**Office of the Principal**
গুৱাহাটী মহাবিদ্যালয়
# GUWAHATI COLLEGE
**Recognised under UGC 2 (f) and 12 (B)**
**[ Reaccredited by NAAC with B Grade (CGPA 2.62) in 2015 ]**

-StudentPerformanceandLearning Outcomes

- TeachersandstudentsareawareofthestatedProgrammeandcourseoutcomes ofthe Programmes offeredbytheinstitution.

- Thecollegefollowsanoutcomebasedteachinglearningprocessandthecollegeisveryclearaboutthelearningout comes that isaimed atthrough the Courses offered.

- Atthecommencementofthesemesters,studentsaremadeawareoftheskills,qualitiesandknowledgethattheywi llgain through the courses offered.

- Teachersspendasubstantialamountoftimeinintroducingandalsofamiliarizingthestudentswiththesyllabus,

- The Hard Copy of the syllabi and learning outcome of the courses are with the departments and studentscaneasilyaccess it.

- Thestudentsarealsotoldaboutthecourseoutcomesthroughtutorials.

# Programme OutcomesofB.AHonoursCourses

a) **Developmentofproblem-solvingability:**Studentsgraduatingfromthiscollegeunder B.A.Honsprogrammeareexpectedtodevelopanalyticalskillsthatwillenablethemtosolvetheproblem relatedissuesthathe/shefacesduringnextlevelofstudies.

b) **Development of communication skill:** Students, although at the initial stage after getting admissionmight be facing difficulty in their language skill, but when they complete the programme,theyareexpectedtobecomeprettyabletocommunicatetheirunderstandingin thesubject.

c) **Ability of critical evaluation:** Students of this programme become capable to ask questions, criticallyappreciateascholarlypresentationofanyformanddebateupontheissueswhichinvitecrossdiscussions.

d) **Social responsibility:** Students graduating from this college in this programme become able to relate thesocialandnationalissuestowhattheyhavelearntfromtheirbooksandinthe classroomsituations.

e) **Skill development due to hand on experiment:** Project work and field study help them gain experienceto makethemcorrelatebetween theground realitywithclassroomteaching.

f) **Destining for higher education:**Students become highly cognizant of the expansion of the learning intheirrespectivefieldswhichenablesthemtogetadmittedtothedifferentstateandcentraluniversitiesfor masterscourses.

f) **Confidence generation:** Students completing the programme become confident in the sense that theyfeeltheyare employable.

g) **Development of research aptitude:** This college trains the students to undertake primary level ofresearchworkandthustheybecomemotivatedforadvanced researchwhentheygoforhigherstudies.

h) **Bettercitizenofthefuture:**Throughtheprogramme,studentsareinstilledthebroadervaluesoflife

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thathelpthembecomeresponsiblecitizensofthefuture.

# Programme OutcomesofB.Sc.Honours Courses

**Lab exposure:** After the students pass out this programme become adapted tosolvingrigorouslaboratoryrelatedproblems.

a) **Familiarwiththerecentdevelopmentsofscience&Technology:**Alongwithregularclassroom teaching the students are exposed seminars, workshops and special lectures to makethemacquaintedwith differentrecenttrendsof scientificworkshappening inandaround.

b) **Job oriented students:** Many students find suitable jobs in different arears like chemical &Pharmaceutical industries, academies, Govt and public sectors etc Students become workableforceand thus if theywant, theycanopt forjob and/or such trainingcourses.

c) **Destining for higher education:** Students become highly cognizant of the expansionofthelearningintheirrespectivefieldswhichenablesthemtoget admittedtothepremierinstitutes of the country like IITs, IIMs, BHU, IISER and different state and central universities&abroad.

d) **Development of research aptitude:** An aptitude to research is also stimulated in the minds ofthisbudding generation.Many of thestudents after passing BScHonscourse opt to takeupsome projects in good laboratories of the country and many opt to choose research after theirmasters.

g) **Holistic development:**One most significant outcome of the programme isthe inculcation oflifeamongthelearnersthatenablethem.

h) **Expertiseincomputerskills:**Duringthecourseofstudiesthestudentsbecomequietlyacquaintedwitht hedifferentsoftwares,programminglanguages,mathematicalmodellings,computationalmethods.Th esewillhelptheminfuture.

i) **Development of leadership quality and ability to work is a team man :**As these studentshave to spend a pretty good amount of time in the laboratories where they work in groups, theability of working in teams isautomatically inherited withinthemselves, and this immenselyhelpthemadopttodifferentnewenvironmentalsituationseitherinjobsorduringhighereduc ation or research. Good leadership qualities are a1so generated in some students which helpthemovercomeseveralawkwardsituationsin future.

# Programme outcomesofB.ComHonours

## FinancialAccounting:

a)      ToenablethestudentstolearnprinciplesandconceptsofAccountancy.

b)      StudentsareenabledwiththeKnowledgeinthepracticalapplicationsofAccounting.

c)      ToenablethestudentstolearnthebasicconceptsofPartnershipAccounting,andalliedaspectsofaccounting.

d)      Thestudentwillgetthoroughknowledgeontheaccountingpracticeprevailinginpartnershipfirmsandotheral lied aspects.

e)      Tofindoutthetechnicalexpertiseinmaintainingthebooksofaccounts.

f)      Toencouragethestudentsaboutmaintainingthebooksofaccountsforfurtherreference.

## MarketingandSalesmanship

g)      Thiscourseenablesthestudents,thepracticalknowledgeandthetacticsinthemarketing.

h)      TostudyandcriticallyanalyzethebasicconceptsandtrendsinMarketing.

i)      Toawareoftherecentchangesinthefieldofmarketing.

## ComputerConceptsandapplications

j)      Tomakestudentsfamiliarwithcomputerenvironment&operatingsystems

k)      Tointroducestudentswithaccountingpackagesliketally.

l)      Todevelopskillandknowledgeamongstudentsinapplicationsofinternetineducationofcommerce.

## BusinessMathematicsandStatistics

m)      TouseandunderstandusefulfunctionsinbusinessaswellastheconceptofEMI.

n)      TounderstandthedifferentconceptofpopulationandsampleandtomakestudentsfamiliarwithCalculati onofvarioustypesofaveragesandvariation.

o)      Tolearntheapplicationsofmatricesinbusiness.

p)      TounderstandthestudentstosolveLPPtomaximizetheprofitandtominimizethecost.

q)      Touseregressionanalysistoestimatetherelationshipbetweentwovariablesandtousefrequencydistribution tomakedecision.

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r)    Tounderstandthetechniquesandconceptofdifferenttypesofindexnumbers.

## BusinessEnvironmentandEntrepreneurship

s)    TomakethestudentsawareabouttheBusinessandBusinessEnvironment.

t)    Todevelopentrepreneurialawarenessamongstudents.

u)    Tomotivatestudentstomaketheirmindsetforthinkingentrepreneurshipascareer.

## BankingandFinance

v)    Tofamiliarthestudentswiththefundamentalsofbankingandthoroughknowledgeofbankingoperations.

w)    Tobuildupthecapabilityofstudentsforknowingbankingconceptsandoperations.

x)    To aware the students about financial structure, system and the basic principles of financialdiscipline anddecisions.

y)    Tomakeunderstandable tothe studentsregardingthenewconceptsintroducedinthebankingsystem.

z)    To make the students aware about the Primary and Secondary market operations and the basic analyticaltoolsforthemeasurementandcomparisonofperformancesofdifferentinvestmentoptionsandopportunities.


### COURSES&PROGRAMOUTCOMECBCS&SEMESTERSYSTEM


ASSAMESE
DEPARTMENT(COURSEANDPROGRAMME
OUTCOMES)
COURSEOUTCOME

ASML(POETRY, PLAYS)


Thestudents willlearnfollowingfactsafterreadingthiscourse.

- Thestudentswillhaveanideaonancientpoemsof Assamese literature.
- AclearideaontheRamayana &Mahabharatagiven inthis course.
- Thetexture/constructionetcoftheold Assamesescriptcould belearnt.
- ThestudentswilllearnaboutmodernAssamese poemsanditssubjects.
- ThestudentswillknowaboutmodernAssameseplaysandhaveanideaontheIndianfreedommovementof1942.

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COURSE
OUTCOMEASML
(ASSAMESEPROSE,NOVELSANDSHORTSTORIES)

Thestudents willlearnfollowingfactsafterreadingthiscourse.
- Thestudentswill learnaboutancientAssamese Proseanditsstyles.
- Theywillhaveanideaontheinceptionof Assamese playsanditssubject matter.
- AclearideaonAssameseshort storiesandnovels could beformed.
- ThestudentswilllearnaboutthefirstAssameseshortstoriesandthecultureoftribalpeopleinAssam.

COURSE OUTCOME (ELECTIVE
ASSAMESE)ASMP(PROSE&SHORTSTORIE
S)

Thestudents will learnfollowingfactsaftergoingthrough thiscourse.
- TheywillhaveaclearideaonBrajawali Language ofAssam.
- Theywilllearnaboutancient Assamese literatureandancientAssameselanguagesanditsstyles.
- ThestudentswilllearnabouttheroleplayedbylordKrishnaintheMahabharataandsubsequentlyhaveanidea on Geeta.
- TheywilllearnaboutthecontributionofSanskritlanguageinmodernAssameselanguage.
- Theywilllearnabout"XahityarNabarax"andaboutdevotionalliteratureofAssam.
- Theywilllearnaboutthevariousstagesof Assameseplaysanditscharacteristics.
- The studentswillhaveanideaon the characteristicsofAssameseshortstoriesand its placeinAssamese literature asawhole.

COURSEOUTCOME
ASMP(NOVELS&CRITICISIMS)

Thefollowingfacts couldbelearnfromthiscourse.
- Thestudents willknowabout evolutionofAssameseNovels.
- ThecharacteristicsofAssamesepoems,plays,Novelsanditsvariouselements.AnditsplaceinAssamese Literature.
- The students will know about the influence of Western literature in Assamese literature, its similarityanddissimilarities.
- Thestudents will knowaboutthesimilarityanddissimilarityinallsubjects.

COURSE
OUTCOMEASMP(POE
TRY)

Thestudents will learnfollowingfactsaftergoingthrough thiscourse.
- TheywilllearnaboutthestoriesoftheRamayanaandthe Mahabharataand thesocietiesreflectedinthesetwoepics.
- Theywilllearnthevariousprevalentritualsthatwereobservedduringthebirthofababyandafterwards.

- Theywillknowtheinfluenceofdevotionalliteratureonthesocietyandthegloryof"Bargeet"composedbySri mantaSankardeva &Madhabdeva.
- Anideaonromanticpoems,itscharacteristicsandabouttheauthorsofthesepoems,couldbe

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formed.

- Thestudentswillknowaboutthemodernpoems,itscharacteristicsandaboutsubjectmatter ofthesepoems.

## COURSEOUTCOME
## ASMP(PLAYS,CULTURE OFASSAM)

Thefollowingfacts could belearnt fromthiscourse.

- ThestudentswilllearnabouttheBrajawalilanguagesandthepurposeforthecreationofthislanguage bySrimantaSankardeva.
- Theywillknowabout modernAssameseplays,itscharacteristicsanditssubjectmatters.
- Theywillknowabout culturesofeachtribeofAssamandthedifferencesamongtheircultures.
- Theywillknowaboutthevariousaspectsofritualsthatwereobservedduringmarriage,death,birthandreligio usactivities.
- ThestudentswillknowabouttheanthropologicalfeaturesofeachtribeofAssamandtheirassimilati onintheAssamesesociety.

## COURSEOUTCOME
## ASMP(SCRIPT, HISTORYOFASSAMESE LITERATURE)

Thestudentswillknowfollowingfacts fromthiscourse.

- TheywillknowtheoriginofAssamesescript andits evolution.
- Thestudents will knowaboutthemanuscript writteninleaves,inscriptionsetc.
- Theywillknowaboutthepreservationofmanuscriptandabouttheprocesshowthesematerialsformanuscrip twerecollected.
- ThecontributionofthemissionariesinAssamese literaturecanbelearntfromthiscourse.
- ThestudentswillknowaboutthemodernAssameselanguageandliteratureandthecontributionsofthevariou sauthors.

## COURSE
## OUTCOMEASMP
## (ASSAMESELANGUAGE,HISTORYOFASSAMESELITERATURE)

- ThestudentswilllearnabouttheAssameseliteraturesinceitsinceptionanditsevolutiontothepresentstage.
- TheywillknowthedivisionsofvariousliteratureonthebasisoftimesandvarioushappeningsinAssamand its characteristics anddissimilarities.
- They will know about the Indo-European language and its impact on Indian languages particularly inAssamese language.
- Theywillhave anideaontheevolutionofSanskrit,Pali,Pakrillanguages.
- Theywilllearnaboutthesub-languagesof Assameselanguageanditsevolutions.
- Theywillrealisethedifference betweenthe writtenlanguage andspokenlanguages.
- Theywillknowthevariouswordsthat werederivedfromother languages.

PROGRAMMEOUTCOME:-

In order to have a knowledge on a language, one has to know the origin of it, how it evolvesanditsjourneyfrombirthtothepresentstage.Thestudentswillbebenefitedifallthesefactsarecoveredina syllabus. Accordingly, all these subjects have be incorporated in the TDC syllabus and the students willdefinitelybebenefitedfromit.

GENERALCHARACTERISTICS:-

The students will get a detail idea on Assamese language, its development and evolution,Assamese literature, Assamesepoetry, Novels,Phase etc. fromthissyllabus.

SPECIALCHARACTERISTICS:-

ThestudentswillknowthevarioustextureofAssameselanguagehowitcameintoexistence, factors behind its evolution, differences between other Indian languages, similarities with otherIndian languages, influences on Assamese language by other Indian languages as well as Western languagesetc.everythingiscoveredin thesyllabus.

The growth ofAssamese literature, its evolution, its contributions etc. are also included inthe syllabus. The syllabus focuses on thevariousAssamesecultures,written language,spokenlanguagesetc., its regional languages. After all it is a complete syllabus with which a student can have a knowledge ofAssamese language, literature, cultureetc.

Choice Based Credit System (CBCS)Core courseASMCH
History of Assamese language and scriptAxomiya BhashaaruLipirEtihash

COURSEOUTCOME: ASMCH

Thestudentswillknowfollowingfacts fromthiscourse.

- TheywillknowtheoriginofAssamesescript andits evolution.
- The students will know about the manuscript written in leaves, inscriptions etc.COURSEOUTCOME: ASMCH

Thestudents willlearnfollowingfactsafterreadingthiscourse.

- Thestudentswill haveanideaonancientpoemsof Assamese literature.
- AclearideaontheRamayana &Mahabharatagiven inthis course.
- TheywillknowthedivisionsofvariousliteratureonthebasisoftimesandvarioushappeningsinAssamand its characteristics anddissimilarities.

COURSEOUTCOME:

- TheywilllearnaboutthestoriesoftheRamayanaand theMahabharataandthesocietiesreflected inthesetwoepics.
- Anideaonromanticpoems,itscharacteristicsandabouttheauthorsofthesepoems,couldbeformed.
- 

MILASML
ASSAMESEDRAMA,SHORT STORIESANDNOVEL

COURSEOUTCOME:ASML

- ThestudentswilllearnabouttheBrajawalilanguagesandthepurposeforthecreationofthislanguage bySrimantaSankardeva.
- Theywillknowabout modernAssameseplays,itscharacteristicsanditssubjectmatters.
- Theywillknowabout culturesofeachtribeofAssamandthedifferencesamongtheircultures.

COURSEOUTCOME: ASML

- TheywilllearnaboutthestoriesoftheRamayanaandtheMahabharataandthesocietiesreflected inthesetwoepics.
- Theywilllearnthevariousprevalentritualsthatwereobservedduringthebirthofababyandafterwards.

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- Anideaonromanticpoems,itscharacteristicsandabouttheauthorsofthesepoems,couldbeformed.

## COURSEOUTCOME: ASML

- Autobiographyisa important thingtoreadeveryhumanbeing.
- Autobiographycontrolourlife and always takecareups anddownineveryhumanbeing.
- Studentsalsoinspiretowrite autobiography.

## COURSEOUTCOME: ASML

- Itimprovesthestudentsactivityinallpartsoftheirlife.PRO

## GRAMMEOUTCOME:-

Thestudentswillbebenefitedifallthesefactsarecoveredina syllabus. Accordingly, all these subjects have be incorporated in the TDC syllabus and the students willdefinitelybebenefitedfromit.

