bifurcation; real life applications.

Interacting populations: Predator-prey model (basic assumptions) and Lotka (1925)-Volterra (1926) model (basic assumptions) – deduction, Steady states.

Chemical Reaction Kinetics; Law of mass action; Enzymatic reaction;
Enzyme Kinetics; Elimination of variables – model reduction; Michaelis-Menten kinetics (proposed in 1913). Formulation of model (basic assumptions) and steady states.

Gene regulation networks: Introduction, basic assumptions, two dimensional model; Constitutive gene expression; Gene transcription regulation by activators; Gene transcription regulation by repressors; Regulation of gene transcription: auto-activation and auto-inhibition.

Epidemic models: Basic terminologies.
SI model (assumptions), Kermack-McKendrick SIR model 1927 (basic assumptions) assuming total population as constant, Formulation of the models. Concept of basic reproduction number.

Discrete single-species models: Linear models, growth models, decay models, discrete Logistic models.

Overview of nonlinear difference equations: Steady states and linear stability analysis, Graphical solution of difference equations – cobwebbing.

References

[1] L.E. Keshet, Mathematical Models in Biology, SIAM, 1988.
[2] J. D. Murray, Mathematical Biology, Springer, 1993.
[3] Y.C. Fung, Biomechanics, Springer-Verlag, 1990.
[4] F. Brauer, P.V.D. Driessche and J. Wu, Mathematical Epidemiology, Springer, 2008.
[5] M. Kot, Elements of Mathematical Ecology, Cambridge University Press, 2001.
[6] F. Brauer and C. Castillo-Chavez, Mathematical Models in Population Biology and Epidemiology, Springer, 2012.
[7] S. H. Strogatz, Nonlinear Dynamics and Chaos, Perseus Books, 1994.
[8] N.F. Britton, Essential Mathematical Biology, Springer-Verlag London, 2003.
[9] R F Morris, The Memoirs of the Entomological Society of Canada, Cambridge.org, 1963.

SYLLABUS
FOR
THREE -YEAR (SIX-SEMESTER) B.SC. COURSE
UNDER THE UNIVERSITY OF CALCUTTA

Odd Semester: July to December

Even Semester: January to June

Syllabus for the 3 Year B.Sc. course in Mathematics effective from the academic year **2023-2024.**

COURSE STRUCTURE-MDC

	CC1	CC2	Minor	IDC	AEC	SEC	CVAC	Summer Internship	Total Credit
Semester	8x4= 32	8x4= 32	6x4= 24	3x3=9	4x2= 8	3x4=12	4x2=8	1x3= 3	128
1	1x4= 4 3TH+ 1P/TU	1x4= 4 3TH+ 1P/TU		1x3=3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4	2x2=4		21
2	1x4= 4 3TH+ 1P/TU	1x4= 4 3TH+ 1P/TU		1x3=3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4	2x2=4		21
3	1x4= 4 (3TH+ 1P/TU)	1x4= 4 3TH+ 1P/TU	1x4= 4 3TH+1P/TU	1x3=3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4			21
4	2x4=8 4x(3TH+ 1P/TU)	2x4= 8 2x(3TH+ 1P/TU	1x4= 4 (3TH+1P/TU)		1x2= 2 2TH +0P/TU				22
5	2x4= 8 2x(3TH+ 1P/TU)	1x4= 4 3TH+ 1P/TU	2x4= 8 2x(3TH+ 1P/TU						20
6	1x4= 4 (3TH+ 1P/TU)	2x4= 8 2x(3TH+ 1P/TU)	2x4= 8 2x(3TH+ 1P/TU)						20
Credits	8x4= 32	8x4= 32	6x4= 24	3x3= 9	4x2= 8	3x4= 12	4x2= 8		125+3 =128
Marks	8x100= 800	8x100= 800	6x100= 600	3x75= 225	4x50= 200	3x100= 300	4x50= 200		Total Marks =3200

Marks= 25 marks per credit.

Total credit=125+3 (for summer internship) = 128
Summer Internship: As mentioned in clause no. 8 (G)

Note: Tutorial marks will be awarded based on internal assessment – by evaluation of internal assignments for SEC papers and by internal examination for Core, Minor, IDC papers.

Modules Offered by Mathematics Department

NAMES OF CORE COURSES(Each carries 4 credits or 100 marks)

SEMESTER	COURSE CODE	COURSE NAME
I	MATH-MD-CC1-1-Th	Calculus, Geometry & Vector Analysis
II	MATH-MD-CC2-2-Th	Basic Algebra
III	MATH-MD-CC3-3-Th	Ordinary Differential Equations& Group Theory
IV	MATH-MD-CC4-4-Th MATH-MD-CC5-4-Th	Mechanics Statistics & Numerical Analysis
V	MATH-MD-CC6-5-Th MATH-MD-CC7-5-Th	Real Analysis Partial Differential Equations & Multivariate Calculus
VI	MATH-MD-CC8-6-Th	Advanced Algebra& Riemann Integration

NAMES OF SEC PAPERS (Each carries 4 credits or 100 marks)

SEMESTER	COURSE CODE	COURSE NAME
I	MATH-MD-SEC 1-1-Th	C Language with Mathematical Applications
II	MATH-MD-SEC 2-2-Th (Any one out of twocourses on right column)	SEC 2.1 : Python Programming and Introduction to Latex SEC 2.2 : Artificial Intelligence
III	MATH-MD-SEC3-3-Th	Linear Programming & Rectangular Games

NAMES OF IDC PAPERS (Each carries 3 credits or 75 marks)

SEMESTER	COURSE CODE	COURSE NAME
I	MATH-MD-IDC1-1-Th	Mathematical Logic
II	MATH-MD- IDC2-2-Th	Financial Mathematics
III	MATH-MD-IDC3-3-Th	Bio - Mathematics

SYLLABUS IN DETAIL

MATH-MD-CC1-1-Th
Calculus, Geometry & Vector Analysis

Full Marks: 100 (Theory: 75 and Tutorial: 25)

Group A: Calculus
[Marks:20] [16 classes]

• Differentiability of a function at a point and in an interval. Meaning of sign of derivative. Differentiating hyperbolic functions, higher order derivatives, Leibnitz rule and its applications to functions of type e^{ax+b}sin x, e^{ax+b}cos x, $(ax + b)^n$ sin x, $(ax + b)^n$ cos x. Indeterminate forms. L'Hospital's rule (statement and example).
• Reduction formulae, derivations and illustrations of reduction formulae of the type $\int \sin^n x\, dx$, $\int \cos^n x\, dx$, $\int \tan^n x\, dx$, $\int \sec^n x\, dx$, $\int (log\, x)^n dx$, $\int \sin^n x \sin^m x\, dx$, $\int \sin^n x \cos^m x\, dx$. Parametric equations, parametrizing a curve, arc length of a curve, arc length of parametric curves, area under a curve, area and volume of surface of revolution.

Group B: Geometry
[Marks:35] [28 classes]

• Rotation of axes and second degree equations, classification of conics using the discriminant, reduction to canonical form, tangent and normal, polar equations of conics.
• Spheres. Cylindrical surfaces. Central conicoids, paraboloids, plane sections of conicoids, generating lines, identification of quadric surfaces like cone, cylinder, ellipsoid, hyperboloid, classification of quadrics.

Group C: Vector Analysis
[Marks: 20] [16 classes]
• Triple product, vector equations, applications to geometry and mechanics — concurrent forces in a plane, theory of couples, system of parallel forces. Introduction to vector functions, operations with vector-valued functions, limits and continuity of vector functions, differentiation and integration of vector functions of one variable.

References:

[1] G.B. Thomas and R.L. Finney, Calculus, 14th Ed., Pearson Education, Delhi, 2018.
[2] M.J. Strauss, G.L. Bradley and K. J. Smith, Calculus, 3rd Ed., Dorling Kindersley

(India) P. Ltd. (Pearson Education), Delhi, 2022.
[3] H. Anton, I. Bivens and S. Davis, Calculus, 10th Ed., John Wiley and Sons (Asia) P. Ltd., Singapore, 2015.
[4] R. Courant and F. John, Introduction to Calculus and Analysis (Volumes I & II), Springer- Verlag, New York, Inc., 1998.
[5] T. Apostol, Calculus, Volumes I and II, Wileyand Sons, 1969
[6] R. R. Goldberg, Methods of Real Analysis, Oxford & IBH Publishing, 2020.
[7] Marsden, J., and Tromba, Vector Calculus, W. H. Freeman & Co., 6th edition, 2011.
[8] M.R. Speigel, Schaum's outline of Vector AnalysisTata McGraw Hill Ed., 2011.
[9] S. L. Loney, Co-ordinate Geometry, 6th Edition, Arihant Publications, 2016.
[10] Robert J. T. Bell, Co-ordinate Geometry of Three Dimensions, Macmillan and Co., Ltd., London, 2018.

MATH-MD-CC2-2-TH
Basic Algebra

Full Marks: 100 (Theory: 75 and Tutorial:25)

Group A
[Marks:25[] [20 classes]

• Polar representation of complex numbers, n^{th} roots of unity, De Moivre's theorem for rational indices and its applications. Exponential, logarithmic, trigonometric and hyperbolic functions of complex variable.
•Theory of equations: Relation between roots and coefficients, transformation of equation, Descartes rule of signs, Application of Sturm's theorem, cubic equation (solution by Cardan's method) and biquadratic equation (solution by Ferrari's method).
•Inequalities: The inequality involving $AM \geq GM \geq HM$, Cauchy-Schwartz inequality.

Group B
[Marks: 25] [20 classes]

•Relation: equivalence relation, equivalence classes & partition, partial order relation, poset, linear order relation.
•Mapping: composition of mappings, relation between composition of mappings and various set theoretic operations. Meaning and properties of $f^{-1}(B)$, for any mapping $f : X \to Y$ and $B \subseteq Y$.
•Well-ordering property of positive integers, Principles of Mathematical induction, equivalence of Wellordering property and Principles of Mathematical induction (statement only), division algorithm, divisibility and Euclidean algorithm. Prime numbers and their properties, Euclid's theorem. Congruence relation between integers. Fundamental Theorem of Arithmetic. Chinese remainder theorem. Arithmetic functions, some arithmetic functions such as ϕ, τ, σ and their properties.

Group C
[Marks:25] [20 classes]

•Systems of linear equations, homogeneous and non-homogeneous systems. Existence and Uniqueness of solution. The matrix equation $Ax = b$, row reduction and echelon forms, uniqueness of reduced echelon form. Rank of a matrix and characterization of invertible matrices, Pivot positions, basic and free variables, parametric description of the solution set. Existence and uniqueness theorem.

•Vectors in R^n , algebraic and geometric properties of the vectors. Vector form of a linear system and the column picture. Existence of solutions and linear combination of vectors. Geometry of linear combination and subsets spanned by some vectors. Uniqueness of solution and linear independence of vectors. Algebraic and geometric characterizations of linearly independent subsets.

References

[1] Titu Andreescu and DorinAndrica, Complex Numbers from A to Z, 2nd Ed., Springer Nature, 2014.

[2] Edgar G. Goodaire and Michael M. Parmenter, Discrete Mathematics with Graph Theory, 3rd Ed., Pearson Education (Singapore) P. Ltd., Indian Reprint, 2005.

[3] David C. Lay, Linear Algebra and its Applications, 3rd Ed., Pearson Education Asia, Indian Reprint, 2007.

[4] Gilbert Strang; Introduction to Linear Algebra (5th Edition); Wellesley-Cambridge Press, 2019.

[5] Anton Howard and Chris Rorres; Elementary Linear Algebra with Supplemental Applications (11th Edition); Wiley, 2014.

[6] K. Hoffman, R. Kunze, Linear algebra, Prentice Hall India Learning Pvt. Ltd., 2015.

[7] W.S. Burnside and A.W. Panton, Theory of equations, Dublin University Press Series, S. Chand and Company Pvt. Ltd., 1986.

MATH-MD-SEC1-1-Th

C Language with Mathematical Applications

Full marks: 100
(Theory: 75 and Tutorial: 25)
(60 classes)

Overview of architecture of computer, compiler, assembler, machine language, high level language, object oriented language, programming language, higher level language

• Constants, Variables and Data type of C-Program: Character set. Constants and variables data types, expression, assignment statements, declaration.

• Operation and Expressions: Arithmetic operators, relational operators, logical operators.

• Decision Making and Branching: decision making with if statement, if-else statement, Nesting if statement, switch statement, break and continue statement.

• Control Statements: While statement, do-while statement, for statement.

•Arrays: One-dimension, two-dimension and multidimensional arrays, declaration of arrays, initialization of one and multi-dimensional arrays.

• User-defined Functions: Definition of functions, Scope of variables, return values and their types, function declaration, function call by value, Nesting of functions, passing of arrays to functions, Recurrence of function.

• Introduction to Library functions: stdio.h, math.h, string.hstdlib.h, time.h etc.

Sample problems:

1. Display first 15 natural numbers.
2. Compute the sum of first 10 natural numbers.
3. Read 10 numbers from keyboard and find their average.
4. Find the sum of first 15 even natural numbers.
5. Write a program to find factorial of a number using recursion.
6. Write a program to make a pyramid pattern with numbers increased by 1.

7. From the terminal read three values, namely, length, width, height. Print a message whether the box is a cube or rectangle or semi-rectangle.
8. Find the AM, GM, HM of a given set of numbers.
9. Write a program to print multiplication table.
10. Write a program that generates a data file containing the list of customers and their contact numbers.
11. Find the maximum and minimum element of a given array.
12. Sort the elements of an array in ascending order
13. Write a program to read in an array of names and to sort them in alphabetical order.
14. Write a program for addition of two matrices.
15. Find the transpose of a given matrix.
16. Find the product of two matrices.
17. Write a program to check whether two given strings are an anagram.
18. Write a program to check Armstrong and Perfect numbers.
19. Write a program to check whether a number is a prime number or not.
20. Prepare a code for summing a Series.
21. Compute approximate value of pi .
22. Compute the area under a given curve.
23. Solve a quadratic equation.
24. Write a program to solve a system of two linear equations in two unknowns.
25. Write a program to find the shortest distance between two straight lines (parallel or intersecting or skew) in space.
26. Prepare an investment report by calculating compound interest.

Note: A practical note book is to be prepared with the internal assignments and to be submitted for the partial fulfilment of the course.

References

[1] B. W. Kernighan and D. M. Ritchi : The C-Programming Language, 2nd Edi.(ANSI Refresher), Prentice Hall, 1977.
[2] E. Balagurnsamy : Programming in ANSI C, Tata McGraw Hill, 2004.
[3] Y. Kanetkar : Let Us C ; BPB Publication, 1999.
[4] C. Xavier : C-Language and Numerical Methods, New Age International, 2007.
[5] V. Rajaraman : Computer Oriented Numerical Methods, Prentice Hall of India, 1980

MATH-MD-SEC 2.1-2-Th
Python Programming and Introduction to Latex

Full marks: 100
(Theory: 75 and Tutorial: 25)

Group A: Python Programming

[Marks: 50][40 classes]

Python Programming Language, features, Installing Python. Running Code in the Interactive Shell, IDLE. Input, Processing and Output, Editing, Saving, and Running a Script, Debugging: Syntax Errors, Runtime Errors, Semantic Errors.

Data types and expressions: Variables and the Assignment Statement, Program Comments and Doc strings. Data Types-Numeric integers and Floating-point numbers. Boolean string. Mathematical operators, PEMDAS.Arithmetic expressions, Mixed-Mode Arithmetic and type Conversion, type( ). Input( ), print( ), program comments. id( ), int( ), str( ), float( ).

Loops and selection statements: Definite Iteration: for Loop, Executing statements a given number of times, Specifying steps using range( ) , Loops that count down, Boolean and Comparison operators and Expressions, Conditional and alternative statements- Chained and Nested Conditionals: if, if-else, if-elseif-else, nested if, nested if-else. Compound Boolean Expressions, Conditional Iteration: while Loop –with True condition, break Statement. Random Numbers. Loop Logic, errors and testing.

Strings, Lists, Tuple, Dictionary: Accessing characters, indexing, slicing, replacing.Concatenation (+), Repetition (*).Searching a substring with the 'in' Operator, Traversing string using while and for. String methods- find, join, split, lower, upper. len( ).

Lists – Accessing and slicing, Basic Operations (Comparison, +),List membership and for loop.Replacing element (list is mutable). List methods- append, extend, insert, pop, sort. Max( ), min( ). Tuples. Dictionaries-Creating a Dictionary, Adding keys and replacing Values , dictionary - key( ), value( ), get( ), pop( ), Traversing a Dictionary. Math module: sin(), cos(),exp(), sqrt(), constants- pi, e.

Design with functions: Defining Simple Functions- Parameters and Arguments, the return Statement, tuple as return value. Boolean Functions. Defining a main function. Defining and tracing recursive functions.

Working with Numbers: Calculating the Factors of an Integer, Generating Multiplication Tables, converting units of measurement, Finding the roots of a quadratic equation

Algebra and Symbolic Math with SymPy: symbolic math using the SymPy library. Defining Symbols and Symbolic Operations, factorizing and expanding expressions, Substituting in Values, Converting strings to mathematical expressions. Solving equations, Solving quadratic equations, Solving for one variable in terms of others, Solving a system of linear equations.

Plotting using SymPy , Plotting expressions input by the user, Plotting multiple functions

Sample problems:

1. Convert number from decimal to binary system.
2. Convert number from decimal to octal system.
3. Convert from Hexadecimal to binary system.
4. Write a program to read one subject mark and print pass or fail. Use single returnvalues function with argument.
5. Find the median of a given set of numbers.
6. Write a Python function that takes two lists and returns True if they have at least one common member.
7. Write a program for Enhanced Multiplication Table Generator.
8. Write down Unit converter code.
9. Write down Fraction Calculator code.
10. Write down Factor Findercode.
11. Write down Graphical Equation Solver code.
12. Write down a code for solving Single-Variable Inequalities.
13. Prepare an investment report by calculating compound interest.
14. Write a python program to open and write the content to file and read it.
15. Write a python program to check whether a given year is leap year or not and also print all the months of the given year.

Group B: Introduction to Latex
[Marks: 25] [20 classes]

Introduction to LATEX: Preparing a basic LATEX file. Compiling LATEX file.

Document classes: Different type of document classes, e.g., article, report, book etc.

Page Layout: Titles, Abstract, Chapters, Sections, subsections, paragraph, verbatim, References, Equation references, citation.

List structures: Itemize, enumerate, description etc.

Representation of mathematical equations: Inline math, Equations, Fractions, Matrices, trigonometric, logarithmic, exponential functions, line, surface, volume integrals with and without limits, closed line integral, surface integrals, Scaling of Parentheses, brackets etc.

Customization of fonts: Bold fonts, emphasise, mathbf, mathcal etc. Changing sizes Large, Larger, Huge, tiny etc.

Writing tables: Creating tables with different alignments, placement of horizontal, vertical lines.

Figures: Changing and placing the figures, alignments

Packages: amsmath,amssymb, graphics, graphicx, Geometry, algorithms, color, Hyperref etc. Use of Different LATEX commands and environments, Changing the type style, symbols from other languages. special characters.

Sample Projects:

1. Write down aresearch article.
2.Write down a given mathematical derivation.
3. Writea book chapter.
4. Write a report on a practical done in laboratory with results, tables and graphs.
5. Present graphical analysis taking graphs plotted in gnuplot.

Note: A practical note book is to be prepared with the internal assignments and to be submitted for the partial fulfilment of the course.

References

[1] Kenneth A Lambert, Fundamentals of Python: First programs, 2nd edition – Cengage Learning India, 2019.
[2] Saha Amit, Doing Math with Python - No starch press, San Francisco, 2015.

[3] E. Balgurusamy, Problem solving and Python programming- Tata McGraw Hill, 2017.
[4] LATEX- A Document Preparation System, Leslie Lamport, Addison-Wesley, 1994.
[5] E. Krishnan, LATEXTutorials A PRIMER, Indian TEXusers group, 2003.
[6] GeorgeGratzer,Practical LATEX, Springer, 2014.

MATH-MD-SEC 2.2-2-Th

Artificial Intelligence

Full marks: 100
(Theory: 75 and Tutorial: 25)
(60classes)

Course Description:
This course aims to introduce the fundamental concepts of artificial intelligence (AI) to individuals from all academic backgrounds. Participants will develop a broad understanding of AI technologies, their implications, and their potential applications in various fields. The course will emphasize practical examples and real-world case studies to facilitate comprehension and inspire innovative thinking.

Course Objectives:

- Understand the basics of artificial intelligence and its subfields.
- Explore real-world applications of AI across different industries.
- Gain insights into the ethical, social, and economic implications of AI.
- Develop an appreciation for the potential of AI to drive innovation and transformation.

Course Outcome:

- Define and explain the fundamental concepts and subfields of AI.
- Identify real-world applications of AI across various industries.
- Analyze the ethical, social, and economic implications of AI.
- Recognize the potential of AI to drive innovation and transformation in different domains.

Unit 1: Introduction to Artificial Intelligence

- Definition and scope of AI
- Historical overview and key milestones
- Differentiating AI from human intelligence

Unit 2: AI Subfields and Technologies

- Machine learning: Supervised, unsupervised, and reinforcement learning
- Deep learning and neural networks
- Natural language processing (NLP) and computer vision

Unit 3: Applications of AI

- AI in healthcare: Diagnosis, treatment, and medical imaging
- AI in finance: Fraud detection, algorithmic trading, and risk assessment
- AI in transportation: Autonomous vehicles and traffic optimization
- AI in customer service and chatbots
- AI in education: Personalized learning and intelligent tutoring systems

Unit 4: Ethical and Social Implications of AI

- Bias and fairness in AI systems
- Privacy and data protection concerns
- Impact of AI on employment and the workforce
- AI and social inequality

Unit 5: Other Important Issues

- Ethical guidelines and responsible AI practices
- AI and Innovation
- Emerging trends and future directions in AI
- AI and creativity: Generative models and artistic applications

MATH-MD-SEC3-3-Th
Linear Programming and Rectangular Games

Full Marks: 100 (Theory : 75 marks and Tutorial: 25 marks)
(60classes)

• Definition of Linear Programming Problem (L.P.P.). Formation of L.P.P. from daily life involving inequations. Graphical solution of L.P.P. Basic solutions and

Basic Feasible Solution (B.F.S) with reference to L.P.P. Matrix formulation of L.P.P. Degenerate and Non-degenerate B.F.S.

• Hyperplane, Convex set, Cone, extreme points, convex hull and convex polyhedron. Supporting and Separating hyperplane. The collection of a feasible solutions of an L.P.P. constitutes a convex set. The extreme points of the convex set of feasible solutions correspond to its B.F.S. and conversely. The objective function has its optimal value at an extreme point of the convex polyhedron generated by the set of feasible solutions (the convex polyhedron may also be unbounded). In the absence of degeneracy, if the L.P.P. admits of an optimal solution then at least one B.F.S. must be optimal. Reduction of a F.S. to a B.F.S.

• Slack and surplus variables. Standard form of L.P.P. theory of simplex method. Feasibility and optimality conditions. Algorithm. Two phase method. Degeneracy in L.P.P. and its resolution.

• Duality theory: The dual of dual is the primal. Relation between the objective values of dual and the primal problems. Relation between their optimal values.

Post-optimal Analysis**:** Discrete changes in the cost vector, Discrete changes in the requirement vector, Discrete changes in the coefficient matrix, Addition of a variable, Addition of a constraint.

• Transportation and Assignment problems. Mathematical justification for optimality criterion. Hungarian method. Traveling Salesman problem.

• Concept of game problem. Rectangular games. Pure strategy and Mixed strategy. Saddle point and its existence. Optimal strategy and value of the game. Necessary and sufficient condition for a given strategy to be optimal in a game. Concept of Dominance. Fundamental Theorem of rectangular games. Algebraic method. Graphical method and Dominance method to solveRectangular games. Inter-relation between theory of games and L.P.P.

Note:1. Students will learn formulation of L.P.P. and obtaining optimal solution of L.P.P. using software package.

2. A practical note book is to be prepared with the internal assignments and to be submitted for the partial fulfilment of the course.

References

[1] Mokhtar S. Bazaraa, John J. Jarvis and Hanif D. Sherali, Linear Programming and Network Flows, 2nd Ed., John Wiley and Sons, India, 2004.
[2] F.S. Hillier and G.J. Lieberman, Introduction to Operations Research, 9th

Ed., Tata McGraw Hill, Singapore, 2009.
[3] Hamdy A. Taha, Operations Research, An Introduction, 8th Ed., Prentice-Hall India, 2006.
[4] G. Hadley, Linear Programming, Narosa Publishing House, New Delhi, 2002.
[5] Churchman, Ackoff, Arnoff, Introduction to Operations Research, John Wiley and Sons Inc., 1957.
[6] Billy, E. Gillet, Introduction to Operations Research: A Computer Oriented Algorithmatic Approach, TMH Edition, 1979.
[7] Swarup K., Gupta P.K., Man Mohan, Operations Research, Sultan Chand and Sons, 2020.
[8] Chakraborty J. G. and Ghosh, P.R., Linear Programming and Game Theory, Moulik Library, 1979.

MATH-MD-IDC1-1-Th

Mathematical Logic

Full marks: 75 (Theory: 50 and Tutorial: 25)
(45classes)

Introduction: propositions, truth table, negation, conjunction and disjunction. Implications, biconditional propositions.

General Notions: Formal language, object and meta language, general definition of a Formal Theory/Formal Logic.

Propositional Logic: Formal theory for propositional calculus, derivation, proof, theorem, deduction theorem, conjunctive and disjunctive normal forms, semantics, truth tables, tautology, adequate set of connectives, applications to switching circuits, logical consequence, consistency, maximal consistency, Lindenbaum lemma, soundness and completeness theorems, algebraic semantics.

Modal PropositionalLogic: Introduction, modal operators, well formed formulas, axioms of systems K, T, B, S4, S5, Rules of inference, interpretation in Kripke frame, validity, connection of accessibility relation with the systems, Statements of soundness and completeness theorems.

Predicate Logic: First order language, symbolizing ordinary sentences into first order formulae, free and bound variables, interpretation and satisfiability, models, logical validity, formal theory for predicate calculus.

Fuzzy Logic: Many-valued logic, 3-valued logic of Lukasiewich, the truth tables of conjunction, disjunction, negation and implication, tautology and validity, Infinite valued logic, calculation of truth values of the logical connectives.

Applications (briefidea): Applicationsof Modal Logic in Artificial Intelligence, database theory, distributed system, cryptography. Applications of Fuzzy Logic in Artificial Intelligence, Soft computing, Decision theory, NLP, Pattern recognition.

References

[1] Elliott Mendelson; Introduction to mathematical logic; Chapman & Hall; London, 1997.

[2] Angelo Margaris; First order mathematical logic; Dover publications, Inc, New York ,1990.

[3] S.C.Kleene; Introduction to Metamathematics; Amsterdam; Elsevier, 1952.

[4] J.H.Gallier; Logic for computer science; John.Wiley& Sons, 1987.

[5] H.B.Enderton; A mathematical introduction to logic; Academic Press; New York 1972.

[6] Chakraborty, M., Lecture note: A journey through the logic wonderland, IIEST, Shibpur, 2016.

MATH-MD-IDC2-2-Th
Financial Mathematics

Full marks: 75 (Theory: 50 and Tutorial: 25)

(45classes)

- Profit, Loss and discount, Dividend, Calculation of income tax, Tabulations, Bar graphs, Pie charts, Line graphs.

- Introduction to Financial Markets and Instruments: Money Market and Capital Market, Financial Instruments – Stock, Bonds, Derivatives; Concept of Value (intrinsic) vs. Price of Financial Instruments, Concept of Arbitrage.

- Time Value of Money: Interest (simple and compound, discrete and continuous), Annuities, net present value, internal rate of return (calculation by bisection and Newton-Raphson methods), Comparison of NPV and IRR.
- Bonds: Bond Valuation; Bond Prices and Yields; Duration, Convexity, Interest Rate Risk; Fixed vs. Floating Rate Bonds, Immunization.
- Portfolio Theory: Brief introduction to expectation, variance, covariance and correlation; Asset Return and Risk; Portfolio Risk (Variance) and Return– Historical and Ex-Ante; Diversification and Risk Reduction; Feasible and Optimal Portfolio – Efficient Frontier; Markowitz model (review of Lagrange multipliers for 1 and 2 constraints).

References

[1] David G. Luenberger; Investment Science; Oxford University Press, Delhi, 1998.

[2] John C. Hull; Options, Futures and Other Derivatives, 6th Ed.; Prentice-Hall India, Indian reprint, 2006.

[3] Sheldon Ross; An Elementary Introduction to Mathematical Finance, 2nd Ed, Cambridge University Press, USA, 2003.

[4] Chandra P., Investment Analysis and Portfolio Management; McGraw Hill Education, 5th Ed., 2017.

[5] Ales Cerny: Mathematical Techniques in Finance: Tools for incomplete markets, PrincetonUniversity Press, 2009.

[6]S.R. Pliska, Introduction to Mathematical Finance: Discrete time model, 1st Ed., Wiley, 1997.

[7] Karatzas and S. Shreve, Method of Mathematical Finance, Springer, New York, 2016.

MATH-MD-IDC3-3-Th

Bio - Mathematics

Full marks: 75 (Theory: 50 and Tutorial: 25)
(45 classes)

Mathematical biology and the modelling process: What is a model? Essential features of a modelling approach, Identification of variables, parameters, constants for a model; type of models (linear-nonlinear and continuous – discrete).

Simple single-species continuous population growth models:
Malthus model (1798): deduction (basic assumptions), analytic solution, doubling time; behavior of population size as $t \to \infty$, Stability analysis of the steady states of the Malthus model; limitations.

Logistic model (Verhulst 1838): motivation (Gause's 1934 Experiments) and formulation (basic assumptions), analytic solution, behavior of population size as $t \to \infty$ for different initial population size, carrying capacity. Effects of harvesting in a single species population: Constant-yield harvesting, constant-effort harvesting.

One dimensional models, fixed points, stability analysis of fixed points, phase diagrams.
Non-dimensionalization and re-parametrization in a model: Necessity and applications.

Bifurcation: Saddle-node, transcritical and pitchfork bifurcations in one-dimensional case.

Insect outbreak model (Morris, 1963): The spruce budworm model – deduction (basic assumptions), analysis of steady states, presence of saddle-node bifurcation; real life applications.

Interacting populations: Predator-prey model (basic assumptions) and Lotka (1925)-Volterra (1926) model (basic assumptions) – deduction, Steady states.

Chemical Reaction Kinetics; Law of mass action; Enzymatic reaction;
Enzyme Kinetics; Elimination of variables – model reduction; Michaelis-Menten kinetics (proposed in 1913). Formulation of model (basic assumptions) and steady states.

Gene regulation networks: Introduction, basic assumptions, two dimensional model; Constitutive gene expression; Gene transcription regulation by activators; Gene transcription regulation by repressors; Regulation of gene transcription: auto-activation and auto-inhibition.

Epidemic models: Basic terminologies.
SI model (assumptions), Kermack-McKendrick SIR model 1927 (basic assumptions) assuming total population as constant, Formulation of the models. Concept of basic reproduction number.

Discrete single-species models: Linear models, growth models, decay models, discrete Logistic models.

Overview of nonlinear difference equations: Steady states and linear stability analysis, Graphical solution of difference equations – cobwebbing.

References

[1] L.E. Keshet, Mathematical Models in Biology, SIAM, 1988.
[2] J. D. Murray, Mathematical Biology, Springer, 1993.
[3] Y.C. Fung, Biomechanics, Springer-Verlag, 1990.
[4] F. Brauer, P.V.D. Driessche and J. Wu, Mathematical Epidemiology, Springer, 2008.
[5] M. Kot, Elements of Mathematical Ecology, Cambridge University Press, 2001.
[6] F. Brauer and C. Castillo-Chavez, Mathematical Models in Population Biology and Epidemiology, Springer, 2012.
[7] S. H. Strogatz, Nonlinear Dynamics and Chaos, Perseus Books, 1994.
[8] N.F. Britton, Essential Mathematical Biology, Springer-Verlag London, 2003.
[9] R F Morris, The Memoirs of the Entomological Society of Canada, Cambridge.org, 1963.

UNIVERSITY OF CALCUTTA

Notification No.CSR/22/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of her powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 31.07.2023 approved the syllabus of the under mentioned subjects semester wise Four-year (Honours & Honours with Research) /Three-year (Multidisciplinary) /Four-year (Honours with core Vocational) programme of U.G. courses of studies, as applicable under CCF,2022, under this University, as laid down in the accompanying pamphlet.

1. **Geography**
2. **Physical Education**
3. **Film Studies**
4. **Fine Arts**
5. **History (Revised syllabus after incorporating some amendments, in the syllabus published in CSR/13/23, dt.12.7.23)**
6. **Islamic History & Culture (Revised syllabus after incorporating some amendments, in the syllabus published in CSR/13/23,dt.12.7.23)**
7. **Persian (Revised syllabus after incorporating some amendments, in the syllabus published in CSR/20/23, dt.28.7.23)**
8. **Computer Application. (Honours with core Vocational)**

The above shall take effect from the academic session 2023-2024.

SENATE HOUSE

Kolkata-700073

The 2nd August ,2023

2/8/2023

Prof.(Dr.) Debasis Das

Registrar

Course Structure of the Subject - Physical Education– MDC (UG) University of Calcutta

a) The COURSE STRUCTURE – MDC of the subject **PHYSICAL EDUCATION** (UG) of Calcutta University are likely to be offered according to the discretion of the concerned authority of Calcutta University and the affiliated College(s) of the University.

b) The theory and practical portions of the first semester subjects, for the courses in details, are recommended to start with the programme in time, and the other details, like - the end semester examination marks, division of marks, modality of practical examination and the remaining shall be communicated in due course shortly.

Physical Education COURSE STRUCTURE - MDC (Calcutta University)

	CC1	CC2	Minor	IDC	AEC	SEC	CVAC	Semester Internship	Total Credit
Semester	8x4 = 32	8x4 = 32	6x4 = 24	3x3 = 9	4x2 = 8	3x4 = 12	4x2 = 8	1x3 = 3	124
1	1x4 = 4 (3TH+1P/TU)	1x4 = 4 (3TH+1P/TU)		1x3 = 3 (2TH+1P/TU)	1x2 = 2 (2TH+0P/TU)	1x4 = 4	2x2 = 4		21
2	1x4 = 4 (3TH+1P/TU)			1x3 = 3 (2TH+1P/TU)	1x2 = 2 (2TH+0P/TU)	1x4 = 5	2x2 = 5		21
3	1x4 = 4 (3TH+1P/TU)	1x4 = 4 (3TH+1P/TU)	1x4 = 4 (3TH+1P/TU)	1x3 = 3 (2TH+1P/TU)	1x2 = 2 (2TH+0P/TU)	1x4 = 6			21
4	2x4 = 8 (3TH+1P/TU)	2x4 = 8 (3TH+1P/TU)	1x4 = 4 (3TH+1P/TU)		1x2 = 2 (2TH+0P/TU)				22
5	2x4 = 8 (3TH+1P/TU)	1x4 = 4 (3TH+1P/TU)	2x4 = 8 (3TH+1P/TU)						20
6	1x4 = 4 (3TH+1P/TU)	2x4 = 8 (3TH+1P/TU)	2x4 = 8 (3TH+1P/TU)						20
Credits	8x4 = 32	8x4 = 32	6x4 = 24	3x3 = 9	4x2 = 8	3x4 = 12	4x2 = 8		125+3 = 128
Marks	8x100 = 800	8x100 = 800	6x100 = 600	3x75 = 225	4x50 = 200	3x100 = 300	4x50 = 200		Total Marks = 3200

*** Marks = 25 marks per credit**

**** Total credit = 125+3 (for summer internship) = 128**

***** Summer Internship: As in (G)**

Physical Education subjects according to COURSE STRUCTURE - MDC (Calcutta University)

	CC1	CC2	Minor	IDC	AEC	SEC	CVAC	Semester Internship	Total Credit
Sem.	8x4 = 32	8x4 = 32	6x4 = 24	3x3 = 9	4x2 = 8	3x4 = 12	4x2 = 8	1x3 = 3	124
1	1x4 = 4 (3TH+1P/TU) Introduction and History of Physical Education and Sport Practical - Physical Characteristics	1x4 = 4 (3TH+1P/TU) Contemporary Physical Education Practical - Formal Activities (Marching & Aerobics)		1x3 = 3 (2TH+1P/TU) Sociology in Physical Education & Sport Practical - Social Characteristics	1x2 = 2 (2TH+0P/TU) Physical Education & Sport for Mental Health	1x4 = 4 Track & Field and Gymnastics	2x2 = 4 1. Value Education in Physical Education & Sport 2. Environmental Education in Physical Education & Sport		21
2	1x4 = 4 (3TH+1P/TU) Yoga Practical - Yoga	1x4 = 4 (3TH+1P/TU) Health & Wellness in Physical Education & Sport Practical - Health-related Physical Fitness		1x3 = 3 (2TH+1P/TU) Biology in Physical Education & Sport Practical - Biological Characteristics	1x2 = 2 (2TH+0P/TU) Physical Education & Sport for Economic Development	1x4 = 4 Ball Games (Any Two)	2x2 = 5 1. Nutrition in Physical Education & Sport 2. Physical Fitness in Physical Education & Sport		21

3	1x4 = 4 (3TH+1P/TU) Sociology in Physical Education and Sport Practical - Sociology	1x4 = 4 (3TH+1P/TU) Physical Literacy and Sports Practical - Fundamental Movements	1x4 = 4 (3TH+1P/TU) Officiating & First Aid in Physical Education & Sport Practical - Officiating & First Aid	1x3 = 3 (2TH+1P/TU) Psychology in Physical Education & Sport Practical - Psychological Characteristics	1x2 = 2 (2TH+0P/TU) National & International Perspective of Sports and Politics	1x4 = 4 Indian Games (Any one) and Racket Sport (Any one)			21
4	2x4 = 8 (3TH+1P/TU) 1. Anatomy, Physiology and Exercise Physiology Practical - Physiology 2. Test, Measurement and Evaluation Practical - AAHPER Youth Fitness Test	2x4 = 8 (3TH+1P/TU) 1. Gender Studies in Physical Education & Sport Practical - Gender Studies 2. Adapted Physical Education & Para Sport Practical - Inclusive Physical Activity & Sport	1x4 = 4 (3TH+1P/TU) Weight Management & Weight Training in Physical Education & Sport Practical - Weight Training		1x2 = 2 (2TH+0P/TU) Olympism				22
5	2x4 = 8 (3TH+1P/TU) 1. Psychological Basis of Physical Education and Sport Practical - Psychology 2. Sports Management Practical - Sports Management	1x4 = 4 (3TH+1P/TU) Kinesiology & Biomechanics in Physical Education & Sport Practical - Biomechanics	2x4 = 8 (3TH+1P/TU) 1. Strength and Conditioning in Physical Education & Sport Practical - Strength & Conditioning 2. Journalism in Physical Education & Sport Practical - Journalism						20

6	1x4 = 4 (3TH+1P/TU) Sport Training and Sports Medicine Practical - Sport Training	2x4 = 8 (3TH+1P/TU) 1. Anthropometry in Physical Education & Sport Practical - Kinanthropometry 2. ICT in Physical Education & Sport Practical - ICT	2x4 = 8 (3TH+1P/TU) 1. Sports Medicine Practical - Sports Medicine 2. Sport Engineering Practical - Sport Engineering						20
Credits	8x4 = 32	8x4 = 32	6x4 = 24	3x3 = 9	4x2 = 8	3x4 = 12	4x2 = 8		125+3 = 128
Marks	8x100 = 800	8x100 = 800	6x100 = 600	3x75 = 225	4x50 = 200	3x100 = 300	4x50 = 200		Total Marks = 3200

* Marks = 25 marks per credit

** Total credit = 125+3 (for summer internship) = 128

*** Summer Internship: As in (G)

Syllabus for Physical Education subjects (Semester-I)

(According to COURSE STRUCTURE - MDC of Calcutta University)

CC1 (Semester-I): (3TH + 1P/TU) = 4 Credit

Subject: Introduction and History of Physical Education and Sport

Unit-1 : Basic Concepts of Physical Education and Sport

Meaning, Definition, Nature, Aim and Objectives.
Need and Importance for different Age-groups, Genders, Occupations, and Socially Disadvantaged Groups.
Philosophies of Physical Education and Sport - Idealism, Naturalism, Realism, Pragmatism, and Existentialism.
Misconceptions of Physical Education and Sport - Physical Training, Only Games Participation, Building Body, Drill, Play, No Mental Involvement, Wastage of Money, No Career Prospect, Poor Social Status.

Unit-2: Principles of Physical Education and Sport

Philosophical Principles
Biological Principles
Psychological Principles
Sociological Principles

Unit-3 : History of Physical Education

Physical Education in Europe (Before 20th Century AD)
Physical Education in Europe (20th Century Onward)
Physical Education in USA
Physical Education in India (Pre and Post Independence)

Unit-4 : History of Sport

Emergence of Sport as Social Phenomena
Sport as a Culture
Ancient Olympic Games
Modern Olympic Games and Olympic Movement

Unit-5: Practical - Physical Characteristics

Height and Weight measurement techniques
BMI predictionPublication
BMI classification and interpretation
Ponderal Index prediction and interpretation
Single-most physical measurement for health in different age groups.

Reference

1. A. K. Bhattacharyya & S. Bhowmick. Sarir Siksha. Paschimbanga Rajya Pustak Parsad.
2. J.F. Williams, Principles of Physical Education, Lakshya
3. Kamlesh, M.L. & Singh, M.K. Physical Education. Naveen Publication.
4. Lumpkin, A. Introduction to Physical Education, Exercise Science and Sports Studies, McGraw Hill, New York.
5. Singh, A. et al. Essentials of Physical Education, Kalyani Publishers, Ludhiana, Punjab.
6. Wuest, D.A. & Bucher, C.A. Foundation of Physical Education, Exercise Science and Sports, McGraw Hill Co. Inc., New York.
7. Ronojay Sen, Nation at Play: A History of Sport in India, Penguin Viking.
8. John Nauright & Chirls Perrish, Sports Around the World: History, Culture, and Practice, ABC-CLIO.

CC2 (Semester-1): (3TH + 1P/TU) = 4 Credit

Subject: Contemporary Physical Education

Unit-1: Physical Education as Academic Discipline

The Meaning of an Academic Discipline
Genesis of Physical Education
Scope of Physical Education
The Focal Theme of Physical Education with Time

Unit-2: Motor Learning as Life-style Education

Definition and Meaning of Motor Learning and Life-style
Learning Fundamental Movements: Process, Need and Importance
Learning Motor Skills: Process, Stages, Need and Importance
Motor Creativity and Aesthetics: Motor Creativity Components, Kinaesthetic Perception, Kine-aesthetics.

Unit-3: WHO Recommended Physical Activity

Need and Importance of WHO recommended Physical Activity
Children and Adolescents (aged 5 - 17 years), Children and Adolescents (aged 5 - 17 years) Living with Disability
Adults (aged 18 - 64 years); Adults and Older Adults (aged 18 years and older) with Chronic Conditions, and Living with Disability
Pregnant and Postpartum Women

Unit-4: Inadequate Physical Activity

Sedentary Behaviour: Meaning, Causes, Excuses
Hypo-kinetic Disorders: Obesity, Diabetes (Type-II), Cardio-Vascular Disease, Osteoporosis, Stroke and Cancer
Psychological Impact of Physical Inactivity: Depression, Stress, Self-confidence, Sleeplessness, Mood
Socio-Economic Impact of Physical Inactivity: Social Isolation, Ill-being, Family Economic Burden (NCDs), Lower Productivity in GDP

Unit-5: Formal Activities (Marching & Aerobics)

The Basics of Marching: Objectives of Marching, Command, Stand-at-Ease, Stand Easy, Turning (Right Turn, Left Turn, About Turn, Half-Right/ Left-Turn), Fall-in a Single Line, By the Right Number Count, Fall-in Three Lines, Right Dress
Marching Fundamentals: Mark Time, Open Order March, Close Order March, Forward march, Quick March, Right Turn at the March, Left Turn at the March, About Turn at the March, Mark Time from Quick March, Changing Step, Right or Left Wheel, Slow March, Right or Left Close March, Fall Out, Dismiss, Saluting to the Front, Saluting to the Right, Eyes Right and Eyes Front, Ceremonial Parade.
Aerobics (Part - I): Basic Step, V-Step, and Step Touch
Aerobics (Part - II): Mambo, Box Step, and Grapevine.

Reference

1. Kanchan Bandopadhyay, Sarir Siksha Parichay, Classic Publishers, Kolkata
2. Amiyo Kumar Saha, Sarir-Siksar Ritiniti, Rana Publisher, B-2/254 Kalyani

3. A. K. Uppal & Meera Sood, Introduction to Physical Education in the Contemporary Context, Friend Publications
4. Kamlesh, M.L. & Singh, M.K. Physical Education. Naveen Publication.
5. Singh, A. et al. Essentials of Physical Education, Kalyani Publishers, Ludhiana, Punjab.
6. Wuest, D.A. & Bucher, C.A. Foundation of Physical Education, Exercise Science and Sports, McGraw Hill Co. Inc., New York.
7. Angela Lumpkin Physical Education and Sport: A Contemporary Approach, Mosby
8. Tyagi Arun Kumar, Gymnastics: Skills and Rules**,** Khel Sahitya Kendra, New Delhi.
9. Dubey, H.C. Gymnastics, Discovery Publishing House, New Delhi.

IDC (Semester-1): (2TH + 1P/TU) = 3 Credit

Subject: Sociology in Physical Education & Sport

Unit-1: Society

1.1 Society & Sociology: Meaning, Definition, and about the Concepts.

2.2 Social Group: Definition, Characteristics, Causes, Types, and Functions.

Group Dynamics: Characteristics, Stages, Norms, Roles, Status, and Cohesiveness.

Leadership: Meaning, Definition and Types. Leadership and Physical Education, Leadership and Sport.

Unit-2: Culture

Culture: Definition, Features, Types, Importance, Social Institutions.

Basic Human Values: Right Conduct, Peace, Truth, Love, and Non-violence.

Games and Sport Culture in various civilizations - Greece, Rome, England, India.

Development of Cultural Values and a Social Individual through Physical Education and Sport

Unit-3: Social Issues from Physical Education & Sport Context

Equality - Gender, Ethnicity, Race, Status

Inclusive, Adaptive & Safe Participation - Pre-school age, Women and Girls, the Aged, Persons with Disabilities, and Indigenous People.

Empowerment - In Welfare, Access, Consientisation, Participation, and Equality of Control dimensions.

National and International Harmony - The events and their Philosophy.

Unit-4: Practical - Social Characteristics

Population and Subject
Data and Variables
Primary and Secondary Data, and their use guidelines.
Sociodemographic Characteristics
Sociometric Test

Reference

1. Anadi Kumar Mahapatra, Bisoy Samaj Tatta, Sandhya Prakashani.
2. Humans Ghosh, Samajtatta: Anthony Giddens, Bankura Christian College.
3. Kathy S. Stolley, The Basics of Sociology, Greenwood Press: London.
4. Vidya Bhutan & D.R.Sachdeva, An Introduction to Sociology, Kitab Mahal.
5. Jay Coakley, Sports in Society – Issues and Controversies, McGraw Hill.
6. Richard, J. Crisp, Essentials of Social Psychology, Sage Publications.
7. C. N. Shankar Rao, Sociology: Principles of Sociology with an Introduction to Social Thoughts, S. Chand Publisher

AEC (Semester-1): (2TH+0P/TU) = 2 Credit

Subject: Physical Education & Sport for Mental Health

Unit-1: Introduction of Mental Health

Meaning, Importance; Mental Health as Basic Human Right and it's Reasons

Determinants of Mental Health: Individual, Biological and Psychological, and Social and Structural

Mental Health Promotion and Prevention: Interventions, Reshaping the Determinants, Mental Health Promotion and Protection,Resilience Development

WHO Comprehensive Mental Health Action Plan 2013 - 2030

Unit-2: Health Behaviour Development

Balanced Diet: Eat Healthy, Regular Meals, Stay Hydrated, Good Food Habit Development

Good Recovery: Sound Sleep, Rest, and Relaxation

Psychological Aspect: Stay Connected, Goal Setting and Prioritisation, Practicing Gratitude, and Positivity Focusing

Exercise and Sport Participation: Recommended Regular Exercise for Different Groups; Intensity, Duration, and Timing

Unit-3: Mental Health Care and Promotion

The Understanding: Signs and Symptoms of Mental Ill-health

Mental Health Care: National Health Care Programme

Mental Health Promotion: Acquiring Knowledge and Skill to Protect Mental Wellbeing, Creating Positive Changes in Social Environment; Mental Health Literacy, Destigmatisation, Encouragement of Help-seeking and Help-giving Behaviour

Role of Physical Education and Sport: Good Health Behaviour Development; Mental Health Promotion; Development of Independence & Autonomy and Wellness

Reference

1. David Carless, Kitrina Douglas, Sport and Physical Activity for Mental Health, Blackwell Publishing Ltd.
2. Panteleimon Ekkekakis**,** Handbook of Physical Activity and Mental Health, Routledge
3. Claude Bouchard, Steven N. Blair, William Haskell, Physical Activity and Health, Human Kinetics

SEC (Semester-1) : 4 Credit

Subject: Track and Field & Gymnastics

Track and Field

Unit-1: Track Events

Starting Techniques: Standing start and Crouch start (with variations) use of Starting Block.

Acceleration with proper running techniques.

Maintenance of Speed in different running events

Finishing Technique: Run Through, Forward Lunging and Shoulder Shrug.

Relay Race: Starting, Baton Holding/Carrying, Baton Exchange in changing zone, and Finishing.

Unit-2: Field Events (Any three - Student's choice)

Long Jump: Approach Run, Take-off, Flight in the air (Hang Style/Hitch Kick) and Landing.

High jump: Approach Run, Take-off, Bar Clearance/Flight (Straddle Roll) and Landing.

Shot put: Holding the Shot, Placement, Initial Stance, Glide, Delivery Stance and Recovery (Perry O'Brien Technique).

Discus Throw: Holding the Discus, Initial Stance, Primary Swing, Turn, Release and Recovery (Rotation in the circle).

Javelin Throw: Grip, Carry, Release and Recovery (3/5 Impulse stride).

Gymnastics

Unit-1: Compulsory

Forward Roll

T-Balance

Forward Roll with Split leg

Backward Roll

Cart-Wheel

Unit-2: Optional (any three)

Dive and Forward Roll
Hand Spring
Head Spring
Neck Spring
Hand Stand and Forward Roll

Project-cum-Practical Record Book

1. Introduction of the Sport, History of Development
2. Performance status of India and renowned personalities – Indian & International
3. Fundamental Skills
4. Rules & regulations with Field/Court diagram
5. Tournaments & Sports Federations (National & International).

Reference

1. Saha, A. K. Sarir Siksher Ritiniti, Rana Publishing House, Kalyani.
2. Bandopadhyay, K. Sarir Siksha Parichay, Classic Publishers, Kolkata.
3. Dharma, P.N. Fundamentals of Track and Field, Khel Sahitya Kendra, New Delhi.
4. Tyagi Arun Kumar, Gymnastics: Skills and Rules, Khel Sahitya Kendra, New Delhi.
5. Dubey, H.C. Gymnastics, Discovery Publishing House, New Delhi

CVAC (Semester-1): 2x2 Credit = 4 Credit

CAVC-1: Value Education in Physical Education & Sport (2 Credit)
CAVC-2: Environmental Education in Physical Education & Sport (2 Credit)

Subject: Value Education in Physical Education & Sport (2 Credit)

Unit-1: Introduction of Value Education

Aim and Objectives: Goal, Objective - Awareness, Responsibility, Ethical Reflection, and Compassion

Types: Personal, Spiritual, Social, Cultural, and Environmental

Importance: Toward - Well-being for Healthy Life; Non-discrimination, Solidarity and Equality; Autonomy and Decision Making; Diversity and Cultural Pluralism

Value Education in India: Toward Individual, Family and Community, Reorienting Systems, Structures and Institutions, the Country, and the Planet as a Whole

Unit-2: Approaches of Value Education

Evocation, and Inculcation

Awareness, and Moral Reasoning

Analysis, Value Clarification

Commitment, and the Union Approach

Unit-3: Value Education through Physical Education and Sport (PES)

PES Supports Active Learning

PES Complement Cognitive Skills

Gives Students Increasing Amounts of Responsibility

PES Enhance Level of Concentration and Participation

Reference

1. https://en.unesco.org/themes/sport-and-anti-doping/sports-values-education
2. https://www.unesco.org/en/quality-physical-education
3. Kiruba Charles & V. A. Selvi, Value Education, Neelkamal
4. K. S. Bharadwaj, New Dimensions of Value Education, Balaji World of Books

Subject: Environmental Education in Physical Education & Sport (2 Credit)

Unit-1: Introduction of Environmental Education

Basic Idea: Meaning, Aim and

Objectives: Knowledge Transmission; Creation of New Behaviour; Development of Values, Attitudes and Skills; Development of Awareness to Protect the Planet and Complexity of Interaction between Man and Nature

Process: Explore Environmental Issues, Involvement in Problem Solving, and Action for Better Environment

Scope of Environment Education: Biological Aspect, Physical Aspect, Socio-cultural Aspect

Unit-2: Environment Education in Physical Education

Health and Hygiene: Need for Personal Cleanliness - Care of Sensory Organs (Oral, Skin, Nose, Eyes, Ears)

Healthful Environment: Developing Health Behaviour and Health Promotion

Environmental Attunement: Health, Wellness, Quality of Life

Nature and Nurture: Physical Education Activities according to Environment, Sustainable Development

Unit-3: Environment Education and Sport

Sport and Environmental Condition: Practice, Participation, Performance, Health Issues.

Environmental Sustainability: Pedagogical development of Sport Education - Identification of the Vision, Good Practices, Barriers

Environmental Awareness and Sport: Sports and Environment Programme under UNEP (United Nations Environment Programme)

Greening of the Olympic: Role of IOC, The Carbon Counting Game, Skiing: The Slippery Slope, Teed Off at Golf

Reference

1. Brian P. McCullough, Timothy B. Kellison, Handbook of Sport and the Environment, Routledge
2. https://olympics.com/ioc/news/ioc-guide-to-sport-environment-and-sustainable-development
3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1459948/
4. https://cnr.ncsu.edu/news/2020/11/sport-and-the-environment-what-is-the-connection/
5. https://thesportjournal.org/article/sports-and-the-environment-ways-towards-achieving-the-sustainable-development-of-sport/

UNIVERSITY OF CALCUTTA

NotificationNo.CSR/18/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of her powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 17.07.2023 approved the syllabus of the under mentioned subjects semester wise Four-year (Honours & Honours with Research) /Three-year (Multidisciplinary) programme of U.G. courses of studies, as applicable under CCF,2022, under this University, as laid down in the accompanying pamphlet.

SL.NO.	NAME OF SUBJECTS
1.	ENVIRONMENTAL Science
2.	Physics
3.	French
4.	Sanskrit (Honours)
5.	Arabic
6.	Library & Information Studies
7.	Statistics
8.	Electronics
9.	Household Art (Minor/MDC)
10.	Microbiology (Revised syllabus After incorporating some amendments, in the syllabus Published in CSR/13/23, Dt.12/07/2023)
11.	Psychology (Revised syllabus After incorporating some amendments, in the syllabus Published in CSR/13/23, Dt.12/07/2023)
12.	Hindi (Revised syllabus After incorporating some amendments, in the syllabus Published in CSR/13/23, Dt.12/07/2023)
13.	B.B.A. (Honours syllabus After incorporating some amendments, in the syllabus Published in CSR/13/23, Dt.12/07/2023)

The above shall be effective from the academic session 2023-2024.

24.7.2023

SENATE HOUSE

KOLKATA-700 073

The 24th July, 2023

Prof.(Dr.) Debasis Das

Registrar

The syllabus of Physics major and minor under CCF, 2022 is mentioned below. The details of the CCF, 2022 are described in the CSR/05/2023 dated 23.06.2023. The essentials of the regulations are mentioned here briefly for better understanding.

CURRICULUM AND CREDIT FRAMEWORK (CCF, 2022)

A four-year degree program in science discipline is constructed with one major and two minor subjects. All the subjects must be taken from Science discipline

Subjects in Science Discipline: Physics, Zoology, Chemistry, Botany, Molecular Biology, Microbiology, Geology, Geography, Physiology, Defence Studies, Computer Science, Electronics, Bio-Chemistry, Physical Education, Environmental Science, Economics, Statistics, Mathematics, Anthropology, Psychology, Film Studies.

Core Courses in Major subject are mentioned as discipline specific core or DSC and minor subjects are mentioned as Minor. i.e., **m1 Minor and m2 Minor**.

Apart from one major and two minor subjects student need to take some other courses. These are listed below.

IDC (Interdisciplinary Course): In first three semesters student should study **three IDC courses** from three different subjects other than the concerned major and minor subjects. Each subject provides an IDC in their curriculum. Student of physics major should find the details of the course from respective subjects.

SEC (Skill Enhancement Course): In first three semesters student should study **three SEC courses**. The structure is given below.

Semester	SEC
SEM-1	SEC from Major Subject (Physics) mentioned in first semester
SEM-2	Artificial Intelligence or SEC from Major Subject (Physics) mentioned in second semester
SEM-3	SEC from Major Subject (Physics) mentioned in third semester

CVAC (Common Value Added Course): CVAC has nothing to do with the major or minor subjects. They are based on knowledge of human & social values. Student should study **four CVAC courses** in first two semesters. Details of the CVAC courses are given below.

Semester	CVAC	
SEM-1	Environment Science I	Constitution Values
SEM-2	Environment Science II	Optional CVAC from a pool

AEC (Ability Enhancement Course): In first four semesters student should study one AEC in each semester. i.e., **total four AEC courses** required to be studied. The details of the AEC are mentioned below.

Semester	AEC
SEM-1	Compulsory English paper 1
SEM-2	Compulsory English paper II
SEM-3	MIL/Alternative English paper I
SEM-4	MIL/Alternative English paper II

MIL stands for Modern Indian Language. Here, three subjects are available: Bengali, Hindi and Urdu. Student can take any one of them for the third and fourth semester. However, if the students are not at all familiar with these then they can choose Alternative English for these two semesters.

YEARWISE PROGAM WITH EXIT OPTION WITH CREDIT

First Year

	DSC	m1& m2 minor	IDC	AEC	SEC	CVAC			
SEM 1	1 Course 1X4=4C	1 Course (m1) 1X4=4C	1 Course 1X3=3C	1 Course 1X2=2C	1 Course 1X4=4C	2 Courses 2X2=4C	Total 21 C		
SEM 2	1 Course 1X4=4C	1 Course (m1) 1X4=4C	1 Course 1X3=3C	1 Course 1X2=2C	1 Course 1X4=4C	2 Courses 2X2=4C	Total 21 C	Summer Internship 1X3=3C and Exit	**Certificate**
								21+21+3=	45 C

Second Year

	DSC	m1& m2 minor	IDC	AEC	SEC			
SEM 3	2 Courses 2X4=8C	1 Course (m2) 1X4=4C	1 Course 1X3=3C	1 Course 1X2=2C	1 Course 1X4=4C	Total 21 C		**Diploma**
SEM 4	4 Courses 4X4=16C	1 Course (m2) 1X4=4C		1 Course 1X2=2C		Total 22 C	Summer Internship 1X3=3C and Exit	
						21+21+21+22+3=		88 C

Third Year

	DSC	m1 minor	m2 minor			
SEM5	4 Courses 4X4=16C	1 Course 1X4=4C	1 Course 1X4=4C	Total 24 C		**Three-year single major degree**
SEM 6	3 Courses 3X4=12C	1 Course 1X4=4C	1 Course 1X4=4C	Total 20 C	Summer Internship 1X3=3C and Exit	
			21+21+21+22+24+20+3=			132 C

Fourth Year

Total credit in 7th and 8th semester is 20 each. There are two possibilities in the fourth year. Only students who have **CGPA equivalent to 75% marks** up to the sixth semester can opt for **four year Honours with research degree course**. Students who do not have such qualification even can opt for fourth year but in that situation, he/she have to study one additional DSC in the 7th semester and two additional DSC in the 8th semester. Total credit for these courses in the 7th and 8th semester is 4+8 =12. Such students receive **four year Honours without research degree course.**

For Students performing research work under faculty members:

	DSC			**Four year Honours with research degree course in single major**
SEM 7	4 Courses 4X4=16C	Research work equivalent to 4 credits	Total 20 C	
SEM 8	3 Courses 3X4=12C	Research work equivalent to 8 credits	Total 20 C	
		21+21+21+22+24+20+3+20+20=		172 C

For Students not performing research work under faculty members:

	DSC	Additional DSC			**Four year Honours without research degree course in single major**
SEM 7	4 Courses 4X4=16C	1 Course 1X4=4C	Total 20 C		
SEM 8	3 Courses 3X4=12C	2 Course 2X4=8C	Total 20 C		
	21+21+21+22+24+20+3+20+20=				172 C

COURSES FOR THE STUDENTS TAKING PHYSICS AS MAJOR SUBJECT

	DSC	Minor	SEC	AEC	CVAC	IDC		
SEM-1	DSC-1 3T+1L (@4C=4C)	m1-Minor-1 3T+1L (@4C=4C)	SEC-1 @4L=4C	Eng-1 @2TH=2C	ENVS-1 Constitution @2TH=4C	Sub1 2TH+1Tu @3=3C	Summer Internship @3=3C in any of either 2 or 4 or 6 for exit otherwise at	
SEM-2	DSC-2 3T+1L (@4C=4C)	m1-Minor-2 3T+1L (@4C=4C)	SEC-2 @4L=4C	Eng-2 @2TH=2C	ENVS-2 Optional @2TH=4C	Sub 2 2TH+1Tu @3=3C		
SEM-3	DSC-3,4 3T+1L (@4C=8C)	m2-Minor-1 3T+1L (@4C=4C)	SEC-3 @4L=4C	MIL/ Alt Eng-1 @2TH=2C		Sub3 2TH+1Tu @3=3C		

SEM-4	DSC-5,6,7,8 3T+1L (@4C=16C)	m2-Minor-2 3T+1L (@4C=4C)		MIL/ Alt Eng-1 @2TH=2C				
SEM-5	DSC-9, 10, 11, 12 3T+1L (@4C=16C)	m1-Minor-3 m2-Minor-3 3T+1L (@4C=8C)						
SEM-6	DSC-13, 14, 15 3T+1L (@4C=12C)	m1-Minor-4 m2-Minor-4 3T+1L (@4C=48)						
SEM-7	DSC-16 ,17, 18, 19 3T+1L (@4C=16C)							Research Work @4C=4C Or DSC -23 @4C=4C
SEM-8	DSC-20, 21, 22 3T+1L (@4C=12C)							Research Work @8C=8C Or DSC - 24,25 @4C=8C

Here, two subjects can be taken as minor. e.g., a student with Physics major may chose Chemistry and Mathematics as two minor subjects. Here, Chemistry can be taken as m1 and Mathematics as m2. Then, in the first two semester CEM-minor 1 and minor 2 paper can be opted where in the third and fourth semester MTM minor 1 and minor 2 will be opted. The minor papers in fifth semester will be CEM minor 3 and MTM minor 3 and that for fourth semester will be CEM minor 4 and MTM minor 4. However, student can take CEM as m2 and MTM as m1. Then subject in semester 1 and 2 will be MTM and that for semester 3 and 4 be CEM.

Optional CVAC can be taken from the pull opted from the university. Three subjects for IDC required to be chosen from science discipline.

COURSES FOR THE STUDENTS TAKING PHYSICS AS MINOR SUBJECT

	Minor	
SEM-1	m1-Minor-1 3T+1L (@4C=4C) Basic Physics-I *If the student opt m1 as Physics	Same as DSC-1 of Physics Major
SEM-2	m1-Minor-2 3T+1L (@4C=4C) Basic Physics-II *If the student opt m1 as Physics	Same as DSC-2 of Physics Major

SEM-3	m2-Minor-1 3T+1L (@4C=4C) Basic Physics-I *If the student opt m2 as Physics	Same as DSC-1 of Physics Major
SEM-4	m2-Minor-2 3T+1L (@4C=4C) Basic Physics-II *If the student opt m2 as Physics	Same as DSC-2 of Physics Major
SEM-5	m1-Minor-3 3T+1L (@4C=8C) Waves and Optics	Same as DSC-3 of Physics Major
SEM-6	m1-Minor-4 3T+1L (@4C=48) Modern Physics	Same as DSC-5 of Physics Major

FOUR YEARS U.G PHYSICS PROGRAMME UNDER THE UNIVERSITY OF CALCUTTA

STRUCTURE OF THE COURSE

1st Semester: **A) DSC-1 (Level-100) for students of PHYSICS MAJOR** **B) SEC – 1**: for Physics Majors only **C) MINOR-1 (Level-100), same content as DSC-1, for students of other departments of science discipline. This course will be offered to students who choose Physics as m1.** **D) Interdisciplinary Course (IDC)** will be offered for students of other disciplines who do not have Physics as a major or minor subject, in any one of the first three semesters.	***2nd Semester:*** **A) DSC-2 (Level-100) for students of PHYSICS MAJOR** **B) SEC – 2**: Artificial intelligence (offered centrally by the University) or specified for Physics Majors only **C) MINOR-2 (Level-100), same content as DSC-2, for students of other departments of science discipline. This course will be offered to students who choose Physics as m1.** **D) Interdisciplinary Course(IDC)**will be offered for students of other disciplines who do not have Physics as a major or minor subject, in any one of the first three semesters.
3rd Semester: **A) DSC-3 & 4 (Level-200) for students of PHYSICS MAJOR** **B) SEC – 3**: for Physics Major only **C) MINOR-1 (Level-100), same content as DSC-1, for students of other departments of science discipline. This course will be offered to students who choose Physics as m2.** **D) Interdisciplinary Course (IDC)** will be offered for students of other disciplines who do not have Physics as a major or minor subject, in any one of the first three semesters.	***4th Semester:*** **A) DSC-5, 6, 7, 8 (Level-200) for students of PHYSICS MAJOR** **B) MINOR-2 (Level-100), same content as DSC-1, for students of other departments of science discipline. This course will be offered to students who choose Physics as m2.**
5th Semester: **A) DSC-9, 10, 11, 12 (Level-300) for students of PHYSICS MAJOR** **B)Minor-3 (Level-200): For students who choose physics as m1 or m2.**	6***th Semester:*** **A) DSC-13, 14, 15 (Level-300) for students of PHYSICS MAJOR** **B) Minor-4 (Level-200) For students who choose physics as m1 or m2.**
7th Semester: **A) DSC-16, 17, 18, 19 (Level-400)** to be studied by all students of Honours **B)DSC/DSE-20 (Level-400)** would be studied only by those without a research component. C) Students with research component would carry out a dissertation and would be evaluated on the same.	***8th Semester:*** **A) DSC-21, 22 & 23 (Level-400)** to be studied by all students of Honours **B) DSC/DSE-24, 25 (Level-400)** would be studied only by those without a research component. C) Students with research component would carry out a Research Project and would be evaluated on the same.

- **IDC will be offered to any one of the first three semesters.**
- **At least one summer internship should be taken up by a student in his/her exit semester up to the 4th Semester. Internship is compulsory in the 6th Semester.**

CURRICULUM STRUCTURE

ODD SEMESTERS (JULY TO DECEMBER)			
SEMESTER-I		***CREDIT***	***MARKS***
DSC-1	Basic Physics-I (Level-100)	3T+1L = 4	100
SEC-1	Introduction to Graph plotting & Programming	0T+4L = 4	100
Minor 1	Basic Physics-I (Level-100)	3T+1L = 4	100
IDC	Frontiers of Physics	2T+1Tu	75
SEMESTER-III		***CREDIT***	***MARKS***
DSC-3	Waves & Optics (Level-200)	3T+1L=4	100
DSC-4	Mathematical Physics – I (Level-200)	3T+1L=4	100
SEC-3	Arduino / Data analysis	1T+3P=4	100
Minor 1	Basic Physics-I (Level-100)	3T+1L=4	100
IDC	Frontiers of Physics	2T+1Tu	75
SEMESTER-V		***CREDIT***	***MARKS***
DSC-9	Analog Electronics (Level-300)	3T+1L=4	100
DSC-10	Nuclear & Particle Physics (Level-300)	3T+1Tu=4	100
DSC-11	Quantum Mechanics (Level-300)	3T+1L=4	100
DSC-12	Thermal Physics and Statistical Mechanics (Level-300)	3T+1 L=4	100
Minor 3	Waves & Optics (Level-200)	3T+1L=4	100
The exact structure for Semester VII is yet to be decided. This is a tentative structure.			
SEMESTER-VII (M.Sc. Sem-I)		***CREDIT***	***MARKS***
DSC-16	Advanced Mathematical Physics	3T+1L=4	100
DSC-17	Advanced Classical Mechanics	3T+1L=4	100
DSC-18	Advanced Quantum Mechanics-I	3T+1L=4	100
DSC-19	Electronics & Instrumentation	3T+1L=4	100
DSC/DSE-20	Atomic & Molecular Physics / Laser and Fiber Optics	3+1=4	100

EVEN SEMESTERS (JANUARY TO JUNE)			
SEMESTER-II		***CREDIT***	***MARKS***
DSC-2	Basic Physics-II (Level-100)	3T+1L = 4	100
SEC-2	Artificial Intelligence/ Scientific writing	0+ 4L = 4	100
Minor 2	Basic Physics-II (Level-100)	3T+1L = 4	100
IDC	Frontiers of Physics	2T+1Tu	75
SEMESTER-IV		***CREDIT***	***MARKS***
DSC-5	Modern Physics (Level-200)	3T+1L=4	100
DSC-6	Electromagnetism (Level-200)	3T+1L=4	100
DSC-7	Mathematical Physics – II (Level-200)	3T+1L=4	100
DSC-8	Classical Mechanics and Special Theory of Relativity (Level-200)	3T+1L=4	100
Minor 2	Basic Physics-I (Level-100)	3T+1L=4	100
SEMESTER-VI		***CREDIT***	***MARKS***
DSC-13	Digital Electronics (Level-300)	3T+1L=4	100
DSC-14	Solid State Physics (Level-300)	3T+1L=4	100
DSC-15	Atomic, Molecular, and Laser Physics (Level-300)	3T+1 Tu=4	100
Minor 4	Modern Physics (Level-200)	3T+1L=4	100
The exact structure for Semester VIII is yet to be decided. This is a tentative structure.			
SEMESTER-VIII (M.Sc. Sem-II)		***CREDIT***	***MARKS***
DSC-21	Advanced Electrodynamics	3T+1L=4	100
DSC-22	Advanced Statistical Mechanics	3T+1L=4	100
DSC-23	Advanced Quantum Mechanics-II	3T+1L=4	100
DSC/DSE-24	Nuclear & Particle Physics / Nanomaterials & Applications	3+1=4	100
DSC/DSE-25	Condensed Matter Physics / Introductory Astrophysics & Cosmology	3+1=4	100

Abbreviations: {T – Theory, L – Laboratory, Tu – Tutorial, P – Project}

DETAILED SYLLABUS FOR FOUR YEAR UNDERGRADUATE PROGRAMME

SUBJECT: PHYSICS MAJOR

SEMESTER- I

PAPER: DSC-1/Minor-1: BASIC PHYSICS-I

THEORY [3 Credits, 50 Lecture Periods]

(A) Mathematical Physics: [20 Lecture Periods (LP)]

1. Preliminaries: SI system of units, dimensional analysis. Plotting of functions (both cartesian and polar), Limits, Intuitive ideas about continuity and differentiability of a function. Taylor series of one variable and binomial series (statements only); Maxima and minima for functions of one variable. Calculus of functions of more than one variable: Partial derivatives, exact and inexact differentials. [5 LP]

2. Ordinary Differential Equations: First order linear differential equations and integrating factor. Linear second order homogeneous equations with constant coefficients. Simple harmonic motion as an example. [2 LP]

3. Vectors: Dot, cross, scalar triple and vector triple products of cartesian vectors (using Levi-Civita symbol and summation convention). Vector differentiation. Scalar and vector fields --- gradient, divergence, curl and Laplacian (for Cartesian coordinates), solenoidal and irrotational vector field. Statement and proof of Divergence theorem and Stokes' theorem; application to simple cases. [7 LP]

4. Curvilinear coordinates: Plane polar, spherical polar and cylindrical polar coordinates: their unit vectors, role of unit vectors as basis vectors. Surface and volume element (from geometry). Line, surface and volume integrals. Form of the gradient operator in curvilinear coordinates. Velocity and acceleration of point particle in Cartesian, plane polar, spherical polar, cylindrical polar coordinates. [6 LP]

(B) Classical Mechanics: [30 Lecture Periods]

1. Review of Newton's Laws: Concepts of Inertial frames; force and mass. Galilean transformations and Galilean invariance; Newton's laws of motion, principle of conservation of linear momentum, Simple problems involving motion under resistive forces. Rotational motion: Angular velocity, angular acceleration, angular momentum, torque, principle of conservation of angular momentum. [6 LP]

2. Work Kinetic Energy Theorem. Conservative Forces: Force as the gradient of a scalar field. Concept of potential and potential energy. Other equivalent definitions of a conservative force. Conservation of energy. Qualitative study of one-dimensional motion from potential energy curves. Stable and unstable equilibrium. Simple harmonic oscillation for small displacement from a stable equilibrium. [4 LP]

3. Dynamics of a system of particles: The problem of solving equation of motion; Action-reaction kind of forces and the two body problem; Reduced mass & centre of mass; Properties of

the centre of mass; Effect of torque; Linear momentum, angular momentum & total energy of a system of particles. [4 LP]

4. Central force: Newton's Law of Gravitation; Kepler's Laws; Conservation of angular momentum, Gauss's law for Gravitation (integral form); Gravitational potential and intensity due to uniform spherical shell, solid sphere of uniform density and infinite flat sheet. Differential equation for the path in a central force field. Motion under an inverse square force, calculation of orbits. [8 LP]

6. Scattering: Two body collision and scattering [2 LP]

7. Mechanics of Continuum: Kinematics of Moving Fluids: Idea of compressible and incompressible fluids, Equation of continuity; streamline and turbulent flow, Reynold's number. Stokes' law from dimensional analysis; Euler's Equation and the special case of fluid statics. Simple applications (e.g.: Pascal's law and Archimedes principle). Bernoulli's Theorem. [6 LP]

Recommended Texts for Theory:

(For Mathematical Preliminaries portion)

1. Mathematical Methods in the Physical Sciences, M. L. Boas, 2005, Wiley
2. Mathematical Methods for Physicists, G.B. Arfken, H.J. Weber, F.E. Harris, 2013, 7th Edn., Elsevier
3. Essential Mathematical Methods, K.F.Riley and M.P.Hobson, 2011, Cambridge Univ. Press
4. Vector Analysis and an introduction to Tensor Analysis, S. Lipschutz, D. Spellman, M. R. Spiegel, Schaum's Outline Series, Tata Mc Graw Hill Education Private Limited, edition 2009
5. Play with Graphs, Amit M. Agarwal, Arihant Publisher

(For Mechanics portion)

1. An Introduction to Mechanics, D. Kleppner, R.J. Kolenkow, 1973, McGraw- Hill
2. Feynman Lectures, Vol. I, R.P.Feynman, R.B.Leighton, M.Sands, 2008, Pearson Education
3. Classical Mechanics and General Properties of Matter. S.N. Maiti and D.P. Raychaudhuri, New Age
4. Introduction to Classical Mechanics, R. G. Takwale and P.S.Puranik, Tata McGraw-Hill Publishing Company Ltd.
5. Theory and Problems of Theoretical Mechanics, M. R. Spiegel, Mc Grow Hill Education
6. Classical Mechanics , R.D. Gregory, 2006, Cambridge University Press
7. Introduction to Classical Mechanics With Problems and Solutions , D. Morin, Cambridge University Press
8. Mechanics, Berkeley Physics, vol.1, C.Kittel, W.Knight, et.al. 2007, Tata McGraw-Hill. Physics
9. Mechanics, Resnick, Halliday and Walker 8/e. 2008, Wiley
10. Analytical Mechanics, G.R. Fowles and G.L. Cassiday. 2005, Cengage Learning
11. Mechanics , K. Symon, 2016, Pearson Education India
12. Classical Mechanics , Kibble and Berkshire, Imperial College Press
13. Classical Mechanics , J.M. Finn, 2010, Laxmi Publications
14. Mechanics, D.S. Mathur, S. Chand and Company Limited, 2000
15. University Physics. F.W Sears, M.W Zemansky, H.D Young 13/e, 1986, Addison Wesley
16. Classical Mechanics, J C Upadhyay, Himalaya Publishing.

PRACTICAL [1 Credit, 30 Laboratory Periods]

Pre-requisites: Measurements using slide calipers, screw gauge & travelling microscope; Ideas about rounding off experimental data in conformity with the least count of the measuring instrument; Idea of systematic & random errors introduced in different instruments. It is expected that the necessary theory for each of the experiments, for this and the subsequent semesters, will be discussed in brief in the laboratory itself.

1. Measurement of the diameter of a wire using screw gauge a number of times and to determine the mean, median, mode & standard deviation for study of random error in observation.

2. Measurement of a suitable vertical height using Sextant.

3. Determination of the Moment of Inertia of a metallic cylinder / rectangular rod about an axis passing through its centre of gravity

4. Determination of modulus of rigidity of the material of a suspension wire by dynamical method.

5. To determine the coefficient of viscosity of water by Poiseuille's method.

Recommended Texts for Practical:

1. Practical Physics, G.L. Squires, 2015, 4th Edition, Cambridge University Press
2. B.Sc. Practical Physics, C.L. Arora, S Chand and Company Limited
3. Physics in Laboratory, Mandal, Chowdhury, Das, Das, Santra Publication
4. Advanced Practical Physics Vol 1, B. Ghosh, K. G. Majumder, Sreedhar Publisher
5. Practical Physics, P.R. Sasi Kumar, PHI Learning Private Limited
6. B.Sc. Practical Physics, Harnem Singh, P.S. Hemne, S Chand and Company Limited
7. Engineering Practical Physics, S.Panigrahi&B.Mallick, 2015, Cengage Learning India Pvt. Ltd

PAPER: SEC-1: INTRODUCTION TO COMPUTER PROGRAMMING AND GRAPH PLOTTING

PRACTICAL [4 Credits, 60 Laboratory Periods]

1. Introduction to Graph Plotting (2D only, using GNUPLOT)

(a) Plotting 2D graphs: both functions and data files. Changing plot range and plot styles: the options- with points (w p), with dots (w d), with lines (w l), with linespoints (w lp), linetype (lt), linewidth (lw). Using the set command for samples, xrange, yrange, xlabel ,ylabel, title etc. The using option.
(b) User defined functions [Including the use of ternary operator (? :) for piece-wise defined functions.]
(c) Fitting data files using gnuplot.
(d) Polar and parametric plots
(e) Conditional Plotting of data from file using $, &&, || operators. (Graphs to be saved without using GUI)

2. Introduction to programming in python (Version 3):
(a) Introduction

• Using the python interpreter as a calculator
• Variable and data types (int, float, complex, list, tuple, set, string, the type () function)
• Basic mathematical operations
• Compound statements in python
– Conditionals (if, elif, else)
– Loops (for, while)
– User defined functions def: (return statement, default values for arguments, keyword arguments), lambda function.
• Importing modules with math and cmath as examples
• Using help and dir command to use the inbuilt manual
• Basic idea of namespaces-local and global
• Python scripts, I/O operations (including opening and writing to files)

(b) The python data types
• List: defining lists, reading and changing elements from lists, slicing (with discussion on the difference between ll=mm and ll=mm[:], concatenation, list comprehension.
– built in functions involving lists: range(), len(), sum(), min(), max() – list methods: append(), extend(), count(), index(), sort(), insert(), pop(), remove(), reverse()
• Tuples: Contrast and compare with lists, packing/unpacking using tuples (including a,b=b,a to swap variables) • Sets : set methods: update(), pop(), remove(), Set Theoretic operations: union, intersection, difference and symmetric difference of two sets.
• Strings: defining strings, the use of single, double or triple quotes as string delimiters, len(),indexing, slicing, string concatenation, some string methods: strip(), split(), join(), find(), count(), replace(), string formatting in python (using the % operator)

3. Problems and Applications
• Finding factors of an integer
• Determining whether an integer is prime or not.
• Finding out prime number greater than or lesser than a given value.
• Finding out all prime numbers within a given range
• Root finding for a single variable (basic theory and algorithm) using Newton-Raphson and Bisection method
• Sorting of lists (algorithm, flowchart and code) using Bubble or Selection sort
• Sum of series correct up to given decimal places (Sine, Cosine, Exponential etc.)
• Simulation of motion of a particle in 1D under a given force F(x, t, v) with given initial condition and plotting (x, t), (x, v), (t, v). (Output to be saved in data files and Gnuplot to be used to plot graphs), using Euler's method only.
• Matrix Addition, Multiplication and Transpose using List Comprehension.