## GENERALCHARACTERISTICS:-

The students will get a detail idea on Assamese language, its development and evolution,Assamese literature, Assamesepoetry, Novels,Phase etc. fromthissyllabus.

## SPECIALCHARACTERISTICS:-

ThestudentswillknowthevarioustextureofAssameselanguagehowitcameintoexistence, factors behind its evolution, differences between other Indian languages, similarities with otherIndian languages, influences on Assamese language by other Indian languages as well as Western languagesetc.everythingiscoveredin thesyllabus.

The growth ofAssamese literature, its evolution, its contributions etc. are also included inthe syllabus. Thesyllabus focuses on thevariousAssamesecultures, written language,spokenlanguagesetc., its regional languages. After all it is a complete syllabus with which a student can have a knowledge ofAssamese language, literature, cultureetc.

### DEPARTMENT OFBENGALI

COURSEOUTCOME
*B.A.ElectiveBengali (Pass)*

| BNGP History ofBengali literature (Old &Medieval)&Language. | Understanding of History of Bengali Literature (Old & medieval)&historyof BengaliLanguagethrough selectedtopics. |
|---|---|
| BNGP History ofBengali Literature (ModernPeriod) & Prosody andRhetoric. | : Understanding of History of Bengali Literature & theory ofProsodyandRhetoric, scansionetc. |
| BNGP–BengaliPoetryofMedievalPeriod. | understandingofselectedpiecesofBengali Poetryrepresentingthe medieval period. |

| | |
|---|---|
| BNGP – , Modern BengaliPoetry. | Understanding of selected poems from modern Bengali literature.Reflectingthenewideasofmodern periodof Bengali literature |
| BNGP – 501, Modern BengaliProse& Drama | C05:Understandingof modernBengaliproseandtheoreticalaspects ofmodernBengalidrama andpractices. |
| BNGP – 601, Modern BengaliNoveland Short Stories. | C06:Understandingofhistoryoforiginanddevelopmentof modernBengaliShort StoriesandNovel. |
| Course- BNGL Arts : 301BengaliLiteratureofNi neteenthCentury. | C 01 : Understanding of Bengali Literature of Nineteenth Century fromwritingsofEminentBengaliwritersBankimchandraChattopadhyayan dRabindranathTagore. |
| Course-BNGLArts:401, Bengali fiction & BengaliLanguage. | C02: UnderstandingofBengali Fictionandevaluationoflanguage. |
| Course-BNGLCOM : 301, BengaliProseandGrammar. | • C03:UnderstandingofBengaliproseandgrammarthroughselec tedtexts. |
| Course-BNGLCOM : 401, Bengalifiction&Essays. | • C04:UnderstandingofBengali ShortStoriesandEssaysthroughselectedtexts. |
| Course-BNGLSc. : 301, BengaliLiteratureofTwentiethC entury. | • C 05 : Understanding of different part of Bengali Literature of20thCenturythrough selected texts. |
| Course - BNGL Sc. : 401,BengaliNovelandEssa ys. | • C06:UnderstandingofBengali novelandessaysofeminentwritersthrough selectedtexts. |

COLLEGEOFFERINGTHETHREEYEARPROGRAMSIN     ECONOMICS(PASS)

DEPARTMENTOFECONOMICS

*PROGRAMOUTCOMES:*

After completion of the general degree program in Economics (pass) the students will beable to critically think the behaviour of demand and supply, prices of different commodities and consumers'endsand means andalsolearndifferentkind ofconcepton prevailingmarkets.

Students will also be able to learn the basic concept of macroeconomic policies includingmonetary and fiscal policies like- investment, government expenditure, employment, consumptions,internationaltrade,

etc.

Students can critically think about the importance of liberalization, globalization, localizationanditsimpact on Indiaaswell as restoftheWorldeconomy.

COURSE OUTCOME IN BA ECONOMICS (PASS):

Micro Economics-I & II: CO: Students understand the behaviour of demand andsupply in fixing prices of different commodities in different markets. Students also become able to criticalthinking on the consumers' behaviour centering round their ends and means and acquire knowledge aboutthedifferentkind ofmarketsavailableinthelocalityaswell asrest oftheworld.

Macro Economics- I & II:

Able to analyse the different basic concept ofmacroeconomic policies including monetary and fiscal policies like- investment, government expenditure,employment,consumptions, international trade,etc.

Development of Indian Economy (since Independence-I & II): CO: Understand theIndian economy in the context of liberalization, globalization, localization, etc. and the recent trend of Indianand world economyas awhole.

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DEPARTMENTOFENGLISHPRO
GRAMSPECIFICOUTCOME

| Programme | |
|---|---|
| B.A. (English Honours) | To classify a specific genre of literature and give illustration of the characteristics from literarytextsandtherebyexploreliteraryworkstofindout thestructureanditssignificance. Tounderstandthevariouscomponentsofthelinguisticstructuresofthelanguage. Tofamiliarize thestudents withtheliteraturesfromdifferentcornersof theworld, eitherastranslationsofother languages inEnglishorasNewLiteraturesinEnglish. Ithelpsthestudentsdeveloptheirmethodologicalskillsandspecificconcepts in a literary text in an analytical and critical way through the study of Literary Theory andCriticism. |

COURSEOUTCOME

| COURSE( HONOURS) | |
|---|---|
| ENG-HC-1016 Indian Classical Literature | To enable students to have a broad understanding of the literatures of India in English translation |
| ENG-HC-1026 European Classical Literature | To familiarize the students with representative texts of classical period |
| ENG-HC-2016 Indian Writing in English | Toenablestudentstounderstand historical development of Indian writing in English |
| ENG-HC-2026 British Poetry and Drama | To acquaint students with representative British dramas and poetry from $14^{th}$ to $17^{th}$ centuries |
| ENG-HC-3016 History of English literatures and Forms | To acquaint students with the history of English literatures and major literary forms |
| ENG-HC-3026 American Literature | To enablestudents to have a broad understandingofAmerican Literaturethroughthestudyofselectedliterarytexts |

| ENG-HC-3036<br>British Poetry and Drama | To acquaint students with representative British dramas and poetry from 17th and 18th centuries |
| --- | --- |
| ENG-HC-4016<br>British Literature :<br>18th Century | To acquaint students with representative British literature of the18th century |
| ENG-HC-4026 British Romantic Literature | To enablestudents to have a broad understandingofBritish Romantic Literature |
| ENG-HC-4036<br>British Literature : 19th Century | To acquaint students with representative British literature of the19th century |
| ENG-HC-5016<br>British Literature : The 20th Century | To enablestudents to have a broad understandingofBritish Literature of the 20th century |
| ENG-HC-5026<br>Women's Writing | To introduce the students to the writings of women of 19th and 20th century |
| ENG-HC-6016<br>Modern European Drama | To introduce the students to the innovative dramatic works of playwrights from Europe |
| ENG-HC-6026<br>Postcolonial Literature | To enable students to have a broad understanding of Postcolonial Literature through representative texts |

## B.A.COURSEOUTCOME(PASS)

| ENG-RE-5016<br>Soft Skills | To equip the students with the resources of soft skills to develop their overall personality |
| --- | --- |
| ENG-RG-5016<br>Contemporary India: Women and Empowerment | To familiarize the students with women's issues in India |
| Eng-RE-6016<br>Academic Writing | Toenablestudentstodeveloptheir skillin academic writing |
| ENG-RG-6016<br>Cultural Diversity | To facilitate the student's engagement with cultural contexts through various texts |

| ENG-SE-6014 Business Communication | To familiarize students with comprehensive idea of effective communication |
|---|---|

# Department ofHindi

**Programme:HindiHonoursCourseOutcomes**

# Programespecificoutcomesandcourseoutcomesfor B.AHindiHonours

**ProgramSpecificOutcomes B.A. (Hindi)**

Oncompletionof B.A(Hindi),Studentsareableto:

1. Tounderstand thebasicconceptand subjectofHindi &its origin

2. Tomakeornote theimportanceofsubjectHindi&itsBranches.

3. To understand various aspect of Hindi literature with a process to reach method and givingnew mode anddirection.          N

4. To makea attempt indifferentareaand theorysuch asvocabularyand viceversa

5. Tounderstand intheLiteraturemorein aborder areas thenMaryconfinedtosubject.

6. ToknowaboutHindiliteratureitsrootscauseperspectivesandmethods.

7. Elaboratingandunderstandingitsphilosophicalmethodsof HindiLiterature.

8. Evaluating the concept of Hindi from past to present and making the society more closelythroughliterature.

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िह:दःौीिवभ ◌ाहाटीमहािवh◌ालय
◌ाग,गव

| Course ID | CourseTitle | CourseOutcome |
|-----------|-------------|---------------|
|  |  |  |

चयनआध◌ाःरत◌ेिडट-
व़3थ◌ाकऽप◌ा□चय◌ाके◌अःतगत
T◌ातक)ऑनसप◌ा□◌म(

मु◌यक◌ोस{CORECOURSE}(कु◌ल14◌◌ऽ
पT)

| Sl. No. | CourseID & Title | COURSE OUTCOME |
|---------|------------------|----------------|
| 1 | C-1:HIN-HC-1016 िह:दीसािह:यकाइित हास(रीितकालतक) | िवh◌ाःथय◌क◌ोआ◌ंदक◌ाल◌ीन,भिN◌कालीनएवं र◌ीितक◌ाल◌ीनिह:दीस◌ािह:य के इितह◌ासक◌ऽस◌ायक्ज◌ानक◌ारीदेन◌ा◌3तु◌त◌◌ऽ पाक◌ा◌मु◌खल◌यहै। |
| 2 | C-2:HIN-HC-1026 िह:दीसािह:य काइितहास (आधुिनककाल) | िवh◌ाःथय◌क◌ोआधु◌िनकिह:दीस◌ािह:यके इितह◌ासक◌ऽ स◌ायक्ज◌ानक◌ारी देन ◌ा,स◌ाथह◌ोौउ:हखड़◌ीब◌ोल◌ीिह:द◌ीगh◌के उ@व एवं िवक◌ासके स◌ाथ प◌ंरिचतकर◌ान◌ाइस◌◌ऽ पाक◌ा◌मु◌खल◌यहै। |
| 3 | C-3:HIN-HC-2016 आ◌ंदक◌ाल◌ीनए वं मRयकालीन िह:दीिकवता | िवh◌ाःथय◌क◌ोिवh◌ापित,कब◌ीर,ज◌ायसी,स◌ूरद◌ास,तु◌ लस◌ीद◌ास,िबह◌ार◌ी, घन◌ान:दज◌ैस◌ीअमरिवभ◌ूितय◌क◌ाक◌ा◌- रस◌◌दानकरन◌ा,स◌ाथ ह◌ोउ:ह मै◌िथल◌ी,सध◌ु$ड़◌ी,अवध◌ीऔर◌ज◌ीिह:द◌ीस◌ेप◌ंरिचतकर ◌ान◌ा◌3तु◌त◌◌ऽ पाक◌ा◌ध◌ानल◌यहै। |

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| 4 | C-4:HIN-HC-2026 आधुनिक हिः:दीकिवता(छायावादतक) | विहा॰थय॰क॰खड़॰बॊल॰ीहिः:द॰ीमरिचतभ॰ारत॰:दयु॰ग॰ीन,॰ि@व॰दॊीय॰ुग॰ीन औरछ॰ाय॰ाव॰ादय॰ुग॰ीनकिवत॰INक॰ारस॰दानकरत॰ इएउ:हआधु॰िनक- बॊधतथ॰ाआधु॰िनकक॰ा॰-िशः:पस॰ पऋरिचतकर॰ान॰ा॰3त॰ुत॰॰-पाक॰ा॰मु॰खल॰यह॰ै। |
| 5 | C-5:HIN-HC-3016 छायावादोंfir हिः:दीकिवता | विह॰ाፇथय॰क॰ॊिहः:दॊीकॽगितव॰ाद॰ी,र॰॰ॅीय- स॰॰3कृितक,॰यॊगव॰ाद॰ीऔर नय॰ीकिवत॰ाक॰ऽस॰ंवेदन॰एवंिशः:पगतिवशिष त॰INक॰ऽस॰ायक् ज॰ानक॰ार॰ी देन॰ा॰3त॰ुत॰॰-पाक॰ा॰मु॰खल॰यह॰ै। |
| 6 | C-6:HIN-HC-3026 भ॰ारत॰ीयक॰॰श॰� IT | विह॰ाፇथय॰क॰ॊक॰ा॰ (स॰ाहिः:य)कॽश॰ITीयसम॰ी॰॰॰ीहत॰ भ॰ारत॰ीय क॰॰श॰ITके मु॰यिस॰॰ः:त॰कॽस॰ायक् ज॰ानक॰ार॰ीदेन॰ा॰3त॰ुत॰॰-पा |

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| | | कॱाᴼमुखलᴼयहᴼ। |
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| 7 | C-7:HIN-HC-3036 पᴼICᴼ:यकᴼᴼशᴼIT | विहᴼᴬथयकᴼकलᴼ(सᴼहि:य)कᴼशᴼITᴼीयसमᴼᴼᴼ हते उपᴼICᴼ:य कᴼᴼशᴼITके मुᴼयिसठᴼᴼतᴼकᴼसᴼयकᴼ जᴼनकᴼरᴼीदेनᴼ3तुᴼतᴼᴶपᴼकᴼ ᴼखलᴼयहᴼ। |
| 8 | C-8:HIN-HC-4016 भाषाविFᴼन, हि:दीभᴼषᴼए वंदेᵥ नᴼगरᴼी लिपि | विहᴼᴬथयकᴼभᴼषᴼविFᴼनकᴵमूलभूतबᴼतᴼकᴼसᴼ थ हि:दᴼीभᴼषᴼके उ@व-विकᴼसतथᴼदेᵥ नᴼगरᴼीलिलिपके बᴼरᴼमसᴼयकᴼजᴼनकᴼरᴼीदेनᴼ ᴼ3तुᴼतᴼᴶपᴼकᴼᴼमुखलᴼयहᴼ। |
| 9 | C-9:HIN-HC-4026 हि:दी कथासाहि:य | वि@हᴼᴬथयकᴼहि:दᴼीकथᴼसᴼहि:य(उप:यᴼसऔरकहᴼन ᴼी)के 3वᴶप, उ@व एवं विकᴼसकᴵजᴼनकᴼरᴼीदते े इएचᴼिन:दᴼउप:यᴼसऔर कहᴼनियᴼके मᴼᴵयमसेउभरतेइएजᴼीवन-बᴼोधसेᴼउ:हपᴵरिचतकरᴼनᴼ ᴼ3तुᴼतᴼᴶपᴼकᴼᴼमुखलᴼयहᴼ। |
| 10 | C-10:HIN-HC-4036 हि:दीनाटकएवं एकᴼᴼकᴵ | विहᴼᴬथयकᴼहि:दᴼीनᴼटकएवंएकᴼᴼकᴵसᴼहि:यके 3वᴶप,उ@वएवं विकᴼसकᴵजᴼनकᴼरᴼीदते ेइएचᴼिन:दᴼनᴼटकएवंएकᴼᴼᴵकयके मᴼᴵयमसे उभरतेइएआधुᴼिनकजᴼीवन- बᴼोधसेᴼउ:हपᴵरिचतकरᴼनᴼ ᴼ3तुᴼतᴼᴶपᴼ कᴼᴼमुखलᴼयहᴼ। |
| 11 | C-11:HIN-HC-5016 हि:दीनिबंधएवंᴬ:य गᴴनि-विधाएँ | वि@हᴼᴬथयकᴼहि:दᴼीनिब:ध,संᴼ3मरणऔररेᴼखᴼिचाके 3वᴶपतथᴼ हि:दᴼीिनब:धसᴼहि:यके इतिहᴼसकᴵजᴼनकᴼरᴼीदते ेᴼ इएचुन ेᴼईई रचनᴼINके मᴼᴵयमसेइनᴼभᴼवᴼीगᴴ- विधᴼINकᴵिशᴼ:पगतविशेᴼषतᴼIN के सᴼथ उ:हपᴵरिचतकरᴼनᴼइसᴼᴶपᴼकᴼᴼमुᴼयलᴼयहᴼ। |
| 12 | C-12:HIN-HC-5026 ᴼयᴼजनमूलककहि: दी | विहᴼᴬथयकᴼहि:दᴼीभᴼषᴼकेविविधᴶपऔरहि:दᴼी- संᴼबᴼᴼधीविविध संᴼवᴼᴼधᴼिनकᴼᴼवधᴼनकᴵसᴼयकᴼ जᴼनकᴼरᴼीदेनᴼ,सᴼथ हᴼीकᴼयᴼᴼलय, विFᴼन¸वसᴼय,संᴼचᴼर-मᴼᴵयमआᴵदके संᴼदभᴼमᴼᴼयᴼNहᴼोनेᴼ वᴼलᴼी हि:दᴼीके ᴼयᴼोजनमूलᴼकᴼ3वᴶपके सᴼथउ:हभलᴼी- भᴼᴼतिपᴵरिचतकरᴼनᴼ (तᴼᴵकवे इसᴼᴼᴼTमआजᴼीविकᴼᴼतलᴼᴼशकरसक)इसᴼᴶपᴼकᴼ |

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| | | ◌मु◌खल◌यह◌ै। |
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| 13 | C-13:HIN-HC-6016 ◌ह:दीक◌ स◌ाहि◌:यक पाक◌ाॆरत◌ा | ि◌वह◌ाॆथय◌क◌ोस◌ािहि◌:यकपाक◌ाॆरत◌ाक◌े ३व७पतथ◌ाभ◌ारत◌:द्◌यु◌गस◌ेअब तकअनवरत◌ ७पस◌े ◌व◌ाि◌हति◌ह:द◌ीक॒स◌ाि◌हि◌:यकपाक◌ाॆरत◌ाक◌े स◌ाथ भल◌ी-भ◌ाॅि◌तप॒रि◌चतकर◌ान◌ा(त◌ाॅकवेइस◌◌◌ेTमआज◌ीि◌वक◌ाक ॒तल◌ाश करसक)◌3त्◌त◌्पाक◌ा◌मु◌खल◌यह◌ै। |
| 14 | C-14:HIN-HC- | ि◌वह◌ाॆथय◌क॒श◌ोध-◌वृ◌िf◌क◌ोजग◌ान◌ा,उनक॒आल◌ोचन◌ा:मकसम◌ी◌◌◌ाक॒ |

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| | 6026 <br> िह:दीपिरय◌ोजन◌ा क◌ाय(HindiProject Work) | य◌ोयत◌ाक◌ो□◌ो:स◌ािहतकरन◌ा,स◌ाथह◌ीतकन◌ीक(ड◌ी.ट◌ी .प◌ी.,प◌ावरप◌ॉइंट ◌ोजट◌ेशनक◌े ৯पम)उपय◌ोगहत◌े उ:ह◌ो◌ेिरतकरन◌ाइसपिरय◌ोजन◌ा-क◌ायक◌ा◌ेम◌ुखल◌ायह◌ै। |

य◌ोयत◌ा-वधक अिनव◌ायक◌ोस

{ABILITYENHANCEMENTCOMPULSORYCOURSE}(AECC)

(10◌৬पT)

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| 1 | HIN-AE-1014 <br> िह:दी◌ाकरण औरस◌ोषण | िवh◌ाﹱथयक◌ोिह:दी◌ाकरणऔरिह:दीक◌े म◌ाRयमस◌ेस◌ायक् स◌ोषणऽ ज◌ानक◌ारीदत◌े ◌ेइएिह:दीभ◌ाष◌ाक◌े उपय◌ोगक◌े स:दभमउनक◌ৎय◌ोयत◌ाम वृि圆ल◌ान◌ा3तत◌ৎ◌৬पाक◌ा◌ेम◌ुखल◌ायह◌ै। |

कौशल-वधक◌ोस{SKILLENHANCEMENTCOURSE(SEC)}(क◌ुल2◌৬पT)

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| 1 | HIN-SE-3014 <br> क◌ाय◌ालय◌ीनअन◌ुव◌ाद | िवh◌ाﹱथयक◌ोिह:दीभ◌ाष◌ाक◌े िविवध৯प,िह:दी-स◌ंब:ध◌ीिविवध स◌ंवैध◌ािनक◌ावध◌ान,िह:दीक◌े म◌ाRयमस◌े ৎकएज◌ान◌े व◌ाले िविभ॒ पT◌ाच◌ार◌ा,◌ोश◌ासिनकप◌ावल◌ीक(िन॒प◌ादन-◌ৢय◌ाINऔरक◌ाय◌ालय◌ीन ◌ोय◌ोजन॒मिविभ॒ य◌ां◌ाितकउपकरण क◌े अन◌ু◌ाय◌ोग-स◌ंब:ध◌ीस◌ायक् ज◌ानक◌ारीदक◌े रउनक◌े िह:दी◌ोय◌ोग-स◌ंब:ध◌ीकौशलमवृि圆ल◌ान◌ाइस◌৬ पाक◌ा◌ध◌ानल◌ायह◌ै। |
| 2 | HIN-SE-4014 <br> अनुवादिवF◌ान | िवh◌ाﹱथयक◌ोअन◌ुव◌ाद-स◌ंब:ध◌ीस◌ৈ∂◌ांितकएवं ◌ाव◌ह◌ाﹶरकF◌ानद◌ेक◌े र, िवशेष त◌ाःक◌ाय◌ालय◌ीनअन◌ुव◌ादक◌े स:दभमर◌ाजभ◌ाष◌ा-न◌ीितक◌े अन◌ुप◌ालनम धार◌ा3(3)क◌े अ:तगतिनध◌ाﹶतद3त◌ाव◌ेज़क◌े सट◌ीकअनुव◌ादक◌ঽस◌ायक् ज◌ानक◌ारी◌ोद◌ानकरक◌े क◌ाय◌ালﹶ,तकन◌ीक◌ঽ,सजन◌ाﹶमकस◌ािह:यआ◌ﹶद िविवध◌ো◌ोTमउनक◌े िह:दी-अन◌ुव◌ाद-स◌ंब:ध◌ीकौशलमवृि圆ल◌ान◌ाइस ◌৬पाक◌ा◌ेम◌ुखल◌ायह◌ै। |

िवषय-िविशT◌ऐिAछकक◌ोस{DISCIPLINESPECIFICELECTIVE(DSE)}(क◌ुल4◌৬

| पT) | | |
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| 1 | HIN-HE-5016 लोक-साहिःयि-िचःतन | िवहाᳵथयᳰकᳲोलᳱोक,लᳱोक-वᳱातᳱा,लᳱोक-सᳲ3कृिᳰतऔरलᳱोक-सᳱािहःय(लᳱोक-           गᳱीत,लᳱोक-नᳱाⅠh,लᳱोक-कथᳱाआᶴद)कᳵसᳲयकᳯ जᳱानकᳱारᳱीदेतᳱ ᳳे इएउःह लᳱोक-जᳱीवनकᳵसरसतᳱाकᳵओरउःमुखकरनᳱ᳴3तुतᳱ᳷ पᳯाकᳱ᳴मुख लᳱ⃞⃞यहᳱ। |
| 2 | HIN-HE-5026 िहःदी कᳵ रᳰीय-सांँ3कृिᳰतककᳱाधारा | िवहाᳵथयᳰकᳱोिहःदᳱीकᳵसमृᵠरᳱाᵴ ीय-सᳱांँ3कृिᳰतककᳱᳰधᳱारᳱाकᳲे इᳰितहᳱास तथᳱाइसधᳱारᳱाकᳲे चुिᳰनःदᳱाकिᳰवयᳱकᳵसरसरचनᳱⅠNसᳲपᵠरिᳰचतकरᳱाकर उनमरᳱᵴᳱीयतᳱाकᳵभᳱावनᳱाएवᳲसᳱांँ3कृिᳰतकचᳱेतनᳱाकᳱोजगᳱानइसᳱ᳷पT कᳱ᳴मुखलᳱयहᳱैᳵ। |

| 3 | HIN-HE-5036 पवू fारभारतम िह:दी भाषा औरसाि ह:य | िवh◌ाःथय◌ क◌ोप◌ूव fारभ◌ारतक◌े आठ◌ा:तमिह:द◌ीक◌ोल◌ेकरचलरह◌ी गतिविधय◌क◌ज◌ानक◌ार◌ीदते ◌ेइएउ:हप◌ूव fारक◌े रचन◌ाक◌ार@◌ार◌ारिचत अथव◌ापवू fारक◌े ब◌ार◌े मरिचतचुन ◌ीईिह:द◌ी-रचन◌◌INस◌े प◌ृरिचत कर◌ान◌ाइस◌◌ ऽ पाक◌ा◌मुखल◌ यह◌ै। |
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| 4 | HIN-HE-6016 छायावादीका ◌ाधारा | िवh◌ाःथय◌क◌ोिह:द◌ीक◌ऽछ◌ाय◌ाव◌ाद◌ीक◌ा◌ध◌ार◌ाक◌े इतिह◌ासऔरचुन◌ीई छ◌ाय◌ाव◌ाद◌ीकिवत◌INस◌ेप◌ृरिचतकर◌ाकरउ:हइसअन◌ोख◌ी क◌ा◌ध◌ार◌ाक◌ः स◌ंवेदन◌ाएवंिश:पगतिवश◌ेषत◌INक◌े दशनकर◌ान◌ा◌ उत◌ु त◌◌ ऽपाक◌ा◌मुख ल◌ यह◌ै। |
| 5 | HIN-HE-6026 ◌ोमच:दक◌ास◌ाि ह:य | िवh◌ाःथय◌क◌ोिह:द◌ीक◌े मह◌ानकथ◌ाक◌ारम◌ुंश◌ी◌ेमच:द@◌ार◌ाविरिचत स◌ाि ह:यक◌ऽस◌ाम◌ा:यज◌ानक◌ार◌ीदते ◌ेइएचुन◌ीईईरचन◌ा◌IN(उप:य◌ास, न◌ाटक, िनब◌ः ध,कह◌ािनय◌ाँ के िवशेष अ◌ययनक◌े ज◌ृरएउनल◌ोग◌क◌ोइसल◌ोकि◌य स◌ाि ह:यक◌ारस◌ेभल◌ी-भ◌ाँितप◌ृरिचतकर◌ान◌ा◌ उतु ◌◌ ऽ पाक◌ा◌मुखल◌ य है। |
| 6 | HIN-HE-6036 िह:दी का वैि&कपिऽ रद◌ृ यए वं◌ि व◌ास◌ी िह:दीस◌ाि ह:य | िवh◌ाःथय◌क◌ोिव&क◌े अलग-अलगदेश ◌मिह:द◌ीक◌ऽप◌ृर◌ ◌ाि◌ कऽ ज◌ानक◌ार◌ी◌दल◌ाकर◌विस◌ीिह:द◌ीस◌ाि ह:यक◌ार@◌ार◌ा रिचतरचन◌ा◌INक◌ा रस◌उव◌ादनकर◌ान◌ाऔरउनमिनि हतज◌ीवन-स◌ंघषस◌े प◌ृरिचतकर◌ान◌ा◌ उतु त◌◌ ऽपाक◌ा◌मुखल◌ यह◌ै। |
| स◌ाम◌ा:यऐिA◌छकक◌ोस{GENERICELECTIVE(GE)(क◌ुल4◌◌ ऽपT)} | | |
| 1 | HIN-HG-1016 िह:दी स◌ाि ह:य काइतहास | िवh◌ाःथय◌क◌ोआ◌दकाल, भि◌Nक◌ाल, र◌ीितक◌ालऔरआध◌ुि नकक◌ाल–इन च◌ारक◌ालख◌डमिवरिचतिह:द◌ीस◌ाि ह:यक◌े इतिह◌ासक◌ऽस◌ाम◌ा:य ज◌ानक◌ार◌ीदेन◌ा◌ उतु त◌◌ ऽ पाक◌ा◌मुखल◌ यह◌ै। |

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| 2 | HIN-HG-2016 मℝयकालीन िह:दीकिवता | िवhाःथयोकोकबोीरदास,सूरदास,तुलसीदास,िबहार ीऔरघनान:दजैसी अमरिवभूितयोकोकाोॱ- रसोदानकरनाा,साथहीउःहसधु\$ड़ी,अवधी औरोजीोीहःदोसीपःरिचतकरानाोॱ3तुतोॱ᷍ पाकाोॱमुखलोयहैॆ। |
| 3 | HIN-HG-3016 आधुिनक िह:दीकिवता | िवhाःथयोकोखड़ोिबोलोीिहःदोीमरिचति@वेदोीयुगोीन ,रोाोोीय-साोः3कृितक, छोायोवोादयुगोीनएवंछोायोवोादोोfारकिवतोINकोारसो दानकरतोइएउःह आधुिनकभोाव-बोोधतथोाआधुिनककाोॱ- िशःपसोपःरिचतकरानाोॱ3तुत ोॱ᷍पाकाोॱमुखलोयहैॆ। |
| 4 | HIN-HG-4016 िहःदीगhसािहःय | िवhाःथयोके समोोिहःदोीउपःयोास,कहोानोी,िनबःध-- जैसोीगh-िवधोINं कॱझाॲकॱोॱ3तुतकरतो इएचुनोीईईरचनोINकोारसोा3वोादनकरोानोाएवं उनके मोाℝयमसोउभरतोइएजोीवन- बोोधकोापःरचयॱदलवोानोाोॱ3तुतोॱ᷍ पाकाोॱमुखलोयहैॆ। |

### DEPARTMENT OF HISTORY PROGRAM SPECIFIC OUTCOMES

:Analysethedifferent environmentalissues.
:Understandthe IndianCultureandCivilisation------------------- Ancient,Medieval andModern.
: In depth study of World History with special reference to Europe, China and Japan.
Focus ontheHistoryofNorth-East India.
:Understandthedifferent facets oftheGenderStudiesofIndia.

COURSESPECIFICOUTCOMES
- HISTORYOFENVIRONMENT
  Create awareness about various natural disasters & man-made calamities like deforestation, globalwarming,destructionofwild life.
  Analysethevariousmovements fortheprotectionofenvironment.
- HISTORYOFINDIA:Ancient,MedievalandModern.
  Study the Social, political, religious, economic life during the different periods of Indian history.Emphasisisgiven on theIndian National Movement.
- HISTORYOFEUROPE(1780-1945)
  FamiliarisethestudentswiththeIndustrialRevolution,FrenchRevolutionandOtherRevolutions ------------ the twoWorldWarsandtheirOutcomes.
- HISTORYOFEAST ASIA: CHINAANDJAPAN
  Learn about Confucian ideology, Sun-Yat-Sen, Mao Tse-Tung and Cultural Revolution, Feudal

Japan,Japanesemilitarismand Sino-JapaneseWar.

- <u>HISTORIOGRAPHY</u>
  Understand historical objectivity, concept, tradition of historical writing, Medieval historiography,Modern historiography, Ancient Indian historical tradition, General histories of Sultanate period,
  Mughalhistoriography,Imperialisthistoriography,NationalisthistoriographyandMarxisthistoriography.

- <u>HISTORY OF NORTH-EAST INDIA WITH SPECIAL REFERENCE TO ASSAM (1228-1947)</u>Studythelandandpeopleof North-EastIndia--Ahoms andtheir strugglewiththeMughals,Ahomrelations with Cacharis , Jaintias, Manipur and Tripura, Burmese invasion, British rule in Assam,NationalMovement in Assam.

- <u>GENDERHISTORYOFINDIA</u>
  Create awareness about women studies, gender relations in pre-colonial and colonial India, womeneducationand women in Nationalist Movement.

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**Programmespecificoutcomes**-
**DEPARTMENTOF            POLITICALSCIENCE**
**BA(Honours)PoliticalScience**

1. To understand different approaches of political science and to apply this into contemporarypoliticalproblems.
2. It will help to understand political behavior and formulate logical arguments about politicalphenomena.
3. Helps to understand how a political institution emerges, operates and interact with the externalenvironmentsandshapetheirindividualand collectivebehaviors.
4. TounderstandIndianpoliticsanditsworkingbothinternallyandexternally.
5. Understandand beableto interrelate different politicaltheoriesinthecontext ofIndianpolitics.