Recommended Texts:
1. Gnuplot in Action understanding data and Graphs, Phillipp K. Janert
2. Scientific Computing in Python. Abhijit Kar Gupta, Techno World
3. Computational Physics, Mark Newman, Amazon Digital.
3. Physics in Laboratory including Python Programming (Semester I), Mandal, Chowdhury, Das, Das, Santra Publication

4. Introduction to Numerical Analysis, S.S. Sastry, 5th Edn. , 2012, PHI Learning Pvt. Ltd
5. Numerical Methods, Arun Kr Jalan, Utpal Sarkar, Univerisity Press
6. Numerical Mathematical Analysis, J. B. Scarborough, OXFORD and IBH Co. Pvt. Ltd.
7. Elementary Numerical Analysis, K.E. Atkinson, 3rd Edn., 2007, Wiley India Edition
8. Gnuplot 5, Lee Phillips, Alogus Publishing, edition 2012.
9. Python Programming, Satyanarayana, Radhika Mani, Jagdesh, Univerisity Press
10. Python 2.1 Bible Dave Brueck, Stephen Tanner, Hungry Minds Inc, New York

---

SEMESTER- 2

PAPER: DSC-2/Minor-2: BASIC PHYSICS - II

THEORY [3 Credits, 50 Lecture Periods]

(A) Basic Electricity and Magnetism [22 LP]

1. Electrostatics: Coulomb's law, Electric field, Electric field lines. Superposition Principle. Electric flux. Idea of charge density (linear, surface, volume) and continuous charge distributions. Gauss' Law (in integral form) with applications to charge distributions with spherical, cylindrical and planar symmetry. Conservative nature of Electrostatic Field. Introduction to electrostatic potential, Equipotential surfaces. Calculation of potential for linear, surface and volume charge distributions: simple cases (e.g.: uniform line charge, disc, spherical shell, sphere etc.). Potential and field due to a physical dipole; Torque, force and Potential Energy of an electric dipole in a uniform electric field.

Electrostatic energy of system of charges, a charged sphere. Conductors in an electrostatic Field. Mechanical force on the surface of a charged conductor. Surface charge and force on a conductor. Capacitance of a system of charged conductors. Capacitance for parallel-plate, cylindrical, spherical capacitors (without dielectrics). Energy stored in Electrostatic field. [11 LP]

2. Lorentz force*:* Force on a moving charge in simultaneous electric and magnetic fields, force on a current carrying conductor in a magnetic field. Trajectory of charged particles in uniform electric field, crossed uniform electric and magnetic fields. Basic principle of cyclotron. [3 LP]

3. Magnetostatics*:* Concept of current density (linear, surface, volume). Equation of continuity. Biot and Savart's law, magnetic field due to a straight conductor, circular coil, Helmholtz coil, solenoid. Ampere's circuital law with applications (Infinite long wire, infinite solenoid, infinite current sheet). Magnetic field due to a small current loop - concept of magnetic dipole. Torque and force on magnetic dipole in a uniform magnetic field. [8 LP]

(B) Introduction to Thermodynamics [28 LP]

1. *Kinetic theory*: Macroscopic and microscopic description of matter, Postulates of molecular kinetic theory of an ideal gas, Relation between microscopic and macroscopic state variables, Maxwell's velocity distribution, Concept of pressure and temperature. [3 LP]

2. *Zeroth and First Law of Thermodynamics*: Extensive and intensive thermodynamic variables. Thermodynamic equilibrium, zeroth law of Thermodynamics & concept of temperature. Concept

of work & heat, State Functions, internal energy and first law of Thermodynamics, its differential form, first law & various processes. Applications of first law: General relation between C_P and C_V, work done during isothermal and adiabatic processes, compressibility and expansion coefficient. [9 LP]

3. *Second Law of Thermodynamics*: Reversible and irreversible process with examples. Interconversion of work and heat. Heat engines. Carnot's cycle, Carnot engine & efficiency. Refrigerator & coefficient of performance, Kelvin-Planck and Clausius statements for the second law and their equivalence. Carnot's Theorem. Applications of second law of Thermodynamics: Thermodynamic scale of temperature and its equivalence to perfect gas scale. [10 LP]

3. *Entropy*: Concept of Entropy, Clausius theorem. Clausius inequality, Second law of Thermodynamics in terms of Entropy. Entropy of a perfect gas. Principle of increase of Entropy. Entropy changes in reversible and irreversible processes with examples. Entropy of the universe. Principle of increase of Entropy. Temperature- Entropy diagrams for different cycles. Third law of Thermodynamics. Unattainability of absolute zero. [6 LP]

Recommended Texts for Theory:

(For Electromagnetism portion)

1. Feynman Lectures Vol.2, R. P. Feynman, R. B. Leighton, M. Sands, 2008, Pearson Education
2. Introduction to Electrodynamics, D.J. Griffiths, 3rd Edn., 1998, Benjamin Cummings
3. Electricity and Magnetism, D.Chattopadhyay and P.C.Rakshit, New Central Book Agency, 2011
4. Fundamentals of Electricity and Magnetism, B. Ghosh, Books and Allied (P) Ltd., 4th edition, 2015.
5. Electricity, Magnetism and Electromagnetic Theory, S. Mahajan and Choudhury, 2012, Tata McGraw Hill
6. Electricity and Magnetism, Edward M. Purcell, 1986 McGraw-Hill Education
7. Elements of Electromagnetics, M.N.O. Sadiku, 2010, Oxford University Press
8. Classical Electromagnetism, Jerrold Franklin, Pearson Education
9. Electricity and Magnetism, J.H.Fewkes & J.Yarwood. Vol. I, 1991, Oxford Univ. Press
10. Electricity and Magnetism, D. C. Tayal, Himalayan Publisher

(For Thermal portion)

1. Heat and Thermodynamics, M.W. Zemansky, Richard Dittman, 1981, McGraw-Hill
2. Thermodynamics, Kinetic Theory & Statistical Thermodynamics, Sears & Salinger. 1988, Narosa
3. Concepts in Thermal Physics, S.J. Blundell and K.M. Blundell, 2nd Ed., 2012, Oxford University Press
4. Thermodynamics, E. Fermi, 2007, Sarat Book House
5. Basic Thermodynamics, E. Guha, 2010, Narosa
6. Kinetic theory of gases, Loeb, Radha Publishing House
7. A Treatise on Heat, Meghnad Saha, and B.N. Srivastava, 1969, Indian Press
8. Thermodynamics and an introduction to thermostatistics, H. B. Callen, 1985, Wiley
9. Elements of Classical Thermodynamics A.B. Pippard , 1957, Cambridge University Press
10. গ্যাসের আণবিক তত্ত্ব, প্রতীপ চৌধুরী, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ।
11. তাপগতিতত্ত্ব, অশোক ঘোষ, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ।

PRACTICAL [1 Credit, 30 Laboratory Periods]

Pre-requisites: Ideas about handling electrical apparatus & components; Safety against electrical hazards; Use of digital multimeter; Reading colour codes for carbon resistors etc.

1. Conversion of an ammeter to voltmeter and vice versa.

2. Determination of an unknown low resistance using Carey-Foster's Bridge.

3. Measurement of current by potentiometer.

4. Measurement of pressure coefficient of expansion of air by Jolly's apparatus.

5. Measurement of coefficient of thermal expansion of a metallic rod by optical lever arrangement.

Recommended Texts for Practical:

1. Advance Practical Physics (Vol 2), B. Ghosh, Sreedhar Publication
2. An Advanced Course in Practical Physics, D. Chattopadhyay, P. C. Rakshit, New Central Book Agency

PAPER: SEC-2

SCIENTIFIC WRITING SKILLS (LATEX)
PRACTICAL [4 Credits, 60 Laboratory Periods]

1. *Introduction to LATEX:* The difference between WYSIWYG and WYSIWYM. Preparing a basic LATEX file. Compiling LATEX file.
2. *Document classes*: Different type of document classes, e.g., article, report, book and beamer.
3. *Page Layout:* Titles, Abstract, Chapters, Sections, subsections, paragraph, verbatim, References, Equation references, citation.
4. *List structures:* Itemize, enumerate, description etc.
5. *Representation of mathematical equations:* Inline math, Equations, Fractions, Matrices, trigonometric, logarithmic, exponential functions, line-surface-volume integrals with and without limits, closed line integral, surface integrals, Scaling of Parentheses, brackets etc.
6. *Customization of fonts:* Bold fonts, emphasize, mathbf, mathcal etc. Changing sizes Large, Larger, Huge, tiny, etc.
7. *Writing tables:* Creating tables with different alignments, placement of horizontal, vertical lines.
8. *Figures:* Changing and placing the figures, alignments Packages: amsmath, amssymb, graphics, graphicx, Geometry, algorithms, color, Hyperref etc. Use of Different LATEX commands and environments, Changing the type style, symbols from other languages. Special characters.

Note: Software required: LATEX in Linux and Mik-TEX in Windows. Preferred editor Kile/ Emacs/ TEX Studio in Linux and TEX Studio in Windows.

Recommended Texts & sites:

1. LATEX- A Document Preparation System , Leslie Lamport , 1994, Addison-Wesley
2. Walking with LATEX, Suman Bandopadhyaya, Techno World
3. LATEX Tutorials A PRIMER, Indian TEXuser group, E. Krishnan
4. Practical LATEX, George Gratzer, Springer
5. Official LATEX site: https://www.latex-project.org
6. The Not So Short Introduction to LATEX: http://mirror.iopb.res.in/tex-archive/info/lshort/english/lshort.pdf
7. LATEX Wikibookhttps://en.wikibooks.org/wiki/LaTeX
8. TEX Live http://www.tug.org/texlive/

PAPER: IDC (INTERDISCIPLINARY): FRONTIERS IN PHYSICS

1. Nature of Science: Role of proper reasoning and experiments, with examples. Inductive and deductive logic. The character of physical laws, including universality. Difference between science and pseudoscience.

2. Universe: The Copernican revolution, Kepler's laws and the Solar system, Galileo and birth of Telescopic Astronomy, Modern observations: Stars and galaxies, Life cycle of stars. Birth of the Universe, Big Bang and Hubble expansion, Dark matter and dark energy. Origin of life & exoplanets.

3. Matter:
Atoms and molecules: The physical basis of the Periodic table.
Heat and Thermodynamics: Basic idea about the kinetic theory of gases; Distinction between ideal and real gases; The three laws of thermodynamics. Concept of Entropy.
Radioactivity: Alpha, beta & gamma decay; X-Rays – Properties.
Structure of the atom: Electron, Nucleus: proton and neutron. Mention of the Standard Model of particles & interactions.

4. Forces: Laws of falling bodies, Inertia, Gravitation, Electricity and Magnetism, Light and its dual property.
The microscopic world of Quantum Mechanics.
Special and General Theory of Relativity (brief and qualitative ideas only)

[No Mathematical derivation beyond simple algebra should be used]

Suggested Texts:

1. Six Easy Pieces – Richard P. Feynman
2. The first three minutes – Steven Weinberg
3. The character of physical laws – Richard P. Feynman
4. Introduction to Astronomy: From Darkness to Blazing Glory – J. W Scott, JAS Educational Publications
5. আধুনিক বিজ্ঞানের ক্রমবিকাশ, সম্পাদনা সুশান্ত মজুমদার, ভূপতি চক্রবর্তী, অনুষ্টুপ প্রকাশনী।

DETAILED SYLLABI OF THE COURSES OF SEMESTERS III-VIII WOULD BE PROVIDED AFTERWARDS.

The syllabus of Multidisciplinary Courses (MDC) with Physics as one of the subject major or minor subject under CCF, 2022 is mentioned below. The details of the CCF, 2022 are described in the CSR/04/2023 dated 23.06.2023. The essentials of the regulations are mentioned here briefly for better understanding.

CURRICULUM AND CREDIT FRAMEWORK (CCF, 2022)

A three year MDC degree program in science discipline is constructed with two major and one minor subject. To get B.Sc. degree **any two** of the major or minor subjects must be chosen from **science discipline / Home Science discipline**. Other one major/minor may be taken from science discipline or from Humanities discipline.

Disciplines of Multidisciplinary courses for B.A./B.Sc.:

(i) Humanities Discipline: History, English, Bengali, Ancient Indian & World History, Islamic History and Culture, Hindi, Urdu, Russian, Political Science, Sanskrit, Pali , Philosophy, Sociology, Education, Arabic, Persian, Journalism & Mass Communication, French, Music, Linguistics, Physical Education, Human Rights, Women Studies.

(ii) Science Discipline: Physics, Zoology, Chemistry, Botany, Molecular Biology, Microbiology, Geology, Geography, Physiology, Defence Studies, Computer Science, Electronics, Bio-Chemistry, Physical Education, Environmental Science, Economics, Statistics, Mathematics, Anthropology, Psychology, Film Studies.

(iii) Home Science Discipline: Food & Nutrition, Household Art, Human Development, Social Science, Home Science Extension Education, Library and Information Studies.

However, there are eight subject groups and no two subjects can be taken from same subject group.

The distribution of subjects in science and humanities disciplines within the groups are mentioned here

Groups	Subjects
Group I	Physics, Zoology, Education, Home Science Extension Education, Social Science, Film Studies, Physical Education, Human Rights, Russian, Women Studies.
Group-II	Human Development, History, Ancient Indian and World History, Islamic History & Culture, Mathematics, Environmental Science
Group-III	Chemistry, Sociology, Defense Studies, Music, Household Art, Pali, Arabic, Persian, Sanskrit, Biochemistry
Group-IV	Botany, Economics, Food & Nutrition
Group-V	Geology, Political Science, Electronics, Library and Information Studies
Group-VI	Geography, Molecular Biology, Psychology, Philosophy, Microbiology, Journalism & Mass Communication
Group-VII	Statistics, Physiology, English
Group-VIII	Anthropology, Computer Science, Bengali, Hindi, Urdu, French, Linguistics.

The choice of subjects will further be restricted by respective college where student get admitted. **Core Courses in Major subject are mentioned as discipline specific core (DSC) and minor subjects are mentioned as MDC Minor**

Students need to pass some subjects as a prerequisite condition for choosing some such subjects. That table is found in the page number 9 in the table 11 of CSR/04/2023 dated 23.06.2023.

Apart from two major and one of minor subjects student need to take some other courses. These are listed below.

IDC (Interdisciplinary Course): In first three semesters student should study **three IDC courses** from three different subjects other than the concerned major and minor subjects. Each subject provides an IDC in their curriculum. Student of physics major should find the details of the course from respective subjects.

SEC (Skill Enhancement Course): In first three semesters student should study **three SEC courses**. The structure is given below.

Semester	SEC
SEM-1	SEC from Major Subject (Physics) mentioned in first semester
SEM-2	Artificial Intelligence or SEC from Major Subject (Physics) mentioned in second semester
SEM-3	SEC from Major Subject (Physics) mentioned in third semester

CVAC (Common Value Added Course): CVAC has nothing to do with the major or minor subjects. They are based on knowledge of human & social values. Student should study **four CVAC courses** in first two semesters. Details of the CVAC courses are given below.

Semester	CVAC	
SEM-1	Environment Science I	Constitution
SEM-2	Environment Science II	Optional CVAC from a pull

AEC (Ability Enhancement Course): In first four semesters student should study one AEC in each semester. i.e., **total four AEC courses** required to be studied. The details of the AEC are mentioned below.

Semester	AEC
SEM-1	Compulsory English paper 1
SEM-2	Compulsory English paper II
SEM-3	MIL/Alternative English paper I
SEM-4	MIL/Alternative English paper II

MIL stands for Modern Indian Language. Here, three subjects are available: Bengali, Hindi and Urdu. Student can take any one of them for the third and fourth semester. However, if the students are not at all familiar with these then they can chose Alternative English for these two semesters.

YEARWISE PROGAM WITH EXIT OPTION WITH CREDIT

First Year

	DSC Major1	DSC Major 2	IDC	AEC	SEC	CVAC			
SEM 1	1 Course 1x4=4C	1 Course 1x4=4C	1 Course 1x3=3C	1 Course 1x2=2C	1 Course 1x4=4C	2 Courses 2x2=4C	Total 21 C		
SEM 2	1 Course 1x4=4C	1 Course 1x4=4C	1 Course 1x3=3C	1 Course 1x2=2C	1 Course 1x4=4C	2 Courses 2x2=4C	Total 21 C	Summer Internship 1x3=3C and Exit	**Certificate**
								21+21+3=	45 C

Second Year

	DSC Major1	DSC Major 2	Minor	IDC	AEC	SEC			
SEM 3	1 Course 1x4=4C	1 Course 1x4=4C	1 Course 1x4=4C	1 Course 1x3=3C	1 Course 1X2=2C	1 Course 1x4=4C	Total 21 C		**Diploma**
SEM 4	2 Courses 2x4=8C	2 Courses 2x4=8C	1 Course 1x4=4C		1 Course 1x2=2C		Total 22 C	Summer Internship 1X3=3C and Exit	
							21+21+21+22+3=		88 C

Third Year

	DSC Major1	DSC Major 2	Minor			
SEM 5	2 Course 2x4=8C	1 Courses 1x4=4C	2 Courses 2x4=8C	Total 20 C		**B.Sc. degree**
SEM 6	1 Course 1x4=4C	2 Courses 2x4=8C	2 Courses 2x4=8C	Total 20 C	Summer Internship 1X3=3C and Exit	
			21+21+21+22+3+2020=			128 C

COURSES FOR THE STUDENTS TAKING PHYSICS AS MAJOR SUBJECT

	DSC	Minor	SEC	AEC	CVAC	IDC		Total Credit
SEM-1	M1-DSC-1 + M2-DSC1 3T+1L (@4C=8C)		SEC-1 @4L=4C	Eng-1 @2TH=2C	ENVS-1 Constitution @2TH=4C	Sub1 2TH+1Tu @3=3C	Summer Internship @3=3C in any of either 2 or 4 or 6 for exit otherwise at 6th semester	21
SEM-2	M1-DSC-2 + M2-DSC2 3T+1L (@4C=8C)		SEC-2 @4L=4C	Eng-2 @2TH=2C	ENVS-2 Optional @2TH=4C	Sub 2 2TH+1Tu @3=3C		21
SEM-3	M1-DSC-3 + M2-DSC-3 3T+1L (@4C=8C)	MDC-Minor-1 3T+1L (@4C=4C)	SEC-3 @4L=4C	MIL/ Alt Eng-1 @2TH=2C		Sub3 2TH+1Tu @3=3C		21
SEM-4	M1-DSC-4,5 + M2-DSC-4,5 3T+1L (@4C=16C)	MDC-Minor-2 3T+1L (@4C=4C)		MIL/ Alt Eng-1 @2TH=2C				22
SEM-5	M1-DSC-6,7 + M2-DSC-6 3T+1L (@4C=12C)	MDC-Minor-3,4 3T+1L (@4C=8C)						20
SEM-6	M1-DSC-8 + M2-DSC-8,9 3T+1L (@4C=12C)	MDC-Minor-5,6 3T+1L (@4C=8C)						20

Here, two subjects can be taken as major e.g., a student can pursue with Physics and Chemistry as major subjects. Then M1-DSC-1 stands for DSC-1 of Physics and M2-DSC-1 stands for DSC-1 for Chemistry for first semester. Minor subject may be chosen from science discipline or from humanity discipline.

Again if a student accepts Physics and Education as major subjects then M1-DSC-1 will be DSC-1 of Physics and M2-DSC-1 for DSC-1 of Education. However, in that situation minor subject must be chosen from science or home science disciplines to get B.Sc. degree as two subjects among major and minor must belong to science category.

Optional CVAC can be taken from the pull offered from the university.

COURSES FOR THE STUDENTS TAKING PHYSICS AS MINOR SUBJECT

	Minor		Total Credit
SEM-1	No minor	Same as DSC-1 of Physics Major	
SEM-2	.No minor	Same as DSC-2 of Physics Major	
SEM-3	MDC-Minor-1 3T+1L (@4C=4C) Basic Physics-I	Same as DSC-1 of Physics Major	4
SEM-4	MDC-Minor-2 3T+1L (@4C=4C) Basic Physics-II	Same as DSC-2 of Physics Major	4
SEM-5	MDC-Minor-3,4 3T+1L (@4C=8C) Waves and Optics Mathematical Physics I	Same as DSC-3.4 of Physics Major	8
SEM-6	m1-Minor-5,6 3T+1L (@4C=48) Modern Physics Electromagnetism	Same as DSC-5,6 of Physics Major	8

THREE YEARS MULTIDISCIPLINARY U.G PHYSICS PROGRAMME UNDER THE UNIVERSITY OF CALCUTTA

STRUCTURE OF THE COURSE

1st Semester: **A) MDC-1 (Level-100) for students choosing Physics as one of their core papers** **B) SEC – 1**: Introduction to Graph plotting & Programming **C) Interdisciplinary Course (IDC)** will be offered for students of other disciplines who do not have Physics as a major or minor subject, in any one of the first three semesters.	***2nd Semester:*** **A) MDC-2 (Level-100) for students choosing Physics as one of their core papers.** **B) SEC – 1**: Introduction to Graph plotting & Programming **C) Interdisciplinary Course (IDC)** will be offered for students of other disciplines who do not have Physics as a major or minor subject, in any one of the first three semesters.
3rd Semester: **A) MDC-3 (Level-200) for students choosing Physics as one of their core papers.** **B) SEC – 1**: Introduction to Graph plotting & Programming. **C) Interdisciplinary Course (IDC)** will be offered for students of other disciplines who do not have Physics as a major or minor subject, in any one of the first three semesters. **D) MDC Minor 1: for students choosing Physics as minor subject.**	***4th Semester:*** **A) MDC-4 & MDC -5 (Level-200) for students choosing Physics as one of their core papers.** **B) MDC Minor 2: for students choosing Physics as minor subject.**
5th Semester: **A) MDC-6 & MDC -7 (Level-200) for students choosing Physics as CC1.** **B) MDC Minor 3 & 4: for students choosing Physics as minor subject.** **If the students choose to study Physics as CC2, he/she shall study only MDC-6 paper.**	6***th Semester:*** **A) MDC-8 & MDC -9 (Level-200) for students choosing Physics as CC2.** **B) MDC Minor 5 & 6: for students choosing Physics as minor subject.** **If the students choose to study Physics as CC1, he/she shall study only MDC-8 paper.**

- **SEC course can be studied in any one of the Semesters 1, 2 and 3.**

CURRICULUM STRUCTURE

ODD SEMESTERS (JULY TO DECEMBER)			
SEMESTER-I		***CREDITS***	***MARKS***
MDC-1	Basic Physics-I (Level-100)	3T+1L=4	100
SEC-1	Introduction to Graph plotting & Programming	0T+4L=4	100
IDC	Frontiers of Physics	2T+1Tu	75
SEMESTER-III		***CREDITS***	***MARKS***
MDC-3	Waves & Optics (Level-200)	3T+1L=4	100
SEC-1	Introduction to Graph plotting & Programming	0T+4L=4	100
MDC Minor 1	Basic Physics-I (Level-100)	3T+1L=4	100
IDC	Frontiers of Physics	2T+1Tu	75
SEMESTER-V		***CREDITS***	***MARKS***
MDC 6	Analog Electronics (Level-200)	3T+1L=4	100
MDC 7	Nuclear & Particle Physics (Level-200)	3T+1Tu=4	100
MDC Minor 3	Waves & Optics (Level-200) Same as MDC 3		
MDC Minor 4	Mathematical Physics – I (Level-200)		

EVEN SEMESTERS (JANUARY TO JUNE)			
SEMESTER-II		***CREDITS***	***MARKS***
MDC-2	Basic Physics-II (Level-100)	3T+1L=4	100
SEC-1	Introduction to Graph plotting & Programming	0T+4L=4	100
IDC	Frontiers of Physics	2T+1Tu	75
SEMESTER-IV		***CREDITS***	***MARKS***
MDC 4	Modern Physics (Level-200)	3T+1L=4	100
MDC 5	Electromagnetism (Level-200)	3T+1L=4	100
MDC Minor 2	Basic Physics-II (Level-100)	3T+1L=4	100
SEMESTER-VI		***CREDITS***	***MARKS***
MDC 8	Digital Electronics (Level-200)	3T+1L=4	100
MDC-9	Instrumentation (Level-200)	3T+1L=4	100
MDC Minor 5	Modern Physics (Level-200) Same as MDC 4		
MDC Minor 6	Electromagnetism (Level-200) Same as MDC 5		

PAPER: MDC-1/MDC Minor-1: BASIC PHYSICS-I

THEORY [3 Credits, 50 Lecture Periods]

(A) Mathematical Physics: [20 Lecture Periods (LP)]

1. Preliminaries: SI system of units, dimensional analysis. Plotting of functions (both cartesian and polar), Limits, Intuitive ideas about continuity and differentiability of a function. Taylor series of one variable and binomial series (statements only); Maxima and minima for functions of one variable. Calculus of functions of more than one variable: Partial derivatives, exact and inexact differentials. [5 LP]

2. Ordinary Differential Equations: First order linear differential equations and integrating factor. Linear second order homogeneous equations with constant coefficients. Simple harmonic motion as an example. [2 LP]

3. Vectors: Dot, cross, scalar triple and vector triple products of cartesian vectors. Vector differentiation. Scalar and vector fields --- gradient, divergence, curl and Laplacian (for Cartesian coordinates), solenoidal and irrotational vector field. Statement of Divergence theorem and Stokes' theorem; application to simple cases. [7 LP]

4. Curvilinear coordinates: Plane polar, spherical polar and cylindrical polar coordinates: their unit vectors, role of unit vectors as basis vectors. Surface and volume element (from geometry). Line, surface and volume integrals. Form of the gradient operator in curvilinear coordinates. Velocity and acceleration of point particle in Cartesian, plane polar, spherical polar, cylindrical polar coordinates. [6 LP]

(B) Classical Mechanics: [30 Lecture Periods]

1. Review of Newton's Laws: Concepts of Inertial frames; force and mass. Galilean transformations and Galilean invariance; Newton's laws of motion, principle of conservation of linear momentum, Simple problems involving motion under resistive forces. Rotational motion: Angular velocity, angular acceleration, angular momentum, torque, principle of conservation of angular momentum. [6 LP]

2. Work Kinetic Energy Theorem. Conservative Forces: Force as the gradient of a scalar field. Concept of potential and potential energy. Other equivalent definitions of a conservative force. Conservation of energy. Qualitative study of one-dimensional motion from potential energy curves. Stable and unstable equilibrium. [4 LP]

3. Dynamics of a system of particles: The problem of solving equation of motion; Action-reaction kind of forces and the two body problem; Reduced mass & centre of mass; Properties of the centre of mass; Effect of torque; Linear momentum, angular momentum & total energy of a system of particles. [4 LP]

4. Central force: Newton's Law of Gravitation; Kepler's Laws; Conservation of angular momentum, Gauss's law for Gravitation (integral form); Gravitational potential and intensity due

to uniform spherical shell , solid sphere of uniform density and infinite flat sheet. Differential equation for the path in a central force field. Motion under an inverse square force, calculation of orbits. [8 LP]

6. Scattering: Two body collision and scattering [2 LP]

7. Mechanics of Continuum: Kinematics of Moving Fluids: Idea of compressible and incompressible fluids, Equation of continuity; streamline and turbulent flow, Reynold's number. Stokes' law from dimensional analysis; Euler's Equation and the special case of fluid statics. Simple applications (e.g: Pascal's law and Archimedes principle). Bernoulli's Theorem. [6 LP]

Recommended Texts for Theory:

Recommended Texts for Theory:

(For Mathematical Preliminaries portion)

1. Mathematical Methods in the Physical Sciences, M. L. Boas, 2005, Wiley
2. Mathematical Methods for Physicists, G.B. Arfken, H.J. Weber, F.E. Harris, 2013, 7th Edn., Elsevier
3. Essential Mathematical Methods, K.F.Riley and M.P.Hobson, 2011, Cambridge Univ. Press
4. Vector Analysis and an introduction to Tensor Analysis, S. Lipschutz, D. Spellman, M. R. Spiegel, Schaum's Outline Series, Tata Mc Graw Hill Education Private Limited, edition 2009

(For Mechanics portion)

1. An Introduction to Mechanics, D. Kleppner, R.J. Kolenkow, 1973, McGraw- Hill
2. Feynman Lectures, Vol. I, R.P.Feynman, R.B.Leighton, M.Sands, 2008, Pearson Education
3. Classical Mechanics and General Properties of Matter. S.N. Maiti and D.P. Raychaudhuri, New Age
4. Introduction to Classical Mechanics, R. G. Takwale and P.S.Puranik, Tata McGraw-Hill Publishing Company Ltd.
5. Theory and Problems of Theoretical Mechanics, M. R. Spiegel, McGraw Hill Education
8. Mechanics, Berkeley Physics, vol.1, C.Kittel, W.Knight, et.al. 2007, Tata McGraw-Hill. Physics
9. Mechanics, Resnick, Halliday and Walker 8/e. 2008, Wiley
10. Mechanics, D.S. Mathur, S. Chand and Company Limited, 2000
11. University Physics. F.W Sears, M.W Zemansky, H.D Young 13/e, 1986, Addison Wesley
12. Classical Mechanics, J C Upadhyay, Himalaya Publishing.

PRACTICAL [1 Credit, 30 Laboratory Periods]

Pre-requisites: Measurements using slide calipers, screw gauge & travelling microscope; Ideas about rounding off experimental data in conformity with the least count of the measuring instrument; Idea of systematic & random errors introduced in different instruments. It is expected that the necessary theory for each of the experiments, for this and the subsequent semesters, will be discussed in brief in the laboratory itself.

1. Measurement of the diameter of a wire using screw gauge a number of times and to determine the mean, median, mode & standard deviation for study of random error in observation.

2. Measurement of a suitable vertical height using Sextant.

3. Determination of the Moment of Inertia of a metallic cylinder / rectangular rod about an axis passing through its centre of gravity

4. Determination of modulus of rigidity of the material of a suspension wire by dynamical method.

5. To determine the coefficient of viscosity of water by Poiseuille's method.

Recommended Texts for Practical:

1. Practical Physics, G.L. Squires, 2015, 4th Edition, Cambridge University Press
2. B.Sc. Practical Physics, C.L. Arora, S Chand and Company Limited
3. Physics in Laboratory, Mandal, Chowdhury, Das, Das, Santra Publication
4. Advanced Practical Physics Vol 1, B. Ghosh, K. G. Majumder, Sreedhar Publisher
5. Practical Physics, P.R. Sasi Kumar, PHI Learning Private Limited
6. B.Sc. Practical Physics, Harnem Singh, P.S. Hemne, S Chand and Company Limited
7. Engineering Practical Physics, S.Panigrahi & B.Mallick, 2015, Cengage Learning India Pvt. Ltd

PAPER: SEC-1: INTRODUCTION TO COMPUTER PROGRAMMING AND GRAPH PLOTTING

PRACTICAL [4 Credits, 60 Laboratory Periods]

1. Introduction to Graph Plotting (2D only, using GNUPLOT)

(a) **Plotting 2D graphs:** both functions and data files. Changing plot range and plot styles: the options- with points (w p), with dots (w d), with lines (w l), with linespoints (w lp), linetype (lt), linewidth (lw). Using the set command for samples, xrange, yrange, xlabel , ylabel, title etc. The using option.

2. **Introduction to programming in python** (Version 3.x):
(a) Introduction

• Using the python interpreter as a calculator
• Variable and data types (int, float, complex, list, tuple, set, string, the type() function)
• Basic mathematical operations
• Compound statements in python
– Conditionals (if, elif, else)
– Loops (for, while)
– User defined functions def: (return statement, default values for arguments, keyword arguments), lambda function.
• Importing modules with math and cmath as examples
• Using help and dir command to use the inbuilt manual
• Python scripts, I/O operations (including opening and writing to files)

The python data types
• List: defining lists, reading and changing elements from lists, slicing, list comprehension.

– built in functions involving lists: range(), len(), sum(), min(), max() – list methods: append(), extend(), count(), index(), sort(), insert(), pop(), remove(), reverse()
• Tuples: Contrast and compare with lists, packing/unpacking using tuples (including a,b=b,a to swap variables)
• Strings: defining strings, the use of single, double or triple quotes as string delimiters, len(), indexing, slicing, string concatenation, some string methods: split(), join(), find(), count(), replace()

Recommended Texts:

1. Gnuplot in Action understanding data and Graphs, Phillipp K. Janert
2. Scientific Computing in Python. Abhijit Kar Gupta, Techno World
3. Computational Physics, Mark Newman, Amazon Digital.
3. Physics in Laboratory including Python Programming (Semester I), Mandal, Chowdhury, Das, Das, Santra Publication
4. Introduction to Numerical Analysis, S.S. Sastry, 5th Edn. , 2012, PHI Learning Pvt. Ltd
5. Numerical Methods, Arun Kr Jalan, Utpal Sarkar, University Press
6. Numerical Mathematical Analysis, J. B. Scarborough, OXFORD and IBH Co. Pvt. Ltd.
7. Elementary Numerical Analysis, K.E. Atkinson, 3rd Edn., 2007, Wiley India Edition
8. Gnuplot 5, Lee Phillips, Alogus Publishing, edition 2012.
9. Python Programming, Satyanarayana, Radhika Mani, Jagdesh, University Press
10. Python 2.1 Bible Dave Brueck, Stephen Tanner, Hungry Minds Inc, New York

SEMESTER- 2

PAPER: MDC-2/MDC Minor-2: BASIC PHYSICS - II

THEORY [3 Credits, 50 Lecture Periods]

(A) Basic Electricity and Magnetism [22 LP]

1. Electrostatics: Coulomb's law, Electric field, Electric field lines. Superposition Principle. Electric flux. Idea of charge density (linear, surface, volume) and continuous charge distributions. Gauss' Law (in integral form) with applications to charge distributions with spherical, cylindrical and planar symmetry. Conservative nature of Electrostatic Field. Introduction to electrostatic potential, Equipotential surfaces. Calculation of potential for linear, surface and volume charge distributions: simple cases (e.g.: uniform line charge, disc, spherical shell, sphere etc). Potential and field due to a physical dipole; Torque, force and Potential Energy of an electric dipole in a uniform electric field.

Electrostatic energy of a system of charges, a charged sphere. Conductors in an electrostatic Field. Mechanical force on the surface of a charged conductor. Surface charge and force on a conductor. Capacitance of a system of charged conductors. Capacitance for parallel-plate, cylindrical, spherical capacitors (without dielectrics). Energy stored in the Electrostatic field. [11 LP]

2. Lorentz force: Force on a moving charge in simultaneous electric and magnetic fields, force on a current carrying conductor in a magnetic field. Trajectory of charged particles in uniform electric field, crossed uniform electric and magnetic fields. Basic principle of cyclotron. [3 LP]

3. Magnetostatics: Concept of current density (linear, surface, volume). Equation of continuity. Biot and Savart's law, magnetic field due to a straight conductor, circular coil, Helmholtz coil, solenoid. Ampere's circuital law with applications (Infinite long wire, infinite solenoid, infinite current sheet). Magnetic field due to a small current loop - concept of magnetic dipole. Torque and force on magnetic dipole in a uniform magnetic field. [8 LP]

(B) Introduction to Thermodynamics [28 LP]

1. *Kinetic theory*: Macroscopic and microscopic description of matter, Postulates of molecular kinetic theory of an ideal gas, Relation between microscopic and macroscopic state variables, Maxwell's velocity distribution, Concept of pressure and temperature. [3 LP]

2. *Zeroth and First Law of Thermodynamics*: Extensive and intensive thermodynamic variables. Thermodynamic equilibrium, zero-th law of Thermodynamics & concept of temperature. Concept of work & heat, State Functions, internal energy and first law of Thermodynamics, its differential form, first law & various processes. Applications of first law: General relation between C_P and C_V, work done during isothermal and adiabatic processes, compressibility and expansion coefficient. [9 LP]

3. *Second Law of Thermodynamics*: Reversible and irreversible process with examples. Interconversion of work and heat. Heat engines. Carnot's cycle, Carnot engine & efficiency. Refrigerator & coefficient of performance, Kelvin-Planck and Clausius statements for the second law and their equivalence. Carnot's Theorem. Applications of second law of Thermodynamics: Thermodynamic scale of temperature and its equivalence to perfect gas scale. [10 LP]

3. *Entropy*: Concept of Entropy, Clausius theorem. Clausius inequality, Second law of Thermodynamics in terms of Entropy. Entropy of a perfect gas. Principle of increase of Entropy. Entropy changes in reversible and irreversible processes with examples. Entropy of the universe. Principle of increase of Entropy. Temperature- Entropy diagrams for different cycles. Third law of Thermodynamics. Unattainability of absolute zero. [6 LP]

Recommended Texts for Theory:

(For Electromagnetism portion)

1. Feynman Lectures Vol.2, R.P.Feynman, R.B.Leighton, M. Sands, 2008, Pearson Education
2. Introduction to Electrodynamics, D.J. Griffiths, 3rd Edn., 1998, Benjamin Cummings
3. Electricity and Magnetism, D.Chattopadhyay and P.C.Rakshit, New Central Book Agency, 2011
4. Fundamentals of Electricity and Magnetism, B. Ghosh, Books and Allied (P) Ltd., 4th edition, 2015.
5. Electricity, Magnetism and Electromagnetic Theory, S. Mahajan and Choudhury, 2012, Tata McGraw Hill
6. Electricity and Magnetism, Edward M. Purcell, 1986 McGraw-Hill Education
7. Elements of Electromagnetics, M.N.O. Sadiku, 2010, Oxford University Press

8. Classical Electromagnetism, Jerrold Franklin, Pearson Education
9. Electricity and Magnetism, J.H.Fewkes & J.Yarwood. Vol. I, 1991, Oxford Univ. Press
10. Electricity and Magnetism, D. C. Tayal, Himalayan Publisher

(For Thermal portion)

1. Heat and Thermodynamics, M.W. Zemansky, Richard Dittman, 1981, McGraw-Hill
2. Thermodynamics, Kinetic Theory & Statistical Thermodynamics, Sears & Salinger. 1988, Narosa
3. Concepts in Thermal Physics, S.J. Blundell and K.M. Blundell, 2nd Ed., 2012, Oxford University Press
4. Thermodynamics, E. Fermi, 2007, Sarat Book House
5. Basic Thermodynamics, E. Guha, 2010, Narosa
6. Kinetic theory of gasses, Loeb, Radha Publishing House
7. A Treatise on Heat, Meghnad Saha, and B.N. Srivastava, 1969, Indian Press
8. Thermodynamics and an introduction to thermostatistics, H. B. Callen, 1985, Wiley
9. Elements of Classical Thermodynamics A.B. Pippard , 1957, Cambridge University Press
10. গ্যাসের আণবিক তত্ত্ব, প্রতীপ চৌধুরী, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ।
11. তাপগতিতত্ত্ব, অশোক ঘোষ, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ।

PRACTICAL [1 Credit, 30 Laboratory Periods]

Pre-requisites: Ideas about handling electrical apparatus & components; Safety against electrical hazards; Use of digital multimeter; Reading colour codes for carbon resistors etc.

1. Conversion of an ammeter to voltmeter and vice versa.

2. Determination of an unknown low resistance using Carey-Foster's Bridge.

3. Measurement of current by potentiometer.

4. Measurement of pressure coefficient of expansion of air by Jolly's apparatus.

5. Measurement of coefficient of thermal expansion of a metallic rod by optical lever arrangement.

Recommended Texts for Practical:

1. Advanced Practical Physics (Vol 2), B. Ghosh, Sreedhar Publication

PAPER: IDC (INTERDISCIPLINARY): FRONTIERS IN PHYSICS

1. Nature of Science: Role of proper reasoning and experiments, with examples. Inductive and deductive logic. The character of physical laws, including universality. Difference between science and pseudoscience.

2. Universe: The Copernican revolution, Kepler's laws and the Solar system, Galileo and birth of Telescopic Astronomy, Modern observations: Stars and galaxies, Life cycle of stars. Birth of the Universe, Big Bang and Hubble expansion, Dark matter and dark energy.

3. Matter:
Atoms and molecules: The physical basis of the Periodic table.
Heat and Thermodynamics: Basic idea about the kinetic theory of gases; Distinction between ideal and real gases; The three laws of thermodynamics. Concept of Entropy.
Radioactivity: Alpha, beta & gamma decay; X-Rays – Properties.
Structure of the atom: Electron, Nucleus: proton and neutron. Mention of the Standard Model of particles & interactions.

4. Forces: Laws of falling bodies, Inertia, Gravitation, Electricity and Magnetism, Light and its dual property.
The microscopic world of Quantum Mechanics.
Special and General Theory of Relativity (brief and qualitative ideas only)

[No Mathematical derivation beyond simple algebra should be used]

Suggested Texts:

1. Six Easy Pieces – Richard P. Feynman
2. The first three minutes – Steven Weinberg
3. The character of physical laws – Richard P. Feynman
4. Introduction to Astronomy: From Darkness to Blazing Glory – J. W Scott, JAS Educational Publications
5. আধুনিক বিজ্ঞানের ক্রমবিকাশ, সম্পাদনা সুশান্ত মজুমদার, ভূপতি চক্রবর্তী, অনুষ্টুপ প্রকাশনী।

DETAILED SYLLABI OF THE COURSES OF SEMESTERS III-VII WOULD BE PROVIDED AFTERWARDS.

UNIVERSITY OF CALCUTTA

NotificationNo.CSR/13/2023

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of his powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 11.07.2023 approved the Syllabi of the under mentioned subjects for semester wise Four-year (Honours & Honours with Research) / Three-year (Multidisciplinary) programme of U.G. courses of studies, as applicable under CCF,2022 . under this University, as laid down in the accompanying pamphlet.