**Courseoutcome –**
- ❖ Introduction to Sthe politicaltheory
  This will help to understand the basic ideas about political science including origin of state,sovereignty,power,authorityetc.
- ❖ TheoriesofInternationalrelations
  Discuss the main international relations theories, and the values implicit in each of these differentways of looking at the world. Students will understand and be able to critically analyze domesticandinternationalinstitutionsof government
- ❖ Greekpoliticalthinkers
  This paper will give an understanding of the Greek political traditions and an insight into thecontributionsofSophists, Socrates, PlatoandAristotle.
- ❖ ComparativeGovernmentandPolitics

  Study of this paper will give an insight into functioning of the different political systems in theworld.
- ❖ PoliticalSociology
  Study of Political Sociology will give an understanding of the interdisciplinary study betweenPoliticalScienceand Sociology.
- ❖ PublicAdministration:TheoriesandConcepts
  Gives an understanding of evolution and working of public administration. It emphasize ontheoreticalaspects ofpublicadministration.
- ❖ GovernmentandPoliticsinIndia
  Thispaperwill createawarenessontheformationandfunctioningoftheIndian Government.
- ❖ FreedomMovementandPoliticsinNorthEastIndia
  Gives an understanding of the freedom movements carried out by the north East Indians. Its natureand growth in different parts of the region. It gives an insight into the reason for growth of differentmovementslike Assam movement, language movement, autonomy , statehood and insurgency  intheregion.
- ❖ SocialistThinkers
  Familiarizethecontributionsofthesocialistthinker'sinthecontemporaryworld.
- ❖ ModernPoliticalThinkers
  Give an understanding of theoretical perspective of modern political thinkers like Machiavelli,Hobbes,Locke, RousseauandJ.S.Mill.

PROGRAMOUTCOMESOFDEPARTMENT OF COMMERCE

TheDepartmentofCommerce,Guwahati College, Guwahati, Assam,whichis Affiliatedto Gauhati University, Guwahati offersthefollowingthreeprogrammesof study:

1. B.Com.(Pass),
2. B.Com.(HonoursinAccountancy) and
3. B.Com.(HonoursinBusinessManagement)

Theprogrammesandcoursesareexecutedbythedepartmentisdesignedandprescribedbythe Gauhati University, Guwahati.Theprogrammeaimedtoprovidethestudentwithawiderangeofknowledgeandskills.Theprogrammeisso designedthatitfocusesbothonacademicsubjectslikestatisticsorEconomics as well as practical business subjects like accountancy, law, management, marketing, finance etc.The programmes provide a platform for experimental learning and grooms students towards industry specificcurriculumwith focusedapproach onspecificareaswhicharecrucialinthe management ofcompanies.

Aftercompletingtheprogrammethecandidatewillbeableto:

- BuildastrongfoundationofknowledgeindifferentareasofCommerce.
- Develop theskill ofapplyingconceptsandtechniquesusedinCommerce.
- Developanattitudeforworkingeffectivelyandefficientlyinabusinessenvironment.
- Integrateknowledge,skillandattitudethatwillsustainanenvironmentoflearningandcreativityamongthe students.
- Improve their computer literacy, their basic understanding of operative systems and a working knowledgeof softwarecommonlyusedinacademic andprofessional environments.
- Exposestudentsaboutentrepreneurship.
- Developfunctionalandgeneralmanagementskills.
- Inculcateaglobalmindset.
- Evaluatedifferentbusinessproblemsusinganalyticalandcreative,andintegrativeabilities.
- BuildandDemonstrateleadership,teamwork,andsocialskills.
- Communicateeffectivelyindifferentcontexts.
- Analyzesocio-political-economicenvironmentofbusinessorganizations.
- Enableastudenttomakedecisionsatpersonal andprofessionallevel.
- Demonstrateanintegratedunderstandingofkeyconcepts,techniquesandtrendsinoneormorefieldsofcommerce .
- Abletoapplytheirknowledgeandskilltofacethechallengesandopportunitiesinvolvedindiversecontexts.
- ReadyforemploymentinfunctionalareaslikeAccounting,Taxation,Banking,InsuranceandCorporateLaw.
- Abletostartownentrepreneurialactivities.
- Inculcateethicalvalues,teamwork,leadershipandmanagerialskills.
- ExhibitinclinationtowardspursuingprofessionalcoursessuchasCA/CS/CMA/CFAetc.

# **Courseoutcome**

The Bachelor of Commerce courses of Department of Commerce, Guwahati College, Guwahati aims toprovide students with the knowledge, tools of analysis and skills with which they can understand andparticipate in the modern business and economics world, to prepare them for further studies and to achievesuccessintheirprofessionalcareers.Theoutcomeofdifferentcoursesofferedbythedepartmentaresummaris edbelow:

| S. No. | Nameof Course | CourseOutcome |
|--------|---------------|---------------|

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| 1 | Financialaccounting | The course enables the students to understand the application of basicaccountingtechniques.Itprovidesthestudentsthetechniqueofapplicationofaccountingprincipleinpractice. |
|---|---|---|
| 2 | FinancialMarket Operation | Thecoursehelps toacquaintthe studentswiththe workingof financial & capitalmarketinIndia. |
| 3 | CorporateAccounting | Thecoursehelpsthestudentstodevelopawareness aboutcorporateaccountingand provisionsof Companies Act. |

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| 4 | Principlesof Management | Thiscourseispreparedfordevelopingandunderstandingthe applicationof variousprinciplesofManagement in business. |
|---|---|---|
| 5 | BusinessEconomics | Thestudentswillbe abletoknowhowtheprinciplesof businesseconomicsareapplicableinbusiness. |
| 6 | BusinessMathematics | The outcome of this course is to enable the students to have basic ideas ofmathematics whichis applicable inbusiness. |
| 7 | Financialmanagement | Ithelpsindevelopingandunderstandingtheapplicationoffinancialmana gementtechniques. |
| 8 | Cost Accounting | It aims at developing and understanding application of cost accountingtechniquesusedinbusinessand industries. |
| 9 | BusinessStatistics | Itprovidesthestudentstogainunderstandingof statisticaltechniquesasare applicabletobusiness. |
| 10 | Entrepreneurship | Thestudentswill understandthebasicconcepts,problemsandopportunitiesofentrepreneurship aftergoingthrough thiscourse. |
| 11 | BusinessEnvironment | Thecourseprovidesthestudentstheemergingissuesin business atthe nationalandinternationallevelinthelightofpoliciesofliberalizationandglobal ization. |
| 12 | InformationTe chnology inBusiness | The outcome of the course is to familiarize the students with the innovationininformationtechnologyandhowiteffects business.Besides thepractical knowledge isalsoimpartedtothestudentsthroughthiscoursefordevelopmentofs kill. |
| 13 | Elementsof Incometax | Thiscourse aims todevelop andunderstandthefundamentallawand practiceofincometax.It willhelpthestudentstosolvethepracticalproblemsofincome taxofbusinessfirmsas wellasindividuals. |
| 14 | Law & Practice ofTaxation | Besidesgivingsomebasicconcepts about direct and indirecttaxesthis course provides knowledgetothestudentsaboutsalestaxlaws,customdutiesand centralexcise. |
| 15 | Management Accounting | Itaimsat developingandunderstandingoftheapplicationof various managementaccountingconcept, toolsandtechniques. |

### DepartmentofBotany
### ProgrammeSpecificOutcomeofB,SC(Honours)Botany(Odd&Evensemester)

| Nameofcourse | Outcome |
|---|---|
| HistoryofMicrobiology | I.Microbiologystudycanbeunderstoodtheoriginoflife ii.Itgiveseconomicimportanceoflivingorganisms |
| Cryptogams | I. Analyse value ofdiversities and systematic groupsofPlant ii.Understaningmorphologydiversityofbryophytesandpteridophytes |
| Evolution, Diversity ofPhanerogams,Gymnosper ms | IEvolutionofplanthelpssequenceoflife,graduallyimproved differentiationoflivingorganisms ii.Itisunderstood lower andhigherplantandcanbearranged insystemicallyinordertooorigin. |

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| | |
|---|---|
| EcologyandPhytogeography,Angiosperms | i. Itisthelevelofbenefitsthatthespace, water, minerals,biotaandallfactorsthatmakeup natural ecosystem<br>ii. understanttheorganismandenvironmentrelationshiptheatmosphere<br>iii. Systemetic,classificationandIdentificationthemainaspectforstudyoflivingorganismoftheearthsurface. |
| CellBiology | i. Understandthechromosome number,heredityofthespecies<br>ii. ToStudythemodernstrategiesappliedofnewsuperior cropvarities. |
| PlantPhysiologyand Biochemistry | I. Understandtheplantrequirementforgrowthanddevelopmentanditselementhelpsin valueaddition forhumanbeing. |
| DevelopmentofPlantsand theirutilization | i. Understantthe valueadditionofplantproduct<br>ii. Properpositiveaspactdirectlyimpactonnutritionandeconomics |
| Ethnobotany, Horticulture,PalynologyandPalaeobotany | i. understandprimitiveidea,useofplantintraditional methodoftheethnicgroup ofsociety<br>ii. Unerstandthevalueofcropplant,Nutritionvalue,etc.helpinfossilidentificationofthe earthsurface |
| EnvironmentalBiology | i. Itprovidessave oflifefromdevastationofnaturalas wellasartificialphenomenon<br>ii. Studyofdisciplinecreatedgoodrelationbetweenlivingorganismandenvironment,adaptationthemselvesonearthsurface |
| Genetics | I. Understandqualitativeand quantitiescharactersoflivingorganisms |
| Plant Breeding, MolecularBiologyandBiotechnology | i. Understantthedevelopmentofgeneticallymodifiedorganismsforincreasingcropyield.<br>ii. Reducepostharvestloss,tolerateherbicides,improves nutritionalvalueoffood<br>ii.Learnthescopeandimportanceofmolecular biology |
| PlantPathology | i. Understandresistpestattack,enhanceproductionofcropplant,<br>ii. Reducedependenceonpesticidesorinsecticides<br>ii.Knowtheconceptand characteristicsofantiseptic,disinfectionand theirmodeofaction |

**CourseofoutcomeofB.SC(HONS)allpapers:**

Therangeofplantdiversityintermsofstructure,functionandenvironmentalrelationships.Thinkslogicallyandorganisedtasksintoastructuralform.

Understand the evolving state of knowledge in a rapidly developing field.Conductandtesthypothesis.etc.

Apply the knowledge of basic science, life science and fundamental process of plantsto study and analyzeanyplantform

**ProgrammeSpecificoutcomeB.SC(pass)Botany**

DiversityofMicrobesandCryptogam

Oncompletionofthecourse,studentsareableto;Understand thediversityamongalgae

Understandlifecycleofalge,usefuland harmfulactivityofalgae,FungiUnderstand theeconomicimportanceofalgaeandfungi

BOTCytogenetics

Oncompletionofthecourse,studentisableto;

The eukaryotic cell cycle and mitotic and meiotic cell divisionStructure andorganizationofcellmembrane

Tounderstandthedifferenttypesofgeneticsinteraction,incompletedominance,codominance,interallelicGenetic interactions,multiplealleesandquantitativeinheritanceetc.

BOT Diversity of Seed Plant and their

SystematicOncompletionofthecourse,studentisableto;

- o Knowthescopeand importanceofthediscipline
- o Knowthe conceptof methodologyintaxonomy
- o Learnaboutconservationofbiodiversity,NonconventionalEnergyandpollutionBOT

Structure,Developmentandreproductionin floweringPlants

Oncompletionofthecourse,studentisableto;
- KnowabouttheconceptualdevelopmentoffloweringPlants
- UnderstandingthediversityandtheevolutionarytrendsaffinitiesoflivingplantsinrespectofinternalandExternalfeatures
- Knowthemethodsofpollinationand

fertilizationBOTPlantPhysiologyandBiochemistry

Oncompletionofthe course, studentisable
to;Structureand generalfunctionofenzymes

Understandthe movementofsapand absorptionof waterinplantbody,plant movementetc.

Understand the biochemical nature of
cellKnowthechemicalnatureofbimolecular

.

BOT

Biotechnology,EcologyandUtilizationofPlantsOn
completionofthecourse,studentisableto;

Gainknowledgeaboutthe
mechanismandessentialcomponentrequiredforProkaryoticDNAreplicationKnowaboutthegeneticEngineering
Understandingtheeconomicimportanceofplantandtheir
valueaddition.Acquiringknowledgeabouttheplanthabitantand
environmentrelation.

### CourseofoutcomeofB.SC(Pass)allpapers:

Criticallyevolutionofideaand argumentsbycollectionrelevant informationabouttheplants,so
asrecognisethepositionofplantinthebroadclassificationand phylogeneticlevel.

Accurateinterpretationofcollectedinformationandusetaxonomicalinformationtoevaluateandformulateapositionofplantintaxonomy.

Students will be able to present scientific hypothese and data both orally and in writing in the formats that are used byptracticing scientists.

Studentswillbeabletoapplyfundamentalmathematicaltoolsandphysicalprinciplesto
theanalysisofrelevantbiologicalsituations.

B.Sc.WithCHEMISTRY(Honours)Programme

## CourseOutcomes
*FirstSemester(Hons)*
CHMH-InorganicChemistry
Describe the structure of atom, theories of chemical bonding, concept of Nanomaterials, compounds ofnoble gases, oxide and oxoacids of halogens, compounds of nitrogen family, manufacture types of cementandpreparationand uses ofsome common fertilizers.
CHMH-OrganicChemistry
Describethebonding inorganiccompounds,basicconceptsof reactionmechanism
&reactiveintermediates,synthesis&reactivityofaliphaticand aromatichalogen compounds,alcohols andethers.
CHMH-PhysicalChemistry
Describetheconceptofgaseousstate&solidstate,thermodynamics,phaseequilibriumofone&twocomponent systemand probability.
*SecondSemester(Hons)*

CHMH-InorganicChemistry

Explainclassicalwaveequationinonedimension&threedimensionsystem,theoriticalbasisofqualitativeinorganic analysis,theoriesofnuclearforce and chemistryofPaints.

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CHMH-OrganicChemistry

Describe the concept of stereochemistry, Nucleophilic Substitution reaction and active MetheleneCompounds.

CHMH- PhysicalChemistry

Explain the critical Phenomenon, Surface Phenomenon and thermochemistry.CHMH-Practical

Qualitative analysis of inorganic sample mixture with four radicals, Inorganic synthesis and Laboratorytechniques.

*ThirdSemester(Hons)*

CHMH-InorganicChemistry

DescribethestudyofCoordinationcomplexesandtheories ofchemical bonding.

CHMH-OrganicChemistry

Describe the details of Carbohydrates, Terpenoids, alkaloids and types of polymers and polymerizationprocess.

CHMH- PhysicalChemistry

ExplainThermodynamics,Chemicalequilibrium,Solution,colligativepropertiesandElectrochemistry.

*FourthSemester(Hons)*

CHMH-InorganicChemistry

Applicationofcoordinationcompound,GeneralstudyofLanthanidesandActinides,Molecular OrbitalTheoryandMagnetoChemistry.

CHMH-OrganicChemistry

Describe Polynuclear Hydrocarbon, Amino acids, Vitamins, Dyes and Green Chemistry.CHMH-Physical Chemistry

Explain Second law of thermodynamics, Chemical Kinetics, Colloidal state and Electrochemistry andDiffusion.

CHMH-Practical

Estimate ferric iron, copper, acetic acid barium, sulphate, nickel, detection of elements & functional group inorganiccompound and Physicalexperiments.

*FifthSemester (Hons)*

CHMH-InorganicChemistry

Describe crystal structure, Colorimetry, Flame photometry, Statistical analysis of experimental data andinorganicreaction mechanism.

CHMH-OrganicChemistry

Describe Hetero cyclic compounds, uv-visible spectroscopy, Infrared Spectroscopy and Mass spectroscopyandOrganicphotochemistry.

CHMH- PhysicalChemistry

Explainthirdlawofthermodynamics,PhotochemistryandLiquidcrystal.

*SixthSemester (Hons)*

CHMH-InorganicChemistry

Describe Alloys and intermetallic compounds, Environmental Chemistry, Molecular symmetry, andBioiorganicChemistry.

CHMH-OrganicChemistry

Describe Organometallic compounds, Nuclear magnetic resonance spectroscopy and Pericyclic reaction andPharmaceuticalcompounds.

CHMH- PhysicalChemistry

Explain Elementary quantum mechanics and Statistical thermodynamics.CHMH-Practical

Organic synthesis, estimation of glucose, cholesterol, urea, uric acid and physical experiments.

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B.Sc.With CHEMISTRY (General)

*FirstSemester(General)*
CHMP-Inorganic,Organic&PhysicalChemistry
Describethestructureofatom,compoundsofnoblegases,bondinginorganicmolecules,stereochemistry oforganicmolecules, detailsofgaseousstate,liquidstateand solidstate.

*SecondSemester(General)*
CHMP-Inorganic,Organic&PhysicalChemistry
Describe periodic properties of elements, theories of acids and bases, compounds of nitrogen family, coal,petroleum and petrochemicals, arene and elementary idea of thermodynamics, phase equilibrium & solution.CHMP- Practical
Inorganicqualitativeanalysisofasalt mixturecontainingfourradicalsandlaboratoryTechniques.

*ThirdSemester (General)*
CHMP-Inorganic,Organic&PhysicalChemistry
Describe coordination compounds, nuclear chemistry, bio-inorganic chemistry, carboxylicacid &theirderivatives,amino acids,carbohydrates,Thermodynamicsandthermochemistry.

*FourthSemester(General)*
CHMP-Inorganic,Organic&PhysicalChemistry
Explain theories of bonding in complexes, environmental chemistry, peptide & protein, urea,chromatography,chemicalequilibriumand chemical kinetics.
CHMP-Practical
Volumetricestimationofferrous &ferricironandqualitativeorganicanalysis.

*FifthSemester (General)*
CHMP-Inorganic,Organic&PhysicalChemistry
Explain theories of chemical bonding, crystal structure, Heterocyclic compounds, electrochemistryphotochemistryand colloidal state.

*SixthSemester(General)*
CHMP-Inorganic,Organic&Physical Chemistry
Describe electronegativity, VSEPR theory, Latice energy, Dyes, organometallic compounds, elementaryquantummechanicsandspectroscopy.
CHMP-Practical
Determination of viscocity and surface tension of a liquid and preparation of Aspirin, Iodoform, Urea-oxalate,etc.

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## DEPARTMENTOFPHYSICS

## Programme specific outcome

| Programme | |
|---|---|
| B.Sc. (Physics Honours) | :Tounderstand andapplyfundamentalconcepts of classicalphysics,viz., mechanics,electromagnetism,optics,heatandthermodynamics.<br> : To understand and apply selected topics of modern physics, viz.,relativity, quantummechanics,nuclearphysics,solid statephysics.<br>:Tounderstandvarious mathematicaltechniquesusedintheapplicationofphysicalproblems.<br>:Tounderstandandperformvariousexperiments ingeneralphysics,electricity,opticsandelectronics . |

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|---|---|
| B.Sc. (Physics Pass) | :To understandandapplyselectedtopicsofclassicalphysics,andelementary conceptsofmodernphysics.<br>:To understandandperformvariousexperiments ofbasicphysics. |

Courseoutcome forB.Sc.(Honours)courses

| Course | |
|---|---|
| Mechanics and general properties Ofmatter (101) | :Tounderstandthebasicprinciplesofmotionofobjects,andgravitation. |
| MathematicalPhysicsI (101) | : To be able to solve physical problems using vectors,curvilinearcoordinatesandmatrices. |
| Geometrical optics, waves andoscillations (102) | : To derive and understand geometrical optics starting fromFermat'sprincipleand,waves and oscillations. |
| PhysicalOptics (102) | :Toapplyand understand all aspectsofPhysicaloptics,includingpolarizationoflight. |
| Heatandthermodynamics (202) | :To applyand understand basicconcepts ofheatand thermodynamicsforsolvingphysicalproblems. |
| Elecrtricityand MagnetismI (301) | :Tounderstand basicelectricityand magnetismstartingfromCoulomb'sand Biot-Savartlaw. |
| HonoursLaboratoryI (103) | :To performbasicexperimentsin generalphysics, optics and electricity. |

| | |
|---|---|
| Classical mechanics, theory ofrelativity (501) | To understand the Lagrangian and Hamiltonian approach ofclassicalmechanics,andalsoEinstein'sspecialtheoryofrelativity. |
| MathematicalPhysicsII (201) | Tolearnandapplybasictechniquesforsolvingdifferential equations,tensorsandcomplex numbers. |
| Electronics (504) | Tounderstand andapplybasic topicsofelectronicsliketransistorsand oscillators. |
| StatisticalMechanics,PlasmaPhysics (604) | Tounderstandthethreedifferenttypesofstatistical mechanics,andplasma physics. |
| (HonourslaboratoryII (203) | Toperformadvancedlevel experimentsin generalphysics, spectroscopyandelectricity. |
| AtomicandMolecularPhysics (502) | Tounderstand andstudyvariousapplicationsofatomic andmolecularphysics. |
| Solid StatePhysics (602) | Tostudyandunderstandcrystallography,solidstate physics andcondensed matterphysics. |
| QuantumMechanics (503) | To understand basic concepts of quantum mechanics, andSchrodinger'sformulation. |
| AstrophysicsandCosmology (503) | TolearnandunderstandtheUniverseona smallscale (astrophsics),andonaverylargescale(cosmology). |
| Nuclearandparticlephysics (601) | Tounderstandnuclearphysicstheory,nuclearreactions,nuclearde tectorsandparticlephysics. |
| HonoursLaboratoryIII (303) | To performadvanced experimentsin electronics, and completeaproject. |

CourseoutcomeforB.Sc.(Pass)courses

| Course | |
|---|---|
| Mathematicalphysics,mechanicsandrelativity (101) | To study and understand basic concepts in mathematical physics,mechanicsandrelativity. |
| ElectricityandMagnetism (201) | Tolearnandapplyelementaryconceptsinelectricityand magnetism. |
| HeatandThermodynamics (301) | Tostudyand understandbasicconceptsinheatand thermodynamics. |
| Waves, Oscillations andoptics (401) | Tolearnandapplyelementaryconceptsinwaves, oscillationsandoptics. |

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| | |
|---|---|
| Atomic and nuclearphysics (501/601) | To study and understand basic concepts in quantum mechanics, atomicandnuclearphysics. |
| Solid State Physics (601) | To learn and apply elementary concepts in crystallography andelectronics. |
| GeneralLaboratoryIII (302) | Toperformbasiclevel experimentsinspectroscopyand electronics.. |

## DEPARTMENTOFMATHEMATICS

### COURSE OUTCOMES OF MATHEMATICSMTMP :1

Outcome1:Studentswilldemonstratetheabilitytosolveequationsinvolvingtrigonometricvaluesandtheabilityto provetrigonometricidentities.

Outcome2: StudentswilldemonstratetheabilitytousetheBasicsAlgebraicandMatrix conceptsto analyze"realworld" issues.

### MTMP :2

Outcome 1: Students will demonstrate the ability to algebraically and graphically analyze functions.Outcome 2: Students willdemonstratetheabilityto model AbstractAlgebra.

### MTMP :3

Outcome 1: Students will interpret average rate of change over an interval and instantaneous rate of changefor a function at a point. Also, able to utilize appropriate theory and solution techniques for the problems ofTaylor series with its intervalof convergence for use in a variety of applicationssuch asapproximatingvaluesofafunctionandstudyingthe behavior ofa function.

Outcome 2: Students will gain the ability to evaluate indefinite and definite integrals by selecting andcorrectlyapplyingappropriateintegrationtechniques(s).

### MTMP 4

Outcome 1: Students will demonstrate the ability to solve a variety of differential equations analytically andnumerically.

Outcome 2: Understand and able to apply the concepts of Vector function, vector field, scalar field, gradient,divergence and curl. Also, understand formulae for parametric equation of a line and plane and explaingeometricalandphysicalinterpretations.

### MTMP :5

Outcome 1: Students will apply trigonometry and basic geometry to applied technical problems, and alsoapplybasicCalculus,Integral and geometryto problems in StatisticsandDynamics.

Outcome 2: Understand and be able to apply other basic dynamics concepts - the Work-Energy principle,Impulse-Momentumprincipleand thecoefficient offriction.

### MTMP 6

Outcome1:FormulateacombinatorialoptimizationproblemefficientlyandApplythesimplexmethodforsolvinglinearprogramming problems.

Outcome 2: Express the dual of a linear programming problem, interpret the results and obtain solution tothe primal problem from the solution of the dual problem. Also, Apply the transportation simplex method tosolvetransportationproblems.

## DEPARTMENTOFZOOLOGY

### ProgramSpecificoutcomes

PSOsofB.Sc.Zoology:

PSO1:Understand the nature and basic concepts of Cell Biology, Histology, Physiology, Genetics, OrganicEvolution,Biochemistry, Biostatistics,TaxonomyandEcology.

PSO2:Analysetherelationshipsamonganimals, plantsandmicrobes.

PSO3:UnderstandthecomparativestudybetweenChordatesandNon-chordates.

PSO4: Understand the applications of biological science in Apiculture, Aquaculture,Agriculture,Museology,PoultryFarming, Wildlife Managementand Medicine.

PSO5:PerformproceduresasperlaboratorystandardsintheareasofAnatomy,Cytology,Taxonomy,Limnology,Biochemistry, Bioinformatics,EconomicZoologyand Ecology.

PSO6:PerformingFieldVisitto acquaintwithAdvancedLaboratoriesandProjectwork.

## CHOICEBASEDCREDITSYSTEM(CBCS)

### DepartmentofAssamese

B A Assamese

ProgrammePROGRAMMEOUTCOME:-

In order to have a knowledge on a language, one has to know the origin of it, how it evolves and its journeyfrom birth to the present stage. The students will be benefited if all these facts are covered in a syllabus.Accordingly, all these subjects have be incorporated in the TDC syllabus and the students will definitely bebenefitedfromit.

GENERALCHARACTERISTICS:-

ThestudentswillgetadetailideaonAssameselanguage,itsdevelopmentandevolution,Assameseliterature,Assamese poetry,Novels, Phase etc.fromthis syllabus.

SPECIALCHARACTERISTICS:-

The students will know the various texture of Assamese language how it came into existence, factors behindits evolution, differences between other Indian languages, similarities with other Indian languages, influenceson Assamese language by other Indian languages as well as Western languages etc. everything is covered inthe syllabus.

The growth of Assamese literature, its evolution, its contributions etc. are also included in the syllabus. ThesyllabusfocusesonthevariousAssamesecultures,writtenlanguage,spokenlanguagesetc.,itsregional

languages. After all it is a complete syllabus with which a student can have a knowledge of Assameselanguage,literature, cultureetc.

Corecourse

ASMCH–:HistoryofAssamese languageandscript::AxomiyaBhashaaruLipirEtihash

COURSEOUTCOME:ASMCH Thestudentswillknowfollowingfacts fromthiscourse.

- TheywillknowtheoriginofAssamesescript andits evolution.
    - The students will know about the manuscript written in leaves, inscriptions etc.COURSEOUTCOME: ASMCH Thestudents will learnfollowingfactsafterreadingthiscourse.
- Thestudentswill haveanideaonancientpoemsof Assamese literature.
- AclearideaontheRamayana &Mahabharatagiven inthis course.
- TheywillknowthedivisionsofvariousliteratureonthebasisoftimesandvarioushappeningsinAssamand its characteristics anddissimilarities.

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COURSEOUTCOME:

DSCPTheywilllearnaboutthestoriesoftheRamayanaaandtheMahabharataandthesocietiesreflected inthesetwoepics.

- Anideaonromanticpoems,itscharacteristicsandabouttheauthorsofthesepoems,couldbeformed.

### MIL:ASML– ASSAMESEDRAMA, SHORTSTORIESANDNOVEL

COURSEOUTCOME: ASML

ThestudentswilllearnabouttheBrajawalilanguagesandthepurposeforthecreationofthislanguage bySrimantaSankardeva.

- Theywillknowabout modernAssameseplays,itscharacteristicsanditssubjectmatters.
- They will know about cultures of each tribe of Assam and the differences among their cultures.COURSEOUTCOME: ASML
TheywilllearnaboutthestoriesoftheRamayanaaandtheMahabharataandthesocietiesreflected inthesetwoepics.
- Theywilllearnthevariousprevalentritualsthatwereobservedduringthebirthofababyandafterwards.
- Anideaonromanticpoems,itscharacteristicsandabouttheauthorsofthesepoems,couldbeformed.

COURSEOUTCOME: ASML Autobiographyisa important thingtoreadeveryhumanbeing.

- Autobiographycontrolourlifeandalwaystake careups anddownineveryhuman being.
-  Students also inspire to write

autobiography.COURSEOUTCOME: ASML –

- Itimprovesthestudentsactivityinallpartsoftheirlife.

### DEPARTMENTOFBENGALI
### ProgrammeSpecificOutcome

| Programme | |
|---|---|
| B.A.inBENGALI | PSO1 : To familiarize the students with various dialects spoken invariouspartsofBengalandsurroundingareas.<br>PSO2 : To Understand the different language styles in variousspecial groups and the various components of the linguisticstructuresofthelanguage.<br>PSO3 : To teach them some practical approach to the BengaliLanguage.Suchaseditingcompilingthosearebasicneedsfora nypublicationprocedure.<br>PSO4 : To familiarize the students with some skill enhancementcourse oftheart andcraftof creativewriting. |

### COURSEOUTCOME

| CoreCourse | |
|---|---|
| AECC<br>BNG-AEC-<br>Form,Style& Implementation ofCommunication. | Toacquaintstudentswithfundamentaltoolsof communicationand developvitalcommunicationskillthat wouldbeintegralto personal,socialandprofessionalinteraction. |

**DEPARTMENTOFENGLISH**

**PROGRAM SPECIFICOUTCOME**

| Programme | |
|---|---|
| B.A.<br><br>ENGLISH HONOURS | PSO1: To classify a specific genre of literature and give illustration of thecharacteristics from literary texts and thereby explore literary works to find out thestructureanditssignificance.<br>   PSO2: To understand the various components of the linguistic structures of the languaPSO3: To familiarize the students with the literatures from different corners of the worleitherastranslationsof other languagesinEnglishor asNewLiteraturesinEnglish.<br>   PSO4:Ithelpsthestudentsdeveloptheirmethodologicalskillsandspecificconcepts in a literary text in an analytical and critical way through the study of Literary TheoryCriticism. |

COURSEOUTCOME

| CORECOURSES | |
|---|---|
| ENG-C-1:BritishPoetry and Drama:14$^{th}$to 17$^{th}$Centuries | To enable students to have a broad understanding of the history of English Literaturefrom 14$^{th}$ to 17$^{th}$ Century and to acquaint them with the seminal poetic voices and thedrama of thesaid periodthrough thestudyofselectedtexts. |
| ENG-C-2:IndianWritinginEnglish | Toenablestudentsto haveabroadgeneral understandingofIndianWritinginEnglishthrough thestudyselectedliterarytext. |
| ENG-C-3:BritishPoetryand Drama:17$^{th}$&18thCenturies | To enable students to have a broad understanding of the history of English Literaturefrom 17$^{th}$&18$^{th}$ Centuries and to acquaint them with the seminal poetic voices and thedrama of thesaid periodthrough thestudyofselectedtexts. |
| ENG-C-4:AmericanLiterature | Toenablestudentstohaveabroadunderstanding ofAmericanLiteraturethroughthestudyofselectedliterarytexts |
| ENG-C-5:BritishLiterature:18$^{th}$ Century | Toacquaintstudentswithrepresentativepoems,dramasandfictional prosewritingsfrom18$^{th}$Centurythrough the studyofselectedtexts. |
| ENG-C-6:EuropeanClassicalLiterature | Toenablestudentstohaveabroadunderstandingoftheclassicaltexts ofEuropeanliteratureand toacquaint themwiththeseminal poeticvoices and the drama ofthe classicalperiodthrough thestudyofselectedtexts. |
| ENG-C-7:Women'sWriting | Toenablestudentstohaveabroadunderstandingofthefemalepsychethroughstudyoftexts writtenbywomen writers. |
| ENG-C-8:BritishRomanticLiterature | ToacquaintstudentswithrepresentativepoemsandfictionalprosewritingsoftheRomanticagethrough thestudyofselectedtexts. |

| | |
|---|---|
| ENG-C-9: BritishLiterature:19<sup>th</sup>Century | Toenablestudentstohaveabroadunderstanding ofthehistoryofEnglishLiterature from19<sup>th</sup>Centuryandtoacquaintthemwiththeseminalpoeticvoicesthroughthestudyofselectedtexts. |
| ENG-C-10:IndianClassicalLiterature | ToenablestudentstohaveabroadunderstandingoftheclassicaltextsofIndian literatureandtoacquaintthemwiththeseminalpoeticvoicesandthedramaaswellasfictional proseoftheclassicalperiodthrough thestudyofselectedtexts. |
| ENG-C-11:British Literature: The Early20<sup>th</sup>Century | Toenablestudentstohaveabroadunderstanding ofthehistoryofEnglishLiterature oftheperiodandtoacquaintthemwiththeseminal poetic voicesthrough the studyofselectedtexts. |
| ENG-C-12:ModernEuropeanDrama | To enable students to have a broad understanding of modern drama and its techniquesthroughthestudyofselectedliterarytexts |
| ENG-C-13:Post ColonialLiterature | ToenablestudentstohaveabroadgeneralunderstandingofPostcolonialLiteraturethroughthestudyselectedliterarytext. |
| ENG-C-14:PopularLiterature | ToenablestudentstohaveabroadunderstandingofPopularLiteraturesinEnglishthroughthe studyselectedliterarytext. |