Name of Subject:

1.Anthropology
2.BBA
3.Bengali
4.BFAD
5.Bio Chemistry
6.Botany
7.Chemistry
8.Commerce
9.Economics
10.Education
11.English
12.Geology
13.Hindi
14.History,Islamic History & Culture
15.Home Science
16.Human Rights
17.Journalism & Mass Communication
18.Mathematics
19.Microbiology (Honours)
20.Molecular Biology
21.Philosophy
22.Physiology
23.Political Science
24.Psychology
25.Social Science
26.Sociology
27.Urdu
28.Women's Studies
29.Zoology

The above shall be effective from the academic session 2023-2024.

12/7/2023

SENATE HOUSE

Prof.(Dr.) Debasis Das

KOLKATA-700 073

Registrar

UNIVERSITY OF CALCUTTA

CU_2023: Course Structure and Syllabus in Political Science Honours

IMPORTANT NOTE:

- The format of the syllabus strictly follows the official format issued by the University.
- Before viewing the syllabus it is strongly advised that the CU Course Structure and the Guidelines (provided below) be read carefully.
- CC: Core Course; Minor: Discipline-specific elective; SEC: Skill Enhancement Course; IDC: Inter-Disciplinary Course; CVAC: Common Value Addition Course. Each course has two modules.
- 1 credit: 25 marks. Correspondence of credit and class hours: according to the UGC and University rules. CC: 3 credit Th+1credit TU. Minor: 3 credit Th+1credit TU. SEC: 2 credit Th+2 credit TU.
- 'Select References' in the syllabus may be complemented by relevant online material available in *academic, legal and authentic* websites. Cited texts in Bengali are *not* necessarily substitutes, but supplementary to the English books. If required, relevant books from the UGC-prescribed CBCS list may also be consulted.
- Suggested Tutorial CC/Minor modes (any one of the following): i) Upto 1000 words for one Term Paper/upto 500 words for each of the two Term Papers/ equivalent Book Review/equivalent Comprehension/equivalent Quotation or Excerpt Elaboration. ii) Report Presentation/Poster Presentation/Field work--- based on syllabus-related and/or current topics (may be done in groups) [The modes and themes/topics be decided by the concerned faculty of respective colleges.]
- Core and Minor share *the same courses and contents*. However, the standard/s of question papers will differ between the two categories. *IDC and CVAC as per University Guidelines.*
- SEC (Discipline-specific: Democratic Awareness with Legal Literacy; Understanding the Legal System; Legislative Procedures and Practices): To uphold the basic spirit and objectives of the courses under this category, the UG BoS recommends to the University the following mode: 2 credit (50 marks) be allotted to the Theoretical part, and 2 credit (50 marks) to Tutorials based on report/essay/case history (within 800 words). The topics of the essays/reports are to have *practical orientation*, and they may be on any of the following: hypothetical case, contemporary events/issues/policies/programmes OR visit to an institution/organization/government department (such as court, Lok Adalat, legal aid center, NGOs or cybercrime cell) OR awareness-generating seminars/workshops. Relevant topics of the essays/reports/seminars/workshops are to be decided by the college teachers, based on the contents of the respective courses.
- Further communication about any change may be made by the UG Board of Studies only on receiving specific instructions from the appropriate authorities of the University.

Honours

COURSE STRUCTURE-CCF, 2022

	DSC/ Core	Minor (m1 & m2)	IDC/MDC	AEC	SEC	CVAC	Summer Internship	Dissertation/ Research work	Total Credit
Semester	22x4= 88	8x4= 32	3x3= 9	4x2= 8	3x4= 12	4x2= 8	1x3= 3	(1x4= 4)+(1x8= 8)= 12	172
1	1x4= 4 3TH+1P/TU	1x4= 4 (m1) 3TH+1P/TU	1x3= 3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4	2x2= 4			21
2	1x4= 4 3TH+1P/TU	1x4= 4 (m1) 3TH+1P/TU	1x3= 3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4	2x2= 4			21
3	2x4= 8 2x(3TH+1P/TU)	1x4= 4 (m2) 3TH+1P/TU	1x3= 3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4				21
4	4x4= 16 4x(3TH+1P/TU)	1x4= 4 (m2) 3TH+1P/TU		1x2= 2 2TH +0P/TU					22
5	4x4= 16 4x(3TH+1P/TU)	m1+m2 2x4= 8 2x(3TH+1P/TU)							24
6	3x4= 12 3x(3TH+1P/TU)	2x4= 8 m1+m2 2x(3TH+1P/TU)					1x3		23
7	4x4= 16 4x(3TH+1P/TU)							1x4*	20
8	3x4= 12 3x(3TH+1P/TU)							1x8 *	20
Credits	22x4= 88	8x4= 32	3x3= 9	4x2= 8	3x4= 12	4x2= 8	1x3=3	(1x4)+(1X8)= 12	172
Marks	22x100=2200	8x100=800	3x75=225	4x50=200	3x100=300	4x50=200	1x75=75	1x100+1x200=300	Total Marks =4300

Marks= 25 marks per credit. Credit for Summer Internship has been adjusted from 4 to 3 to adjust the total marks

*Candidates who will not pursue Dissertation/ Research work then he/she will have to study additional 1 DSC/Core paper o f 4 credits in the 7th Semester & 2 DSC/ Core Papers of 4 Credits each in the 8th Semester.

Honours Courses with Titles (Chronologically arranged in accordance with the above structures)	**Core Course** (4 credit courses) 22 for all + 3 courses only for 'non-dissertation' students (one course in 7th Sem. and two courses in 8th Sem.)	**Minor** (4 credit each)	**SEC** (4 credit each)	**IDC** (3 credit each)	**CVAC** (2 credit each)
Sem I	PLS-H-CC1-1-Th+TU Political Theory: Foundational Concepts	Political Theory: Foundational Concepts	PLS-H-SEC1-1-Th+TU Democratic Awareness with Legal Literacy	PLS-H-IDC-Th Understanding Governance (Choice: to follow University Guidelines)	PLS-H-CVAC-1-Th Constitutional Values and Fundamental Duties

Sem II	PLS-H-CC2-2-Th+TU Constitutional Government in India	Constitutional Government in India	PLS-H-SEC2-2-Th+TU: Understanding the Legal System		
Sem III	PLS-H-CC3-3-Th+TU Political Theory: Approaches and Debates PLS-H-CC4-3-Th+TU Politics in India: Structures	Political Theory: Foundational Concepts	PLS-H-SEC3-3-Th+TU: Legislative Practices and Procedures		
Sem IV	PLS-H-CC5-4-Th+TU Politics in India: Processes PLS-H-CC6-4-Th+TU International Relations: Concepts, Theories PLS-H-CC7-4-Th+TU Public Administration: Concepts, Theories PLS-H-CC8-4-Th+TU Indian Political Thought I	Constitutional Government in India			
Sem V	PLS-H-CC9-5-Th+TU Indian Political Thought II PLS-H-CC10-5-Th+TU Western Political Thought I				

	PLS-H-CC11-5-Th+TU Political Sociology PLS-H-CC12-5-Th+TU India and the World: Foreign Policies and Strategies	India and the World: Foreign Policies and Strategies			
Sem VI	PLS-H-CC13-6-Th+TU Western Political Thought II PLS-H-CC14-6-Th+TU Public Administration: Indian Context PLS-H-CC15-6-Th+TU Comparative Government and Politics I	Public Administration: Indian Context			
Sem VII _____ For 'Non-Dissertation' students only	PLS-H-CC16-7-Th+TU Global Politics since 1945 PLS-H-CC17-7-Th+TU Comparative Government and Politics II PLS-H-CC18-7-Th+TU Governance and Public Policy in India _____ PLS-H-CC19-7-Th+TU Understanding Gandhi and Ambedkar				
Sem VIII	PLS-H-CC20-8-Th+TU Research Methodology and Academic Writing: Basics				

_____ For 'Non-Dissertation' students only For 'Non-Dissertation' students only	PLS-H-CC21-8-Th+TU Human Rights: Theory and Indian Context PLS-H-CC22-8-Th+TU Gender and Politics PLS-H-CC23-8-Th+TU State Politics in India PLS-H-CC24-8-Th+TU Understanding South Asia PLS-H-CC25-8-Th+TU Understanding Political Economy				

Syllabus (1st and 2nd Semesters)

CC/Minor Political Theory: Foundational Concepts

Course Objectives:

- This course introduces the basic concepts of politics.
- The intention is to prepare the students for understanding the theoretical dimension of politics.

Learning Outcomes:

After reading the course, students will

- Understand the entry points through which the *political* is interpreted
- Understand the core concepts that guide the theorisation of politics
- Understand the how theory relates to practice.

Module I

1. Conceptualising the *Political*. Power and Authority.

2. State; Nation; Sovereignty.

3. Law. Liberty, Equality (interrelationships).

Module II

4. Rights; Justice (main focus on Rawls); Freedom.

5. Democracy (including classifications of David Held); Authoritarianism.

6. Political Obligation. Citizenship.

Select Readings:

Bhargava, R. (2008) 'What is Political Theory' in Bhargava, R and Acharya, A. (eds.) Political Theory: An Introduction. pp. 2-16.
Andrew Heywood: The Basic Political Concepts.
S. Ramaswamy: Political Theory--- Ideas and Concepts.
Menon, Krishna. (2008) 'Justice', in Bhargava, Rajeev and Acharya, Ashok. (eds.) Political Theory: An Introduction, pp. 74-86.
N. Daniels: Reading Rawls.
J. Mandle: Rawls's Theory of Justice: An Introduction
R. Bellamy: Theories and Concepts in Politics: An Introduction.
D. Held: Models of Democracy.

CC/Minor Constitutional Government in India

Course Objectives:

- To enable students to know the constitutional design of government and political institutions in India.
- To relate such institutions to the ideals of liberty, equality and justice, and to the process of decentralisation and federalism, development and democracy, on which the constitutional democracy in India is visualised.
- To encourage students to see how institutional practices and constitutional design are impacted by the political contexts within which they unfold.
- To develop the ability to comprehend the relationships between constitutionalism, democracy and governance.

Learning Outcomes:

On successful completion of the course, students will develop:

- Understanding the specificities of Indian Constitutionalism.
- Familiarity with the issues concerning constitutional architecture, institutional design and Practice of constitutional democracy.
- Awareness of the ways in which the government/s functions through its various organs at various levels.
- Understanding of the division of power between various organs of the government.

Module I

1. Evolution of the Indian Constitution. Role of Constituent Assembly--- debates (overview). Preamble.

2. Citizenship. Fundamental Rights and Duties. Directive Principles.

3. Nature of Indian Federalism: Union-State Relations.

4. Union Executive: President, Vice-President: election, position, functions (focus on Emergency Powers), Prime Minister, Council of Ministers, relationship of Prime Minister and President.

Module II

5. Union Legislature: Rajya Sabha, Lok Sabha: Organisation, Functions – Lawmaking procedure, Parliamentary procedure, Privileges, Committee system. Speaker.

6. Government in states: Governor, Chief Minister and Council of Ministers: position and functions – State Legislature: composition and functions.

7. Judiciary: Supreme Court and the High Courts: composition and functions – Judicial activism.

8. Constitutional amendment.

Select Readings:

Constitution of India: Government of India.
G. Austin: The Indian Constitution: Cornerstone of a Nation.
G. Austin: Working a Democratic Constitution
S.K. Chaube: The Constituent Assembly--- Springboard of a Revolution (latest edition).
M.V. Pylee: India's Constitution.
S.C. Kashyap ed.: Perspectives on the Constitution.
R. Bhargava (ed.): Politics and Ethics of the Indian Constitution.
D. D. Basu: Introduction to the Constitution of India.
S. K. Chaube: The Making and Working of the Indian Constitution.
B. Shankar and V. Rodrigues: The Indian Parliament: A Democracy at Work
P. B. Mehta and N. Jayal (eds.): The Oxford Companion to Politics in India.
D. Kapur and P. B. Mehta (eds.): Public Institutions in India.
B. Kirpal et.al (eds.): Supreme but not Infallible: Essays in Honour of the Supreme Court of India.
B. Arora and D. Verney (eds.): Multiple Identities in a Single State: Indian Federalism in a Comparative Perspective.

ভারতীয় সংবিধান (বাংলা সংস্করণ)
দূর্গাদাস বসু – ভারতের সংবিধান পরিচয়
সুভাষ সি কাশ্যপ – আমাদের সংবিধান (অনুবাদঃ পার্থ সরকার)
অমল কুমার মুখোপাধ্যায় – ভারতীয় সংবিধানের সহজ পাঠ

SEC-1 Democratic Awareness through Legal Literacy

Course Objectives:

- Acquaint undergraduate students with different terms of the legal structure of India

Learning Outcomes:

- Improve working knowledge of affirming one's rights
- Be aware of duties to explore opportunities and challenges for different sections of people in India.

Module I

1. Basic understanding: Legal provisions of FIR, General Diary, Arrest, Bail, Search, and Seizure. Evidence and Criminal Procedure Code.

2. Laws on offenses against women, children and adolescents, Scheduled Castes and Scheduled Tribes.

3. Personal laws and customary law in India (overview).

4. Labour laws (Overview); Environmental Laws (overview).

Module II

5. Laws related to contract and consumer rights.

6. Laws on cybercrime.

7. Anti-terrorist laws: implications for security and human rights.

8. Laws related to the Right to information.

Select Readings:

SAHRDC: Oxford Handbook of Human Rights and Criminal Justice in India- The System and Procedure.
P. D. Mathew: Your Rights if You are Arrested.
P. D. Mathew: The Law on Atrocities against Scheduled Castes and Scheduled Tribes.
M. Mohanty et al., Weapon of the Oppressed, Inventory of People's Rights in India.
S. Durrany: The Protection of Women from Domestic Violence Act 2005.
P. D. Mathew: The Measure to Prevent Sexual Harassment of Women in Work Place.
C. Kumar and K. Chockalingam (eds): Human Rights, Justice, and Constitutional Empowerment.
S. Naib: The Right to Information in India.
Relevant Bare Acts on Consumer Protection Act, Criminal law Amendment Act, Protection of Women Against Domestic Violence Act, Right to Information Act, Scheduled Castes and Scheduled Tribes Prevention of Atrocities Act, Scheduled Tribes and Other Traditional Forest Dwellers, The Persons with Disabilities (Equal Opportunities, Protection of Rights, Full Participation) Act, The Right of Children to Free and Compulsory Education Act, The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Bill, Criminal Law Amendment Act.

SEC-2 Understanding the Legal System

Course Objectives: This course design is intended to create:

- a systemic perspective on an overarching framework for approaching law as a skill-based subject.
- to focus on the enhancement of skill of ordinary persons to enable them to utilize legal knowledge in life.

Learning Outcomes: The programme is so designed as to:

- acquaint, train and equip students with a reasonable knowledge of the legal system.
- motivate the students to understand the principles, concepts and reason
- form own opinion and articulate them in the interest of society at large.

Module I

1. Historical background, procedures of Supreme Court and High Court in India (special focus on writ jurisdictions), Judicial Activism and Judicial Restraint.
2. Public Interest Litigation (PIL): Meaning, major features and Scope, principles, Major Guidelines for admitting PIL.
3. Administrative Tribunals: Concepts and major Features, tribunals for other matters.

Module II

4. Subordinate Courts: Constitutional provisions, structure and jurisdiction, National Legal Services Authority, Lok Adalats, Family Courts and Gram Nyalayas.
5. Elections Laws: Representation of People Act 1950, Representation of People Act 1951, Delimitation Act 2002.
6. Other Constitutional Dimensions: Anti-defection Laws (major provisions of 91st Amendment Act, 2003), Co-operative Societies (provisions of 97th Amendment Act), Mahila Courts.

Select Readings:

Kamala Sankaran and Ujjwal Singh eds.: *Creating Legal Awareness*.
Asha Bajpai, *Child Rights in India: Law, Policy, and Practice*.
B.L. Wadhera, *Public Interest Litigation - A Handbook*.
P.C. Rao and William Sheffiled: *Alternate Dispute Resolution: What it is and how it Works*.
M, Mohanty et al.: *Weapon of the Oppressed, Inventory of People's Rights in India*.
Centre for Good Governance: *Right to Information Act, 2005: A Citizen's Guide*,
K. Sankaran and U. Singh, *Towards Legal Literacy*.
Oxford Handbook of Human Rights and Criminal Justice in India (relevant articles).

IDC Understanding Governance

Course Objectives:

- This paper deals with concepts and different dimensions of governance highlighting the major issues in contemporary times.
- It will facilitate understanding of the importance of the concept of and practice governance, which is essential for students across disciplines.
- It simultaneously focuses on environment, administration, development.

Learning Outcomes:

- Students will be acquainted with the changing nature of governance in the era of globalization.
- Students will acquire knowledge of some of the most contemporary motive forces of governance.
- The students become familiar with a rigorous introduction to the best practices in India on governance.

Module I

1. Governance: meaning, genesis, evolution and importance. 'Government' and "Governance'.

2. Idea of 'Good Governance'. Relations with development and democracy.

3. Role of State, Market and Civil Society since 1990s (with some focus on India).

Module II

4. Major issues in Governance I: People's Participation. Public Service Delivery.

5. Major issues in Governance II: Citizens Charter; Right to Information.

3. E- Governance. Green Governance. [Major features, Case Studies and challenges]

[India will be the prime case of discussion in Module II]

Select Readings

Shivani Singh ed.: Governance--- Issues and Challenges.
B. C. Smith: Good Governance and Development.
B. Chakrabarty and M. Bhattacharya (eds.): The Governance Discourse.
Surendra Munshi and Biju Paul Abraham (eds.): Good Governance, Democratic Societies and Globalisation.
Vasudha Chotray and Gery Stroker: Governance Theory: A Cross Disciplinary Approach.
C.S.R. Prabhu: E-Governance---Concepts and case Studies.
D. Bollier and B. H. Weston: Green Governance.

VAC Constitutional Values and Fundamental Duties

Course Objectives:
- To enrich students with knowledge and relevance of the Indian Constitution.
- To develop awareness about values of basic tenets and Duties.
- To inculcate a sense of Constitutionalism.

Learning Outcomes:
- To understand the Constitution and its relevance.
- To appreciate the values and goals embedded in the Constitution.
- To recognise the importance of Fundamental Duties enshrined in the Constitution.

Module I

1. The Constitution of India and Constitutionalism. Constitutional Values--- Justice, Liberty, Equality, Fraternity
2. Fundamental Rights; Rule of Law; Separation of Powers
3. Sovereignty, Socialism, Secularism, Democracy, Republic

Module II

4. Fundamental Duties: emergence; value and significance.
5. Article 51A: enumerated Duties.
6. Legal status of Fundamental Duties. Limitations.

Select Readings:

D. D. Basu, et al., Introduction to the Constitution of India (latest edition)
G. C. Hiregowder et. al.: The Indian Constitution--- An Introduction.
S.K. Chaube: The Making and Working of the Indian Constitution
M. P. Singh, V.N. Shukla: Constitution of India.
Sudhir Krishnaswamy: Democracy and Constitutionalism in India

---

UNIVERSITY OF CALCUTTA

CU-2023: Course Structure and Syllabus
Political Science 3 Year-Multidisciplinary Courses (MDC)

IMPORTANT NOTE:

- The format of the syllabus strictly follows the official format issued by the University.
- Before viewing the syllabus it is strongly advised that the CU MDC Course Structure and the Guidelines, provided below, be read carefully.
- CC: Core Course; Minor: Discipline-specific elective; SEC: Skill Enhancement Course; IDC: Inter-Disciplinary Course; CVAC: Common Value Addition Course. Each course has two modules.
- 1 credit: 25 marks. Correspondence of credit and class hours: according to the UGC rules, as adopted by the University. CC: 3 credit Th+1credit TU. SEC: 2 credit Th+2 credit TU.
- 'Select References' in the syllabus may be complemented by relevant online material available in *academic, legal and authentic* websites. Cited texts in Bengali are *not* necessarily substitutes, but supplementary to the English books. If required, relevant books from the UGC-prescribed CBCS list may also be consulted.
- Suggested CC/Minor tutorial-related segments: Any one of the following modes: i) Upto 1000 words for one Term Paper/upto 500 words for each of the two Term Papers/ equivalent Book Review/equivalent Comprehension/equivalent Quotation or Excerpt Elaboration. ii) Report Presentation/Poster Presentation/Field work--- based on syllabus-related and/or current topics (may be done in groups) The modes and themes/ topics be decided by the concerned faculty of respective colleges. For SEC, see below.
- Honours, Minor and MDC share *the same courses and contents* (except slight modification in MDC-SEC). The standard/s of question papers will differ between the two categories. Optional courses *to be chosen as per University Guidelines.* For MDC the first six papers of CC will be the Minor papers.
- SEC (Democratic Awareness with Legal Literacy): To uphold the basic spirit and objectives of the courses of this category, the UG BoS recommends to the University the following mode: 2 credit (50 marks) be allotted to the Theoretical part, and 2 credit (50 marks) to Tutorials based on report/essay/case history (within 800 words). The topics of the essays/reports are to have *practical orientation*, and they may be on any of the following: hypothetical case, contemporary events/issues/policies/programmes OR visit to an institution/organization/government department (such as court, Lok Adalat, legal aid center, NGOs or cybercrime cell) OR awareness-generating seminars/workshops. Topics of the essays/reports/seminars/workshops are to be decided by the teachers, based on the content of the course.
- Further communication about any change may be made by the UG Board of Studies only on receiving specific instructions from the appropriate authorities of the University.

COURSE STRUCTURE-MDC

	CC1	CC2	Minor	IDC	AEC	SEC	CVAC	Summer Internship	Total Credit
Semester	8x4= 32	8x4= 32	6x4= 24	3x3=9	4x2= 8	3x4=12	4x2=8	1x3= 3	124
1	1x4= 4 3TH+ 1P/TU	1x4= 4 3TH+ 1P/TU		1x3=3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4	2x2=4		21
2	1x4= 4 3TH+ 1P/TU	1x4= 4 3TH+ 1P/TU		1x3=3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4	2x2=4		21
3	1x4= 4 (3TH+ 1P/TU)	1x4= 4 3TH+ 1P/TU	1x4= 4 3TH+1P/TU	1x3=3 2TH +1P/TU	1x2= 2 2TH +0P/TU	1x4= 4			21
4	2x4=8 4x(3TH+ 1P/TU)	2x4= 8 2x(3TH+ 1P/TU	1x4= 4 (3TH+1P/TU)		1x2= 2 2TH +0P/TU				22
5	2x4= 8 2x(3TH+ 1P/TU)	1x4= 4 3TH+ 1P/TU	2x4= 8 2x(3TH+ 1P/TU						20
6	1x4= 4 (3TH+ 1P/TU)	2x4= 8 2x(3TH+ 1P/TU)	2x4= 8 2x(3TH+ 1P/TU)						20
Credits	**8x4= 32**	**8x4= 32**	**6x4= 24**	**3x3= 9**	**4x2= 8**	**3x4= 12**	**4x2= 8**		**125+3 =128**
Marks	**8x100= 800**	**8x100= 800**	**6x100= 600**	**3x75= 225**	**4x50= 200**	**3x100= 300**	**4x50= 200**		**Total Marks =3200**

Marks= 25 marks per credit.

Total credit=125+3 (for summer internship) = 128.
Summer Internship: As in (G)

To strictly follow the semester-wise sequence and placement of the CU MDC format (see above), as the case may be.

MDC Courses (Chronologically arranged in accordance with the above structures)	**Course** (4 credit courses)	**Minor** (4 credit course)	**IDC** (3 credit course)	**SEC** (4 credit course)	**CVAC** (2 credit course)
	PLS-MD-CC-1-1-TH+TU: Political Theory: Foundational Concepts		PLS-MD-IDC-1-TH+TU: Understanding Governance	PLS-MD-SEC-1-TH+TU: Democratic Awareness with Legal Literacy	PLS-MD-CVAC-1-Th: Constitutional Values and Fundamental Duties
	PLS-MD-CC-2-2-TH+TU: Constitutional Government in India				
	PLS-MD-CC-3-3-TH+TU: India and the World: Foreign Policies & Strategies	Political Theory: Foundational Concepts			
	PLS-MD-CC-4-4-TH+TU: Public Administration: Indian Context PLS-MD-CC-5-4-Th+TU: Politics in India: Structures	Constitutional Government in India			
	PLS-MD-CC-6-5-Th+TU: Politics in India: Processes PLS-MD-CC-7-5-TH+TU: Indian Political Thought I	India and the World: Foreign Policies & Strategies Public Administra-tion: Indian Context			

	PLS-MD-CC-8-6-TH+TU: Indian Political Thought II	Politics in India: Structures Politics in India: Processes			

Syllabus (1st and 2nd Semesters)

Political Theory: Foundational Concepts

Course Objectives:

- This course introduces the basic concepts of politics.
- The intention is to prepare the students for understanding the theoretical dimension of politics.

Learning Outcomes:

After reading the course, students will

- Understand the entry points through which the *political* is interpreted
- Understand the core concepts that guide the theorisation of politics
- Understand the how theory relates to practice.

Module I

1. Conceptualising the *Political*. Power and Authority.

2. State; Nation; Sovereignty.

3. Law. Liberty, Equality (interrelationships).

Module II

4. Rights; Justice (main focus on Rawls); Freedom.

5. Democracy (including classifications of David Held); Authoritarianism.

6. Political Obligation. Citizenship.

Select Readings:

Bhargava, R. (2008) 'What is Political Theory' in Bhargava, R and Acharya, A. (eds.) Political Theory: An Introduction. pp. 2-16.
Andrew Heywood: The Basic Political Concepts.
S. Ramaswamy: Political Theory--- Ideas and Concepts.
Menon, Krishna. (2008) 'Justice', in Bhargava, Rajeev and Acharya, Ashok. (eds.) Political Theory: An Introduction, pp. 74-86.
N. Daniels: Reading Rawls.
J. Mandle: Rawls's Theory of Justice: An Introduction
R. Bellamy: Theories and Concepts in Politics: An Introduction.
D. Held: Models of Democracy.

Constitutional Government in India

Course Objectives:

- To enable students to know the constitutional design of government and political institutions in India.
- To relate such institutions to the ideals of liberty, equality and justice, and to the process of decentralisation and federalism, development and democracy, on which the constitutional democracy in India is visualised.
- To encourage students to see how institutional practices and constitutional design are impacted by the political contexts within which they unfold.
- To develop the ability to comprehend the relationships between constitutionalism, democracy and governance.

Learning Outcomes:

On successful completion of the course, students will develop:

- Understanding the specificities of Indian Constitutionalism.
- Familiarity with the issues concerning constitutional architecture, institutional design and Practice of constitutional democracy.
- Awareness of the ways in which the government/s functions through its various organs at various levels.
- Understanding of the division of power between various organs of the government.

Module I

1. Evolution of the Indian Constitution. Role of Constituent Assembly--- debates (overview). Preamble.
2. Citizenship. Fundamental Rights and Duties. Directive Principles.
3. Nature of Indian Federalism: Union-State Relations.
4. Union Executive: President, Vice-President: election, position, functions (focus on Emergency Powers), Prime Minister, Council of Ministers, relationship of Prime Minister and President.

Module II

5. Union Legislature: Rajya Sabha, Lok Sabha: Organisation, Functions – Lawmaking procedure, Parliamentary procedure, Privileges, Committee system. Speaker.
6. Government in states: Governor, Chief Minister and Council of Ministers: position and functions – State Legislature: composition and functions.
7. Judiciary: Supreme Court and the High Courts: composition and functions – Judicial activism.
8. Constitutional amendment.

Select Readings:

Constitution of India: Government of India.
G. Austin: The Indian Constitution: Cornerstone of a Nation.
G. Austin: Working a Democratic Constitution
S.K. Chaube: The Constituent Assembly--- Springboard of a Revolution (latest edition).
M.V. Pylee: India's Constitution.
S.C. Kashyap ed.: Perspectives on the Constitution.
R. Bhargava (ed.): Politics and Ethics of the Indian Constitution.
D. D. Basu: Introduction to the Constitution of India.
S. K. Chaube: The Making and Working of the Indian Constitution.

B. Shankar and V. Rodrigues: The Indian Parliament: A Democracy at Work
P. B. Mehta and N. Jayal (eds.): The Oxford Companion to Politics in India.
D. Kapur and P. B. Mehta (eds.): Public Institutions in India.
B. Kirpal et.al (eds.): Supreme but not Infallible: Essays in Honour of the Supreme Court of India.
B. Arora and D. Verney (eds.): Multiple Identities in a Single State: Indian Federalism in a Comparative Perspective.
ভারতীয় সংবিধান (বাংলা সংস্করণ)
দূর্গাদাস বসু – ভারতের সংবিধান পরিচয়
সুভাষ সি কাশ্যপ – আমাদের সংবিধান (অনুবাদঃ পার্থ সরকার)
অমল কুমার মুখোপাধ্যায় – ভারতীয় সংবিধানের সহজ পাঠ

SEC Democratic Awareness through Legal Literacy

Course Objectives:

- Acquaint undergraduate students with different terms of the legal structure of India

Learning Outcomes:

- Improve working knowledge of affirming one's rights
- Be aware of duties to explore opportunities and challenges for different sections of people in India.

Module I

1. Basic understanding: Legal provisions of FIR, General Diary, Arrest, Bail, Search, and Seizure. Evidence and Criminal Procedure Code.
2. Laws on offenses against women, children and adolescents, Scheduled Castes and Scheduled Tribes.
3. Personal laws and customary law in India (overview).

Module II

5. Laws related to contract and consumer rights.
6. Laws on cybercrime. Laws related to the Right to Information.
7. Anti-terrorism laws: implications for security and human rights.

Select Readings:

SAHRDC: Oxford Handbook of Human Rights and Criminal Justice in India- The System and Procedure.
P. D. Mathew: Your Rights if You are Arrested.
P. D. Mathew: The Law on Atrocities against Scheduled Castes and Scheduled Tribes.
M. Mohanty et al., Weapon of the Oppressed, Inventory of People's Rights in India.
S. Durrany: The Protection of Women from Domestic Violence Act 2005.
P. D. Mathew: The Measure to Prevent Sexual Harassment of Women in Work Place.
C. Kumar and K. Chockalingam (eds): Human Rights, Justice, and Constitutional Empowerment.
S. Naib: The Right to Information in India.
Relevant Bare Acts on Consumer Protection Act, Criminal law Amendment Act, Protection of Women Against Domestic Violence Act, Right to Information Act, Scheduled Castes and Scheduled Tribes Prevention of Atrocities Act, Scheduled Tribes and Other Traditional Forest Dwellers, The Persons with Disabilities (Equal Opportunities, Protection of Rights, Full Participation) Act, The Right of Children to Free and Compulsory Education Act, The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Bill, Criminal Law Amendment Act.

IDC Understanding Governance

Course Objectives:

- This paper deals with concepts and different dimensions of governance highlighting the major issues in contemporary times.
- It will facilitate understanding of the importance of the concept of and practice governance, which is essential for students across disciplines.
- It simultaneously focuses on environment, administration, development.

Learning Outcomes:

- Students will be acquainted with the changing nature of governance in the era of globalization.
- Students will acquire knowledge of some of the most contemporary motive forces of governance.
- The students become familiar with a rigorous introduction to the best practices in India on governance.

Module I

1. Governance: meaning, genesis, evolution and importance. 'Government' and "Governance'.

2. Idea of 'Good Governance'. Relations with development and democracy.

3. Role of State, Market and Civil Society since 1990s (with some focus on India).

Module II

4. Major issues in Governance I: People's Participation. Public Service Delivery.

5. Major issues in Governance II: Citizens Charter; Right to Information.

3. E- Governance. Green Governance. [Major features, Case Studies and challenges]

[India will be the prime case of discussion in Module II]

Select Readings

Shivani Singh ed.: Governance--- Issues and Challenges.
B. C. Smith: Good Governance and Development.
B. Chakrabarty and M. Bhattacharya (eds.): The Governance Discourse.
Surendra Munshi and Biju Paul Abraham (eds.): Good Governance, Democratic Societies and Globalisation.
Vasudha Chotray and Gery Stroker: Governance Theory: A Cross Disciplinary Approach.
C.S.R. Prabhu: E-Governance---Concepts and case Studies.
D. Bollier and B. H. Weston: Green Governance.

VAC Constitutional Values and Fundamental Duties

Course Objectives:

- To enrich students with knowledge and relevance of the Indian Constitution.
- To develop awareness about values of basic tenets and Duties.
- To inculcate a sense of Constitutionalism.

Learning Outcomes:

- To understand the Constitution and its relevance.
- To appreciate the values and goals embedded in the Constitution.
- To recognise the importance of Fundamental Duties enshrined in the Constitution.

Module I

1. The Constitution of India and Constitutionalism. Constitutional Values--- Justice, Liberty, Equality, Fraternity
2. Fundamental Rights; Rule of Law; Separation of Powers
3. Sovereignty, Socialism, Secularism, Democracy, Republic

Module II

4. Fundamental Duties: emergence; value and significance.
5. Article 51A: enumerated Duties.
6. Legal status of Fundamental Duties. Limitations.

Select Readings:

D. D. Basu, et al., Introduction to the Constitution of India (latest edition)
G. C. Hiregowder et. al.: The Indian Constitution--- An Introduction.
S.K. Chaube: The Making and Working of the Indian Constitution
M. P. Singh, V.N. Shukla: Constitution of India.
Sudhir Krishnaswamy: Democracy and Constitutionalism in India

---

UNIVERSITY OF CALCUTTA

Notification No. CSR/67/2024

It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in the exercise of her powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 28.08.2024 approved the new revised syllabus of semester- 1 & 2 Sanskrit (4-year Honours & Honours with Research/ 3-year MDC) and syllabus for semester -3 to 8 of Sanskrit (4-year Honours & Honours with Research), and syllabus for semester- 3 to 6 of Sanskrit (3-year MDC) courses of studies under CCF.

The above shall take effect from Odd Semester examinations, 2024 and onwards.

04/9/2024

SENATE HOUSE

Kolkata-700073

04.09.2024

Prof.(Dr.) Debasis Das

Registrar

Sanskrit
University of Calcutta

Syllabus of Sem-1 to 8 of 4-year Honours (Major & Minor, IDC) + Research and Sem-1 to 6 of 3-year MDC (Major & Minor, IDC) under CCF in respect of NEP 2020

&

Modalities of Sem-1 to 4 of 4-year Honours (Major & Minor, IDC) + Research and Sem-1 to 4 of 3-year MDC (Major & Minor, IDC) under CCF in respect of NEP 2020

General Instructions:

A. **The questions for all Major papers, apart from SEC-2 will be set in Sanskrit language and Devanāgarī script. The questions for SEC-2 (Computational Sanskrit & Computer Awareness) will be set in English.**

B. **The questions for Minor (Hons.), MDC and Minor (MDC) papers will be set in Sanskrit and Bengali languages. The questions for the SEC (Reading & Writing Skill) of MDC will be set in Sanskrit language and Devanāgarī script.**

C. **For all courses of Hons. (Major and Minor) and MDC (Core and Minor) Sanskrit language and Devanāgarī script will not be considered compulsory for answering if not mentioned in the instruction.**

D. **The questions for IDC (4-year Hons. & MDC) will be set in Bengali and English languages. (Sanskrit language is not compulsory for answering)**

List of Contents

CURRICULUM AND CREDIT FRAMEWORK FOR UNDERGRADUATE PROGRAMMES [AS PER NEP 2020]

[4-YEAR BACHELOR'S DEGREE (HONOURS) AND 4-YEAR BACHELOR'S DEGREE (HONOURS WITH RESEARCH)]

DEPARTMENT OF SANSKRIT, UNIVERSITY OF CALCUTTA

PROGRAM CODE: FA/SANS/BA

COURSE STRUCTURE-CCF, 2022
SANSKRIT (MAJOR & MINOR)

	DSCC/Core (Major)	**Minor (MN1 &MN 2)**	**IDC**	**AEC**	**SEC**	**CVAC**	**Summer Internship**	**Dissertation/ Research work**	**Total Credit**
Semester	**22 × 4 = 88**	**8 × 4 = 32**	**3 × 3 = 9**	**4 × 2 = 8**	**3 × 4 = 12**	**4 × 2 = 8**	**1 × 3 = 3**	**(1 × 4 = 4) + (1 × 8 = 8) = 12**	**172**
1	**1 × 4 = 4** **3TH + 1P/TU**	**1 × 4 = 4 (MN1)** **3TH + 1P/TU**	**1 × 3 = 3** **2TH + 1P/TU**	**1 × 2 = 2** **2TH + 0P/TU**	**1 × 4 = 4**	**2 × 2 = 4**			**21**
	DSCC-1 General Grammar and Metre	MN-1 General Grammar and Metre	SAND (A) Medical Science (B) Mathematics (C) Painting (D) Astronomy (E) Music and Dance (F) Architecture		SEC -1 Skill of Reading and Writing				
2	**1 × 4 = 4** **3TH + 1P/TU**	**1 × 4 = 4 (m1)** **3TH + 1P/TU**	**1 × 3 = 3** **2TH + 1P/TU**	**1 × 2 = 2** **2TH + 0P/TU**	**1 × 4 = 4**	**2 × 2 = 4**			**21**
	DSCC-2 History of Sanskrit Literature [Classical and Vedic]	MN-2 History of Sanskrit Literature [Classical and Vedic]	SAND (A) Medical Science (B) Mathematics (C) Painting (D) Astronomy (E) Music and Dance (F) Architecture		SEC-2 Computer Awareness & Computational Sanskrit				
3	**2 × 4 = 8** **2 × (3TH + 1P/TU)**	**1 × 4 = 4 (m2)** **3TH + 1P/TU**	**1 × 3 = 3** **2TH + 1P/TU**	**1 × 2 = 2** **2TH + 0P/TU**	**1 × 4 = 4**				**21**

	DSCC-3 Classical Sanskrit Literature (Prose & Poetry)	MN-3 Classical Sanskrit Literature (Prose & Poetry)	SAND (A) Medical Science (B) Mathematics (C) Painting (D) Astronomy (E) Music and Dance (F) Architecture		SEC-3 Advance writing and Communicative skill in Sanskrit				
	DSCC-4 Kāvya-śāstra and its History								
4	**4 × 4 = 16** **4 × (3TH + 1P/TU)**	**1 × 4 = 4 (m2)** **3TH + 1P/TU**		**1 × 2 = 2** **2TH + 0P/TU**					**22**
	DSCC-5 Drama and Dramaturgy	MN-4 Drama and Dramaturgy							
	DSCC-6 Gītā and Upaniṣad.								
	DSCC-7 Grammatical study and Linguistics [Bhaṭṭikāvya Kāraka from Siddhāntakaumudi Linguistics]								
	DSCC-8 Smṛti Literature: Ancient Indian Science of Polity and Administration (Manu, Yājñavalkya, Kauṭilya)								

5	**4 × 4 = 16** **4 × (3TH + 1P/TU)**	**m1 + m2** **2 × 4 = 8** **2 × (3TH + 1P/TU)**							**24**
	DSCC-9 Pāṇinian Grammar [Saṃjñā- acsandhi, ajantapuṃliṅga from Siddhāntakaumudi Composition]	MN- 5 Gītā and Upaniṣad							
	DSCC-10 Indian Philosophy: Introduction & Acquaintance [Āstika & Nāstika Darśana Tarkasaṃgraha Of Annaṃbhaṭṭa Bṛhadāraṇyakopaniṣad (4/4-5) with Śāṅkarabhāṣya]	MN- 6 Dharmaśāstra and Epigraphy							
	DSCC-11 [Vedic Literature and Grammar Ṛgvedic Hymns with Sāyaṇa's Commentary Hymns from Yajurveda & Atharvaveda Excerpts from the Brāhmaṇa Literature Vedic Grammar]								
	DSCC-12								

	Indian Epigraphy and Paleography								
6	**3 × 4 = 12** **3 × (3TH + 1P/TU)**	**m1 + m2** **2 × 4 = 8** **2 × (3TH + 1P/TU)**							**20**
	DSCC-13 Vedāṅgas: Vyākaraṇa and Nirukta [Mahābhāṣya Of Patañjali (Paspaśāhnika) Siddhāntakaumudī: Samāsa-Prakaraṇa Nirukta: Chapter – I (Select Portion Siddhāntakaumudī: Tiṅanta-Prakaraṇa (*Bhū-* & *Edh-*)]	MN- 7 Indian Philosophy and Ethics							
	DSCC-14 Indian Philosphy: Sāṃkhya-Yoga and Pūrvamīmāṃsā [Sāṃkhya-Kārikā (1-39) Pātañjala-Yoga Mīmāṃsā: Arthasaṃgraha]	MN-8 Sanskrit Technical Literature							
	DSCC-15 Advaita Vedānta: Introduction and Aqcuaintance [Vedāntasāra Kaṭhoponiṣad Chāndogyopaniṣad Kenopaniṣad]								

7	**4 × 4 = 16** **4 × (3TH + 1P/TU)**							**1 × 4 ***	**20**
	DSCC-16 Indian Logic: Buddhist and Navyanyāya System								
	DSCC-17 Vedic Studies [Vedic Grammar Ṛgveda Śukla-Yajurveda & Atharvaveda Brāhmana Literature]								
	DSCC-18 Vedic Literature: Exegesis [Ṛgvedabhāṣyopakramaṇikā Nirukta]								
	DSCC-19 Sanskrit Poetics [Kāvyaprakaśa (Ullāsa 1 & 2) Sāhityadarpaṇa (1-3: Rasa Theory) Ratnāvalī Dhanvāloka (1-2)]								
8	**3 × 4 = 12** **3 × (3TH + 1P/TU)**							**1 × 8 ***	**20**
	DSCC-20 Modern Sanskrit Literature								

	[General Survey of Modern Sanskrit Literature Kathā: Śaivalī, Paṭṭakāṣṭhikā Nāṭya: Atha Kim Kāvya: Śiśuyuvadurdaivavilasitam]								
	DSCC-21 Ancient Technical Literature [History of Ancient Indian Technical Literature: A Survey Carakasaṃhitā – Sūtrasthāna (Chapter- I) Dīrghajīvitādhyāya (Verses: 24-70) A Brief Survey of Āyurvedic Literature]								
	DSCC-22 Value Education and Women's Studies [Value Education: Taittirīyopaniṣad (Śīkṣāvallī) with Śaṁkara's Commentary A Survey of Anuśāsanaparvan of Mahābharata as Ethical Literature Nītiśataka Women's Studies:								

	A Diachronic study of position of Women in ancient India The Compositions of Women authors Financial right of women in ancient India]								
Credits	**22 × 4 = 88**	**8 × 4 = 32**	**3 × 3 = 9**	**4 × 2 = 8**	**3 × 4 = 12**	**4 × 2 = 8**	**1 × 3 = 3**	**(1 × 4 = 4) + (1 × 8 = 8) = 12**	**169 + 3 = 172**
Marks	**22 × 100 = 2200**	**8 × 100 = 800**	**3 × 75 = 225**	**4 × 50 = 200**	**3 × 100 = 300**	**4 × 50 =200**		**1 × 100 + 1 × 200 = 300**	**Total Marks = 4300**

Marks= 25 marks per credit.