## PROGRAMSPECIFICOUTCOME

| Programme | |
|---|---|
| B.A. inENGLISH | PSO1: To classify a specific genre of literature and give illustration of the characteristics from literarytextsandtherebyexploreliteraryworkstofind out thestructureanditssignificance. PSO2:Tounderstandthevariouscomponentsofthelinguisticstructuresofthelanguage.PSO3:To familiarize thestudents withtheliteraturesfromdifferentcornersof theworld, eitherastranslationsofother languages inEnglishoras NewLiteraturesinEnglish. PSO4:Ithelpsthestudentsdeveloptheirmethodologicalskillsandspecificconcepts in a literary text in an analytical and critical way through the study of Literary Theory andCriticism. PSO5: To familiarize the students with some of the selected areas of English Grammar which areknown to cause difficulty to learners, to help them overcome some common mistakes and also to teachthem the skill of appreciation of English Prose and Poetry through the study of the prescribed texts, anddeveloptheskillsofwritten&Spoken communication. PSO6: To familiarise students with some skill enhancement courses of the art and craft of creative writinTo teach them the soft skills of teamwork, adaptability and leadership. To familiarise them with businessCommunicationandtechnical writing. |

## COURSEOUTCOME

| | |
|---|---|
| AECC-1: EnglishCommunication | To introduce students to the theory, fundamentals and tools of communication and tohelp them develop vital communication skills that would be integral to personal, socialandprofessional interactions. |

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| | |
|---|---|
| ENGL | To familiarize the students with some of the selected areas of English Grammar whichareknowntocausedifficultytolearners,tohelpthemovercomesomecommonmistakes andalsototeachthemtheskillofappreciationofEnglishProseandPoetry through the study of the prescribed texts, and develop the skills of writtencommunication. |

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| | |
|---|---|
| DSC-1/GE-1GE-(501)BritishLiterature1( The ElizabethanPeriodtotheEighteenthCentury | To enable students to have a broad understanding of the history of English Literatureand to acquaint them with the seminal poetic voices through the study of selected texts.Toacquaintstudentswithrepresentativedramasandfictional,non-fictionalprosewritingsthrough thestudyof selected texts |
| DSC-2/GE-2)GE BritishLiterature II(the Romantics and theVictorians | |
| DSC-3/GE-3GE-(301)BritishLiterature1(The TwentiethCentury) | |
| DSC-4/GE-IndianEnglishLiterature) | Toenablestudentstohavea broadgeneralunderstandingofIndianWritingin Englishthroughthestudyselectedliterarytext. |
| DSE-1:Modern IndianWriting in English inEnglishTranslation | Afterthecompletionofthiscourse,theparticipantswouldgaininsightinto"Indianness"throughrepresentativeworks.Studentswillbeabletoidentifytherelationship between Indian Writing in English and its social context. They will be abletocriticallyrespondtoIndiantexts. |
| DSE-2:British Literature:PostWorldWar II | Analyse the culturalandliterarycharacteristics ofpostworld-war-IImodernityand tracetheemergenceofapostwarandpostcolonialsensibilityand itsinfluenceoncontemporaryBritishliterature |
| DSE-3: LiteraryCriticism | Toenablestudents tohavea broad understandingof afewseminal criticalformulationsinthestudyofliterature |
| DSE-4:Worldliteratures | To acquaint students with World Literatures in English. They will be able to evaluatethe impact of indigenous issues/concerns on literary representation. Finally, they willbeable toappreciatethatworldliterature,withallitsindividual fragments,represents collectivehumanity. |
| AlternativeEnglish-1 | To enable students to develop the skill of appreciating English Literature through thestudyofselectedtexts. |
| Skill Enhancement CourseSEC-1:Creative WritingSEC-2:SoftSkills SEC-3:BusinessCom munication SEC-4:TechnicalWriting | The students will learn to handle spoken. and written communication. They will learnto write resumes, letters of application, business letters. They will be given anunderstanding of writing news reports, narration of experience, interview techniques,essayandparagraph writing. |

### DEPARTMENTOFHISTORY
### PROGRAMSPECIFICOUTCOMEOFHISTORYHONOURSUNDERCBCS.

PSO 1:  Understand Indian Culture & Civilization – Ancient, Medieval & Modern.PSO 2: IndepthStudyof Socialformation&CulturalPatternsofAncientWorld&

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MedievalWorld.

PSO 3:          Focus ontheRiseofModern West.

PSO 4:          Emphasisgivenonthe Historyof ModernEurope.

PSO 5: FocusontheHistoryofNorth-EastIndia.

COURSESPECIFICOUTCOMES:

CC1 : HistoryofIndiaI[uptoVedic Period ].
Students are familiarized with the Reconstruction of ancient Indian History,Pre-historic hunter – Gatherers, advent of food production, Harappan &VedicCivilization.

CC2 : SocialFormations&Cultural PatternsoftheAncientWorld.
Understand the Evolution of Humankind, Food production, Bronze Civilisation – Egypt&Mesopotamia, Nomadicgroupsin Asia,Ancient Greece.

CC3 : HistoryofIndiaII[ 300 BCto750 AD].
Study Economy, society, polity, religion, philosophy & cultural developments ofthegiven period.

CC4 : SocialFormations&CulturalPatternsoftheMedievalWorld.
Familiarise thestudentsaboutsociety, religion &culturein ancientRome, riseof feudalism, religion & culture in medieval Europe, Societies in Central IslamicLands.

CC5 : Historyof IndiaIII[750to 1206 ].
Students get to know about the rise of Rajputs ; the political structures of the Cholas, Palas, Arabconquest of Sind; religion, cultural developments, trade &commerce, society of the period understudy.

CC6 : RiseofModernWest–I.
Students will learn about transition from feudalism to capitalism; early colonialexpansion ; Renaissance ; economic developments of 16$^{th}$ century ; emergenceof Europeanstatesystem.

CC7 : Historyof IndiaIV [1206to1550]
Familiarise the students with the political structures , society , economy ,religion&culture of Sultanateperiod.

CC8 : RiseofModernWest–II.
Study in detail about the English Revolution; European politics in the 18$^{th}$ centuyAmericanRevolution; preludestoIndustrial Revolution.

CC9 : Historyof India–V [ 1550to 1605 ]
DetailedstudyabouttheMughal periodunderBabur&Akbar

CC 10: HistoryofIndia–VI[1605 to1750]
Continuation of the Mughal rule under Jahangir , Shah Jahan , Aurangazeb withemphasisonregional politics ,religion,trade&commerce.

CC 11: HistoryofModernEurope[1780to1939]
Students get to study about the French Revolution &Restoration ; CapitalistIndustrialization&social&economictransformation;varietiesofNationalism.

CC 12: HistoryofIndia–VII[1750 to1857]
Learn about the society , economy , polity of India in the mid 18$^{th}$ century ;expansion & consolidation of colonial power ; popular resistance that tookplaceduringthat period.

CC 13: HistoryofIndia-VIII[ 1857to1950]
Study the cultural changes , social & reform movements. Emphasis is given onthe Indian National Movements ; Independence, Partition & Emergence of aNewState.

CC 14: Social&CulturalTransformationinModernEurope.

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Students will get to know about Democracy ,Feudalism , Imperialism ,the twoWorldWars, Majorintellectualtrends.

| | | |
|---|---|---|
| DSE – 1 : | HistoryofChina[1839-1982] | |
| DSE – 2 : | Historiography | Enable the students to learn about China.Students learn about concept of History.FocusonthehistoryofNorth-EastIndia. |
| DSE – 3 : | HistoryofAssam[1228–1826] | |
| DSE – 4 : | HistoryofAssam[1826–1947] | |

PROGRAM SPECIFIC OUTCOMES OF B.A.HISTORY

PSO 1: Understand Indian Culture & Civilization – Ancient Medieval & Modern.PSO 2: In depth study of World History with special reference to Europe & China.PSO 3: Understandthedifferentfacetsofthe GenderStudiesin India.
PSO 4: Special focus on Archaeology, Museology , Tea Industry in Assam , CulturalTourismin India.

COURSEOUTCOMES

| | |
|---|---|
| DSC – 1 : History of India from earliest timesupto 300 CE.<br><br>DSC– 2:HistoryofIndiafrom300 CEto 1206. | Toenablethestudentstostudyaboutthesources , society , polity , religious movements , economyofthedifferentperiodsof Indianhistory. EmphasisisgivenontheIndianNationalMovement. |

| | |
|---|---|
| DSC – 3 : History of India from 1206 to<br><br>1707.DSC– 4:Historyof Indiafrom1707 | |

DSE – 1: HistoryofChina[1839 –1982 ]
Acquaint the students with the Opium Wars ,Chinese Revolutions , Civil Wars inChina, Riseof Communism.

DSE – 2: HistoryofEurope[ 1789-1914]
Familiarise the students about the French Revolution , Napoleon , Metternich ,Bismarck, Mussolini , Balkan Wars &theFirstWorldWar.

GE– 1: Women StudiesinIndia.
Make the students aware about women studies ,gender relations in pre-colonial& colonial India , women education , health & women participation inEnvironmentalissues &NationalMovement.

GE– 2: History&DevelopmentofEducationin India.
Students will get to learn about the development of education in ancient ,Medieval & modern India , Contribution of Christian Missionaries & East IndiaCompany, literacyprogrammes inIndia.

| | |
|---|---|
| SEC – 1 :    Archaeology & <br><br> SEC – 2 :    MuseologyEvolutionofIndi <br><br>                 anCulture <br> SEC – 3 :    HistoryofTeaIndustryin Assam <br><br> SEC – 4 :    CulturalTourisminIndia | Studentswillbeacquaintedwitharchaeologicalsites ,typesofmuseums,conceptsofart&performingarts,folk music,teaproduction&labour,typesof tourism&heritage management. |

ROGRAMME SPECIFIC OUTCOME B.A.(HONS.) IN          POLITICALSCIENCE

Students completing the B.A (Hons.) .in politicalscience will be able to:
1. Comprehend the basic structures and processes of government systems and theoretical underpinnings
2. Help in understanding the issues related to society and politics.
3. Can help in the society in bringing unity,peace and harmony through the understanding of the subject.
4. Demonstrate critical thinking, including the ability to form argument, detect fallacies and have in depth understanding of the public policies.
5. Have grasp on history and politics of the country.
6. Understandg international politics in a better way and help in formulating foreign policy.

COURSE SPECIFICOUTCOME FOR HONORS:

| Semester | Course Code | Nameof Course | CourseOutcome |
|---|---|---|---|
| 1st | POL HC 1016 | Understanding PoliticalTheory | Students will have the knowledge of political theory. It will make understand what democracy means And how it evolved and its practical approach in the real world. |
| | POL HC 1026 | Constitutional Government &DemocracyinIndia | Helps in understanding working of Indian Constitution and functioning of different institutions including Panchayati Raj. |
| 2nd | POL HC 2016 | Politicaltheory: Concepts&Debates | Students can have critical and reflective analysis and Interpret social practices. |
| | POL HC 2026 | PoliticalProcessinIndia | A student can understand practical political situationand will help others in having a scientific understanding of political situations. |
| 3rd | POL HC 3016 | Introduction toComparative Governmentand politics | Have knowledge of political system like capitalism, socialism, decolonization process. Will understand constitutional development of  Britain, Nigeria, Bangladesh and China. Will have ability to critically analyse political system. |
| | POL HC 3026 | Perspectives on publicadministration | The student will have better knowledge about how administrative system evolved and how it works. |

| | POL HC 3036 | Perspective oninternational relations andworldhistory | Students will be equipped with the knowledge of international politics. Have bett er understanding about the causes and consequences of key events like world war,cold war and post cold war world politics. |
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| | | Democratic awarenesswithlegallite racy | Have a good grasp of India's legal system, itsfunctioning and brief understanding of laws applicable in India.Students will have practical knowledge of judicial system due to the irvisitin courtandlegalaidcentre. |
|---|---|---|---|
| 4th | POL HC 4016 | PoliticalProcessesAnd Institutions inComparativePerspective | Student will be equipped with the knowledge of electoral system, party system, nation states. They can compare the process and systems of politics. |
| | POL HC 4026 | Public policy &AdministrationinIndia | Students will have an idea of India's administrative system and financial management. |
| | POL HC 4036 | Global Politics | The student will get the idea of socio-political, economic and technological dimension of globalization and its overall impact. |
| | | Public opinion and Survey Research | Students will understand the real politics.They will Have a grasp of scientific research and quantitative data analysis. |
| 5th | POL HC 5016 | Classical political philosophy | Student will have good grasp over western classical philosophy including ideas of Plato, Aristotle, Plato,Hobbes etc. |
| | POL HC 5026 | Indian political thought-I | Students will understand the diversity of theories Propagated by Indian political thinkers. |
| | | India'sForeignPolicy In AGlobalizingWorld | Student will be equipped with the foreign policy ofIndia along with its foreign policy and relations withsomemajorcountries oftheworld. |
| | | Human Rights in aComparativePerspective | Students will understand different perspective of Human Rights . |
| 6th | POL HC 6016 | Modern Political Philosophy | It will help to understand society and politics from a new perspective. Will help to formulate different policies by understanding ideas of thinkers like Rousseau,Marx,Gramsci etc. |
| | POL HC 6026 | Indian Political Thought - II | It will help to apply their ideas in the present daysituation and analyse the ideas of Gandhi , Roy,Ramabai, Ambedkar, Nehru, Iqbal, Savarkar andLohiaarestillrelevant inpresent situation. |
| | | Development process andsocialmovementsinco ntemporaryIndia | It will help them in understanding how India developed since independence. Make them understand socio-economic and political situation of India and Social movements that affected the Indian society and economy sincei ndependence. |

### B.A.PoliticalScience (GeneralProgramme)
This course helps to understand key aspects of political theory and its relevance in the present context. This course is designed to help students understand certain key issues that are important in the contemporary period

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**COURSEOUTCOMEFORGENERALPROGRAMME:**
**Course outcome of Generic Elective(GE)-for Learners pursuing Honours in OtherDescipline:**
This course will help other honours and General course students to havea better understanding of Political Science, its different theories and political system of different countries. From 1st to 4th Sem. Otherhonours students can take GE Political Science. General Programme students can take this course in 5th and6thSem. Students unrelated to Political Science subject

| Semester | CourseCode | Nameof Course | CourseOutcome |
|---|---|---|---|
| 1st | POL HG/RC 1016 | Introduction toPoliticalTheory | Helps in understanding rights, liberty, equality andjustice.It justifies necessity of censorship and protective discrimination. It will help to understand democracy development debate and how state intervened in the institution of family. |
| 2nd | POL RC 2016 | Indian Government And Politics | Make a student understand their rights,duties, Functioning of government at different level |
| 3rd | POL RC 3016 | Comparative Government and Politics | It will enhance a student's ability to compare political system of different countries. Contemporary debates on nature of states are a key element of the subject. |
| 3rd | | LegislativeSupport | Astudentwillknowlaw-makingprocessincludingBudget.Willunderstandpowersandfunctionsof people'srepresentativeatdifferentlevel. |
| 4th | POL RC 4016 | Introduction to internationalR elations | Help in evaluating global political events, in formulating policies and helps in understanding dynamics and forces at workin international relations. Evaluate the impact of global institutions and development in domestic level. |
| 4th | POL SE 5014 | Public Opinion and Survey Research | The Student will know use of differentrese and technique to formulate research questionand how To make scientific study of public opinion. |
| 5th | | DemocraticAwareness and legalliteracy | This will helped them to have a briefunderstandingofconstitutionandlawsofIndia. IntroducewithcourtsandjudicialsystemofIndiaandits functioning |
| 5th | | Themesin comparative politicaltheory | Giveagraspofdifferentpoliticalthemeandcomparativestudyofthesame. |
| 6th | POL SE 6014 | Conflict and Peace Building | Helps a student in understanding what is conflict and how it can be resolved. |
| 6th | | Administration and public policy:concepts and | Giveaconceptofhowadministrativesystemsdevelopand functioned. |

| | | theories | |
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PROGRAMSPECIFICOUTCOME