***Students who will not pursue Dissertation/ Research work then the candidate will have to study additional 1 DSC/Core paper of 4 credits in the 7th Semester & 2 DSC/ Core Papers of 4 Credits each in the 8th Semester. The courses are respectively:**

***DSCC-23: Grammar and Grammatical Literature** [Siddhāntakaumudī of Bhaṭṭojī-Dīkṣita: Parasmaipada-Atmanepadavidhāna, Liṅgānuśāsana, Taddhitapratyaya: Apatyārtha, Matvarthīya, Vākyapadīya- Brahmakāṇḍa]

***DSCC-24: Indian Philosophy Through Authoritative Treatises** [Brahmasūtra (1.1) with Śaṁkara's Commentary, Sarvadarśanasaṃgraha- (Cārvāka, Arhat), Nyāyasiddhāntamuktāvalī: Śabdakhaṇḍa, Navyanyāyabhāṣāpradīpa, Tarkabhāṣā]

***DSCC-25: Sanskrit Literature and Literary Criticism** [Daśarupaka (1st & 2nd Chapter), Nāṭyaśāstra of Bhārata (1st & 2nd Chapter), Buddhacarita (1st Sarga), Śiśupālavadha (1st Sarga)]

Minor courses will come from two subjects of same broad discipline as Major (ml, m2).

Total credit=169+3 (for Summer Internship) = 172

Structure of Core Courses in Sanskrit for MDC

Semester	Paper	Course	Name of the Paper	Code (Th)
1	CC1/CC2	MDC 1	General Grammar and Metre	SA-MD-CC1-1-Th
2	CC1/CC2	MDC 2	History of Sanskrit Literature (Vedic and Classical)	SA-MD-CC2-2-Th
3	CC1/CC2	MDC 3	Classical Sanskrit Literature: Prose & Poetry	SA-MD-CC3-3-Th
4	CC1/CC2	MDC 4	Drama and Dramaturgy	SA-MD-CC4-4-Th
	CC1/CC2	MDC 5	Gītā & Upaniṣad	SA-MD-CC5-4-Th
5	CC1/CC2	MDC 6	Dharmaśāstra & Epigraphy	SA-MD-CC6-5-Th
5 OR 6	CC1 OR CC2	MDC 7	Indian Philosophy: Introduction & Acquaintance	SA-MD-CC7-5-Th
				SA-MD-CC7-6-Th
6	CC1/CC2	MDC 8	Sanskrit Technical Literature	SA-MD-CC8-6-Th

Structure of Minor Courses in Sanskrit for MDC

Semester	Course	Name of the Paper	Code (Th)
3	MDC-m1	General Grammar and Metre	SA-MD-MC1-3-Th
4	MDC-m2	History of Sanskrit Literature (Vedic and Classical)	SA-MD-MC2-4-Th
5	MDC-m3	Classical Sanskrit Literature: Prose & Poetry	SA-MD-MC3-5-Th
	MDC-m4	Drama and Dramaturgy	SA-MD-MC4-5-Th
6	MDC-m5	Gītā & Upaniṣad	SA-MD-MC5-6-Th
	MDC-m6	Dharmaśāstra & Epigraphy	SA-MD-MC6-6-Th

Structure of Skill Enhancement Courses in Sanskrit for MDC

Semester	Name of the Paper	Code (Th)
1/2/3	Reading & Writing Skill	SA-MD-SEC1-1-Th
		SA-MD-SEC2-2-Th
		SA-MD-SEC3-3-Th

Structure of Interdisciplinary Courses in Sanskrit for MDC

Semester	Name of the Paper	Code (Th)
1/2/3	Sanskrit Technical Literature	SA-MD-IDC1-1-Th
		SA-MD-IDC2-2-Th
		SA-MD-IDC3-3-Th

COURSE CODE	TITLE OF THE COURSE	COURSE CONTENTS	MARKS
SYLLABUS FOR 4-YEAR B.A. HONS. & HONS. WITH RESEARCH COURSES OF STUDIES **SANSKRIT** **UG I: SEMESTER I** **MAJOR/CORE COURSES [CREDIT: 1X4=4]**			
SAN-H-CC1-1-Th/Tu	**GENERAL GRAMMAR & METRE** **Reference Books:** 1. *Vyākaraṇa Kaumudī*. (Ed.) Durgācaraṇa Sāṃkhyavedāntatīrtha. Sanskrit book Depot. 2. *Helps to the Study of Sanskrit*. Janakinath Sastri. 3. *Pāṇinīyam*. Lahiri & Sastri. Sanskrit Book Depot. 4. *The Students' guide to Sanskrit Composition*. V.S. Apte. 5. *Chandomañjarī*. (Ed.) Gurunātha Vidyānidhi.	**UNIT-I: THEORY** **GENERAL GRAMMAR**	**75**
		1) Declension – nara, muni, pati, sudhī, sādhu, pitṛ, latā, nadī, mati, badhū, mātṛ, phala, vāri, madhu, guṇin, vaṇij, bhūbhṛt dhāvat (in 3 genders), ātman, karman, vedhas, payas, Pronouns: asmad, yuṣmad, idam, yad, tad, kim, adas, sarva (in 3 genders), Numerals: eka, dvi, tri, catur, pañcan, ṣaṭ, aṣṭan (in 3 genders)	10
		2) Conjugation – bhū-, kṛ-, gam-, vad-, pā-, labh-, sthā-, grah-, as-, sev-, krī-, dā-, śru-, ci-, dṛś-, likh-, paṭh-, krīḍ-, cur-, khād- (Laṭ - Present, Loṭ- Imperative Mood, Laṅ- Past, Vidhiliṅ- Potential Mood, Lṛṭ- Future).	10
		3) Avyaya – adya, yadā, tadā, iha, śvaḥ, paraśvaḥ, hyaḥ, prātaḥ, sāyam, śanaiḥ, jhaṭiti, uccaiḥ, eva, iva, alam, upari, adhaḥ, vinā, ṛte, antareṇa, antarā, ubhataḥ, paritaḥ, prāk, param, kva, khalu, mā, nanu, tu, katham, hi, aciram.	10
		4) Case ending and Sandhi (Kāraka-Vibhakti, Sandhi)	15+10=25
		5) Suffix – Kṛt: ktvā, lyap, tumun, śatṛ, śānac, kta, ktavatu, tavyat, anīyar, yat, lyuṭ, ghañ, ktin. Taddhita: aṇ, iṇ, ḍhak, kha, cha, matvarthīya.	10
		6) Compound (Samāsa)	10
		UNIT- II: TUTORIAL **METRE FROM CHANDOMAÑJARĪ**	**25**
		1) Selected topics from Chandomañjarī of Gaṅgādāsa – padyam, vṛttam, akṣaram, gaṇa, laghu, guru, yati.	10
		2) Selected Metres – Indravajrā, Upendravajrā, Upajāti, Śālinī, Bhujaṅgaprayāta, Vaṃśasthavila, Mālinī, Praharṣiṇī, Rucirā, Śikhariṇī, Vasantatilaka,	15

		Mandākrāntā, Śārdūlavikrīḍita, Sragdharā.	
		TOTAL	**100**
UG I: SEMESTER I **SEC COURSE [CREDIT: 1X4=4]**			
SAN-H-SEC1-1-Th/Tu	**SKILL OF READING AND WRITING** **Reference Books:** 1. *Vyākaraṇa Kaumudī*. (Ed.) Durgācaraṇa Sāṃkhyavedāntatīrtha. Sanskrit Book Depot. 2. *Helps to the Study of Sanskrit*. Janakinath Sastri. 3. *Pāṇinīyam*. Lahiri & Sastri. Sanskrit Book Depot. 4. *The Students' guide to Sanskrit Composition*. V.S. Apte.	**UNIT-I: THEORY** **SKILL OF WRITING**	**75**
		1) Learning Devanāgarī script	10
		2) Translation from Bengali/ English to Sanskrit in short sentences	12
		3) Translation from Sanskrit to either Bengali or English	12
		4) Comprehension in Sanskrit	15
		5) Voice change (vācya-parivartana)	10
		6) Ṇatva-Ṣatva Vidhāna	8
		7) Ātmanepada-Parasmaipada Vidhāna	8
		UNIT- II: TUTORIAL **SKILL OF READING & SPEAKING**	**25**
		1) Reading skill with proper pronunciation & Recitation of Sanskrit verses in various metres.	15
		2) Conversation in Sanskrit/ Demonstration of a read topic in Sanskrit.	10
		TOTAL	**100**
UG I: SEMESTER II **MAJOR/CORE COURSES [CREDIT: 1X4=4]**			
SAN-H-CC2-2-Th/Tu	**HISTORY OF SANSKRIT LITERATURE:** I. HISTORY OF CLASSICAL SANSKRIT LITERATURE II. HISTORY OF VEDIC LITERATURE **Reference Books:** 1. Vaidic Sāhityer Rūparekhā, Shanti Bandopadhyay. 2. Veder Parichay, Yogiraj Basu. 3. Vaidic Sāhitya (Veda Mīmāṃsā, 1st Volume), Sri Anirban. 4. Saṃskṛta Sāhityer Itihās, Dhirendranath Bandopadhyay. 5. Saṃskṛta Sāhityer Itihās, Jahnabicharan Bhowmick. 6. A History of Sanskrit Literature, A. B. Keith, MLBD, Delhi.	**UNIT-I: THEORY** **HISTORY OF CLASSICAL SANSKRIT LITERATURE**	**75**
		1) **Epic literature**- Rāmāyaṇa, Mahābhārata, Purāṇa.	20
		2) **Dṛśyakāvya-** General acquaintance with special reference to the following: Kālidāsa, Bhāsa, Śūdraka, Bhaṭṭanārāyaṇa, Bhavabhūti, Viśākhadatta, Harṣadeva, Rājaśekhara	15
		3) **Śravyakāvya**- General acquaintance with special reference to the following:	30
		a) Poetry- Aśvaghoṣa, Kālidāsa, Bhāravi, Māgha, Bhaṭṭi, Śrīharṣa b) Prose- Subandhu, Daṇḍin, Bāṇabhaṭṭa.	20 10

	7. A Concise History of Sanskrit Literature, Gaurinath Shastri. MLBD, Delhi. 8. Indian Literature (Vol. I-III), Maurice Winternitz. MLBD, Delhi. 9. History of Classical Literature, M. Krishnamachariar. MLBD, Delhi. 10. A History of Sanskrit Literature: Classical Period, S.N. De & S.N. Dasgupta. 11. A companion to Sanskrit Literature, Suresh Chandra Bandyopadhyay.	4) **Narrative literature-** General acquaintance with special reference to the following: Pañcatantra, Hitopodeśa, Kathāsaritsāgara, Vetālapañcaviṃśati	10
		UNIT-II: TUTORIAL **HISTORY OF VEDIC LITERATURE**	**25**
		Ṛgveda, Yajurveda, Sāmaveda, Atharvaveda, Brāhmaṇa, Āraṇyaka, Upaniṣad, Vedāṅga	
		TOTAL	**100**
UG I: SEMESTER II **SEC COURSE [CREDIT: 1X4=4]**			
SAN-H-SEC2-2-Th/Tu	**COMPUTER AWARENESS AND COMPUTATIONAL SANSKRIT**	**UNIT-I: THEORY** **TRANSLITERATION**	**30**
		1) Roman Transliteration with diacritical marks. **(Devanāgarī to Roman)**	20
		2) Devanāgarī Transliteration. **(Roman to Devanāgarī)**	10
		UNIT-II: THEORY **BASIC COMPUTER AWARENESS**	**20**
	Reference Books: 1. Introduction to Computer Science, P.K.Sinha, BPB Publication. 2. Computer Fundamentals, Anita Goel, Pearson Education. 3. Fundamentals of Computers, Reema Thareja, Oxford. 4. 4. Fundamentals of Computers, V Rajaraman, Neeharika Abadala, PHI Learning.	1) Basic computer organisation– A. **Input unit** i. Keyboard ii. Mouse iii. Touch Screen iv. Scanner (Image, fingerprint, barcode) v. Digital Camera, Digital Camcorder and Webcam vi. Microphone B. **Control and Arithmetic Logic unit** C. **Storage unit** D. **Output unit** i. Monitor ii. Printer iii. Headphones and Computer Speakers iv. Projector v. GPS	10
		2) Software (Definition, description, division and examples) (a) System Software (b) Application Software 3) Memory (a) Primary– RAM, ROM, PROM,	10

		EPROM etc.- their types and their working (b) Secondary i) Magnetic disk– their basic operation, types, uses etc. ii) Flash disk iii) Solid State Disk	
	5. Computational Morphology and Sanskrit 6. Computational Linguistics. 7. Computational Sanskrit & Digital Humanities	**UNIT-III: THEORY** **COMPUTATIONAL SANSKRIT**	**25**
		1) Introduction to Natural Language Processing 2) Inflection 3) Derivation 4) Compounding 5) Verb Morphology 6) Morphological tools 7) Tools for transliteration of Bilingual Texts	
		UNIT-IV: TUTORIAL **WEB PUBLISHING**	**25**
		1) Browsing Internet A. Introduction to Internet Browsers i) Internet browsing – tabbed browsing, Incognito browsing etc. ii) Bookmark using toolbar, folder etc. iii) Browser settings – Homepage, Download location, Password remember options etc. B. Introduction to Website Creation and Management i) HTML, CSS, Javascript (Just introduction excluding coding) ii) Wordpress, Blogspot, Google site etc. 2) Introduction to video contents creations (demonstrations by using open source software) A. Types of Video formats, resolutions, frames per seconds, etc. B. Software and hardware requirements C. Screen capturing and video editing software and their functions	
		TOTAL	**100**

UG II: SEMESTER III **MAJOR/ CORE COURSES [CREDIT: 2X4=8]**			
SAN-H-CC3-3-Th/Tu	**CLASSICAL SANSKRIT LITERATURE: PROSE & POETRY**	**UNIT-I: THEORY** **KĀLIDĀSA'S RAGHUVAṂŚA (CANTO-1)**	**30**

	Reference Books: 1. Raghuvaṃśa of Kālidāsa (1st Canto), (Ed.) Ashoke Kr. Bandyopadhyay, Sadesh, Kolkata. 2. Raghuvaṃśa of Kālidāsa (1st Canto), (Ed.) Uday Chandra Bandyopadhyay, Sanskrit Book Depot, Kolkata. 3. Raghuvaṃśa of Kālidāsa (1st Canto), (Ed.) Anil Chandra Basu, Sanskrit Book Depot, Kolkata. 4. Raghuvaṃśam of Kālidāsa, (Ed.) Gurunath Vidyanidhi, Sanskrit Book Depot, Kolkata. 5. Raghuvaṃśa of Kālidāsa, (Ed.) M. R. Kale, Motilal Banarsidass, New Delhi. 6. Rājavāhanacarita of Daṇḍin, (Ed.) Satyanarayan Chakraborty, Sanskrit Pustak Bhandar, Kolkata. 7. Rājavāhanacarita of Daṇḍin, (Ed.) Ashoke Kr. Bandyopadhyay, Sadesh, Kolkata. 8. Rājavāhanacarita of Daṇḍin, (Ed.) Janesh Ranjan Bhattacharya, B. N. Publication, Kolkata. 9. Śukanāsopadeśa. (Ed.) Nirad Baran Chakraborty, Sanskrit Pustak Bhandar.	**UNIT-II: THEORY** **BHĀRAVI'S KIRĀTĀRJUNĪYA (CANTO-1)**	**30**
		UNIT-III: THEORY **ŚUKANĀSOPADEŚA**	**15**
		UNIT-IV: TUTORIAL **DAṆḌIN'S RĀJAVĀHANACARITA**	**25**
		TOTAL	**100**
SAN-H-CC4-3-Th/Tu	**KĀVYAŚĀSTRA AND ITS HISTORY** **Reference Books:** 1. Sāhityadarpaṇa of Viśvanātha Kavirāja (Chapter-VI & X), (Ed.) Uday Chandra Bandyopadhyay, Sanskrit Book Depot, Kolkata. 2. Sāhityadarpaṇa of Viśvanātha Kavirāja (Chapter-X), (Ed.) Jayashree Chattopadhyay, Sanskrit Pustak Bhandar, Kolkata. 3. Sāhityadarpaṇa– (Ed.) Bimalakanta Mukhopadhyay, Pustak, Kalikata. 4. Sāhityadarpaṇa of Viśvanātha Kavirāja, (Ed.) Yogeshwar Dutta Sharma, Nag Publishers, Delhi. 5. Sāhityadarpaṇa of Viśvanātha Kavirāja, (Ed.)	**UNIT-I: THEORY** **KĀVYĀLAṂKĀRASŪTRAVṚTTI OF VĀMANA**	**25**
		Sūtras- 1/1- 1-5 1/2- 1-22 1/3- 1-32 3/1- 1-28 3/2 -1-15	
		UNIT-II: THEORY **DEFINITION & DIVISIONS OF ŚRAVYAKĀVYA**	**25**
		Viśvanātha-Kavirāja's Sāhitya-darpaṇa- 6th Chapter relevant topics: Definitions of Mahākāvya, Gadyakāvya (Kathā, Ākhyāyikā), Khaṇḍakāvya, Campū **Daṇḍin's Kāvyādarśa-** 1st paricchedа-relevant topics: Definitions of Mahākāvya, Gadyakāvya (Kathā, Ākhyāyikā), Campū	

	P.V. Kane, Motilal Banarsidass, New Delhi. 6. Kāvyādarśa of Daṇḍin, (Ed.) Chinmayi Chattopadhyay, Paschimbanga Rajya Pustak Parshat, Kolkata. 7. Kāvyādarśa of Daṇḍin, (Ed.) Anil Chandra Basu, Sanskrit Book Depot, Kolkata. 8. Kāvyādarśa of Daṇḍin, (Ed.) Yogeshwar Dutta Sharma, Nag Publishers, Delhi. 9. Kāvyālaṃkārasūtravr̥tti, (Ed.) Nirad Baran Chakraborty, Sanskrit Pustak Bhandar. 10. Vāmana's Kāvyālaṃkārasūtravr̥tti-Ganganath Jha	**UNIT-III: THEORY** **GENERAL ACQUAINTANCE WITH THE EMINENT SANSKRIT ĀLAṂKĀRIKAS**	**25**
		Bharata, Bhāmaha, Daṇḍin, Vāmana, Ānandavardhana, Mammaṭa, Abhinavagupta, Kuntaka, Viśvanātha, Jagannātha, Kṣemendra, Rūpagosvāmīn.	
		UNIT-IV: TUTORIAL **SELECTED ALAṂKĀRAS FROM VIŚVANĀTHA-KAVIRĀJA'S SĀHITYA-DARPAṆA, CH. 10**	**25**
		Upamā, Rūpaka, Bhrāntimān, Mālopamā, Prativastūpamā, Sandeha, Niścaya, Vibhāvanā, Viśeṣokti , Atiśayokti, Svabhāvokti, Samāsokti, Vyatireka, Dr̥ṣṭānta, Arthāntaranyāsa, Kāvyaliṅga, Apahnuti, Aprastutapraśaṃsā, Utprekṣā.	
		TOTAL	**100**
UG II: SEMESTER III **SEC COURSE [CREDIT: 1X4=4]**			
SAN-H-SEC3-3-Th/Tu	**ADVANCE WRITING AND COMMUNICATIVE SKILL IN SANSKRIT** **Reference Books:** 1. A Higher Sanskrit Grammar & Composition-(Ed.) Prabodh Chandra Lahiri & Hrishikesh Sastri, The Dhaka Students Library, Kolkata. 2. Helps to the study of Sanskrit -(Ed.) Janakinath Sastri, Sanskrit Book Depot, Kolkata. 3. Samagra-vyākaraṇa-kaumudī-(Ed.) Durgacharan Samkhya Vedanta Tirtha, Dev Sahitya Kutir, Kolkata.	**UNIT-I: THEORY** **SKILL OF ADVANCED WRITING**	**75**
		Paragraph writing (minimum 10 sentences) in Sanskrit	20
		i. Report writing (Minimum 5 sentences) in Sanskrit on given topic. ii. Correct and Justify	10 10
		Story writing in Sanskrit following given threads	20
		Dialogue writing in Sanskrit on a given topic	15
		UNIT-II: TUTORIAL **COMMUNICATIVE SKILL**	**25**
		Conversation in Sanskrit	15
		Demonstration of any read topic, **or**, Enacting of dramatical composition in Sanskrit	10
		TOTAL	**100**
UG II: SEMESTER IV **MAJOR/ CORE COURSES [CREDIT: 4X4=16]**			
SAN-H-CC5-4-Th/Tu	**DRAMA & DRAMATURGY** **Reference Books:** 1. Abhijñānaśakuntala of Kālidāsa, (Ed.) Satyanarayan Chakroborty,	**UNIT-I: THEORY** **KĀLIDĀSA'S ABHIJÑĀNAŚAKUNTALA ACT I-IV**	**25**
		UNIT-II: THEORY **KĀLIDĀSA'S ABHIJÑĀNAŚAKUNTALA ACT V-VII**	**20**

	Sanskrit Pustak Bhandar, Kolkata. 2. Abhijñānaśakuntala of Kālidāsa, (Ed.) Anil Chandra Basu, Sanskrit Book Depot, Kolkata. 3. Abhijñānaśākuntala of Kālidāsa, (Ed.) C.R. Devadhar & N.G. Suru, Motilal Banarsidass, New Delhi. 4. Abhijñānaśākuntala of Kālidāsa, (Ed.) M.R. Kale, Motilal Banarsidass, New Delhi. 5. Kālidāsa : Abhijñāna-śakuntalam A Stylistic Study. (Ed.) Ramendra Mohan Bose. Modern Book Agency, Kolkata. 6. Sāhityadarpaṇa of Viśvanātha Kavirāja (Chapter-VI & X), (Ed.) Uday Chandra Bandyopadhyay, Sanskrit Book Depot, Kolkata. 7. Svapnavāsavadattam of Anil Chandra Basu, Sanskrit Book Depot (Bengali) 8. Svapnavāsavadattam of Bhāsa. M. R. Kale. Motilal Banarsidass, New Delhi.	**UNIT-III: THEORY** **VIŚVANĀTHA-KAVIRĀJA'S SĀHITYADARPAṆA (CHAPTER VI)** Selected portions on Dramaturgy Rūpaka, Abhinaya, Nāndī, Prastāvanā, Pūrvaraṅga, Characteristic features of Nāṭaka, Sandhi, Arthopakṣepaka, Arthaprakṛ̥ti, Avasthā, Vṛ̥tti.	**30**
		UNIT-IV: TUTORIAL **BHĀSA'S SVAPNAVĀSAVADATTA**	**25**
		TOTAL	**100**
SAN-H-CC6-4-Th/Tu	**GĪTĀ AND UPANIṢAD** **Reference Books:** 1. Śrīmadbhagavatgītā, Swāmī Jagadīsvarānanda, Udvodhana Kāryālaya 2. The Message of the Upanishads, Swami Ranganathananda, Kolkata: Advaita Ashrama. 3. Karmayogaśāstra Religion, Original Sanskrit stanzas with English Translation, Bal Gangadhar Tilak & Balchandra Sitaram Sukthankar, J.S. Tilak & S.S Tilak. 4. Essays on the Gītā, Sri Aurobinda, Sri Aurobinda Ashram, Pandichery. 5. The Bhagavadgītā, S. Radhakrishnan, Harper Collins India. 6. Īśopaniṣad, Swami Lokeswarananda, RKMIC. 7. Upaniṣad Prasaṅga - Commentary on Īśopaniṣad (Bengali: Upaniṣat prasaṅga: Īśopaniṣad), Sri	**UNIT-I: THEORY** **ŚRĪMADBHAGAVATGĪTĀ (SELF MANAGEMENT)**	**75**
		a) Cognition and emotive apparatus Hierarchy of Indriya, Manas, Buddhi, Ātman: III.42; XV.7 Role of Ātman: XV.7; XV.9 Mind is a product of Prakṛ̥ti: VII.4 Properties of three Guṇas and their impact on the Mind: XIII.5-6; XIV.5-8, 11-13, XIV.17	25
		b) Controlling the mind Confusion and Conflict Nature of Conflict I.1; IV.16; I.45; II.6 Casual factors- ignorance- II.41; Indriya- II.60; Mind- II.67; Rajoguṇa- III.36 – 39, XVI.21; Weakness of mind- II.3; IV.5. Means of controlling the Mind Meditation difficulties- VI.34-35; Procedure- VI. 11-14, Balanced life- III.8, VI.6-7, Diet control- XVII.14-19; VI.36 Means of Conflict resolution: Importance of knowledge- II.52; IV.38; IV.42 Clarity of Buddhi- XVIII.30-32,	30

	Anirban, Burdwan University.	Process of decision making- XVIII.63 Control over senses- II.48; II.55 Putting others before self- III.25	
		c) Self-management through devotion Surrender of ego- II.7; IX.27; VIII.7; XI.55; II.47 Abandoning frivolous debates- VII.21; IV.11; IX.26 Acquisition of moral qualities- XII.11; XII.13-14	20
		UNIT-II: TUTORIAL Īśopaniṣad with Śaṁkara's commentary	**25**
		TOTAL	**100**
SAN-H-CC7-4-Th/Tu	**GRAMMATICAL STUDY AND LINGUISTICS** **Reference Books:** **POETICAL TEXT:** 1. Bhaṭṭikāvya, Ashokanath Shastri & Maheswar Das Sharma, Modern Book Agency. 2. Bhaṭṭikāvya, Sarada Ranjan Roy **SIDDHĀNTAKAUMUDĪ OF BHAṬṬOJĪ DĪKṢITA (KĀRAKA-PRAKARAṆA)** 1. Vaiyākaraṇa-siddhāntakaumudī (Vol. I)-(Ed.) Giridhar Sharma & Parameswara Sharma, Matilal Banarsidass, Kolkata. 2. Kāraka O Vibhakti -(Ed.) Tapan Sankar Bhattacharya, Sanskrit Book Dipot, Kolkata. 3. Siddhāntakaumudī (Kāraka Prakaraṇa)-(Ed.) Saccidananda Mukhopadhyay, Sahitya Niketan, Kolkata. 4. Vaiyākaraṇa-siddhāntakaumudī, (Ed.) Ayodhyanath Sanyal Shastri. **LINGUISTICS:** 1. Saṃskr̥ta Bhāṣātattva by Satyaranjana Bandhopadhyaya. 2. Saṃskr̥ta o Prākr̥ta Bhāṣār Kramavikāśa by Paresh Chandra Majumder.	**UNIT-I: THEORY** **GRAMMATICAL KĀVYA** Bhaṭṭikāvya (Canto II)	**35**
		UNIT-II: THEORY Vaiyākaraṇa-siddhāntakaumudī: Kāraka-prakaraṇa	**40**
		UNIT-III: TUTORIAL	**25**
		Classification of Languages, Indo-European & its branches, Indo-Āryan & its development, Difference between Vedic & Āvesta; Vedic & Classical Sanskrit.	15
		Phonetic Laws & Phonetic Tendencies	10

	3. Bhāṣāvijñān o Saṃskr̥tabhāṣā by Ratna Basu. 4. Tulanāmūlaka Bhāṣātattva o Saṁskr̥ta by Dr. Bijaya Goswami. 5. Linguistic Introduction to Sanskrit, Batakrishna Ghosh. 6. The Science of Language, Jahangir Taraporewala. 7. The Sanskrit Language, T. Burrow 8. Bhāṣār Itivr̥tta by Sukumar Sen.		
		TOTAL	**100**
SAN-H-CC8-4-Th/Tu	**SMṚTI LITERATURE: ANCIENT INDIAN SCIENCE OF POLITY AND ADMINISTRATION** **Reference Books:** 1. Concise History of Dharmaśāstra- Sureshchandra Bandyopadhyay, MLBD. 2. Dharma and Society- G.H. Mess, Delhi, Gyan Publishing House. 3. Dharma, Artha o Nīti: - prācīnabhāratīya śāstrasamīkṣā- Tapati Mukhopadhyayay, Chatterjee Publishers. 4. Dharma-Artha-Nītiśāstra-samīkṣā- Sumita Basu, Sadesh. 5. Dharmaśāstra-śabdakoṣa (Vol. 1 & 2), (Ed.) B. Nanda, Bhubaneshwar, Directorate of Tourism, Sports and Culture. 6. Dharmasūtra Paralles- P. Olivelle, MLBD. 7. Dharmasūtras- A study in their origin and development, Calcutta, Puthi Pustak. 8. Hindu Saṃskāras- Socio religious study of the Hindu sacraments, Rajabali Pandey, Delhi, MLBD. 9. History of Dharmashastra (Vol.1 & 2), BORI- P.V. Kane. 10. Samājasaṃskāraka Raghunandana- Bani Chakraborty, Sanskrit Pustak Bhandar. 11. Smr̥timīmāṃsā- B.K. Swain, Delhi, Akshaya Prakashan.	**UNIT-I: THEORY HISTORY OF SMṚTI LITERATURE**	**25**
		Dharmasūtra- Gautama, Baudhāyana, Āpastamba, Vaśiṣṭha Dharmaśāstra- Manu, Yājñavalkya, Kātyāyana, Br̥haspati, Nārada, Parāśara Nītiśāstra- Kāmandaka, Śukra, Vidura Arthaśāstra – Kauṭilya Nibandhaśāstra- Raghunandana, Jīmūtavāhana, Śūlapāṇi	

	12. Some aspects of Ancient Indian Polity- K.V.R. Aiyangar, Patna, Eastern Book House, 1988. 13. Manu's Code of Law – (Ed. & Trans.): P. Olivelle (Critical Edition and Translation of the Mānava-Dharamaśāstra), OUP, New Delhi, 2006. 14. Manusaṃhitā- (Ed.) Manabendu Bandyopadhyay– Sanskrit Pustak Bhandar. 15. Manusmr̥ti with Kullukabhaṭṭa Commentary, (ed.) Chintamani Sastri, Chowkambha Sanskrit Series Office. 16. Manusmr̥ti with the 'Manubhāṣya' of Medhātithi Commentary (Vol. 2)- (Ed.) Ganganatha Jha. Asiatic Society 17. Manuṭīkāsaṃgraha- (Ed.) J. Jolly, Calcutta, The Asiatic Society. 18. Arthaśāstra of Kauṭilya – (Ed.) R.P. Kangle, Delhi, Motilal Banarsidass, 1965. 19. Kauṭalīyam Arthaśāstram (Vol. 1) with Śrīmūlā commentary- Rashtriya Sanskrit Sansthan, New Delhi. 20. Kautilya: The Arthashastra- (Ed,) L.N. Rangrajan, Penguin Books, India. 21. Kauṭilya- An Exposition of his Social Ideal & Political Theory by S Chandra Bandopadhyay. Calcutta, National Publishing House. 22. Kauṭilīya Arthaśāstra (Vol. 1 & 2)-(Ed.) Manabendu Bandyopadhyay, Sanskrit Pustak Bhandar. 23. Yājñavalkyasmr̥ti with Mitākṣarā commentary – (Ed.) N.R. Acharya, Rashtriya Sanskrit Saṃsthan. 24. Yājñavalkyasmr̥ti with Mitākṣarā commentary – (Ed.) S. Basu, Sanskrit Pustak Bhandar. 25. Yājñavalkyasmr̥ti with Mitākṣarā commentary – Chowkhamba Sanskrit Series Office, Varanasi, 1967.	**UNIT-II: THEORY** **RĀJADHARMA: GOVERNANCE & ADMINISTRATION** Manusaṃhitā- Rājadharma upto Taxation (Ch. VII)	**30**
		UNIT-III: THEORY **ADMINISTRATIVE MANAGEMENT** Kauṭilīya Arthaśāstra - Vidyā-samuddeśa from Vinayādhikāraṇa	**20**
		UNIT-IV: TUTORIAL **JURISPRUDENCE** Yājñavalkyasaṃhitā (Vyāvahāra-Adhyāya) upto Ṛṇādāna	**25**
		TOTAL	**100**

UG III: SEMESTER V MAJOR/ CORE COURSES [CREDIT: 4X4=16]			
SAN-H-CC9-5-Th/Tu	**PĀṆINIAN GRAMMAR AND COMPOSITION** **SIDDHĀNTAKAUMUDĪ OF BHAṬṬOJĪ DĪKṢITA** **Reference Books:** 1. Vaiyākaraṇasiddhāntakaumudī (Saṃjñā-Paribhāṣā-Prakaraṇa) Ayodhyanath Sanyal Sastri, Burdwan University 2. Vaiyākaraṇasiddhāntakaumudī (Sandhi-prakaraṇa), Karunasindhu Das, Sanskrit Pustak Bhandar. 3. Vaiyākaraṇasiddhāntakaumudī (Ajanta-Puṁliṅga): Mrinal Kanti Gangopadhyay, Sanskrit Book Depot. 4. SiddhāntaKaumudī (Pūrvārdham) with Bālamanoramā and Tattvabodhinī, MLBD.	**UNIT-I: THEORY** **SAṂJÑĀ-PRAKARAṆA & PARIBHĀṢĀ-PRAKARAṆA**	**30**
		UNIT-II: THEORY **AC-SANDHI-PRAKARAṆA**	**25**
		UNIT-III: THEORY **AJANTA-PUṂLIṄGA-PRAKARAṆA (RĀMA & SARVA ONLY)**	**20**
		UNIT-IV: TUTORIAL **SANSKRIT ESSAY (250-300 WORDS)**	**25**
		TOTAL	**100**
SAN-H-CC10-5-Th/Tu	**INDIAN PHILOSOPHY: INTRODUCTION & ACQUAINTANCE** 1. A History of Indian Philosophy, S.N. Dasgupta 2. Indian Philosophy, S. Radhakrishnan 3. Introduction to Indian Philosophy, S.C. Chatterjee and D. M. Datta, Calcutta University 4. The Elements of Indian Logic and Epistemology, Chadrodaya Bhattacharya 5. Bharatiya Darshaner Ruparekha, Amit Bhattacharjee 6. Tarkasaṃgrahaḥ-(Ed.) Sri Krishna Vallabhacharya, Chaukhamba Vidyabhaban,Varanasi. 7. Tarkasaṃgrahaḥ-(Ed.) Panchanan Sastri, Mahabodhi Book Agency, Kolkata. 8. Tarkasaṃgrahaḥ-(Ed.) Narayanachandra Goswami, Sanskrit Pustak Bhandar, Kolkata. 9. Tarkasaṃgrahaḥ-(Ed.) Niranjan swarup Brahmachari, Sanskrit Book Depot, Kolkata. 10. Tarkasaṁgraha, Birupaksha Nanda, Sri Ramkrishna Math, Madras 11. Bharatiya Darsan, Debiprasad Chattopadhyay, 1960 (paperback 2020) NBA	**UNIT-I: THEORY** **GENERAL INTRODUCTION TO INDIAN PHILOSOPHY: ĀSTIKA & NĀSTIKA DARŚANA**	**35**
		UNIT-II: THEORY **TARKASAṂGRAHA OF ANNAṂBHAṬṬA**	**40**
		UNIT-III: TUTORIAL **BṚHADĀRAṆYAKOPANIṢAD (4/4-5)** **WITH ŚĀṄKARABHĀṢYA**	**25**

	12. Tarkasaṃgraha, Translation of Prof. V.N. Jha 13. Bṛhadāraṇyaka Upaniṣad, Karunasindhu Das and Becharam Ghosh, Sanskrit Pustak Bhandar		
		TOTAL	**100**
SAN-H-CC11-5-Th/Tu	**VEDIC LITERATURE AND GRAMMAR** I. SELECT HYMNS FROM THE VEDAS II. SOME ASPECTS OF VEDIC GRAMMAR AND PADAPĀṬHA **Reference Books:** 1. Vedic Selections (Part I, Part II & Part III): Ed. K. C. Chatterjee, University of Calcutta. 2. Vedic Selections (Part I & Part II): Ed. Bhabani Prasad Bhattacharya and Taraknath Adhikari, Sanskrit Book Depot, Kolkata 3. Vaidika Pāṭhasaṃkalana: Ed. Shanti Bandyopadhyay, Sadesh, Kolkata 4. Vaidic Pathasanchayan, Didhiti Biswas, West Bengal State Book Board 5. Veda-Saṃkalana (Part I & Part II): Ed. Uday Chandra Bandyopadhyay, Sanskrit Book Depot, Kolkata 6. Vaidik Sankalan, Taraknath Adhikari and Samir Mandol, Sanskrit Book Depot 7. Pāṇinīya Vaidika Vyākaraṇa: Ayodhyanath Sanyal Shastri, Sanskrit Pustak Bhandar, Kolkata 8. Vaidika Vyākaraṇa: Amar Kumar Chattopadhyay, Sanskrit Pustak Bhandar, Kolkata 9. Vaidika Vyākaraṇa: Ed. Tapan Sankar Bhattacharyya, Sanskrit Book Depot, Kolkata 10. Vaidika vyākaraṇam: Ed. Shyamacharan Kaviratna, Sanskrit Pustak Bhandar, Kolkata 11. Veder Bhāṣā o Chanda, Gauri Dharmapal, West Bengal State Book Board 12. Vedic Grammar for Students, A.A. Macdonell, MLBD	**UNIT-I: THEORY** **ṚGVEDIC HYMNS WITH SĀYAṆA'S COMMENTARY** Agnisūkta (ṚV I.1) Akṣasūkta (ṚV X.34) Hiraṇyagarbhasūkta (ṚV X.121) Indrasūkta (ṚV II.12) Devī/ Vāc-sūkta (ṚV X.125)	**30**
		UNIT-II: THEORY **HYMNS FROM YAJURVEDA & ATHARVAVEDA** **Yajurveda:** Rudrādhyāya 16th chapter (1-14) **Atharvaveda:** Sāṃmanasyasūkta (AV III.30) Bhūmisūkta (AV XII.1-12)	**25**
		UNIT-III: THEORY **EXCERPTS FROM THE BRĀHMAṆA LITERATURE** 1) Śūnaḥśepokhyāna of Āitereya Brāhmana -33rd chapter 33rd canto) 2) Manumatsyakathā of Śatapathabrāhmaṇa 1st kāṇḍa of Madhyandinaśākhā (1-6)	**20**
		UNIT-IV: TUTORIAL **VEDIC GRAMMAR** 1) Vedic accent 2) Rules of Padapāṭha 3) Padapāṭha-sādhana 4) Equivalent words from Vedic to Classical Sanskrit	**25**
		TOTAL	**100**

<table>
<tr><td rowspan="4">SAN-H-CC12-5-Th/Tu</td><td rowspan="4">INDIAN EPIGRAPHY AND PALEOGRAPHY

Reference Books:
1. A Guide to Epigraphy, Richard Salomon
2. Bhāratīya Abhilekha, S.S. Rana. Delhi: Bharatiya Vidya Prakashan, 1978.
3. Bhāratīya Purālipi, Rajvali Pandey. Allahabad: Lokabharati Prakashan, 1978.
4. Bhāratīya Abhilekha o Pratnalipi, Debarchana Sarkar, A. Tripathi, S. Pradhan
5. Bhāratiyaprācinalipimāla, Gaurishankar Hirachandra Ojha. Ajmer: 1918.
6. Corpus of Bengal Inscriptions. Ramaranjan Mukherjee and Sachindra Kumar Maiti. Kolkata: Firma K. L. Mukhopadhyay. 1967.
7. Ashoker Abhilekha, D.C. Sarkar. Mahabodhi Society.
8. Epigraphia Indica, E. Hultzsch. Archeological Survey of India.
9. Indian Paleography , George Būhler, Munshiram Manoharlal.
10. Pillai, Swami Kannu & K.S. Ramchandran: Indian Chronology (Solar, Lunar and Planetary), Asian Educational service, 2003.
11. Satyamurty, K. A Text Book of Indian Epigraphy, Lower Price Publication, Delhi, 1992.
12. Nityakāler tui purātan. Ed. And Trans. by Debarchana Sarkar. Kolkata: Paschimbanga Rajya Pustak Parsad, 2013.
13. Select Inscriptions (Vol. I) - D.C. Sircar, Calcutta, 1965.
14. Select Inscriptions Bearing on Indian History and Civilization. Vol. II., Ed by D.C. Sircar. Vol.II, Delhi: Motilal Banarsidass, 1983.</td><td>UNIT-I: THEORY
GENERAL ACQUAINTANCE WITH EPIGRAPHY & INSCRIPTIONS
Introduction to Epigraphy and types of Inscriptions
Importance of Indian Inscription in the Reconstruction of Ancient Indian History and Culture</td><td>20</td></tr>
<tr><td>UNIT-II: THEORY
STUDY OF SELECTED INSCRIPTION
Mauryan Inscription:
1. Aśoka’s Giranāra Rock Edict-1
2. Aśoka’s Sāranātha Pillar Edict
Post Mauryan Insctiption:
1. Junāgaḍh Inscription of Rudradāman
2. Hātigumpha Inscription of Kharvela (Cedi-Sātavāhana)
Gupta Inscription:
1. Mehrauli Iron Pillar Inscription of Candra
2. Allahabad Inscription of Samudragupta
Bengal Inscription:
Damodarpur Copper-Plate Inscription of the time of Kumāragupta I (448 A.D.)</td><td>35</td></tr>
<tr><td>UNIT-III: THEORY
CHRONOLOGY
1. System of dating Inscriptions (Chronograms)
2. Main eras used in Inscriptions-Vikrama, Śaka And Gupta Era</td><td>20</td></tr>
<tr><td>UNIT-IV: TUTORIAL
PALEOGRAPHY
1. Antiquity of the Art of Writing
2. Writing Materials, Inscribers.
3. Introduction to Ancient Indian Scripts</td><td>25</td></tr>
<tr><td></td><td></td><td>TOTAL</td><td>100</td></tr>
<tr><td colspan="4">UG III: SEMESTER VI
MAJOR/ CORE COURSES [CREDIT: 3X4 =4]</td></tr>
<tr><td>SAN-H-CC13-6-Th/Tu</td><td>VEDĀṄGAS: VYĀKARAṆA & NIRUKTA</td><td>UNIT-I: THEORY
Mahābhāṣya of Patañjali (Paspaśāhnika)</td><td>25</td></tr>
</table>

	1. Mahābhāṣya of Patañjali (Paspaśāhnika), Kshitish Chandra Chatterjee 2. Mahābhāṣya of Patañjali (Paspaśāhnika), Sanghamitra Sengupta 3. Mahābhāṣya of Patañjali (Paspaśāhnika), Sasibhushan Mishra 4. Mahābhāṣya of Patañjali (Paspaśāhnika), Trans. and Ed. Dandiswami Damodar Ashram, 1982. 5. Niruktam, Amareshwar Thakur, Calcutta University 6. The Nighaṇṭu & the Nirukta, Lakshman Sarup, MLBD 7. Vaiyākaraṇasiddhāntakaumudī (Tiṅante bhvādiprakaraṇam), Krshnananda Tirtha. M.L. Dey 8. Vaiyākaraṇasiddhāntakaumudī (Tiṅante bhvādiprakaraṇam), Parboty Chakraborty 9. SiddhāntaKaumudī (Uttarārdham) with Bālamanoramā and Tattvabodhinī, MLBD	**UNIT-II: THEORY** **Siddhāntakaumudī: Samāsa-prakaraṇa**	**25**
		UNIT-III: THEORY **Nirukta: Chapter – I (Select Portion)** 1. Various Etymologies of the word 'Nighaṇṭu' in the Nirukta. 2. Classification of the Vedic words according to the Nirukta. 3. Six categories of Bhāvavikāras as depicted in the Nirukta 4. Discussion on the nature of Prefixes in the Nirukta	**25**
		UNIT-IV: TUTORIAL **SIDDHĀNTAKAUMUDĪ: TIṄANTA-PRAKARAṆA (*BHŪ*- & *EDH*-)** **Laṭ & Liṭ**	**25**
		TOTAL	**100**
SAN-H-CC14-6-Th/Tu	**INDIAN PHILOSPHY: SĀṂKHYA-YOGA AND PŪRVAMĪMĀṂSĀ** **Reference Books:** 1. Sāṃkhya-Kārikā, Bengali tr. Swami Bhavaghanananda, Udbodhan Karyalaya. 2. Pātañjala-darśanam, Durgacharan Samkhyavedantatirtha and Amit BhaTTacharya, Sanskrit Book Depot. 3. Arthasaṃgraha, Ed. Narayan Ram Acharya, Nirnaya Sagara Press 4. Arthasaṃgraha - 'Mimansa Artha Sangraha Kaumudy Artha Prakashika', Madhava Janardana Ratate, Bharatiya Vidya Bhavan	**UNIT-I: THEORY** **SĀṂKHYA-KĀRIKĀ (1-39)**	**25**
		UNIT- II: THEORY **PĀTAÑJALA-YOGA** 1) Samādhipāda 2) Sādhanapāda	**30** **20**
		UNIT- III: THEORY **MĪMĀṂSĀ: ARTHASAṂGRAHA**	**25**
		TOTAL	**100**
SAN-H-CC15-6-Th/Tu	**ADVAITA VEDĀNTA: INTRODUCTION AND AQCUAINTANCE** **Reference Books:** 1. Vedāntasāra of Sadānanda Yogīndra, Ed. & tr. Swami Nikhilananda, Advaita Ashrama 2. Vedāntasāraḥ / Sadananda Yogīndra, d. Brahmachari Medha Chaitanya, Pandulipi, Kolkata.	**UNIT–I: THEORY** **VEDĀNTASĀRA OF SADĀNANDA-YOGĪNDRA**	**30**
		UNIT-II: THEORY **KAṬHOPONIṢAD WITH ŚAṀKARA'S COMMENTARY**	**25**
		UNIT-III: THEORY **CHĀNDOGYOPANIṢAD (6TH CHAPTER) WITH ŚAṀKARA'S COMMENTARY**	**20**

	3. Kaṭhoponiṣad with the Commentary of Śaṁkarācārya, Swami Gambhirananda, Advaita Ashrama 4. Kenoponiṣad with the Commentary of Śaṁkarācārya, Swami Gambhirananda, Advaita Ashrama 5. *The Early Upanishads*, Patrick Olivelle (2014), Oxford University Press. 6. Chāndogyopaniṣad (6th Chapter) with Śaṁkara's Commentary, with Bengali tr., Pub. Satish Chandra Mukhopadhyay, Basumati Shastragrantha.	**UNIT-IV: TUTORIAL** **KENOPANIṢAD WITH ŚAṀKARA'S COMMENTARY**	**25**
		TOTAL	**100**

UG IV: SEMESTER VII **MAJOR/ CORE COURSES [CREDIT: 4X4=16]**			
SAN-H-CC16-7-Th/Tu	**INDIAN LOGIC: BUDDHIST AND NAVYANYĀYA SYSTEM** **Reference Books:** 1. The Sarva-Darsana-Sangraha of Madhava Acharya or Review of the Different Systems of Hindu Philosophy, E.B. Cowell, Sri Satguru Publications. 2. Sarva Darsana Samgraha of Madhavacharya with commentary of Vasudeva Sharma Abhyankar Vasudev Shastri Abhyankar, BORI. 3. Bhāṣāpariccheda, Gopal Chandra Mukhopadhyay, Burdwan University 4. Bhāṣāpariccheda, Rajendra Chandra Shastri, Kalikata. 5. Bhāṣāpariccheda, Mrinalkanti Gangopadhyay, Sanskrit Book Depot. 6. A primer of Indian Logic, Kuppuswami Sastri, Madras, 1951.	**UNIT-I: THEORY** **SARVADARŚANASAṀGRAHA OF MĀDHAVĀCĀRYA (BUDDHISM)**	**30**
		UNIT-II: THEORY **BHĀṢĀPARICCHEDA OF VIŚVANĀTHA:** 1. Pratyakṣakhaṇḍa **2.** Anumānakhaṇḍa	**50**
		UNIT-III: TUTORIAL **BHĀṢĀPARICCHEDA OF VIŚVANĀTHA:** Śābdakhaṇḍa	**25**
		TOTAL	**100**

<table>
<tr><td>SAN-H-CC17-7-Th/Tu</td><td>VEDIC STUDIES

Reference Books:
1. A Vedic Grammar for Students, A.A. Macdonell, MLBD.
2. Pāṇinīya Vaidika Vyākaraṇa: Ayodhyanath Sanyal Shastri, Sanskrit Pustak Bhandar, Kolkata
3. Vaidika Vyākaraṇa: Amar Kumar Chattopadhyay, Sanskrit Pustak Bhandar, Kolkata
4. Vaidika Vyākaraṇa: Ed. Tapan Sankar Bhattacharyya, Sanskrit Book Depot, Kolkata
5. Vaidika vyākaraṇam: Ed. Shyamacharan Kaviratna, Sanskrit Pustak Bhandar, Kolkata
6. Veder Bhāṣā o Chanda, Gauri Dharmapal, West Bengal State Book Board
7. Śrautapāṭha, Ed. Satkari Mukhopadhyay, Calcutta University
8. Vaidik Sankalan, Taraknath Adhikari and Samir K. Mandol, Sanskrit Book Depot
9. Veda-granthamālā, Ramkrishna Mission Institute of Culture</td><td>UNIT-I: THEORY
VEDIC GRAMMAR
1) Vedic Declension
2) Vedic Conjigation: Aorist, Subjunctive
3) Vedic Upasarga
4) Vedic Infinitives
5) Vedic Gerundives: Tavya and Anīyar</td><td>25</td></tr>
<tr><td></td><td></td><td>UNIT-II: THEORY
ṚGVEDA
Visvāmitra-nadī Sūkta- ṚV III.33
Uṣā Sūkta- ṚV V.80
Puruṣa Sūkta ṚV X.90
Purūrava-Urvaśī Sūkta ṚV X.95
Nāsadīya Sūkta ṚV X.129</td><td>30</td></tr>
<tr><td></td><td></td><td>UNIT-III: THEORY
ŚUKLA-YAJURVEDA & ATHARVAVEDA
Śivasaṃkalpa Sūkta ŚUV .34
Kāla Sūkta AV IX.19
Varuṇa Sūkta AV IV.16</td><td>20</td></tr>
<tr><td></td><td></td><td>UNIT-IV: TUTORIAL
BRĀHMAṆA LITERATURE
Śatapathbrāhmaṇa (Pañcamahāyajña XI. 5.6 1-9)
Taittirīyabrāhmaṇa (Vidyāpraśaṃsā 2.7-9)</td><td>25</td></tr>
<tr><td></td><td></td><td>TOTAL</td><td>100</td></tr>
<tr><td>SAN-H-CC18-7-Th/Tu</td><td>VEDIC LITERATURE: EXEGESIS

Reference Books:
1. Vaidic Sāhityer Rūparekhā, Shanti Bandopadhyay.
2. Veder Parichay, Yogiraj Basu.
3. Vaidic Sāhitya (Veda Mīmāṃsā, 1st Volume), Sri Anirban.
4. Saṃskṛta Sāhityer Itihās, Dhirendranath Bandopadhyay.
5. Saṃskṛta Sāhityer Itihās, Jahnabicharan Bhowmick.
6. A History of Sanskrit Literature, A. B. Keith, MLBD, Delhi.
7. A Concise History of Sanskrit Literature, Gaurinath Shastri. MLBD, Delhi.
8. Indian Literature (Vol. I-III), Maurice Winternitz. MLBD, Delhi.</td><td>UNIT-I: THEORY
(a) The time of the Vedas
(b) Eastern and Western interpretations of the Vedas</td><td>40</td></tr>
<tr><td></td><td></td><td>UNIT-II: THEORY
ṚGVEDABHĀṢYOPAKRAMAṆIKĀ</td><td>35</td></tr>
<tr><td></td><td></td><td>UNIT-III: TUTORIAL
Nirukta (Chapter VII, 1-14)</td><td>25</td></tr>
</table>

	9. Religion and Philosophy of the Vedas, A.B. Keith, MLBD 10. History of Indian Literature, Part 1, Vol. I, Jan Gonda. 11. Niruktam, Amareswar Thakur, Calcutta University. 12. Ṛgvedabhāṣyopakramaṇik, Santi Bandyopadhyay, Sanskrit Pustak Bhandar 13. Ṛgvedabhāṣyopakramaṇik, Amar Kumar Chattopadhyay, Sanskrit Pustak Bhandar.		
		TOTAL	**100**
SAN-H-CC19-7-Th/Tu	**SANSKRIT POETICS** **Reference Books:** 1. Kāvyaprakāśa (with Eng Translation), Ganganath Jha, Bharatiya Vidya Bhavan Prakashan, Varanasi. 2. Saṭīka Kāvyaprakāśa (1-5 Ullāsa), Bijaya Goswami, Sadesh 3. Sāhityadarpaṇa– (Ed.) Bimalakanta Mukhopadhyay, Pustak, Kalikata. 4. Sāhityadarpaṇa of Viśvanātha Kavirāja, (Ed.) Yogeshwar Dutta Sharma, Nag Publishers, Delhi. 5. Sāhityadarpaṇa of Viśvanātha Kavirāja, (Ed.) P.V. Kane, Motilal Banarsidass, New Delhi. 6. Mahākavi-śrīharṣadevakṛtā Ratnāvali-nāṭikā (Prakāśa-ṭīkopetā), Haridāsa-samskṛta-granthāvalī, Chaukhamba Sanskṛta Series. 7. Dhvanyāloka of Ānandavardhana, K. Krishnamoorthi, K. R. Srinisvasa Iyengar, MLBD 8. Dhvanyāloka of Ānandavardhana, Bishnupada Bhattacharya, Firma KLM.	**UNIT-I: THEORY** **KĀVYAPRAKAŚA (ULLĀSA 1 AND 2)**	**25**
		UNIT-II: THEORY **SĀHITYADARPAṆA (1-3: RASA THEORY)**	**25**
		UNIT-III: THEORY **RATNĀVALĪ**	**25**
		UNIT-IV: TUTORIAL **DHVANYĀLOKA (1-2)**	**25**
		TOTAL	**100**
UG IV: SEMESTER VIII **MAJOR/ CORE COURSES [CREDIT: (3X4 =12) + (3X4=12)]**			
SAN-H-CC20-8-Th/Tu	**MODERN SANSKRIT LITERATURE**	**UNIT-I: THEORY** **GENERAL SURVEY OF MODERN SANSKRIT LITERATURE**	**25**

	Reference Books: 1. Mahāmahopādhyāya Haridāsa Siddhāntavāgīśera Sārasvata sādhanā, Rita Chattopadhyay, Sanskrit Pustak Bhandar. 2. Modern Sanskrit Literature: Some observations, Rita Chattopadhyay. Sanskrit Pustak Bhandar 3. Modern Sanskrit Dramas of Bengal - Rita Chattopadhyay, Sanskrit Pustak Bhandar 4. Ādhunika Saṃskr̥ta Sāhitya (1920-2010) Choṭagalpa O Nāṭaka, Rita chattopadhyay. Progressive Publishers. 5. Saṃskr̥ta Kāvyacarcāy Bāṅālī – Sekāl O Ekāl, Anjalika Mukhopadhyay, Sanskrit Pustak Bhandar. 6. Sītānātha Ācārya—Kavi O Prābandhika, Rita chattopadhyay. Sanskrit Book Depot. 7. Mahamahopadhyaya Haridasa Siddhantavagīśa - An Appraisal - Rita Chattopadhyay, Sanskrit Pustak Bhandar. 8. Atha Kim- Siddheśvara Chaṭṭopādhyāya, ed. by Rita chattopadhyay, Sanskrit Pustak Bhandar. 9. Bhāvavilasitam, Sitanath Acharya, Sanskrit Pustak Bhandar. 10. Bhāratavarṣe ādhunikasaṃskr̥tasāhityam: Vihaṅgamadr̥ṣṭyā Pariśīlanam, Śubhrajit Senaḥ, Sanskrit Pustak Bhandar. Tarapada Bhattacharyya 11. " Paṭṭakāṣṭhikā: A Critical Edition" by K. V. Abhyankar and G. V. Devasthali (1978) 12. "The Pattakastika: A Study" by R. G. Bhandarkar (1883) 13. " Paṭṭakāṣṭhikā: A Rare Sanskrit Text" by V. V. Mirashi (1966) 14. "Śaivalī: A Comprehensive Study" by K. V. Abhyankar (1985) 15. Śiśuyuvadurdaivavilasita by Sitanath Acharya, Sanskrit Pustak Bhandar 16. Kathā-dvādaśa, Tarapada Bhattacharya, Sanskrit Sahitya PariShad, 2004.	**UNIT-II: THEORY** **KATHĀ** Śaivalī, Paṭṭakāṣṭhikā	**25**
		UNIT-III: THEORY **NĀṬYA** Atha Kim	**25**
		UNIT-IV: TUTORIAL Śiśuyuvadurdaivavilasitam	**25**
		TOTAL	**100**

SAN-H-CC21-8-Th/Tu	**ANCIENT INDIAN TECHNICAL LITERATURE** **Reference Books:** 1. A Concise History of Science in India, D.M. Bose, S.N. Sen, B.V. Subbarayappa, Indian National Science Academy, New Delhi. 2. A History of Sanskrit Literature, A.B. Keith, MLBD. 3. Science and Technology in Ancient India, Keshav Shrushti, Vijñāna Bhārati Publication. 4. Caraka Saṃhitā Sanskrit Text with English Translation- Sūtrasthāna, General Principles (Volume I), Dr. Shashirekha H. K. and B.S. Sukumar, Chaukhamba Publications. 5. Caraka Saṃhitā, Ed. Brahmananda Tripathi, Chaukhamba Sanskrit Prakashan 6. Prnciples of Tridoṣa in Ayurveda – Kaviraj D.N.Sen, RSS, Delhi. 7. Studies in History of Sciences – Ed. S Chatterjee, Dasgupta & Ghosh, Asiatic Society, Kolkata -1997	**UNIT-I: THEORY** **HISTORY OF ANCIENT INDIAN TECHNICAL LITERATURE: A SURVEY**	**25**
		UNIT-II: THEORY **CARAKASAṂHITĀ – SŪTRASTHĀNA (CHAPTER- I)**	**25**
		UNIT-III: THEORY **DĪRGHAJĪVITĀDHYĀYA (VERSES: 24-70)**	**25**
		UNIT-IV: TUTORIAL **A BRIEF SURVEY OF ĀYURVEDIC LITERATURE**	**25**
		TOTAL	**100**
SAN-H-CC22-8-Th/Tu	**VALUE EDUCATION AND WOMEN'S STUDIES** **Reference Books:** 1. Aitareya &Taittiriya Upanishads with Shankara Bhashya – English Tr. Sitarama Sastri, Madras, 1923. 2. Taittiriya Upanishad, Swami Sharvananda, Ramakrishna Math, Chennai 3. Indian Ethics: Classical Traditions and Contemporary Challenges, Purushottama Bilimoria et al. New Delhi: Oxford University Press. 4. Ethical Philosophies of India, I.C. Sharma, New York, U.S.A. Johnsen Publishing Company 5. Nītiśatakam of Bhartṛhari, Dr. Rajeshwar Kumar Musalgankar. Benaras: Chowkhamba.	**VALUE EDUCATION**	
		UNIT-I: THEORY Taittirīyopaniṣad (Śīkṣāvallī) With Śaṁkara's Commentary	**25**
		UNIT-II: THEORY **A SURVEY OF ANUŚĀSANAPARVAN OF MAHĀBHARATA AS ETHICAL LITERATURE**	**25**
		UNIT-III: THEORY **NĪTIŚATAKA**	**25**
		UNIT-IV: TUTORIAL **WOMEN'S STUDIES** 1) A Diachronic study of position of Women in ancient India 2) The Compositions of Women authors 3) Financial right of women in ancient India	**25**

	6. Nītiśatakam of Bhartṛhari, Sanjit Kumar Sadhukhan, S. Sarkar. Kolkata: Sanskrit Book Depot. 7. Position of Women in Hindu Civilization: From Prehistoric Time to the Present Day, A.S. Altekar, MLBD. 8. Women in Ṛgveda, B.S. Upadhyay,1941. 9. Prācīn Bhārate Nārī, Kshitimohan Sen, Visva-bharati, 1950. 10. The Contribution of Women to Sanskrit Literature, J.B. Chaudhuri, Cosmo Publications 11. Women Seers of the Ṛgveda, Mau Das Gupta, DK Printworld, New Delhi. 12. Indian Women Seers and Their Songs: The Unfettered Note, Dr. Subhadra Desai, IGNCA, New Delhi. 13. Ādhunik Sanskrit Mahilā Nāṭakkār—Mira Dwivedi. Parimal Publications. 14. Economic Condition of Women in Ancient India (c. 1500 B.C. to 1200 A.D.), Dr. Anita Singh, Pilgrims Publication. 15. Economic Status of Women in Ancient India, Savita Vishnoi, Kusumanjali Prakashan, Meerut.		
		TOTAL	**100**
***SAN-H-CC23-7-Th/Tu**	**GRAMMAR AND GRAMMATICAL LITERATURE** **Reference Books:** 1. Siddhāntakaumudī of Bhaṭṭojī-dīkśita, MLBD. 2. Pāṇinīyam Liṅgānuśāsanam, Ishawar Chandra, Chowkhamba Sanskrit Pratishthan 3. Liṅgānuśāsanam, Sudarshan Dev Acharya, New Delhi Dayanand Veda Vidyalaya 4. Vākyapadīya (Brahmakāṇḍa) Vol. 1 & 2. Ed. And Beng Trans. Bishnupada Bhattacharya, West Bengal State Book Board. 5. Vākyapadīye Brahmakāṇḍa, Mrinalkanti Gangopadhyay, Sanskrit Book Depot	**UNIT-I: THEORY** **SIDDHĀNTAKAUMUDĪ OF BHAṬṬOJĪ-DĪKṢITA** Parasmaipada-Ātmanepadavidhāna	25
		UNIT-II: THEORY **LIṄGĀNUŚĀSANA**	25
		UNIT-III: THEORY **TADDHITAPRATYAYA: APATYĀRTHA, MATVARTHĪYA**	25
		UNIT-IV: TUTORIAL **VĀKYAPADĪYA- BRAHMAKĀṆḌA**	25
		TOTAL	**100**

***SAN-H-CC24-8-Th/Tu**	**INDIAN PHILOSOPHY THROUGH AUTHORITATIVE TREATISES** **Reference Books:** 1. Vedāntadarśana, Beng. Tr. & exposition Swami Viswarupananda, Ed. Swami Chidghananda Puri & Anand Jha Bhattacharya, Udbodhan Karyalaya, Kolkata 2. Brahmasūtra, Pratham adhyay, Pratham khanda, Jadunath Majumdar Vidyavachaspati. 3. Sarva Darsana Samgraha of Madhavacharya with commentary of Vasudeva Sharma Abhyankar Vasudev Shastri Abhyankar, BORI. 4. The Sarva-Darsana-Sangraha of Madhava Acharya or Review of the Different Systems of Hindu Philosophy, E.B. Cowell, Sri Satguru Publications. 5. Sarvadarsanasamgraha. Section on 'Carvaka'. Madhava Acarya, trans. E.B. Cowell & A.E. Gough. London: Kegan Paul, Trubner & Co. Ltd, 1904, pp .2-11. 6. Nyāyasiddhāntamuktāvalī of Viśvanātha, English Translation: Nyaya Philosophy of Language,Tr. by John Vattanky , S. J. , Sri Satguru Publications, Delhi, 1995. 7. Nyāyasiddhāntamuktāvalī with Bālabodhinī Commentary on Pratyakṣa-khaṇḍa. Pub. Rashtriya Sanskrit Sansthan underSir Ganganath Jha Sanskrit Series. 1940 8. Śabdakhaṇḍa of the Nyāyasiddhāntamuktāvalī, V. N. Jha, Sambhāṣā Vol. 13 (1992). 9. Navyanyāya-bhāṣāpradīpa, With Suprabhā Commentary & Bengali tr. MM. Kalipada Tarkacharya, Sanskrit College, 1956. 10. A Primer of Navya Nyaya Language and Methodology: (Navya-nyāya-bhāṣā-pradīpa of MM Mahesha Chandra Nyayaratna), Ujjwala Jha, The Asiatic Society, Kolkata. 11. Tarkabhāṣā of Keśava Miśra, S.R. Iyer, Chaukhamba Orientalia.	**UNIT-I: THEORY** **BRAHMASŪTRA (1.1) WITH ŚAṀKARA'S COMMENTARY**	**25**
		UNIT-II: THEORY **SARVADARŚANASAṂGRAHA-(CĀRVĀKA, ARHAT)**	**25**
		UNIT-III: THEORY **1. NYĀYASIDDHĀNTAMUKTĀVALĪ: ŚABDAKHAṆḌA** **2. NAVYANYĀYABHĀṢĀPRADĪPA (BY ŚRĪMAHESH CHANDRANYĀYATĪRTHA)**	**25**
		UNIT-IV: TUTORIAL **TARKABHĀṢĀ**	**25**

	12. Tarkabhāṣā of Keśava Miśra, Bengali t. & annoted, Gangadhar Kar, Mahabodhi Society, Kolkata. 13. Tarkabhāṣā of Keśava Miśra, Bengali tr. Satyajit Layek, Sanskrit Book Depot. 1998.		
		TOTAL	**100**
***SAN-H-CC25-8-Th/Tu**	**SANSKRIT LITERATURE AND LITERARY CRITICISM** **Reference Books:** 1. The Daśarūpaka of Dhanañjaya – A.N. Pandey – Bharatiya Vidya Prakashan, Varanasi. 2. Daśarūpaka (in Bengali), Sitanath Acharya and Debkumar Das, Sanskrit Pustak Bhandar. 3. Asvaghosa's Buddhacarita or Acts of the Buddha (Sanskrit text with English Translation), E.H. Johnston, Munshiram Manoharlal. 4. Buddhacarita, Canto I, Sanskrit Text Ed.& Hindi tr. Dr. Jainarayan Shukla, Hansa Prakashan, Jaipur. 5. Buddhacaritam (prathamaḥ sargaḥ), Dr. Alaka Chakrabarti, Sanskrit Book Depot. 6. The Śiśupālavadha of Māgha: with the commentary (Sarvaṅkaṣā) of Mallinātha, edited by Pandit Durgāprasād and Pandit Śivadatta of Jeypore. Bombay, Nirnaya Sagar Press. 7. Śiśupālavadham 1st sarga with Commentary and Bengali tr., ed. Dr. Satyanarayan Chakrabarti, Sanskrit Pustak Bhandar	**UNIT-I: THEORY** **DAŚARUPAKA (1ST AND 2ND CHAPTER)**	**25**
		UNIT-II: THEORY **NĀṬYAŚĀSTRA OF BHĀRATA (1ST AND 2ND CHAPTER)**	**25**
		UNIT-III: THEORY **BUDDHACARITA (1ST SARGA)**	**25**
		UNIT-IV: TUTORIAL **ŚIŚUPĀLAVADHA (1ST SARGA)**	**25**
		TOTAL	**100**

COURSE CODE	NAME OF THE COURSE	COURSE CONTENTS	MARKS
SYLLABUS FOR 4-YEAR B.A. HONS. & HONS. WITH RESEARCH COURSES OF STUDIES **UG I: SEMESTER I** **SANSKRIT** **MINOR COURSES [CREDIT: 1 x 4 = 4]**			
SAN-MN-1-1-Th/Tu	**GENERAL GRAMMAR AND METRE** **Reference Books:** 1. Vyākaraṇa Kaumudī. (Ed.) Durgācaraṇa Sāṃkhyavedāntatīrtha. Sanskrit book Depot. 2. Helps to the Study of Sanskrit. Janakinath Sastri. 3. Pāṇinīyam. Lahiri & Sastri. Sanskrit Book Depot. 4. The Students' Guide to Sanskrit Composition. V.S. Apte. 5. Chandomañjarī. (Ed.) Gurunātha Vidyānidhi.	**UNIT-I: THEORY** **GENERAL GRAMMAR**	**75**
		1) Declension – nara, muni, pati, sudhī, sādhu, pitṛ, latā, nadī, mati, badhū, mātṛ, phala, vāri, madhu, guṇin, vaṇij, bhūbhṛt dhāvat (in 3 genders), ātman, karman, vedhas, payas, Pronouns: asmad, yuṣmad, idam, yad, tad, kim, adas, sarva (in 3 genders), Numerals: eka, dvi, tri, catur, pañcan, ṣaṭ, aṣṭan (in 3 genders)	10
		2) Conjugation – bhū-, kṛ-, gam-, vad-, pā-, labh-, sthā-, grah-, as-, sev-, krī-, dā-, śru-, ci-, dṛś-, likh-, paṭh-, krīḍ-, cur-, khād- (Laṭ - Present, Loṭ- Imperative Mood, Laṅ- Past, Vidhiliṅ- Potential Mood, Lṛṭ- Future).	10
		3) Avyaya – adya, yadā, tadā, iha, śvaḥ, paraśvaḥ, hyaḥ, prātaḥ, sāyam, śanaiḥ, jhaṭiti, uccaiḥ, eva, iva, alam, upari, adhaḥ, vinā, ṛte, antareṇa, antarā, ubhataḥ, paritaḥ, prāk, param, kva, khalu, mā, nanu, tu, katham, hi, aciram.	10
		4) Case ending and Sandhi (Kāraka-Vibhakti, Sandhi)	15+10=25
		5) Suffix – Kṛt: ktvā, lyap, tumun, śatṛ, śānac, kta, ktavatu, tavyat, anīyar yat, lyuṭ, ghañ, ktin. Taddhita: aṇ, iṇ, ḍhak, kha, cha, matvarthīāḥ.	10
		Compound (Samāsa)	10
		UNIT- II: TUTORIAL **METRE FROM CHANDOMAÑJARI**	**25**
		1) Selected topics from Chandomañjarī of Gaṅgādāsa – padyam, vṛttam, akṣaram, gaṇa, laghu, guru, yati.	10
		2) Selected Metres – Indravajrā, Upendravajrā, Upajāti, Śālinī, Bhujaṅgaprayātam, Vaṃśasthavilam, Mālinī, Praharṣiṇī, Rucirā, Śikhariṇī, Vasantatilakam, Mandākrāntā, Śārdūlavikrīḍitam, Sragdharā.	15
		TOTAL	**100**
UG I: SEMESTER II **MINOR COURSES [CREDIT: 1 x 4 = 4]**			
	HISTORY OF SANSKRIT LITERATURE	**UNIT- I: THEORY**	**75**

SAN-MN-2-2-Th/Tu	1. HISTORY OF CLASSICAL SANSKRIT LITERATURE 2. HISTORY OF VEDIC LITERATURE **Reference Books:** 1. Vaidic Sāhityer Rūprekha, Shanti Bandopadhyay. 2. Veder Parichay, Yogiraj Basu. 3. Vaidic Sāhitya (Veda Mīmāṃsā, 1st Volume), Sri Anirban. 4. Saṃskṛ̥ta Sāhityer Itihās, Bandopadhyay, Dhirendranath. 5. Saṃskṛ̥ta Sāhityer Itihās, Jahnabicharan Bhowmick. 6. History of Sanskrit Literature, A. B. Keith. Delhi: MLBD. 7. A Concise History of Sanskrit Literature, Gaurinath Shastri, Delhi: MLBD 8. Indian Literature (Vol. I-III), Maurice Winternitz, Delhi: MLBD. 9. History of Classical Literature, M. Krishnamachariar. Delhi: MLBD. 10. A History of Sanskrit Literature: Classical Period, S.N. De & S.N. Dasgupta. 11. A companion to Sanskrit Literature, Suresh Chandra Bandyopadhyay.	**HISTORY OF CLASSICAL SANSKRIT LITERATURE**	
		1) **Epic literature**- Rāmāyaṇa, Mahābhārata, Purāṇa.	20
		2) **Dṛ̥śyakāvya-** General acquaintance with special reference to the following: Kālidāsa, Bhāsa, Śūdraka, Bhaṭṭanārāyaṇa, Bhavabhūti, Viśākhadatta, Harṣadeva, Rājaśekhara	15
		3) **Śravyakāvya**- General acquaintance with special reference to the following:	30
		a) Poetry Aśvaghoṣa, Kālidāsa, Bhāravi, Māgha, Bhaṭṭi, Śrīharṣa	20
		b) Prose Subandhu, Daṇḍin, Bāṇabhaṭṭa	10
		4) **Narrative literature**- General acquaintance with special reference to the following: Pañcatantra, Hitopadeśa, Kathāsaritsāgara, Vetālapañcaviṃśati	10
		UNIT-II: TUTORIAL **HISTORY OF VEDIC LITERATURE**	**25**
		Ṛ̥gveda, Yajurveda, Sāmaveda, Atharvaveda, Brāhmaṇa, Āraṇyaka, Upaniṣad, Vedāṅga	
		TOTAL	**100**
UG II: SEMESTER III **MINOR COURSES [CREDIT: 1 x 4 = 4]**			
SAN-MN-3-3-Th/Tu	**CLASSICAL SANSKRIT LITERATURE: PROSE & POETRY** **Reference Books:** 1. Raghuvaṃśam of Kālidāsa (1st Canto), (Ed.) Ashoke Kr. Bandyopadhyay, Sadesh, Kolkata. 2. Raghuvaṃśam of Kālidāsa (1st Canto), (Ed.) Uday Chandra Bandyopadhyay, Sanskrit Book Depot, Kolkata. 3. Raghuvaṃśam of Kālidāsa (1st Canto), (Ed.) Anil Chandra Basu, Sanskrit Book Depot, Kolkata. 4. Raghuvaṃśam of Kālidāsa, (Ed.) Gurunath Vidyanidhi, Sanskrit Book Depot, Kolkata.	**UNIT- I: THEORY**	30
		Kālidāsa's Raghuvaṃśa Canto-I. 1-48 (आश्रमयात्रा)	
		UNIT- II: THEORY	30
		Bhāravi's Kirātārjunīya (Canto- 1)	
		UNIT- III: THEORY	15
		Śukanāsopadeśa (अपरे तु...माहात्म्यमुद्भावयति)	
		UNIT – IV: TUTORIAL	**25**
		Daṇḍin's Rājavāhanacarita	

	5. Raghuvaṃśam of Kālidāsa, (Ed.) M. R. Kale, Motilal Banarsidass, New Delhi. 6. Rājavāhanacaritam of Daṇḍin, (Ed.) Satyanarayan Chakraborty, Sanskrit Pustak Bhandar, Kolkata. 7. Rājavāhanacaritam of Daṇḍin, (Ed.) Ashoke Kr. Bandyopadhyay, Sadesh, Kolkata. 8. Rājavāhanacaritam of Daṇḍin, (Ed.) Janesh Ranjan Bhattacharya, B. N. Publication, Kolkata. 9. Śukanāsopadeśa. (Ed.) Nirod Boron Chakraborty, Sanskrit Pustak Bhandar.		
		TOTAL	**100**
UG II: SEMESTER IV **MINOR COURSES [CREDIT: 1 x 4 = 4]**			
SAN-MN-4-4-Th/Tu	**DRAMA AND DRAMATURGY** **Reference Books:** 1. Abhijñānaśakuntalam of Kālidāsa, (Ed.) Satyanarayan Chakroborty, Sanskrit Pustak Bhandar, Kolkata. 2. Abhijñānaśakuntalam of Kālidāsa, (Ed.) Anil Chandra Basu, Sanskrit Book Depot, Kolkata. 3. Abhijñānaśākuntalam of Kālidāsa, (Ed.) C.R. Devadhar & N.G. Suru, Motilal Banarsidass, New Delhi. 4. Abhijñānaśākuntalam of Kālidāsa, (Ed.) M.R. Kale, Motilal Banarsidass, New Delhi. 5. Kālidāsa : Abhijñāna-śakuntalam A Stylistic Study. (Ed.) Ramendra Mohan Bose. Modern Book Agency, Kolkata. 6. Sāhityadarpaṇa of Viśvanātha Kavirāja (Chapter-VI & X), (Ed.) Uday Chandra Bandyopadhyay, Sanskrit Book Depot, Kolkata. 7. Svapnavāsavadattam, Anil Chandra Basu. Sanskrit Book Depot (Bengali) 8. Svapnavāsavadattam of Bhāsa. M. R. Kale. Motilal Banarsidass, New Delhi.	**UNIT- I: THEORY**	25
		Kālidāsa's Abhijñānaśakuntala Act I-IV	
		UNIT- II: THEORY	20
		Kālidāsa's Abhijñānaśakuntala Act V-VII	
		UNIT- III: THEORY	30
		Viśvanātha-Kavirāja's Sāhityadarpaṇa (Chapter VI)- Selected portions on Dramaturgy Rūpaka, Abhinaya, Nāndī, Prastāvanā, Pūrvaraṅga, Characteristic features of Nāṭaka, Sandhi, Arthopakṣepaka, Arthaprakṛti, Avasthā, Vṛtti.	
		UNIT- IV: TUTORIAL	**25**
		Bhāsa's Svapnavāsavadatta	
		TOTAL	**100**
UG III: SEMESTER V **MINOR COURSES [CREDIT: 2 x 4 = 8]**			
SAN-MN-5-5-Th/Tu	**GĪTĀ AND UPANIṢAD** **Reference Books:** 1. Śrīmadbhagavatgītā, Swami Jagadīsvarānanda, Udbodhana Kāryālaya.	**UNIT- I: THEORY** **ŚRĪMADBHAGAVATGĪTĀ SELF MANAGEMENT**	**75**
		a) Concept of a person (Concept of a person) Chapter: 1: Verses: 1-30	25

	2. The Message of the Upanishads, Swami Ranganathananda, Kolkata: Advaita Ashrama. 3. Karmayogaśāstra Religion, Original Sanskrit stanzas with English Translation, Bal Gangadhar Tilak & Balchandra Sitaram Sukthankar, J.S. Tilak & S.S Tilak. 4. Sri Aurobinda- Essays on the *Gītā*, Sri Aurobinda Ashram, Pandichery. 5. The Bhagavadgītā, By S. Radhakrishnan, Harper Collins India. 6. Īśopaniṣad, By Swami Lokeswarananda, RKMIC.	(Jīva as Core and Eight-fold Nature as Cover Kṣetrajña as Core and Kṣetra as Cover). Chapter-13: Verses: 1-2, 5-6, 19-23 (Akṣara as Core and Kṣara as Cover). Chapter-15: Verses: 7-11, 6-19	
		b) Personality Types Personality Types Gītā Chapter: 14: Verses: 5-14 Chapter: 17: Verses: 2-6 Chapter: 17: Verses: 11-21	20
		c) Measures for behavioural Improvement (Measures for behavioural Improvement Control of Senses and Mind). Chapter 2, Verses: 59-60, 64 and 68 Chapter 3, Verses: 41-43 Chapter 6, Verses:19-23 (Right Faith) Chapter 9, Verses:3, 22, 23-28, 30-34 (Recognition of Svadharma- Inner Urge) Chapter 2, Verses: 31, 41-44 Chapter 3, Verses: 4, 5, 8, 9, 27-30, 33-34. Chapter 4, Verses: 18-22 Chapter 5, Verses: 11-12 Chapter 7, Verses: 15, 18, 20-23, 27-29 (Channelizing Innate Urges on Social Lines) Chapter 18, Verses:31, 41-62	30
		UNIT- II: TUTORIAL	**25**
		Īśopaniṣad	
		TOTAL	**100**
SAN-MN-6-5-Th/Tu	**DHARMAŚĀSTRA AND EPIGRAPHY** **Reference Books:** 1. Concise History of Dharmaśāstra- Suresh chandra Bandyopadhyay, MLBD. 2. Dharma and Society- G.H. Mess, Delhi, Gyan Publishing House. 3. History of Dharmashastra (Vol.1 & 2), BORI- P.V. Kane. 4. Manu's Code of Law – (Ed. & Trans.): P. Olivelle (Critical Edition and Translation of the Mānava Dharamaśāstra), OUP, New Delhi, 2006. 5. Manusaṃhitā- (Ed.) Manabendu Bandyopadhyay– Sanskrit Pustak Bhandar. 6. Manusmṛ̥ti with Kullukabhaṭṭa Commentary, (ed.) Chintamani	**UNIT- I: THEORY** **HISTORY OF DHARMAŚĀSTRA**	25
		UNIT- II: THEORY **MANUSAṂHITĀ**	25
		Rājadharma upto Taxation	
		UNIT- III: THEORY **BASIC CONCEPT OF EPIGRAPHY**	25
		i) Introduction to Epigraphy and Types of Inscriptions. ii) History of Epigraphical Studies in India. iii) Importance of Indian Inscriptions in the reconstruction of Ancient Indian History and Culture	
		UNIT- IV: TUTORIAL **HISTORY OF INSCRIPTIONAL LITERATURE**	**25**