## DepartmentofCommerce

TheDepartment ofCommerce,

| Semester | CourseNumber | Name OfTheCourse | CourseOutcome |
|---|---|---|---|
| 1st | | Introduction toPoliticalTheory | Itwillgivenewdimensionto honours students to understandthedepthofpoliticaltheoryandhelpthe minformulatingscientificpolicy |
| 2nd | | IndianGovernment andPolitics | Studentcanrationaliseanypolitical situation.Will understandthesmoothfunctioningofgovernment. |
| 3rd | | ComparativeGovernment andpolitics | Student will have the knowledge of politicalsystem of different countries. Understanddifferenttypes of electoralsystemandchangingnatureof nationstates. |
| 4th | | Introduction tointernationalrelations | The student will have good grasp overinternational situations and of India's foreignpolicy. |
| 5th | | ReadingGandhi | Astudentcananalyzesociopoliticalproblemfromt heGandhianpointofview |
| 6th | | HumanRights, Genderand Environment | Itwillpreparethestudentswiththeoreticalandconceptual understanding of different socio economic problemand howtosolveit. |

Gauhati University,,offersthefollowingthreeprogrammesofstudy:

4. B.Com.(General),
5. B.Com.(HonoursinAccountancy) and
6. B.Com.(HonoursinBusinessManagement)

Theprogrammeaimedtoprovidethestudentwithawiderangeofknowledgeandskills.Theprogrammeissod esignedthatitfocusesbothonacademicsubjectslikestatisticsorEconomics as well as practical business subjects like accountancy, law, management, marketing, finance etc.The programmes provide a platform for experimental learning and grooms students towards industry specificcurriculumwithfocusedapproachonspecificareaswhicharecrucialinthemanagementof companies.

1. PROGRAM SPECIFIC OUTCOME OF B.COM.

(GENERAL),Aftercompletingtheprogrammethecandidatewillbeableto:

- BuildastrongfoundationofknowledgeindifferentareasofCommerce.
- Developtheskill ofapplyingconceptsandtechniquesusedinCommerce.
- Developanattitudeforworkingeffectivelyandefficientlyinabusinessenvironment.
- Integrate knowledge, skill and attitude that will sustain an environment of learning and creativityamongthestudents.
- Improve their computer literacy, their basic understanding of operative systems and a workingknowledge ofsoftwarecommonlyusedinacademicandprofessionalenvironments.
- Exposestudentsaboutentrepreneurship.
- Developfunctionalandgeneralmanagementskills.

- Inculcatea globalmindset.
- Evaluatedifferentbusinessproblemsusinganalyticalandcreative,andintegrativeabilities.
- BuildandDemonstrateleadership,teamwork,andsocialskills.
- Communicateeffectivelyindifferentcontexts.
- Analyzesocio-political-economicenvironmentofbusinessorganizations.

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- Enableastudenttomakedecisionsatpersonal andprofessionallevel.
- Demonstrateanintegratedunderstanding ofkeyconcepts,techniquesandtrendsinoneormorefieldsof commerce.
- Abletoapplytheirknowledgeandskilltofacethechallengesandopportunitiesinvolvedindiversecontexts.
- Abletostartownentrepreneurialactivities.
- Inculcateethicalvalues,teamwork,leadershipandmanagerialskills.
- ExhibitinclinationtowardspursuingprofessionalcoursessuchasCA/CS/CMA/CFAetc.

2.    PROGRAMSPECIFICOUTCOMEOFB.COM.(HONOURSINACCOUNTINGANDFINANCE):

Aftercompletingtheprogrammethecandidatewillbeableto:
- BuildastrongfoundationofknowledgeindifferentareasofCommerce.
- Developtheskill ofapplyingconceptsandtechniquesusedinCommerce.
- Developanattitudeforworkingeffectivelyandefficientlyinabusinessenvironment.
- Integrate knowledge, skill and attitude that will sustain an environment of learning and creativityamongthestudents.
- Improve their computer literacy, their basic understanding of operative systems and a workingknowledge ofsoftwarecommonlyusedinacademicandprofessionalenvironments.
- Exposestudentsaboutentrepreneurship.
- Developfunctionalandgeneralmanagementskills.
- Inculcateaglobalmindset.
- Evaluatedifferentbusinessproblemsusinganalyticalandcreative,andintegrativeabilities.
- BuildandDemonstrateleadership,teamwork,andsocialskills.
- Communicateeffectivelyindifferentcontexts.
- Analysesocio-political-economicenvironmentofbusinessorganizations.
- Enableastudenttomakedecisionsatpersonal andprofessionallevel.
- Demonstrateanintegratedunderstanding ofkeyconcepts,techniquesandtrendsinoneormorefieldsof commerce.
- Abletoapplytheirknowledgeandskilltofacethechallengesandopportunitiesinvolvedindiversecontexts.
- ReadyforemploymentinfunctionalareaslikeAccounting,Taxation,Banking,InsuranceandCorporateLaw.
- Abletostartownentrepreneurialactivities.
- Inculcateethicalvalues,teamwork,leadershipandmanagerialskills.
- Toenablestudentstopursuehighereducation.
- Becomeconsultantsinthefieldofincometax, salestaxetc.
- Exhibitinclinationtowardspursuingprofessionalcourses suchas CA/CS/CMA/CFAetc.

3.    PROGRAM SPECIFIC OUTCOME OF B.COM. (HONOURS IN BUSINESS MANAGEMENT):Aftercompletingtheprogrammethe candidatewillbeableto:
- BuildastrongfoundationofknowledgeindifferentareasofCommerce.
- DeveloptheskillofapplyingconceptsandtechniquesusedinCommerce.
- Developanattitudeforworkingeffectivelyandefficientlyinabusinessenvironment.
- Integrate knowledge, skill and attitude that will sustain an environment of learning and creativityamongthestudents.
- Improvetheir computerliteracy,theirbasic understandingofoperativesystems andaworking

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knowledgeofsoftwarecommonlyusedinacademicandprofessionalenvironments.

- Exposestudentsaboutentrepreneurship.
- Developfunctionalandgeneralmanagementskills.
- Inculcateaglobalmindset.
- Evaluatedifferentbusinessproblemsusinganalyticalandcreative,andintegrativeabilities.
- BuildandDemonstrateleadership,teamwork,andsocialskills.
- Communicateeffectivelyindifferentcontexts.
- Analysesocio-political-economicenvironmentofbusinessorganizations.
- Enableastudenttomakedecisionsatpersonal andprofessionallevel.
- Demonstrateanintegratedunderstanding ofkeyconcepts,techniquesandtrendsinoneormorefieldsof commerce.
- Abletoapplytheirknowledgeandskilltofacethechallengesandopportunitiesinvolvedindiversecontexts.
- Toenablestudentstopursuehighereducation.
- Pursueconsultancyservices inthefieldofmanagement.
- ReadyforemploymentinfunctionalareaslikeAccounting,Taxation,Banking,InsuranceandCorporat eLaw.
- Abletostartownentrepreneurialactivities.
- Inculcateethicalvalues,teamwork,leadershipandmanagerialskills.
- ExhibitinclinationtowardspursuingprofessionalcoursessuchasCA/ CS/CMA/CFA/MBAetc.

### Courseoutcomeof Three-YearBCom(Honours)ProgrammeunderCBCS

The Bachelorof Commerce courses offered by Departmentof Commerce, Guwahati College, Guwahatiaims to provide students with the knowledge, tools of analysis and skills with which they can understand andparticipate in the modern business and economics world, to prepare them for further studies and to achievesuccess in their professional careers. The outcomes of different courses offered by the department aresummarizedbelow:

| S. No. | PaperNo. | TitleofPaper | Course | CourseOutcome |
|---|---|---|---|---|
| B.Com.DegreeCourse(SemesterI) | | | | |
| 1 | AECC | BUSINESSCOMMU NICATION | B. Com.(Hono urs)1stSeme ster | To equip students effectively to acquireskills in reading, writing, comprehensionandcommunicationandals o touse electronic media for businesscommunication. |
| 2 | BCHCC | FINANCIALA CCOUNTING | B. Com.(Hono urs)1stSeme ster | The course enables the students tounderstand the application of basicaccountingtechniques.Itprovidesthe studentsthetechniqueofapplicationofac countingprincipleinpractice. |
| 3 | BCHCC | PRACTICAL ONFINANCIAL ACCCOUNTING | B. Com.(Hono urs)1stSeme ster | It provides the students the technique ofapplication of accounting principle inpractice by using popular accountingsoftwareTally. |

| 4 | BCHCC | BUSINESSLAW | B. Com.(Honours)1$^{st}$Semester | It aims at developing and understandingofthevariouslawsrelatingtobusiness,such as- law of contracts, sale of goodsact,Indian partnershipact, negotiable instrumentact.etc. |
|---|---|---|---|---|
| 5 | BCHGE | MICROECONOMICS | B. Com.(Honours)1$^{st}$Semester | The objective is to acquaint the studentswith the concepts of Micro economicsdealing with consumer behavior. Thecourse also makes the studentsunderstandthesupplysideofthe market throughthe productionandcostbehavioroffirms. |
| 6 | AECC | BusinessComm unication | B. Com.(Pass) 1$^{st}$Semester | To equip students effectively to acquireskills in reading, writing, comprehensionandcommunicationandalso touse electronic media for businesscommunication. |
| 7 | ENGL | General English | B.Com. (Pass) 1$^{st}$Semester | |
| | BCPDSC | FinancialAccounting | B. Com.(Pass) 1$^{st}$Semester | The course enables the students tounderstand the application of basicaccountingtechniques.Itprovidesthe studentsthetechniqueofapplicationofaccountingprincipleinpractice. |
| | BCPDSC | Practical on FinancialAccounting | B.Com. (Pass) 1$^{st}$Semester | It provides thestudentsthetechniqueof application of accounting principle inpracticebyusingpopularaccounting |
| | | | | softwareTally. |
| | BCPDSC | Business OrganisationandMana gement | B. Com.(Pass) 1$^{st}$Semester | The course aims to provide basicknowledge tothestudentsaboutthe organisation and management ofbusinessenterprises. |
| B.Com.DegreeCourse(SemesterII) | | | | |
| | AECC2 | EnvironmentalStudies | B.Com. (Honours)2$^{nd}$Semester | |
| | BCHCC | CorporateAccounting | B.Com. (Honours)2$^{nd}$Semester | Thecoursehelpsthestudentstodevelop awareness about corporate accountingandprovisionsofCompanies Act. |

| | BCHCC | CorporateLaws | B. Com.(Honours)2$^{nd}$Semester | This course provides the students anunderstandingofdifferentlaws and regulations effecting joint stockcompanies. |
|---|---|---|---|---|
| | BCHGE | MacroEconomics | B. Com.(Honours)2$^{nd}$Semester | Thestudents will beabletoknowhowthe principles of economics areapplicableinbusiness. |

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| | AECC | EnvironmentalStudies | B.Com. (Pass) 2nd Semester | |
|---|---|---|---|---|
| | ENGL | GeneralEnglish | B.Com. (Pass) 2nd Semester | |
| | BCPDSC | BusinessLaw | B. Com.(Pass) 2nd Semester | It aims at developing and understandingof the various laws relating to business,suchas-law ofcontracts, sale ofgoods act, Indian partnership act, negotiableinstrumentact.etc. |
| | BCPDSC | Business MathematicsandStatistics | B. Com.(Pass) 2nd Semester | The outcome of this course is to enablethe students to have basic ideas ofmathematics which is applicable inbusiness.Besidesitprovidesthestudents to gain understanding of statisticaltechniquesasareapplicabletobusiness. |
| B.Com.DegreeCourse(SemesterIII) | | | | |
| | BCHCC | Human ResourceManagement | B.Com. (Honours)3rd Semester | Toacquaintthestudentswiththe techniquesandprinciplestomanageh umanresourceofanorganisation. |
| | BCHCC | Income Tax Law andPractice | B. Com.(Honours)3rdSemester | Besidesgivingsomebasicconceptsabout direct and indirect taxes this courseprovidesknowledgetothestudentsa bout sales tax laws, custom duties and centralexcise. |
| | BCHCC | Practical on Income TaxLawand Practice | B. Com.(Honours)3rdSemester | This provides knowledge to the studentssomepracticalknowledgeofinco metax, salestaxlaws,customdutiesandcentralexc ise. |
| | BCHCC | Management PrinciplesandApplications | B. Com.(Honours)3rdSemester | This course is prepared for developingand understanding the application ofvarious principles of Management inbusiness. |
| | BCHSEC | E-commerce | B. Com.(Honours)3rdSemester | To enable the students to becomefamiliar with the mechanism forconductingbusinesstransactionsthroug h electronicmeans. |
| | BCHSEC | PracticalonE-Commerce | B.Com. (Honours)3rd Semester | Enablethestudentstobecome familiar withthe mechanismforconducting businesstransactionsthroughelectronic means. |

| | BCHGE | BusinessStatistics | B. Com.(Honours) 3$^{rd}$Semester | It provides the students to gainunderstandingofstatisticaltechniquesas areapplicabletobusiness. |
|---|---|---|---|---|
| | BCHGE | Practical on BusinessStatistics | B.Com. (Honours)3$^{rd}$Semester | It provides thestudentsto gain understandingofstatisticaltechniquesasar eapplicabletobusiness. |

| | | | | |
|---|---|---|---|---|
| | MIL 301/ALTE301 | | B.Com. (Pass) 3$^{rd}$Semester | |
| | BCPDSC301 | CompanyLaw | B. Com.(Pass) 3$^{rd}$Semester | This course provides the students anunderstanding of different laws andregulations effecting joint stockcompanies. |
| | BCPDSC302 | Income Tax Law andPractice | B. Com.(Pass) 3$^{rd}$Semester | Thiscourse aimstodevelop andunderstand the fundamental law andpractice of income tax. It will help thestudentstosolvethepracticalproblems of incometaxof businessfirmsaswell asindividuals. |
| | BCPDSC303 | Practical on Income TaxLawand Practice | B.Com. (Pass) 3$^{rd}$Semester | Ithelpsthe studentstosolve thepractical problemsofincometaxofbusinessfirmsas well asindividuals. |
| | BCPSEC301 | E-Commerce | B. Com.(Pass) 3$^{rd}$Semester | To enable the students to becomefamiliar with the mechanism forconductingbusinesstransactionsthrough electronicmeans. |
| | BCPSEC302 | Practical on E-Commerce | B. Com.(Pass) 3$^{rd}$Semester | To enable the students to becomefamiliar with the mechanism forconductingbusinesstransactionsthrough h electronicmeans. |
| B.Com.DegreeCourse(Semester IV) | | | | |
| | BCHCC401 | CostAccounting | B. Com.(Honours)4$^{th}$Semester | It aims at developing and understandingapplication of cost accounting techniquesusedinbusinessandindustries. |
| | BCHCC402 | BusinessMathematics | B. Com.(Honours)4$^{th}$Semester | The outcome of this course is to enablethe students to have basic ideas ofmathematics which is applicable inbusiness. |
| | BCHCC403 | Computer Applicationsin Business | B. Com.(Honours)4$^{th}$Semester | Provide computer skills and knowledgeand to enhance the students understandtheusefulnessofinformationte chnology andtoolsforbusinessoperations. |
| | BCHCC404 | Practical on ComputerApplicationsin Business | B.Com. (Honours)4$^{th}$Semester | Providecomputerskillsandknowledge and toacquaintthestudentsabouttheuseof computersin business. |