	Sastri, Chowkambha Sanskrit Series Office. 7. Manusmṛ̥ti with the 'Manubhāṣya' of Medhātithi Commentary (Vol. 2), (Ed.) Ganganatha Jha. Asiatic Society 8. Manuṭīkāsaṃgraha- (Ed.) J. Jolly, Calcutta, The Asiatic Society. 9. A Guide to Epigraphy, Richard Salomon 10. Bhāratīya Abhilekha, S.S. Rana. Delhi: Bharatiya Vidya Prakashan, 1978. 11. Bhāratīya Purālipi, Rajvali Pandey. Allahabad: Lokabharati Prakashan, 1978. 12. Bhāratīya Abhilekha o Pratnalipi, Debarchana Sarkar, A. Tripathi, S. Pradhan 13. Bhāratiyaprācinalipimāla, Gaurishankar Hirachandra Ojha. Ajmer: 1918. 14. Ashoker Abhilekha, D.C. Sarkar, Mahabodhi Society. 15. Epigraphia Indica, E. Hultzsch. Archeological Survey of India.	Historical importance of the following major Indian Inscriptions: i) Aśokān Inscription ii) Junāgaḍh Inscription of Rudradāman	
		TOTAL	**100**
UG III: SEMESTER VI **MINOR COURSES [CREDIT: 2 x 4 = 8]**			
SAN-MN-7-6-Th/Tu	**INDIAN PHILOSOPHY AND ETHICS** **Reference Books:** 1. A History of Indian Philosophy, S.N. Dasgupta 2. Indian Philosophy, S. Radhakrishnan 3. Introduction to Indian Philosophy, S.C. Chatterjee and D. M. Datta, Calcutta University 4. Indian Ethics: Classical Traditions and Contemporary Challenges, Purushottama Bilimoria et al. New Delhi: Oxford University Press. 5. Ethical Philosophies of India, I.C. Sharma, New York, U.S.A. Johnsen Publishing Company 6. The Elements of Indian Logic and Epistemology, Chadrodaya Bhattacharya 7. Bhāratīya Darśaner Ruparekha, Amit Bhattacharjee 8. Nītiśatakam of Bhartṛ̥hari, Dr. Rajeshwar Kumar Musalgankar. Benaras: Chowkhamba. 9. Nītiśatakam of Bhartṛ̥hari, Sanjit Kumar Sadhukhan, S. Sarkar. Kolkata: Sanskrit Book Depot. 10. Hitopadeśa of Viṣṇuśarmā, Sri Tarakumar Kaviratna. 11. Hitopadeśa (Bengali), Ed. Satyanarayan Chakrabarti, Sanskrit Pustak Bhandar	**UNIT- I: THEORY**	35
		General Introduction to Indian Philosophy: Āstika & Nāstika Darśana	
		UNIT- II: THEORY	30
		Nītiśataka (1-20)	
		UNIT- III: THEORY	10
		A survey of Anuśāsanaparvan of Mahābharata as Ethical Literature	
		UNIT- IV: TUTORIAL **HITOPADEŚA**	**25**
		Mitralābha: Kathā: 2 (Mṛ̥ga-kāka-sṛ̥gāla-kathā) **Sandhi**: Kathā: 2 (Haṃsa-kūrma-kathā) Kathā 3 Anāgatavidhātādīnāṃ matsyānāṃ kathā Kathā 10 Brāhmaṇa-chāga-dhūrtatraya-kathā	
		TOTAL	**100**

SAN-MN-8-6-Th/Tu	**SANSKRIT TECHNICAL LITERATURE** **Reference Books:** **SANSKRIT TECHNICAL LITERATURE** **Reference Books:** 1. Patañjali Yoga Sūtras (Sanskrit text with Translation and Commentary), Swami Vivekananda. 2. Mahābhāṣya of Patañjali (Paspaśāhnika), Kshitish Chandra Chatterjee. 3. Mahābhāṣya of Patañjali (Paspaśāhnika), Sanghamitra Sengupta. 4. Mahābhāṣya of Patañjali (Paspaśāhnika), Sasibhushan Mishra. 5. Mahābhāṣya of Patañjali (Paspaśāhnika), Trans. and Ed. Dandiswami Damodar Ashram, 1982. 6. Caraka Saṃhitā Sanskrit Text with English Translation- Sūtrasthāna, General Principles (Volume I), Dr. Shashirekha H. K. and B.S. Sukumar, Chaukhamba Publications. 7. Sāhityadarpaṇa of Viśvanātha Kavirāja (Chapter-X), (Ed.) Jayashree Chattopadhyay, Sanskrit Pustak Bhandar, Kolkata. 8. Sāhityadarpaṇa– (Ed.) Bimalakanta Mukhopadhyay, Pustak, Kalikata. 9. Sāhityadarpaṇa of Viśvanātha Kavirāja, (Ed.) Yogeshwar Dutta Sharma, Nag Publishers, Delhi. 10. Sāhityadarpaṇa of Viśvanātha Kavirāja, (Ed.) P.V. Kane, Motilal Banarsidass, New Delhi. 11. History of Hindu mathematics Part I & II, by Bibhutibhushan Datta and Avadhesh Narayan Singh. Asia Publishing House, New Delhi. 12. Saṃskr̥ta Sāhityer Itihās, Dhirendranath Bandopadhyay. 13. History of Sanskrit Literature, A. B. Keith. MLBD, Delhi. 14. A Concise History of Sanskrit Literature, Gaurinath Shastri. MLBD, Delhi.	**UNIT- I: THEORY** **HISTORY OF SANSKRIT TECHNICAL LITERATURE**	20
		General acquaintance of i. Medical Science. ii. Music, Painting, Dance. iii. Mathematics & Astronomy iv. Architecture	
		UNIT- II: THEORY **YOGASŪTRA OF PATAÑJALI**	30
		Samādhipāda, Kriyāyoga and Aṣṭāṅgayoga	
		UNIT- III: THEORY **CARAKASAṂHITĀ (SŪTRASTHĀNA)**	25
		UNIT-IV: TUTORIAL **SELECTED ALAṂKĀRAS FROM VIŚVANĀTHA-KAVIRĀJA'S SĀHITYA-DARPAṆA [CHAPTER-10]**	**25**
		Upamā, Rūpaka, Bhrāntimān, Mālopamā, Prativastūpamā, Sandeha, Niścaya, Vibhāvanā, Viśeṣokti, Atiśayokti, Svabhāvokti, Samāsokti, Vyatireka, Dr̥ṣṭānta, Arthāntaranyāsa, Kāvyaliṅga, Apahnuti, Aprastutapraśaṃsā, Utprekṣā.	
		TOTAL	**100**

COURSE CODE	NAME OF THE COURSE	COURSE CONTENTS	MARKS
UG I: SEMESTER I **MDC MAJOR COURSES [CREDIT: 1x 4 = 4]**			
SAN-MD-CC1-1-Th/Tu	**GENERAL GRAMMAR AND METRE** **Reference Books:** 1. Vyākaraṇa Kaumudī. (Ed.) Durgācaraṇa Sāṃkhyavedāntatīrtha. Sanskrit book Depot. 2. Helps to the Study of Sanskrit. Janakinath Sastri. 3. Pāṇinīyam. Lahiri & Sastri. Sanskrit Book Depot. 4. The Students' guide to Sanskrit Composition. V.S. Apte. 5. Chandomañjarī. (Ed.) Gurunātha Vidyānidhi.	**UNIT-I: THEORY** **GENERAL GRAMMAR**	**75**
		1) Declension – nara, muni, pati, sudhī, sādhu, pitṛ, latā, nadī, mati, badhū, mātṛ, phala, vāri, madhu, guṇin, vaṇij, bhūbhṛt dhāvat (in 3 genders), ātman, karman, vedhas, payas, asmad, yuṣmad, idam, yad, tad, kim, adas, sarva (in 3 genders), eka, dvi, tri, catur, pañcan, ṣaṭ, aṣṭan (in 3 genders)	10
		2) Conjugation – bhū-, kṛ-, gam-, vad-, pā-, labh-, sthā-, grah-, as-, sev-, krī-, dā-, śru-, ci-, dṛś-, likh-, paṭh-, krīḍ-, cur-, khād- (Laṭ - Present, Loṭ- Imperative Mood, Laṅ- Past, Vidhiliṅ- Potential Mood, Lṛṭ- Future).	10
		3) Avyaya – adya, yadā, tadā, iha, śvaḥ, paraśvaḥ, hyaḥ, prātaḥ, sāyam, śanaiḥ, jhaṭiti, uccaiḥ, eva, iva, alam, upari, adhaḥ, vinā, ṛte, antareṇa, antarā, ubhataḥ, paritaḥ, prāk, param, kva, khalu, mā, nanu, tu, katham, hi, aciram.	10
		4) Case ending and Sandhi (Kāraka-Vibhakti, Sandhi)	15+10=25
		5) Suffix – Kṛt: ktvā, lyap, tumun, śatṛ, śānac, kta, ktavatu, tavyat, anīyar yat, lyuṭ, ghañ, ktin. Taddhita: aṇ, iṇ, ḍhak, kha, cha, matvarthīāḥ.	10
		Compound (Samāsa)	10
		UNIT- II: TUTORIAL **METRE FROM CHANDOMAÑJARI**	**25**
		1) Selected topics from Chandomañjarī of Gaṅgādāsa – padyam, vṛttam, akṣaram, gaṇa, laghu, guru, yati.	10
		2) Selected Metres – Indravajrā, Upendravajrā, Upajāti, Śālinī, Bhujaṅgaprayātam, Vaṃśasthavilam, Mālinī, Praharṣiṇī, Rucirā, Śikhariṇī, Vasantatilakam, Mandākrāntā, Śārdūlavikrīḍitam, Sragdharā.	15
		TOTAL	**100**
UG I: SEMESTER II **MDC MAJOR COURSES [CREDIT: 1 x 4 = 4]**			
SAN-MD-CC2-2-Th/Tu	**HISTORY OF SANSKRIT LITERATURE** 1. HISTORY OF CLASSICAL SANSKRIT LITERATURE 2. HISTORY OF VEDIC LITERATURE	**UNIT- I: THEORY** **HISTORY OF CLASSICAL SANSKRIT LITERATURE**	**75**
		1) **Epic literature**-	20

	Reference Books: 1. Vaidic Sāhityer Rūprekha, Shanti Bandopadhyay. 2. Veder Parichay, Yogiraj Basu. 3. Vaidic Sāhitya (Veda Mīmāṃsā, 1st Volume), Sri Anirban. 4. Saṃskr̥ta Sāhityer Itihās, Dhirendranath Bandopadhyay. 5. Saṃskr̥ta Sāhityer Itihās, Jahnabicharan Bhowmick. 6. History of Sanskrit Literature, A. B. Keith. Delhi: MLBD. 7. A Concise History of Sanskrit Literature, Gaurinath Shastri, Delhi: MLBD 8. Indian Literature (Vol. I-III), Maurice Winternitz, Delhi: MLBD. 9. History of Classical Literature, M. Krishnamachariar. Delhi: MLBD. 10. A History of Sanskrit Literature: Classical Period, S.N. De & S.N. Dasgupta. 11. A companion to Sanskrit Literature, Suresh Chandra Bandyopadhyay.	Rāmāyaṇa, Mahābhārata, Purāṇa.	
		2) **Dr̥śyakāvya-** General acquaintance with special reference to the following: Kālidāsa, Bhāsa, Śūdraka, Bhaṭṭanārāyaṇa, Bhavabhūti, Viśākhadatta, Harṣadeva, Rājaśekhara	15
		3) **Śravyakāvya-** General acquaintance with special reference to the following:	30
		a) Poetry Aśvaghoṣa, Kālidāsa, Bhāravi, Māgha, Bhaṭṭi, Śrīharṣa b) Prose Subandhu, Daṇḍin, Bāṇabhaṭṭa	20 10
		4) **Narrative literature-** General acquaintance with special reference to the following: Pañcatantra, Hitopadeśa, Kathāsaritsāgara, Vetālapañcaviṃśati	10
		UNIT-II: TUTORIAL **HISTORY OF VEDIC LITERATURE**	**25**
		Ṛgveda, Yajurveda, Sāmaveda, Atharvaveda, Brāhmaṇa, Āraṇyaka, Upaniṣad, Vedāṅga	
		TOTAL	**100**
UG II: SEMESTER III **MDC MAJOR COURSES [CREDIT: 1 x 4 = 4]**			
SAN-MD-CC3-3-Th/Tu	**CLASSICAL SANSKRIT LITERATURE: PROSE & POETRY** **Reference Books:** 1. Raghuvaṃśam of Kālidāsa (1st Canto), (Ed.) Ashoke Kr. Bandyopadhyay, Sadesh, Kolkata. 2. Raghuvaṃśam of Kālidāsa (1st Canto), (Ed.) Uday Chandra Bandyopadhyay, Sanskrit Book Depot, Kolkata. 3. Raghuvaṃśam of Kālidāsa (1st Canto), (Ed.) Anil Chandra Basu, Sanskrit Book Depot, Kolkata. 4. Raghuvaṃśam of Kālidāsa, (Ed.) Gurunath Vidyanidhi, Sanskrit Book Depot, Kolkata. 5. Raghuvaṃśam of Kālidāsa, (Ed.) M. R. Kale, Motilal Banarsidass, New Delhi. 6. Rājavāhanacaritam of Daṇḍin, (Ed.) Satyanarayan Chakraborty, Sanskrit Pustak Bhandar, Kolkata. 7. Rājavāhanacaritam of Daṇḍin, (Ed.) Ashoke Kr. Bandyopadhyay, Sadesh, Kolkata. 8. Rājavāhanacaritam of Daṇḍin, (Ed.) Janesh Ranjan Bhattacharya, B. N. Publication, Kolkata. 9. Śukanāsopadeśa. (Ed.) Nirod Boron Chakraborty, Sanskrit Pustak Bhandar.	**UNIT- I: THEORY**	30
		Kālidāsa's Raghuvaṃśa Canto-I. 1-48 (आश्रमयात्रा)	
		UNIT- II: THEORY	30
		Bhāravi's Kirātārjunīya (Canto- 1)	
		UNIT- III: THEORY	15
		Śukanāsopadeśa (अपरे तु...माहात्म्यमुद्भावयति)	
		UNIT – IV: TUTORIAL	**25**
		Daṇḍin's Rājavāhanacarita	

		TOTAL	**100**
UG II: SEMESTER IV **MDC MAJOR COURSES [CREDIT: 2 x 4 = 8]**			
SAN-MD-CC4-4-Th/Tu	**DRAMA AND DRAMATURGY** **Reference Books:** 1. Abhijñānaśakuntalam of Kālidāsa, (Ed.) Satyanarayan Chakroborty, Sanskrit Pustak Bhandar, Kolkata. 2. Abhijñānaśakuntalam of Kālidāsa, (Ed.) Anil Chandra Basu, Sanskrit Book Depot, Kolkata. 3. Abhijñānaśākuntalam of Kālidāsa, (Ed.) C.R. Devadhar & N.G. Suru, Motilal Banarsidass, New Delhi. 4. Abhijñānaśākuntalam of Kālidāsa, (Ed.) M.R. Kale, Motilal Banarsidass, New Delhi. 5. Kālidāsa: Abhijñāna-śakuntalam A Stylistic Study. (Ed.) Ramendra Mohan Bose. Modern Book Agency, Kolkata. 6. Sāhityadarpaṇa of Viśvanātha Kavirāja (Chapter-VI & X), (Ed.) Uday Chandra Bandyopadhyay, Sanskrit Book Depot, Kolkata. 7. Svapnavāsavadattam, Anil Chandra Basu. Sanskrit Book Depot (Bengali) 8. Svapnavāsavadattam of Bhāsa. M. R. Kale. Motilal Banarsidass, New Delhi.	**UNIT- I: THEORY**	25
		Kālidāsa's Abhijñānaśakuntala Act I-IV	
		UNIT- II: THEORY	20
		Kālidāsa's Abhijñānaśakuntala Act V-VII	
		UNIT- III: THEORY	30
		Viśvanātha-Kavirāja's Sāhityadarpaṇa (Chapter VI)- Selected portions on Dramaturgy Rūpaka, Abhinaya, Nāndī, Prastāvanā, Pūrvaraṅga, Characteristic features of Nāṭaka, Sandhi, Arthopakṣepaka, Arthaprakṛti, Avasthā, Vṛtti.	
		UNIT- IV: TUTORIAL	**25**
		Bhāsa's Svapnavāsavadatta	
		TOTAL	**100**
SAN-MD-CC5-4-Th/Tu	**GĪTĀ AND UPANIṢAD** **Reference Books:** 1. Śrīmadbhagavatgītā, Swami Jagadīsvarānanda, Udbodhana Kāryālaya. 2. The Message of the Upanishads, Swami Ranganathananda, Kolkata: Advaita Ashrama. 3. Karmayogaśāstra Religion, Original Sanskrit stanzas with English Translation, Bal Gangadhar Tilak & Balchandra Sitaram Sukthankar, J.S. Tilak & S.S Tilak. 4. Sri Aurobinda- Essays on the *Gītā*, Sri Aurobinda Ashram, Pandichery. 5. The Bhagavadgītā, By S. Radhakrishnan, Harper Collins India. 6. Īśopaniṣad, By Swami Lokeswarananda, RKMIC.	**UNIT- I: THEORY** **ŚRĪMADBHAGAVATGĪTĀ SELF MANAGEMENT**	**75**
		a) Concept of a person (Concept of a person) Chapter: 1: Verses: 1-30 (Jīva as Core and Eight-fold Nature as Cover Kṣetrajña as Core and Kṣetra as Cover). Chapter-13: Verses: 1-2, 5-6, 19-23 (Akṣara as Core and Kṣara as Cover). Chapter-15: Verses: 7-11, 6-19	25
		b) Personality Types (Personality Types) Chapter: 14: Verses: 5-14 Chapter: 17: Verses: 2-6 Chapter: 17: Verses: 11-21	20
		c) Measures for behavioural Improvement (Measures for behavioural Improvement Control of Senses and Mind). Chapter 2, Verses: 59-60, 64 and 68 Chapter 3, Verses: 41-43 Chapter 6, Verses: 19-23	30

		(Right Faith) Chapter 9, Verses:3, 22, 23-28, 30-34 (Recognition of Svadharma- Inner Urge) Chapter 2, Verses: 31, 41-44 Chapter 3, Verses: 4, 5, 8, 9, 27-30, 33-34. Chapter 4, Verses: 18-22 Chapter 5, Verses: 11-12 Chapter 7, Verses: 15, 18, 20-23, 27-29 (Channelizing Innate Urges on Social Lines) Chapter 18, Verses:31,41-62	
		UNIT- II: TUTORIAL	**25**
		Īśopaniṣad	
		TOTAL	**100**
UG III: SEMESTER V **MDC MAJOR COURSES [CREDIT: 1 x 4 = 4]**			
SAN-MD-CC6-5-Th/Tu	**DHARMAŚĀSTRA AND EPIGRAPHY** **Reference Books:** 1. Concise History of Dharmaśāstra- Suresh chandra Bandyopadhyay, MLBD. 2. Dharma and Society- G.H. Mess, Delhi, Gyan Publishing House. 3. History of Dharmashastra (Vol.1 & 2), BORI- P.V. Kane. 4. Manu's Code of Law – (Ed. & Trans.): P. Olivelle (Critical Edition and Translation of the Mānava Dharamaśāstra), OUP, New Delhi, 2006. 5. Manusaṃhitā- (Ed.) Manabendu Bandyopadhyay– Sanskrit Pustak Bhandar. 6. Manusmṛti with Kullukabhaṭṭa Commentary, (ed.) Chintamani Sastri, Chowkambha Sanskrit Series Office. 7. Manusmṛti with the 'Manubhāṣya' of Medhātithi Commentary (Vol. 2)- (Ed.) Ganganatha Jha. Asiatic Society 8. Manuṭīkāsaṃgraha- (Ed.) J. Jolly, Calcutta, The Asiatic Society. 9. A Guide to Epigraphy, Richard Salomon 10. Bhāratīya Abhilekha, S.S. Rana. Delhi: Bharatiya Vidya Prakashan, 1978. 11. Bhāratīya Purālipi, Rajvali Pandey. Allahabad: Lokabharati Prakashan, 1978. 12. Bhāratīya Abhilekha o Pratnalipi, Debarchana Sarkar, A. Tripathi, S. Pradhan 13. Bhāratiya prācina lipimāla, Gaurishankar Hirachandra Ojha. Ajmer: 1918. 14. Ashoker Abhilekha, D.C. Sarkar, Mahabodhi Society. 15. Epigraphia Indica, E. Hultzsch. Archeological Survey of India.	**UNIT- I: THEORY** **HISTORY OF DHARMAŚĀSTRA**	25
		UNIT- II: THEORY **MANUSAṂHITĀ**	25
		Rājadharma upto Taxation	
		UNIT- III: THEORY **BASIC CONCEPT OF EPIGRAPHY**	25
		i) Introduction to Epigraphy and Types of Inscriptions. ii) History of Epigraphical Studies in India. iii) Importance of Indian Inscriptions in the reconstruction of Ancient Indian History and Culture	
		UNIT- IV: TUTORIAL **HISTORY OF INSCRIPTIONAL LITERATURE**	**25**
		Historical importance of the following major Indian Inscriptions: i) Aśokān Inscription ii) Junāgaḍh Inscription of Rudradāman	

		TOTAL	**100**
UG III: SEMESTER V OR VI **MDC MAJOR COURSES [CREDIT: 1 x 4 = 4]**			
SAN-MD-CC7-5-Th/Tu **OR** **SAN-MD-CC7-6-Th/Tu**	**INDIAN PHILOSOPHY: INTRODUCTION & ACQUAINTANCE** **Reference Books:** 1. Tarkasaṃgrahaḥ, (Ed.) Sri Krishna Vallabhacharya, ChaukhambaVidyabhaban,Varanasi. 2. Tarkasaṃgrahaḥ, (Ed.) Panchanan Sastri, Mahabodhi Book Agency, Kolkata. 3. Tarkasaṃgrahaḥ, (Ed.) Narayanachandra Goswami, Sanskrit Pustak Bhandar, Kolkata. 4. Tarkasaṃgrahaḥ, (Ed.) Niranjanswarup Brahmachari, Sanskrit Book Dipot, Kolkata. 5. Tarkasaṃgraha, Translation of Prof. V.N. Jha 6. S.N. Dasgupta 7. Indian Philosophy, S. Radhakrishnan 8. Introduction to Indian Philosophy, S.C. Chatterjee and D. M. Datta, Calcutta University 9. The Elements of Indian Logic and Epistemology, Chadrodaya Bhattacharya 10. Bhāratīya Darśaner Ruparekhā, Amit Bhattacharjee. 11. Bṛhadāraṇyakopaniṣad, Śāṅkarabhāṣya translated by Swami Madhavananda. 12. Bṛhadāraṇyakopaniṣad, Sitanath Tattwabhusan. 13. Upaniṣadavalī, Sri Aurobindo.	**UNIT I: THEORY** General Introduction to Indian Philosophy: Āstika & Nāstika Darśana **UNIT II: THEORY** Tarkasaṃgraha of Annaṃbhaṭṭa **UNIT III: TUTORIAL** Bṛhadāraṇyakopaniṣad with Śāṅkarabhāṣya	35 40 25
		TOTAL	**100**
UG III: SEMESTER VI **MDC MAJOR COURSES [CREDIT: 1 x 4 = 4]**			
SAN-MD-CC8-6-Th/Tu	**SANSKRIT TECHNICAL LITERATURE** **Reference Books:** 1. Patañjali Yoga Sūtras (Sanskrit text with Translation and Commentary), Swami Vivekananda. 2. Mahābhāṣya of Patañjali (Paspaśāhnika), Kshitish Chandra Chatterjee. 3. Mahābhāṣya of Patañjali (Paspaśāhnika), Sanghamitra Sengupta. 4. Mahābhāṣya of Patañjali (Paspaśāhnika), Sasibhushan Mishra. 5. Mahābhāṣya of Patañjali	**UNIT- I: THEORY** **HISTORY OF SANSKRIT TECHNICAL LITERATURE** General acquaintance of i. Medical Science. ii. Music, Painting, Dance. iii. Mathematics & Astronomy iv. Architecture **UNIT- II: THEORY** **YOGASŪTRA OF PATAÑJALI** Samādhipāda, Kriyāyoga and Aṣṭāṅgayoga **UNIT- III: THEORY** **CARAKASAṂHITĀ (SŪTRASTHĀNA)**	20 30 25

	(Paspaśāhnika), Trans. and Ed. Dandiswami Damodar Ashram, 1982. 6. Caraka Saṃhitā Sanskrit Text with English Translation- Sūtrasthāna, General Principles (Volume I), Dr. Shashirekha H. K. and B.S. Sukumar, Chaukhamba Publications. 7. Sāhityadarpaṇa of Viśvanātha Kavirāja (Chapter-X), (Ed.) Jayashree Chattopadhyay, Sanskrit Pustak Bhandar, Kolkata. 8. Sāhityadarpaṇa– (Ed.) Bimalakanta Mukhopadhyay, Pustak, Kalikata. 9. Sāhityadarpaṇa of Viśvanātha Kavirāja, (Ed.) Yogeshwar Dutta Sharma, Nag Publishers, Delhi. 10. Sāhityadarpaṇa of Viśvanātha Kavirāja, (Ed.) P.V. Kane, Motilal Banarsidass, New Delhi. 11. History of Hindu mathematics Part I & II, by Bibhutibhushan Datta and Avadhesh Narayan Singh. Asia Publishing House, New Delhi. 12. Saṃskṛta Sāhityer Itihās, Dhirendranath Bandopadhyay. 13. History of Sanskrit Literature, A. B. Keith. MLBD, Delhi. 14. A Concise History of Sanskrit Literature, Gaurinath Shastri. MLBD, Delhi.	**UNIT-IV: TUTORIAL** **SELECTED ALAṂKĀRAS FROM VIŚVANĀTHA-KAVIRĀJA'S SĀHITYA-DARPAṆA [CHAPTER-10]**	**25**
		Upamā, Rūpaka, Bhrāntimān, Mālopamā, Prativastūpamā, Sandeha, Niścaya, Vibhāvanā, Viśeṣokti, Atiśayokti, Svabhāvokti, Samāsokti, Vyatireka, Dr̥ṣṭānta, Arthāntaranyāsa, Kāvyaliṅga, Apahnuti, Aprastutapraśaṃsā, Utprekṣā.	
		TOTAL	**100**

COURSE CODE	TITLE OF THE COURSE	COURSE CONTENTS	MARKS
UG I/II: SEMESTER I/II/III **MDC MAJOR SEC COURSE [CREDIT: 1 x 4 = 4]**			
SAN-MD-SEC1-1-Th/Tu **SAN-MD-SEC2-2-Th/Tu** **SAN-MD-SEC3-3-Th/Tu**	**SKILL OF READING AND WRITING** **Reference Books:** 1. Vyākaraṇa Kaumudī. (Ed.) Durgācaraṇa Sāṃkhyavedāntatīrtha. Sanskrit Book Depot. 2. Helps to the Study of Sanskrit. Janakinath Sastri. 3. Pāṇinīyam. Lahiri & Sastri. Sanskrit Book Depot. 4. The Students' guide to Sanskrit Composition. V.S. Apte.	**UNIT-I: THEORY** **SKILL OF WRITING**	**75**
		1) Learning Devanāgarī script	10
		2) Translation from Bengali/ English to Sanskrit in short sentences	12
		3) Translation from Sanskrit to either Bengali or English	12
		4) Comprehension in Sanskrit	15
		5) Voice change (vācya-parivartana)	10
		6) Ṇatva-Ṣatva Vidhāna	8
		7) Ātmanepada-Parasmaipada Vidhāna	8
		UNIT- II : TUTORIAL **SKILL OF READING & SPEAKING**	**25**
		8) Reading skill with proper pronunciation & Recitation of Sanskrit verses in various metres.	15
		9) Conversation in Sanskrit/ Demonstration of a read topic in Sanskrit.	10
		TOTAL	**100**

COURSE CODE	NAME OF THE COURSE	COURSE CONTENTS	MARKS
UG II: SEMESTER III **MDC-MINOR COURSES [CREDIT: 1 x 4 = 4]**			
SAN-MD-MC1-3-Th/Tu	**GENERAL GRAMMAR AND METRE** **Reference Books:** 1. Vyākaraṇa Kaumudī. (Ed.) Durgācaraṇa Sāṃkhyavedāntatīrtha. Sanskrit book Depot. 2. Helps to the Study of Sanskrit. Janakinath Sastri. 3. Pāṇinīyam. Lahiri & Sastri. Sanskrit Book Depot. 4. The Students' guide to Sanskrit Composition. V.S. Apte. 5. Chandomañjarī. (Ed.) Gurunātha Vidyānidhi.	**UNIT-I: THEORY** **GENERAL GRAMMAR**	**75**
		1) Declension – nara, muni, pati, sudhī, sādhu, pitṛ, latā, nadī, mati, badhū, mātṛ, phala, vāri, madhu, guṇin, vaṇij, bhūbhṛt dhāvat (in 3 genders), ātman, karman, vedhas, payas, asmad, yuṣmad, idam, yad, tad, kim, adas, sarva (in 3 genders), eka, dvi, tri, catur, pañcan, ṣaṭ, aṣṭan (in 3 genders)	10
		2) Conjugation – bhū-, kṛ-, gam-, vad-, pā-, labh-, sthā-, grah-, as-, sev-, krī-, dā-, śru-, ci-, dṛś-, likh-, paṭh-, krīḍ-, cur-, khād- (Laṭ - Present, Loṭ- Imperative Mood, Laṅ- Past, Vidhiliṅ- Potential Mood, Lṛṭ- Future).	10
		3) Avyaya – adya, yadā, tadā, iha, śvaḥ, paraśvaḥ, hyaḥ, prātaḥ, sāyam, śanaiḥ, jhaṭiti, uccaiḥ, eva, iva, alam, upari, adhaḥ, vinā, ṛte, antareṇa, antarā, ubhataḥ, paritaḥ, prāk, param, kva, khalu, mā, nanu, tu, katham, hi, aciram.	10
		4) Case ending and Sandhi (Kāraka-Vibhakti, Sandhi)	15+10=25
		5) Suffix – Kṛt: ktvā, lyap, tumun, śatṛ, śānac, kta, ktavatu, tavyat, anīyar yat, lyuṭ, ghañ, ktin. Taddhita: aṇ, iṇ, ḍhak, kha, cha, matvarthīāḥ.	10
		Compound (Samāsa)	10
		UNIT- II: TUTORIAL **METRE FROM CHANDOMAÑJARI**	**25**
		1) Selected topics from Chandomañjarī of Gaṅgādāsa – padyam, vṛttam, akṣaram, gaṇa, laghu, guru, yati.	10
		2) Selected Metres – Indravajrā, Upendravajrā, Upajāti, Śālinī, Bhujaṅgaprayātam, Vaṃśasthavilam, Mālinī, Praharṣiṇī, Rucirā, Śikhariṇī, Vasantatilakam, Mandākrāntā, Śārdūlavikrīḍitam, Sragdharā.	15
		TOTAL	**100**
UG II: SEMESTER IV **MDC-MINOR COURSES [CREDIT: 1 x 4 = 4]**			
SAN-MD-MC2-4-Th/Tu	**HISTORY OF SANSKRIT LITERATURE** 1. HISTORY OF CLASSICAL SANSKRIT LITERATURE	**UNIT- I: THEORY** **HISTORY OF CLASSICAL SANSKRIT LITERATURE**	**75**

	2. HISTORY OF VEDIC LITERATURE **Reference Books:** 1. Vaidic Sāhityer Rūprekha, Shanti Bandopadhyay. 2. Veder Parichay, Yogiraj Basu. 3. Vaidic Sāhitya (Veda Mīmāṃsā, 1st Volume), Sri Anirban. 4. Saṃskṛta Sāhityer Itihās, Bandopadhyay, Dhirendranath. 5. Saṃskṛta Sāhityer Itihās, Jahnabicharan Bhowmick. 6. History of Sanskrit Literature, A. B. Keith. Delhi: MLBD. 7. A Concise History of Sanskrit Literature, Gaurinath Shastri, Delhi: MLBD 8. Indian Literature (Vol. I-III), Maurice Winternitz, Delhi: MLBD. 9. History of Classical Literature, M. Krishnamachariar. Delhi: MLBD. 10. A History of Sanskrit Literature: Classical Period, S.N. De & S.N. Dasgupta. 11. A companion to Sanskrit Literature, Suresh Chandra Bandyopadhyay.	1) **Epic literature**- Rāmāyaṇa, Mahābhārata, Purāṇa.	20
		2) **Dṛśyakāvya-** General acquaintance with special reference to the following: Kālidāsa, Bhāsa, Śūdraka, Bhaṭṭanārāyaṇa, Bhavabhūti, Viśākhadatta, Harṣadeva, Rājaśekhara	15
		3) **Śravyakāvya**- General acquaintance with special reference to the following:	30
		a) Poetry Aśvaghoṣa, Kālidāsa, Bhāravi, Māgha, Bhaṭṭi, Śrīharṣa b) Prose Subandhu, Daṇḍin, Bāṇabhaṭṭa	20 10
		4) **Narrative literature**- General acquaintance with special reference to the following: Pañcatantra, Hitopadeśa, Kathāsaritsāgara, Vetālapañcaviṃśati	10
		UNIT-II: TUTORIAL **HISTORY OF VEDIC LITERATURE**	**25**
		Ṛgveda, Yajurveda, Sāmaveda, Atharvaveda, Brāhmaṇa, Āraṇyaka, Upaniṣad, Vedāṅga	
		TOTAL	**100**
UG III: SEMESTER V **MDC-MINOR COURSES [CREDIT: 2 x 4 = 8]**			
SAN-MD-MC3-5-Th/Tu	**CLASSICAL SANSKRIT LITERATURE: PROSE & POETRY** **Reference Books:** 1. Raghuvaṃśam of Kālidāsa (1st Canto), (Ed.) Ashoke Kr. Bandyopadhyay, Sadesh, Kolkata. 2. Raghuvaṃśam of Kālidāsa (1st Canto), (Ed.) Uday Chandra Bandyopadhyay, Sanskrit Book Depot, Kolkata. 3. Raghuvaṃśam of Kālidāsa (1st Canto), (Ed.) Anil Chandra Basu, Sanskrit Book Depot, Kolkata. 4. Raghuvaṃśam of Kālidāsa, (Ed.) Gurunath Vidyanidhi, Sanskrit Book Depot, Kolkata. 5. Raghuvaṃśam of Kālidāsa, (Ed.) M. R.	**UNIT- I: THEORY**	30
		Kālidāsa's Raghuvaṃśa Canto-I. 1-48 (आश्रमयात्रा)	
		UNIT- II: THEORY	30
		Bhāravi's Kirātārjunīya (Canto- 1)	
		UNIT- III: THEORY	15
		Śukanāsopadeśa (अपरे तु...माहात्म्यमुद्भावयति)	
		UNIT – IV: TUTORIAL	**25**
		Daṇḍin's Rājavāhanacarita	

	Kale, Motilal Banarsidass, New Delhi. 6. Rājavāhanacarita of Daṇḍin, (Ed.) Satyanarayan Chakraborty, Sanskrit Pustak Bhandar, Kolkata. 7. Rājavāhanacaritam of Daṇḍin, (Ed.) Ashoke Kr. Bandyopadhyay, Sadesh, Kolkata. 8. Rājavāhanacaritam of Daṇḍin, (Ed.) Janesh Ranjan Bhattacharya, B. N. Publication, Kolkata. 9. Śukanāsopadeśa. (Ed.) Nirod Boron Chakraborty, Sanskrit Pustak Bhandar.		
		TOTAL	**100**
SAN-MD-MC4-5-Th/Tu	**DRAMA AND DRAMATURGY** **Reference Books:** 1. Abhijñānaśakuntalam of Kālidāsa, (Ed.) Satyanarayan Chakroborty, Sanskrit Pustak Bhandar, Kolkata. 2. Abhijñānaśakuntalam of Kālidāsa, (Ed.) Anil Chandra Basu, Sanskrit Book Depot, Kolkata. 3. Abhijñānaśākuntalam of Kālidāsa, (Ed.) C.R. Devadhar & N.G. Suru, Motilal Banarsidass, New Delhi. 4. Abhijñānaśākuntalam of Kālidāsa, (Ed.) M.R. Kale, Motilal Banarsidass, New Delhi. 5. Kālidāsa: Abhijñāna-śakuntalam A Stylistic Study. (Ed.) Ramendra Mohan Bose. Modern Book Agency, Kolkata. 6. Sāhityadarpaṇa of Viśvanātha Kavirāja (Chapter-VI & X), (Ed.) Uday Chandra Bandyopadhyay, Sanskrit Book Depot, Kolkata. 7. Svapnavāsavadattam, Anil Chandra Basu. Sanskrit Book Depot (Bengali) 8. Svapnavāsavadattam of Bhāsa. M. R. Kale. Motilal Banarsidass, New Delhi.	**UNIT- I: THEORY**	25
		Kālidāsa's Abhijñānaśakuntala Act I-IV	
		UNIT- II: THEORY	20
		Kālidāsa's Abhijñānaśakuntala Act V-VII	
		UNIT- III: THEORY	30
		Viśvanātha-Kavirāja's Sāhityadarpaṇa (Chapter VI)- Selected portions on Dramaturgy Rūpaka, Abhinaya, Nāndī, Prastāvanā, Pūrvaraṅga, Characteristic features of Nāṭaka, Sandhi, Arthopakṣepaka, Arthaprakṛti, Avasthā, Vṛtti.	
		UNIT- IV: TUTORIAL	**25**
		Bhāsa's Svapnavāsavadatta	
		TOTAL	**100**
UG III: SEMESTER VI **MINOR COURSES [CREDIT: 2 x 4 = 8]**			
SAN-MD-MC5-6-Th/Tu	**GĪTĀ AND UPANIṢAD** **Reference Books:** 1. Śrīmadbhagavatgītā, Swami Jagadīsvarānanda, Udbodhana Kāryālaya. 2. The Message of the Upanishads, Swami Ranganathananda, Kolkata: Advaita Ashrama. 3. Karmayogaśāstra Religion, Original Sanskrit stanzas with English Translation, Bal Gangadhar Tilak & Balchandra Sitaram Sukthankar, J.S.	**UNIT- I: THEORY** **ŚRĪMADBHAGAVATGĪTĀ SELF MANAGEMENT**	**75**
		a) Concept of a person (Concept of a person) Chapter: 1: Verses: 1-30 (Jīva as Core and Eight-fold Nature as Cover Kṣetrajña as Core and Kṣetra as Cover). Chapter-13: Verses: 1-2, 5-6, 19-23 (Akṣara as Core and Kṣara as Cover).	25

	Tilak & S.S Tilak. 4. Sri Aurobinda- Essays on the *Gītā*, Sri Aurobinda Ashram, Pandichery. 5. The Bhagavadgītā, By S. Radhakrishnan, Harper Collins India. 6. Īśopaniṣad, By Swami Lokeswarananda, RKMIC.	Chapter-15: Verses: 7-11, 6-19	
		b) Personality Types Personality Types Gītā Chapter: 14: Verses: 5-14 Chapter: 17: Verses: 2-6 Chapter: 17: Verses: 11-21	20
		c) Measures for behavioural Improvement (Measures for behavioural Improvement Control of Senses and Mind). Chapter 2, Verses: 59-60, 64 and 68 Chapter 3, Verses: 41-43 Chapter 6, Verses:19-23 (Right Faith) Chapter 9, Verses:3, 22, 23-28, 30-34 (Recognition of Svadharma- Inner Urge) Chapter 2, Verses: 31, 41-44 Chapter 3, Verses: 4, 5, 8, 9, 27-30, 33-34. Chapter 4, Verses: 18-22 Chapter 5, Verses: 11-12 Chapter 7, Verses: 15, 18, 20-23, 27-29 (Channelizing Innate Urges on Social Lines) Chapter 18, Verses: 31, 41-62	30
		UNIT- II: TUTORIAL	**25**
		Īśopaniṣad	
		TOTAL	**100**
SAN-MD-MC6-6-Th/Tu	**DHARMAŚĀSTRA AND EPIGRAPHY** **Reference Books:** 1. Concise History of Dharmaśāstra- Suresh chandra Bandyopadhyay, MLBD. 2. Dharma and Society- G.H. Mess, Delhi, Gyan Publishing House. 3. History of Dharmashastra (Vol.1 & 2), BORI- P.V. Kane. 4. Manu's Code of Law – (Ed. & Trans.): P. Olivelle (Critical Edition and Translation of the Mānava Dharamaśāstra), OUP, New Delhi, 2006. 5. Manusaṃhitā- (Ed.) Manabendu Bandyopadhyay– Sanskrit Pustak Bhandar. 6. Manusmṛ̥ti with Kullukabhaṭṭa Commentary, (ed.) Chintamani Sastri, Chowkambha Sanskrit Series Office. 7. Manusmṛ̥ti with the 'Manubhāṣya' of Medhātithi Commentary (Vol. 2)- (Ed.) Ganganatha Jha. Asiatic Society 8. Manuṭīkāsaṃgraha- (Ed.) J. Jolly, Calcutta, The Asiatic Society.	**UNIT- I: THEORY** **HISTORY OF DHARMAŚĀSTRA**	25
		UNIT- II: THEORY **MANUSAṂHITĀ**	25
		Rājadharma upto Taxation	
		UNIT- III: THEORY **BASIC CONCEPT OF EPIGRAPHY**	25
		i) Introduction to Epigraphy and Types of Inscriptions. ii) History of Epigraphical Studies in India. iii) Importance of Indian Inscriptions in the reconstruction of Ancient Indian History and Culture	
		UNIT- IV: TUTORIAL **HISTORY OF INSCRIPTIONAL LITERATURE**	**25**
		Historical importance of the following major Indian Inscriptions: i) Aśokān Inscription ii) Junāgaḍh Inscription of Rudradāman	

	9. A Guide to Epigraphy, Richard Salomon 10. Bhāratīya Abhilekha, S.S. Rana. Delhi: Bharatiya Vidya Prakashan, 1978. 11. Bhāratīya Purālipi, Rajvali Pandey. Allahabad: Lokabharati Prakashan, 1978. 12. Bhāratīya Abhilekha o Pratnalipi, Debarchana Sarkar, A. Tripathi, S. Pradhan 13. Bhāratiyaprācinalipimāla, Gaurishankar Hirachandra Ojha. Ajmer: 1918. 14. Ashoker Abhilekha, D.C. Sarkar, Mahabodhi Society. 15. Epigraphia Indica, E. Hultzsch. Archeological Survey of India.		
		TOTAL	**100**

COURSE CODE	NAME OF THE COURSE	COURSE CONTENTS	MARKS
4-YEAR B.A. HONS. & HONS. WITH RESEARCH COURSES OF STUDIES & 3-YEAR MDC COURSE UG I OR UG II: SEMESTER I/II/III SANSKRIT IDC COURSE [CREDIT: 1 x 3 = 3]			
SAN-MD-IDC1-1-TH SAN-MD-IDC2-2-TH SAN-MD-IDC3-3-TH	**SANSKRIT TECHNICAL LITERATURE** **Reference Books:** 1. A Concise History of Science in India, D.M. Bose, S.N. Sen, B.V. Subbarayappa, Indian National Science Academy, New Delhi. 2. A History of Sanskrit Literature, A.B. Keith, MLBD. 3. Science and Technology in Ancient India, Keshav Shrushti, Vijñāna Bhārati Publication. 4. A Study of Buddhist Medicine and Surgery in Gāndhāra, Nassim H. Naqvi, MLBD, Delhi. 5. History of Science, Philosophy and Culture in Indian Civilizations (Vol. IV Part 2), B.V. Subbarayappa. D.P. Chattopadhyaya (Gen. Ed.), Centre for studies in Civilizations, New Delhi. 6. The Dictionary of Hindustani Classical Music, Bimalakanta Roy chaudhuri. MLBD, Delhi. 7. Vāstu-Śāstra: Hindu Canons of Iconography and Painting - (Vol.2), D.N. Shukla. Munshiram Monoharlal Publishers Pvt. Ltd., New Delhi. 8. Sanskrit Drama in Performance, Rachel Van M. Baumer and James R. Brandon. MLBD, Delhi. 9. The Tradition of Astronomy in India Jyotiḥśāstra, History of Science, Philosophy and Culture in Indian Civilizations, B.V. Subbarayappa, (Vol. IV, Part2), D.P. Chattopadhyaya (Gen. Ed.), centre for Studies in Civilizations, New Delhi. 10. History of Hindu Mathematics (Part I & II), Bibhutibhusan Datta, Avadhesh Narayan Singh. Asia Publishing House, New Delhi. 11. Architecture in India: History of Science, Philosophy and Culture in India (Vol. VI, Part2), M.A. Dhaky. D.P. Chattopadhyaya (Gen. Ed.), Centre for Studies in Civilizations, New Delhi. 12. Vāstu-Śāstra: Hindu science of Architecture Mānasāra Series (Vol.1), D.N. Shukla, Munshiram Monoharlal publishers pvt. Ltd., New Delhi.	**UNIT-I: THEORY**	**50**
		(A) Medical Science (B) Mathematics	40
		UNIT- II: THEORY	
		(C) Painting (D) Astronomy	10
		UNIT- III: TUTORIAL	**25**
		(E) Music and Dance (F) Architecture	
		TOTAL	**75**

Modalities for Sanskrit 4 year B.A. Honours

&

Honours with Research Courses of Studies

Semester – I (Major)

DSCC 1
(General Grammar and Metre)

SAN-H-CC1-1-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit language in Devanāgarī script. The language of the answers will be as per instruction.

Theory

Unit I [3 credits = 75 Marks]

General Grammar

(a) Declension 5 out of 7 to be written in Sanskrit language and Devanāgarī script 1*5 = 5

(b) Conjugation 5 out of 7 to be written in Sanskrit language and Devanāgarī script 1*5 = 5

(c) Make sentences using Avyayas 5 out of 7 to be written in Sanskrit language and Devanāgarī script. 2*5 = 10

(d) Case-ending 5 out of 7 2*5 = 10

(e) Name and expound the Samāsa 5 out of 7 2*5 = 10

(f) i) Join in Sandhi 5 out of 7 1*5 = 5

ii) Disjoin Sandhi 5 out of 7 1*5 = 5

(g) Resulting forms from 'Kr̥t' and 'Taddhita Pratyayas' 5 out of 7 1*5 = 5

(h) Derivation from 'Kr̥t' and 'Taddhita Pratyayas' 5 out of 7 1*5 = 5

(i) Correction 5 out of 7 2*5 = 10

(j) Write alternative form 5 out of 7 (specifically from declension and conjugation) 1*5 = 5

Tutorial

Unit II [1 credit = 25 Marks]

Metre

(d) Brief question or short note 1 out of 2 5*1 = 5

(e) Define and illustrate the metre 2 out of 4 5*2 = 10

(f) Scan, define and justify the metre 2 out of 4 5*2 = 10

SEC 1

(Skill of Reading and Writing)

SAN-H-SEC1-1-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions will be set in Sanskrit and Devanāgarī script. The language of the answers will be as per instruction.

Theory

Unit I [3 credits = 75 Marks]

Skill of Writing

1. a) Writing the alphabets of Devanāgarī script. 5

b) Writing 3 or 4 letter-words in Devanāgarī script. 5

2. Translation of short sentences from Bengali or English into Sanskrit (in Devanāgarī script). [6 out of 8] 2*6 = 12

3. Translation of short sentences from simple Sanskrit into Bengali or English. [6 out of 8] 2*6 = 12

4. Sanskrit Comprehension [1 out of 2] 15*1 = 15

5. Voice-change of simple Sanskrit sentences. [4 out of 6] 2.5*4 = 10

6. Correct the spellings according to Ṇatva-Ṣatva Vidhis. [4 out of 6] 2*4 = 8

7. Distinguish between the Ātmanepadī and Parasmaipadī forms of the same roots. [2 out of 4] 4*2 = 8

Tutorial

Unit II [1Credit = 25 marks]

Skill of Reading and Speaking

a) Reading skill test according to the syllabus [in Viva-voce form] 15

b) Conversation ability test in Sanskrit according to the syllabus [in Viva-voce form] 10

Semester – II (Major)

DSCC 2
(History of Sanskrit Literature)

SAN-H-CC2-2-Th/Tu

Full Marks – 100
Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit language in Devanāgarī script. The language of the answers should be as per instruction.

Theory

Unit I [3 credits = 75 Marks]

History of Classical Sanskrit Literature

1. Epic Literature:

i. Broad Question [1 out of 2] 10*1=10
ii. Objective Questions [5 out of 8] (in Sanskrit language and Devanāgarī script) 2*5=10

2. Dṛśya Kāvya

Short Notes [3 out of 5] 5*3=15

3. Śravya Kāvya

(a) Poetry:

i. Broad Question [1 out of 2] 12*1=12
ii. Short Notes [2 out of 4] (in Sanskrit language and Devanagari script) 4*2=8

(b) Prose:

Short Notes [2 out of 3] 5*2=10

4. Narrative Literature

Short Notes [2 out of 3] 5*2=10

Tutorial

Unit II [1 credit = 25 Marks]

History of Vedic Literature

(i) Broad question [1 out of 2] 10*1 = 10

(ii) Short questions [5 out of 7] (in Sanskrit language and Devanāgarī script) 2*5 = 10

(iii) Short Note [1 out of 2] (in Sanskrit language and Devanāgarī script) 5*1 = 5

SEC 2

(Computer Awareness and Computational Sanskrit)

SAN-H-SEC2-2-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions will be set in English.

Theory [3 credits = 75 Marks]

Unit I

Transliteration

1. Transliteration: from Devanāgarī to Roman) 4 out of 5 verses. 5*4=20
2. Transliteration: from Roman to Devanāgarī) 2 out of 3 verses. 5*2=10

Unit II

Basic Computer Awareness

i. Objective type questions (MCQ is preferable) (10 out of 12) 5*2= 10
ii. Short type questions (2 out of 3) 2*5= 10

Unit III

Computational Sanskrit

Short type questions (5 out of 7) 5*5=25

Tutorial

Unit IV [1Credit = 25 marks]

Web Publishing

Evaluation of assignments from the syllabus carried out by students in Laptop or Mobile phone. 25

Semester – III (Major)

DSCC 3
(Classical Sanskrit Literature)
SAN-H-CC3-3-Th/Tu
Full Marks – 100
Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit language in Devanāgarī script. The language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Raghuvaṃśa [1 credit = 25 Marks]

i. Broad Question [1 out of 2] 10*1=10
ii. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)7*1=7
iii. Translation into Bengali/English [1 out of 2] 5*1=5
iv. Textual Grammar: Sandhi, Resulting forms. 1*3=3

Unit II

Kirātārjunīya [1 credit = 25 Marks]

i. Broad Question [1 out of 2] 10*1=10

ii. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)7*1=7

iii. Translation into Bengali/English [1 out of 2] 5*1=5

iv. Textual Grammar: Sandhi, Resulting forms. 1*3=3

Unit III

Śukanāsopadeśa [1 credit = 25 Marks]

i. Broad Question [1 out of 2] 10*1=10

ii. Translation into Bengali/English [1 out of 2] 5*1=5

iii. Short Questions [5 out of 8] 5*2=10

Tutorial

Unit IV [1 credit = 25 Marks]

Rājavāhanacarita

i. Broad Question [1 out of 2] 10*1=10

ii. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)7*1=7

iii. Translation into Bengali/English [1 out of 2] 5*1=5

iv. Textual Grammar: Sandhi, Resulting forms. 1*3=3

DSCC 4
(Kāvyaśāstra and its History)
SAN-H-CC4-3-Th/Tu
Full Marks – 100
Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit language in Devanāgarī script. The language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Kāvyālaṃkārasūtravṛtti of Vāmana [1 credit = 25 Marks]

i.	Broad Question [1 out of 2]	10*1=10
ii.	Explanation [1 out of 2]	6*1=6
iii.	Short Note [1 out of 2]	4*1=4
iv.	Objective type questions [5 out of 8] (in Sanskrit language and Devanāgarī script)	1*5=5

Unit II

Divisions of Śravyakāvya & their Definitions [1 credit = 25 Marks]

i.	Broad Question [1 out of 2]	10*1=10
ii.	Short Note [2 out of 3]	5*2=10
iii.	Objective type questions [5 out of 8] (in Sanskrit language and Devanāgarī script)	1*5=5

Unit III

General Acquaintance with the Eminent Sanskrit Ālaṃkārikas [1 credit = 25 Marks]

i.	Broad Question [1 out of 2]	10*1=10
ii.	Short Note [2 out of 3]	5*2=10
iii.	Objective type questions [5 out of 8] (in Sanskrit language and Devanāgarī script)	1*5=5

Tutorial

Unit IV [1 credit = 25 Marks]

Selected Alaṃkāras from Viśvanāthakavirāja's Sāhityadarpaṇa: CH. X

i. Define and Illustrate [2 out of 3] (in Sanskrit language and Devanāgarī script) 5*2=10

ii. Find out the Figure of Speech [2 out of 3] 5*2=10

iii. Objective type questions [5 out of 8] (in Sanskrit language and Devanāgarī script) 1*5=5

SEC 3

(Advance Writing and Communicative Skill in Sanskrit)

SAN-H-SEC3-3-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit language in Devanāgarī script. Language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Skill of Advanced Writing

Paragraph writing (minimum 10 sentences) in Sanskrit (1 out of 3). 20*1=20

Report writing (Minimum 5 sentences) in Sanskrit on given topic. (1 out of 2) 10*1=10

Correct and Justify. (2 out of 4). 5*2=10

Story writing in Sanskrit following given threads. (1 out of 2) 20*1=20

Dialogue writing in Sanskrit on a given topic. (1 out of 3). 15*1=15

Tutorial

Unit II [1 credit = 25 Marks]

Communicative Skill

Conversation in Sanskrit 15

Demonstration of any read topic, or, Enacting of dramatical composition in Sanskrit. 10

For students other than Sanskrit:

The following course will be only compulsory IDC paper for the 4-year Honours students during their course of first three semesters.

IDC

(Sanskrit Scientific Literature)

SAN-H-IDC-1-Th/Tu OR SAN-H-IDC-2-Th/Tu OR SAN-H-IDC-3-Th/Tu

Full Marks – 75

Theory (2 credits) = 50 marks

Tutorial (1 credit) = 25 marks

Questions will be set in Bengali and English languages. (Sanskrit is not compulsory for answering)

Theory [2 credits = 50 Marks]

Unit-I

(A) Medical Science: 40 Marks

i) Long Questions (2 out of 4) 10*2 = 20

ii) Short Questions (5 out of 7) 2*5 = 10

iii) Short Notes (2 out of 4) 5*2 = 10

Or,

(B) Mathematics: 40 Marks

(i) Long questions (2 out of 4) 10*2= 20

(ii) Short questions (5 (five) out of 7 (seven) 2*5= 10

(iii) Short notes (2 out of 4) 5*2= 10

Unit-II

(C) Painting: 10 Marks

Short Notes (2 out of 4) 5*2 = 10 Or, Short Questions (5 out of 7) 2*5 = 10

Or,

(D) Astronomy: 10 Marks

Short notes (2 out of 4) 5*2= 10 Or, Short Questions (5 out of 7) 2*5= 10

Tutorial

Unit III [1Credit = 25 marks]

(E) Music and Dance: 25 Marks

i) Long Question (1 out of 2) 10*1 = 10

ii) Short Questions (5 out of 7) 2*5 = 10

iii) Short Note (1 out of 3) 5*1 = 5

Or,

(F) Architecture: 25 Marks

(i) Long question (1 out of 2) 1*10= 10

(ii) Short questions (5 out of 7) 2*5= 10

(iii) Short note (1out of 3) 5*1= 5

Semester – IV (Major)

DSCC 5
(Drama & Dramaturgy)
SAN-H-CC5-4-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit language in Devanāgarī script. The language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Kālidāsa's Abhijñānaśakuntala (Act-I-IV) [1 credit = 25 Marks]

i. Broad Question [1 out of 2] 10*1=10

ii. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script) 6*1=6

iii. Rendering from Sanskrit to Prakrit [1 out of 2] 3*1=3

iv. Objective type questions [3 out of 5] (in Sanskrit language and Devanāgarī script) 2*3=6

Unit II

Kālidāsa's Abhijñānaśakuntala (Act-V-VIII) [1 credit = 20 Marks]

i. Broad Question [1 out of 2] 10*1=10

ii. Amplification [1 out of 2] (in Sanskrit language and Devanāgarī script)5*1=5

iii. Translation into Bengali/English [1 out of 2] 5*1=5

Unit III

Viśvanāthakavirāja's Sāhityadarpaṇa: CH. VI [1 credit = 30 Marks]

i.	Broad Question [1 out of 2]	10*1=10
ii.	Short Note [2 out of 3]	5*2=10
iii.	Objective type questions [5 out of 8] (in Sanskrit language and Devanāgarī script)	2*5=10

Tutorial

Unit IV [1 credit = 25 Marks]

Bhāsa's Svapnavāsavadatta

i.	Broad Question [1 out of 2]	10*1=10
ii.	Explanation [1 out of 2]	6*1=6
iii.	Translation into Bengali/English [1 out of 2]	5*1=5
iv.	Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script)	2*2=4

DSCC 6
(Gītā and Upaniṣad)
SAN-H-CC6-4-Th/Tu

Full Marks – 100
Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit language in Devanāgarī script. The language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Śrīmadbhāgavadgītā: Cognition & Emotive apparatus [1 credit = 25 Marks]

i.	Broad Question [1 out of 2]	10*1=10
ii.	Explanation [1 out of 2]	6*1=6
v.	Short Note [1 out of 2]	5*1=5
vi.	Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script)	2*2=4

Unit II

Śrīmadbhāgavadgītā: Controlling the mind Confusion & Conflict [1 credit = 30 Marks]

i.	Broad Question [1 out of 2]	10*1=10
ii.	Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)	6*1=6
iii.	Short Note [1 out of 2]	5*1=5
iv.	Translation into Bengali/English [1 out of 2]	5*1=5
v.	Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script)	2*2=4

Unit III

Śrīmadbhāgavadgītā: Self-management through devotion [1 credit = 20 Marks]

i.	Write notes [2 out of 3]	6*2=12
ii.	Translation into Bengali/English [1 out of 2]	5*1=5
iv.	Objective type questions [3 out of 5] (in Sanskrit language and Devanāgarī script)	1*3=3

Tutorial

Unit IV [1 credit = 25 Marks]

Īśopaniṣad

i.	Broad Question [1 out of 2]	10*1=10
ii.	Explanation [1 out of 2]	6*1=6
iii.	Translation into Bengali/English [1 out of 2]	5*1=5
iv.	Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script)	2*2=4

DSCC 7
(Grammatical study & Linguistics)
SAN-H-CC7-4-Th/Tu

Full Marks – 100
Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit language in Devanāgarī script. The language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Grammatical Kāvya: Bhaṭṭikāvya (Canto-II) [1 credit = 35 Marks]

i.	Broad Question [1 out of 2]	10*1=10
ii.	Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)	7*1=7
	a. Amplification [1 out of 2] (in Sanskrit language and Devanāgarī script)	5*1=5
iii.	Translation into Bengali/English [1 out of 2]	5*1=5

iv. Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script) 2*2=4

v. Vyākaraṇa-ṭippaṇī [2 out of 3] 2*2=4

Unit II

Siddhāntakaumudī: Kāraka-prakaraṇa [2 credits = 40 Marks]

i. Broad Question [1 out of 2] 10*1=10

ii. Explanation of Sūtra [1 out of 2] (in Sanskrit language and Devanāgarī script) 6*1=6

iii. Explanation of Dīkṣita-vr̥tti [1 out of 2] 6*1=6

iv. Short Note [1 out of 2] 4*1=4

v. Objective type questions [3 out of 5] (in Sanskrit language and Devanāgarī script) 2*3=6

vi. Account for Case-ending with Sūtra [4 out of 6] (in Sanskrit language and Devanāgarī script) 2*4=8

Tutorial

Unit III [1 credit = 25 Marks]

Linguistics

A. Classification of Languages (15 Marks)

i. Broad Question [1 out of 2] 10*1=10

ii. Short Note [1 out of 2] 5*1=5

B. Phonetic Laws & Phonetic Tendencies (10 Marks)

i. Broad Question [1 out of 2] 10*1=10

Or

Short Note [2 out of 3] 5*2=10

DSCC 8

(Smṛti Literature: Ancient Indian Science of Polity and Administration)

SAN-H-CC8-4-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit language in Devanāgarī script. Language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

History of Smṛti Literature [1 credit = 25 Marks]

i.	Broad Question [1 out of 2]	10*1=10
ii.	Short Note [2 out of 3]	5*2=10
iii.	Objective type questions [5 out of 8] (in Sanskrit language and Devanāgarī script)	1*5=5

Unit II

Rājadharma: Governance & Administration [1 credits = 30 Marks]

i.	Broad Question [1 out of 2]	10*1=10
ii.	Explanation [1 out of 2]	6*1=6
iii.	Translation into Bengali/English [1 out of 2]	4*1=4
vii.	Short Note [1 out of 2]	4*1=4
viii.	Objective type questions [3 out of 5] (in Sanskrit language and Devanāgarī script)	2*3=6

Unit III

Administrative Management [1 credits = 20 Marks]

i.	Broad Question [1 out of 2]	10*1=10
ii.	Short Note [2 out of 3]	3*2=6
iii.	Objective type questions [2 out of 3]	2*2=4

Tutorial

Unit IV [1 credit = 25 Marks]

Jurisprudence

i.	Broad Question [1 out of 2]	10*1=10
ii.	Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)	6*1=6
iii.	Short Note [1 out of 2]	5*1=5
iv.	Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script)	2*2=4

Modalities for Minor in Sanskrit

Semester – I (Minor: M-1)

(General Grammar and Metre)

SAN-MN1-1-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit and Bengali languages. The language of the answers will be as per instruction.

Theory

Unit I [3 credits = 75 Marks]

General Grammar

(a) Declension 5 out of 7 to be written in Sanskrit language and Devanāgarī script 1*5 = 5

(b) Conjugation 5 out of 7to be written in Sanskrit language and Devanagari script 1*5 = 5

(c) Make sentences using Avyayas 5 out of 7 to be written in Sanskrit language and Devanāgarī script 2*5 = 10

(d) Case-ending 5 out of 7 2*5 = 10

(e) Name and expound the Samāsa 5 out of 7 2*5 = 10

(f) i) Join in Sandhi 5 out of 7 1*5 = 5

ii) Disjoin Sandhi 5 out of 7 1*5 = 5

(g) Resulting forms from 'Kr̥t' and 'Taddhita Pratyayas' 5 out of 7 1*5 = 5

(h) Derivation from 'Kṛt' and 'Taddhita Pratyayas' 5 out of 7 1*5 = 5

(i) Correction 5 out of 7 2*5 = 10

(j) Write alternative form 5 out of 7 (specifically from declension and conjugation) 1*5 = 5

Tutorial

Unit II [1 credit = 25 Marks]

Metre

(d) Brief question or short note 1 out of 2 5*1 = 5

(e) Define and illustrate the metre 2 out of 4 5*2 = 10

(f) Scan, define and justify the metre 2 out of 4 5*2 = 10

Semester – II (Minor: M-1)

(History of Sanskrit Literature)

SAN-MN2-2-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper are to be set in Sanskrit and Bengali languages. The language of the answers should be as per instruction.

Theory

Unit I [3 credits = 75 Marks]

History of Classical Sanskrit Literature

1. Epic Literature:

iii. Broad Question [1 out of 2] 10*1=10

iv. Objective Questions [5 out of 8] (in Sanskrit language and Devanāgarī script) 2*5=10

2. Dr̥śya Kāvya

Short Notes [3 out of 5] 5*3=15

3. Śravya Kāvya

(a) Poetry:

iii. Broad Question [1 out of 2] 12*1=12

iv. Short Notes [2 out of 4] (in Sanskrit language and Devanagari script)4*2=8

(b) Prose:

Short Notes [2 out of 3] 5*2=10

4. Narrative Literature

Short Notes [2 out of 3] 5*2=10

Tutorial

Unit II [1 credit = 25 Marks]

History of Vedic Literature

(i) Broad question [1 out of 2] 10*1 = 10

(ii) Short questions [5 out of 7] (in Sanskrit language and Devanāgarī script)2*5 = 10

(iii) Short Note [1 out of 2] (in Sanskrit language and Devanāgarī script) 5*1 = 5

Semester – III (Minor: M-2)

(Classical Sanskrit Literature)

SAN-MN3-3-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit and Bengali languages. The language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Raghuvaṃśa [1 credit = 25 Marks]

v. Broad Question [1 out of 2] 10*1=10

vi. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)7*1=7

vii. Translation into Bengali/English [1 out of 2] 5*1=5

viii. Textual Grammar: Sandhi, Resulting forms. 1*3=3

Unit II

Kirātārjunīya [1 credit = 25 Marks]

v. Broad Question [1 out of 2] 10*1=10

vi. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)7*1=7

vii. Translation into Bengali/English [1 out of 2] 5*1=5

viii. Textual Grammar: Sandhi, Resulting forms. 1*3=3

Unit III

Śukanāsopadeśa [1 credit = 25 Marks]

iv. Broad Question [1 out of 2] 10*1=10

v. Translation into Bengali/English [1 out of 2] 5*1=5

vi. Short Questions [5 out of 8] 5*2=10

Tutorial

Unit IV [1 credit = 25 Marks]

Rājavāhanacarita

v. Broad Question [1 out of 2]
10*1=10

vi. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)
7*1=7

vii. Translation into Bengali/English [1 out of 2] 5*1=5

viii. Textual Grammar: Sandhi, Resulting forms. 1*3=3

Semester – IV (Minor: M-2)

(Drama & Dramaturgy)
SAN-MN4-4-Th/Tu
Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit and Bengali languages. The language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Kālidāsa's Abhijñānaśakuntala (Act-I-IV) [1 credit = 25 Marks]

v. Broad Question [1 out of 2] 10*1=10

vi. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)
6*1=6

vii. Rendering from Sanskrit to Prākr̥t [1 out of 2] 3*1=3

viii. Objective type questions [3 out of 5] (in Sanskrit language and Devanāgarī script) 2*3=6

Unit II

Kālidāsa's Abhijñānaśakuntala (Act-V-VIII) [1 credit = 20 Marks]

iv. Broad Question [1 out of 2] 10*1=10

v. Amplification [1 out of 2] (in Sanskrit language and Devanāgarī script)5*1=5

vi. Translation into Bengali/English [1 out of 2] 5*1=5

Unit III

Viśvanāthakavirāja's Sāhityadarpaṇa: CH. VI [1 credit = 30 Marks]

iv. Broad Question [1 out of 2] 10*1=10

v. Short Note [2 out of 3] 5*2=10

vi. Objective type questions [5 out of 8] (in Sanskrit language and Devanāgarī script) 2*5=10

Tutorial

Unit IV [1 credit = 25 Marks]

Bhāsa's Svapnavāsavadatta

v. Broad Question [1 out of 2] 10*1=10

vi. Explanation [1 out of 2] 6*1=6

vii. Translation into Bengali/English [1 out of 2] 5*1=5

viii. Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script) 2*2=4

3-year MDC in Sanskrit

Semester – I (MDC)

(General Grammar and Metre)

SAN-MD-CC1-1-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit and Bengali languages. The language of the answers will be as per instruction.

Theory

Unit I [3 credits = 75 Marks]

General Grammar

(a) Declension 5 out of 7 to be written in Sanskrit language and Devanāgarī script 1*5 = 5

(b) Conjugation 5 out of 7to be written in Sanskrit language and Devanagari script 1*5 = 5

(c) Make sentences using Avyayas 5 out of 7 to be written in Sanskrit language and Devanāgarī script 2*5 = 10

(d) Case-ending 5 out of 7 2*5 = 10

(e) Name and expound the Samāsa 5 out of 7 2*5 = 10

(f) i) Join in Sandhi 5 out of 7 1*5 = 5

ii) Disjoin Sandhi 5 out of 7 1*5 = 5

(g) Resulting forms from 'Kr̥t' and 'Taddhita Pratyayas' 5 out of 7 1*5 = 5

(h) Derivation from 'Kr̥t' and 'Taddhita Pratyayas' 5 out of 7 1*5 = 5

(i) Correction 5 out of 7 2*5 = 10

(j) Write alternative form 5 out of 7 (specifically from declension and conjugation) 1*5 = 5

Tutorial

Unit II [1 credit = 25 Marks]

Metre

(d) Brief question or short note 1 out of 2 5*1 = 5

(e) Define and illustrate the metre 2 out of 4 5*2 = 10

(f) Scan, define and justify the metre 2 out of 4 5*2 = 10

Semester – II (MDC)

(History of Sanskrit Literature)

SAN-MD-CC2-2-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper are to be set in Sanskrit and Bengali languages. The language of the answers should be as per instruction.

Theory

Unit I [3 credits = 75 Marks]

History of Classical Sanskrit Literature

1. Epic Literature:

v. Broad Question [1 out of 2] 10*1=10
vi. Objective Questions [5 out of 8] (in Sanskrit language and Devanāgarī script) 2*5=10

2. Dr̥śya Kāvya

Short Notes [3 out of 5] 5*3=15

3. Śravya Kāvya

(a) Poetry:

v. Broad Question [1 out of 2] 12*1=12
vi. Short Notes [2 out of 4] (in Sanskrit language and Devanagari script)4*2=8

(b) Prose:

Short Notes [2 out of 3] 5*2=10

4. Narrative Literature

Short Notes [2 out of 3] 5*2=10

Tutorial

Unit II [1 credit = 25 Marks]

History of Vedic Literature

(i) Broad question [1 out of 2] 10*1 = 10

(ii) Short questions [5 out of 7] (in Sanskrit language and Devanāgarī script)2*5 = 10

(iii) Short Note [1 out of 2] (in Sanskrit language and Devanāgarī script) 5*1 = 5

Semester – III (MDC)

(Classical Sanskrit Literature)
SAN-MD-CC3-3-Th/Tu
Full Marks – 100
Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit and Bengali languages. The language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Raghuvaṃśa [1 credit = 25 Marks]

ix. Broad Question [1 out of 2] 10*1=10

x. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)7*1=7

xi. Translation into Bengali/English [1 out of 2] 5*1=5

xii. Textual Grammar: Sandhi, Resulting forms. 1*3=3

Unit II

Kirātārjunīya [1 credit = 25 Marks]

ix. Broad Question [1 out of 2] 10*1=10

x. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)7*1=7

xi. Translation into Bengali/English [1 out of 2] 5*1=5

xii. Textual Grammar: Sandhi, Resulting forms. 1*3=3

Unit III

Śukanāsopadeśa [1 credit = 25 Marks]

vii. Broad Question [1 out of 2] 10*1=10

viii. Translation into Bengali/English [1 out of 2] 5*1=5

ix. Short Questions [5 out of 8] 5*2=10

Tutorial

Unit IV [1 credit = 25 Marks]

Rājavāhanacarita

ix. Broad Question [1 out of 2]

10*1=10

x. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)

7*1=7

xi. Translation into Bengali/English [1 out of 2] 5*1=5

xii. Textual Grammar: Sandhi, Resulting forms. 1*3=3

The following course will be only compulsory SEC paper for the MDC students during their course of first three semesters.

SEC

(Skill of Reading and Writing)

SAN-MD-SEC1-1-Th/Tu OR SAN-MD-SEC2-2-Th/Tu OR SAN-MD-SEC3-3-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions will be set in Sanskrit and Devanāgarī scripts.

Theory

Unit I [3 credits = 75 Marks]

Skill of Writing

1. a) Writing the alphabets of Devanāgarī script. 5

b) Writing 3 or 4 letter-words in Devanāgarī script. 5

2. Translation of short sentences from Bengali or English into Sanskrit (in Devanāgarī script). [6 out of 8] 2*6 = 12

3. Translation of short sentences from simple Sanskrit into Bengali or English. [6 out of 8] 2*6 = 12

4. Sanskrit Comprehension [1 out of 2] 15*1 = 15

5. Voice-change of simple Sanskrit sentences. [4 out of 6] 2.5*4 = 10

6. Correct the spellings according to Ṇatva-Ṣatva Vidhis. [4 out of 6] 2*4 = 8

7. Distinguish between the Ātmanepadī and Parasmaipadī forms of the same roots. [2 out of 4] 4*2 = 8

Tutorial

Unit II [1Credit = 25 marks]

Skill of Reading and Speaking

a) Reading skill test according to the syllabus [in Viva-voce form] 15

b) Conversation ability test in Sanskrit according to the syllabus [in Viva-voce form] 10

Semester – IV (MDC)

(Drama & Dramaturgy)

SAN-MD-CC4-4-Th/Tu

Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit and Bengali languages. The language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Kālidāsa's Abhijñānaśakuntala (Act-I-IV) [1 credit = 25 Marks]

ix. Broad Question [1 out of 2] 10*1=10

x. Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script) 6*1=6

xi. Rendering from Sanskrit to Prākr̥t [1 out of 2] 3*1=3

xii. Objective type questions [3 out of 5] (in Sanskrit language and Devanāgarī script) 2*3=6

Unit II

Kālidāsa's Abhijñānaśakuntala (Act-V-VIII) [1 credit = 20 Marks]

vii. Broad Question [1 out of 2] 10*1=10

viii. Amplification [1 out of 2] (in Sanskrit language and Devanāgarī script)5*1=5

ix. Translation into Bengali/English [1 out of 2] 5*1=5

Unit III

Viśvanāthakavirāja's Sāhityadarpaṇa: CH. VI [1 credit = 30 Marks]

vii. Broad Question [1 out of 2] 10*1=10

viii. Short Note [2 out of 3] 5*2=10

ix.	Objective type questions [5 out of 8] (in Sanskrit language and Devanāgarī script)	2*5=10

Tutorial

Unit IV [1 credit = 25 Marks]

Bhāsa's Svapnavāsavadatta

ix.	Broad Question [1 out of 2]	10*1=10
x.	Explanation [1 out of 2]	6*1=6
xi.	Translation into Bengali/English [1 out of 2]	5*1=5
xii.	Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script)	2*2=4

Semester – IV (MDC)

(Gītā and Upaniṣad)

SAN-MD-CC5-4-Th/Tu
Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit and Bengali languages. The language of the answers will be as per instruction.

Theory [3 credits = 75 Marks]

Unit I

Śrīmadbhāgavadgītā- Cognition & Emotive apparatus [1 credit = 25 Marks]

iii.	Broad Question [1 out of 2]	10*1=10
iv.	Explanation [1 out of 2]	6*1=6
vii.	Short Note [1 out of 2]	5*1=5
viii.	Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script)	2*2=4

Unit II

Śrīmadbhāgavadgītā- Controlling the mind Confusion & Conflict [1 credit = 30 Marks]

vi.	Broad Question [1 out of 2]	10*1=10
vii.	Explanation [1 out of 2] (in Sanskrit language and Devanāgarī script)	6*1=6
viii.	Short Note [1 out of 2]	5*1=5
ix.	Translation into Bengali/English [1 out of 2]	5*1=5
x.	Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script)	2*2=4

Unit III

Śrīmadbhāgavadgītā- Self-management through devotion [1 credit = 20 Marks]

iii.	Write notes [2 out of 3]	6*2=12
iv.	Translation into Bengali/English [1 out of 2]	5*1=5
v.	Objective type questions [3 out of 5] (in Sanskrit language and Devanāgarī script)	1*3=3

Tutorial

Unit IV [1 credit = 25 Marks]

Īśopaniṣad

v.	Broad Question [1 out of 2]	10*1=10
vi.	Explanation [1 out of 2]	6*1=6
vii.	Translation into Bengali/English [1 out of 2]	5*1=5
viii.	Objective type questions [2 out of 3] (in Sanskrit language and Devanāgarī script)	2*2=4

MDC Minor in Sanskrit

Semester - III (MDC Minor: MDC-m1)

(General Grammar and Metre)

SAN-MD-MC1-3-Th/Tu
Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper will be set in Sanskrit and Bengali languages. The language of the answers will be as per instruction.

Theory

Unit I [3 credits = 75 Marks]

General Grammar

(a) Declension 5 out of 7 to be written in Sanskrit language and Devanāgarī script 1*5 = 5

(b) Conjugation 5 out of 7to be written in Sanskrit language and Devanagari script 1*5 = 5

(c) Make sentences using Avyayas 5 out of 7 to be written in Sanskrit language and Devanāgarī script 2*5 = 10

(d) Case-ending 5 out of 7 2*5 = 10

(e) Name and expound the Samāsa 5 out of 7 2*5 = 10

(f) i) Join in Sandhi 5 out of 7 1*5 = 5

ii) Disjoin Sandhi 5 out of 7 1*5 = 5

(g) Resulting forms from 'Kr̥t' and 'Taddhita Pratyayas' 5 out of 7 1*5 = 5

(h) Derivation from 'Kr̥t' and 'Taddhita Pratyayas' 5 out of 7 1*5 = 5

(i) Correction 5 out of 7 2*5 = 10

(j) Write alternative form 5 out of 7 (specifically from declension and conjugation) 1*5 = 5

Tutorial

Unit II [1 credit = 25 Marks]

Metre

(d) Brief question or short note 1 out of 2 5*1 = 5

(e) Define and illustrate the metre 2 out of 4 5*2 = 10

(f) Scan, define and justify the metre 2 out of 4 5*2 = 10

Semester - IV (MDC Minor: MDC-m2)

(History of Sanskrit Literature)

SAN-MD-MC2-4-Th/Tu
Full Marks – 100

Theory (3 credits) = 75 marks

Tutorial (1 credit) = 25 marks

Questions of this paper are to be set in Sanskrit and Bengali languages. The language of the answers should be as per instruction.

Theory

Unit I [3 credits = 75 Marks]

History of Classical Sanskrit Literature

1. Epic Literature:

vii. Broad Question [1 out of 2] 10*1=10

viii. Objective Questions [5 out of 8] (in Sanskrit language and Devanāgarī script) 2*5=10

2. Dr̥śya Kāvya

Short Notes [3 out of 5] 5*3=15

3. Śravya Kāvya

(a) Poetry:

vii. Broad Question [1 out of 2] 12*1=12

viii. Short Notes [2 out of 4] (in Sanskrit language and Devanagari script) 4*2=8

(b) Prose:

Short Notes [2 out of 3] 5*2=10

4. Narrative Literature

Short Notes [2 out of 3] 5*2=10

Tutorial

Unit II [1 credit = 25 Marks]

History of Vedic Literature

(i) Broad question [1 out of 2] 10*1 = 10

(ii) Short questions [5 out of 7] (in Sanskrit language and Devanāgarī script) 2*5 = 10

(iii) Short Note [1 out of 2] (in Sanskrit language and Devanāgarī script) 5*1 = 5

For students other than Sanskrit:

The following course will be only compulsory IDC paper for the MDC students during their course of first three semesters.

IDC

(Sanskrit Scientific Literature)

SAN-MD-IDC-1-Th/Tu OR SAN-MD-IDC-2-Th/Tu OR SAN-MD-IDC-3-Th/Tu

Full Marks – 75

Theory (2 credits) = 50 marks

Tutorial (1 credit) = 25 marks

Questions will be set in Bengali and English languages. (Sanskrit is not compulsory for answering)

Theory [2 credits = 50 Marks]

Unit-I

(A) Medical Science: 40 Marks

i) Long Questions (2 out of 4) 10*2 = 20

ii) Short Questions (5 out of 7) 2*5 = 10

iii) Short Notes (2 out of 4) 5*2 = 10

Or,

(B) Mathematics: 40 Marks

(i) Long questions (2 out of 4)	10*2= 20
(ii) Short questions (5 (five) out of 7 (seven)	2*5= 10
(iii) Short notes (2 out of 4)	5*2= 10

Unit-II

(C) Painting: 10 Marks

Short Notes (2 out of 4) 5*2 = 10 Or, Short Questions (5 out of 7) 2*5 = 10

Or,

(D) Astronomy: 10 Marks

Short notes (2 out of 4) 5*2= 10 Or, Short Questions (5 out of 7) 2*5= 10

Tutorial

Unit III [1Credit = 25 marks]

(E) Music and Dance: 25 Marks

i) Long Question (1 out of 2)	10*1 = 10
ii) Short Questions (5 out of 7)	2*5 = 10
iii) Short Note (1 out of 3)	5*1 = 5

Or,

(F) Architecture: 25 Marks

(i) Long question (1 out of 2)	1*10= 10
(ii) Short questions (5 out of 7)	2*5= 10
(iii) Short note (1out of 3)	5*1= 5