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| | BCHSEC401 | Entrepreneurship | B. Com.(Honours)4<sup>th</sup>Semester | The students will understand the basicconcepts, problems and opportunities ofentrepreneurshipafter goingthroughthis course. |
|---|---|---|---|---|
| | BCHGE401 | IndianEconomy | B.Com. (Honours)4<sup>t</sup><sup>h</sup>Semester | This course seekstoenablethe students graspthemajoreconomicproblemsinIndiaandtheirsolutions. |
| | MIL401/ALTE 401 | | B.Com. (Pass)4<sup>th</sup> | |

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| | | | Semester | |
|---|---|---|---|---|
| | BCPDSC401 | CorporateAccounting | B. Com.(Pass) 4<sup>th</sup>Semester | The course helps the students to developawareness about corporate accountingandprovisions of Companies Act. |
| | BCPDSC402 | CostAccounting | B.Com. (Pass) 4<sup>th</sup>Semester | It aimsat developingandunderstanding applicationofcostaccountingtechniquesusedinbusinessandindustries. |
| | BCP SEC401 | Entrepreneurship | B. Com.(Pass) 4<sup>th</sup>Semester | After going through this course, thestudents will understand the basicconcepts,problemsandopportunities of entrepreneurship. |
| B.Com.DegreeCourse(SemesterV) | | | | |
| | BCHCC501 | PrinciplesofMarketing | B.Com. (Honours)5<sup>th</sup>Semester | Theobjective ofthiscourseisto provide basicknowledgeofconcepts,principles,toolsandtechniquesofmarketing. |
| | BCHCC502 | Fundamentals ofFinancialManagement | B.Com. (Honours)5<sup>th</sup>Semester | It helps indevelopingand understanding theapplicationoffinancialmanagementtechniques. |
| | BCHCC503 | Practicalon Fundamentals ofFinancialManagement | B.Com. (Honours)5<sup>th</sup>Semester | Itprovidestheunderstandingthe applicationoffinancialmanagementtechniques. |
| | BCHDSE 501 | Management Accounting | B.Com. (Honours)5<sup>th</sup>Semester | It aimsat developingandunderstanding of the application of various managementaccountingconcept,toolsand techniques. |
| | BCHDSE 501 | Financial Markets,Institutions andFinancialServices | B. Com.(Honours)5<sup>th</sup>Semester | Provide the students the knowledge offinancialmarketsandinstitutionsandto familiarizethemwithmajorfinancialservicesin India. |
| | BCPDSE501 | Auditing and CorporateGovernance | B. Com.(Pass) 5<sup>th</sup>Semester | The objective of this course is impartingknowledge about the principles andmethod of auditing. This also give anoverviewof theprinciplesof corporate governanceandcorporatesocialresponsibility. |
| | BCPDSE502 | Fundamentals ofFinancialManagement | B. Com.(Pass)5<sup>th</sup> Semester | It helps in developing and understandingtheapplicationoffinancial management techniques |
| | BCP SEC501 | Computer Application inBusiness | B. Com.(Pass) 5<sup>th</sup>Semes | Provide computer skills and knowledgeand to enhance the students understandtheusefulnessofinformationtechnologyandtoolsforbusinessoperations. |

| | | | | |
|---|---|---|---|---|
| | | | ter | |
| | BCP SEC502 | Practical in ComputerApplicationin Business | B. Com.(Pass) 5$^{th}$Semester | Provide practical computer skills andknowledge and to enhance the studentsunderstandtheusefulness ofinformation technologyandtoolsforbusinessoperations. |

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| | BCPGE 501 | Principles of MicroEconomics | B.Com. (Pass) 5<sup>th</sup>Semester | Thestudentswill beabletoknow how theprinciplesofeconomicsareapplicableinbusiness. |
|---|---|---|---|---|
| B.Com.DegreeCourse(SemesterVI) | | | | |

| | BCHCC601 | Auditing and CorporateGovernance | B. Com.(Honours)6<sup>th</sup>Semester | The objective of this course is impartingknowledge about the principles andmethod of auditing. This also give anoverviewof the principlesofcorporate governanceandcorporatesocialresponsibility. |
|---|---|---|---|---|
| | BCHCC601 | IndirectTax Law | B. Com.(Honours) | Besidesgivingsomebasicconceptsaboutindirecttaxes.Thiscourseprovides |
| | | | 6<sup>th</sup>Semester | knowledge to the students about sales taxlaws,customdutiesandcentralexcise. |
| | BCHDSE 601 | Fundamentals ofInvestments | B. Com.(Honours)6<sup>th</sup>Semester | Tofamiliarizethestudentswithdifferentinvestments alternatives, introduce themtothe frameworkoftheir analysisand valuation and highlight the role ofinvestorprotection. |
| | BCHDSE 601 | Industrial Relations andLabourLaws | B. Com.(Honours)6<sup>th</sup>Semester | Helps to learn the concepts of industrialrelations, including the trade unions,collectivebargaining,disciplineand variouslabourenactments. |
| | BCPDSE 601 | Management Accounting | B.Com. (Pass) 6<sup>th</sup>Semester | It aimsat developingandunderstanding of the application of various managementaccountingconcept,toolsandtechniques. |
| | BCPDSE 602 | Fundamentals ofInvestments | B. Com.(Pass) 6<sup>th</sup>Semester | To familiarize the students with differentinvestments alternatives, introduce themtotheframeworkoftheir analysisand valuation and highlight the role ofinvestorprotection. |
| | BCPSEC601 | Personal Selling andSalesmanship | B. Com.(Pass) 6<sup>th</sup>Semester | This course is to familiarize the studentswith the fundamentals of personal sellingandsellingprocess. |
| | BCPGE601 | IndianEconomy | B. Com.(Pass) 6<sup>th</sup>Semester | This course seeks to enable the studentsto grasp the major economic problems inIndia and their solutions. It also seeks toprovidean understandingofmodern tools of macro-economic analysis andpolicyframework |

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**PROGRAMMESPECIFICOUTCOMEB.SC(GENERAL)BOTANYUNDERCHOICEBASECREDITSYSTEM BOTDSCBIODERVERSITY(Microbes,Algae,FungiandArchegoniate)**

1 Understandthediversityofalgaeandfungi

**2** Knowtheeconomic        importanceofalgae,fungiandothermicroorganismofearthsurface.3

Understand the useful and harmful activities of microorganism, other lower group

plants.**Course ofoutcomeofB.SC(Pass) Botany(CBCS)**

　　　1.   Students willableto usetheevidenceofcomparativebiologyto explainhowthetheoryofevolutionoffersthe

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only scientific explanation for the unity and diversity of life on earth. They will be able to use specificexamplestoexplicatehowdescentwithmodificationhasshapedplantmorphology,physiologyandlifehistory.

2. Studentsunderstandtheethicalprinciplesandcommittoenvironmentalethicsandresponsibilitiesandnormsofthebiodiversityconservation.

3. Create select and apply appropriate techniques, resources, and modern instruments and equipments forbiochemicalestimation,cellularandphysiologicalactivitiesofplantswithanunderstandingoftheapplicationand limitations.

4. Understandtheimpactoftheplantdiversityinsocietyandenvironmentalcontexts,anddemonstratetheknowle dge of,andneedfor sustainabledevelopment.

### PROGRAMMESPECIFICOUTCOMEB.SC(HONOURS)BOTANYUNDERCHOICEBASECREDIT SYSTEMBOTHCC:PhycologyandMicrobiology

1 Understandthediversityamongalgae

2  Understandlifecycleofalge,usefulandharmfulactivityofalgae,Fungi

3  Understandtheeconomicimportanceofalgaeand fungi

4 Understandthesystematic,morphologyandstructureofalgae,fungiandmicroorganism

### BOTHCC102T: Biomolecules and Cell –

**Biology**Understanding the biochemical nature of cellKnowthechemicalnatureofbiomolecules.

Understandthedifferenttypes ofinteractioninbiomolecules

Structure and organization of cell membrane.Gain knowledge aboutcellscience

### CourseofoutcomeofB.SC(Honours)Botany(CBCS)

Demonstrate knowledge and understanding of the engineering and management principles and apply these to one'sown work, as a member and leader in a team, to manage project and in multidisciplinary environment.students learn tocarry out practical work, in the field and in the laboratory, with minimal risk. They gain introductory experience inapplying each of the following skills and gain greater proficiency in a selection of them depending on their choice ofoptional modules. Recognize the need for and have the preparation and ability to engage in independent and life-longlearninginthebroadestcontextoftechnological change.


# DepartmentofChemistry

ProgrammeSpecificOutcomesofCBCSCHEMISTRY
1. B.Sc.(Honours)CHEMISTRY
2. B.Sc.(General)CHEMISTRY

## CourseOutcomesofB.Sc.(Honours)CHEMISTRY

CHMHCC(Credits:04)

InorganicChemistry-I:*AtomicStructureandChemical Bonding*

Describe the Bohr's theory of hydrogen atom, Quantum numbers and their significance, Pauli's ExclusionPrinciple, Hund's rule of maximum multiplicity and Aufbau's principle, shielding or screening effect, Slaterrules,Electronegativity,Ionic bond, Covalentbond,Metallic bondand Redoxreactions.

CHMHCC(Credits:02)

Perform the procedure of Calibration and use of apparatus in Titrimetric Analysis and also understand thepreparationofsolutionsindifferentstrength.

CHMHCC(Credits:04)

PhysicalChemistry-I: *StatesofMatter&Ionic Equilibrium*

Describe Kinetic molecular model of a gas, Maxwell distribution and its use, Deviations from ideal gasbehaviour,vanderWaalsequationofstate,surfacetentionandviscocity,Millerindices,Bragg'slaw,

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Ionization of weak acids and bases, common ion effect, Solubility and Solubility product of sparingly solublesaltandTheoryofacid-base indicators.

CHMHCC102P(Credits:02)

Performthe procedure of determination of Surface Tension and Transition temperature and preparationbuffer solution ofdifferentpH.

CHMHCC201T(Credits:04)

OrganicChemistry-I:*HydrocarbonandSterochemistry*

Explain the classification and nomenclature of Organic Compounds, Homolytic and Heterolytic bond fission,Curly arrow rules, Mechanism of different Organic reactions, Huckel's rule for Aromaticity, StereochemistryandConformationanalysisof alkanes.

CHMHCC201P(Credits:02)

Understand the practical procedure of Purification and Chromatographic separation of different organiccompounds.

CHMHCC202T(Credits:04)

PhysicalChemistry-II:*ChemicalThermodynamicsanditsApplications*

Describe First, Second & Third law of thermodynamics, Free energy function, Chemical equilibrium, LeChatelier'sPrinciple, Raoult's &Henry's Lawsandtheir applications.

CHMHCC202P(Credits:02)

Perform the procedure of determination of viscocity at different concentration and solubility at differenttemperatureandrefractiveindex of agiven liquid.


## CourseOutcomes ofB.Sc.(General)CHEMISTRY

CHMDSC101T/CHMGEC101T(Credits:04)

*AtomicStructure,BondingGeneralOrganicChemistry andAliphaticHydrocarbons*

SectionA:Inorganic Chemistry

Describe the Bohr's theory of hydrogen atom, Significance of quantum numbers, shapes of atomic orbitals,concept of exchange energy, Fajan's rules, Valence Bond and Molecular Orbital Approach of covalentmolecule.

SectionB:Organic Chemistry

DescribetheFundamentalofOrganicChemistry,Structure,shape&reactivityoforganicmolecules,Huckel'sruleof Aromaticity, Preparationandpropertiesof Alkanes,alkenesand Alkynes.

CHMDSC101P/CHMGEC101P(Credits:02)

SectionA:Inorganic Chemistry

Estimation of Fe(II), Cu(I) and Oxalic acid by titrating

method.SectionB:Organic Chemistry

DetectionofelementpresentintheorganiccompoundandSeparationofmixturesbyChromatographicmethod.

CHMDSC201T/CHMGEC201T(Credits:04)

*ChemicalEnergetics,EquilibriaandFunctionalOrganicChemistry*

SectionA:Physical Chemistry

ExplaintheLawsofThermodynamics,Kirchhoff'sequation,LeChatelier'sprinciple,Buffersolutionandapplicationsofsolubilityproductprinciple.

SectionB:Organic Chemistry

DescribethePreparationandpropertiesofAlkyl&ArylHalides,Alcohols,Phenols&Ethers,Aldehydesandketones and Stereochemistry&Carbohydrates.

CHMDSC201P/CHMGEC201P(Credits:02)

SectionA:Physical Chemistry

Determinationofheatcapacity,enthalpyofneutralization,ionization,hydrationofsaltandsolubilityofbenzoicacid.Preparation ofBuffersolution.

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<u>SectionB</u>:Organic Chemistry

Purificationof organiccompoundsandOrganicpreparations.

# DepartmentofPhysics

ProgramSpecificoutcomeunder CBCS:

| Program | ProgramSpecificOutcome |
|---|---|
| B.Sc.Physics(Honours) | The aim of the programme B.Sc. (Honours) is to equip the studentswith a thorough understanding of the theoretical concepts and practicalapplications of classical and modern Physics. The focus of thisprogramme is to develop an understanding of all the areas of modernPhysics like quantum mechanics, relativity theory, electronics, solidstatephysicsandstatisticalmechanics. |
| B.Sc.Physics(General) | The aim of the programme B.Sc. (General) is to equip the studentswiththetheoreticalconceptsandpracticalapplicationsof classicalandmodern Physics.Thefocusof thiscourseisto developathorough understandingofallareas of classicalphysics. |

**CourseOutcomeforB.Sc.Physics(Honours)underCBCS:**

| Course Code | CourseName | CourseOutcome |
|---|---|---|
| PHYSICS-C- : | MATHEMATICALPHYSICS-I (PHY-HC-1016) | Theaimofthecourse istoprovide understandingofbasictopicsin calculus,vectors,differentialequations,curvilinearcoordinates,probabilityandtheoryoferrors. |
| PHYSICS-C--LAB | MATHEMATICAL PHYSICS–I(LAB) (PHY-HC-1016) | Thefocusofthecourseistofamiliarizewithprogramminglanguages(Fortran,C) and use themtosolve simple problems usingbasic numerical techniques like bisection method, Newton-Raphsonmethod,Simpson'stechniques,etc. |
| PHYSICS-C- | MECHANICS (PHY-HC-1026) | Studentswouldgetacquaintedwithbasicconceptsandmethodsof Newtonianmechanics,andEinstein'sspecialtheoryofrelativity. |
| PHYSICS-C--LAB | MECHANICS(LAB) (PHY-HC-1026) | Students would learn how to make accurate measurement usingverniercallipers,screwgauge;howtomeasure'g' usingpendulum, andalsomeasurementofelasticconstantsofsolids. |
| PHYSICS-C- | ELECTRICITYANDMAGNETISM (PHY-HC-2016) | The aim is to learn to calculate electric and magnetic fields invacuum and inside dielectric and magnetic materials, and alsocalculationofelectriccurrentincircuitsusingnetworktheorems. |
| PHYSICS-C-LAB | ELECTRICITYAND MAGNETISM(LAB) (PHY-HC-2016) | Studentswouldgetacquaintedwithpracticalmeasurementof resistance,capacitance,magneticfield,andcharacteristicconstantsofaccircuits. |
| PHYSICS-C- | WAVE ANDOPTICS (PHY-HC-2026) | Thefocusistolearnbasicconceptsof waveslikesuperposition, velocity,andalsotopicsfromwave opticslikeinterference, |
| | | diffractionandholography. |

| PHYSICS-C-LAB | WAVE ANDOPTICS(LAB) (PHY-HC-2026) | Students would get familiar with practical measurement ofwavelength and frequency of a wave, and also refractive index oftransparentmaterial. |
|---|---|---|
| PHYSICS-C- | MATHEMATICALPHYSICS–II (PHY-HC-3016) | Thefocusinthiscourseisto learnvarioustechniquesof solving differentialequationslikeFrobeniusmethod,fourierseries,andspecialpolynomialslikeBesseland Legendre. |

| | | |
|---|---|---|
| PHYSICS-C-3-LAB | MATHEMATICALPHYSICS – II(LAB) (PHY-HC-3016) | Thefocusistoapplynumericaltechniqueslike Euler'sandRunge-Kuttamethodforsolvingsimpledifferentialequationsoccurringinphysicalproblems. |
| PHYSICS-C-3 | THERMAL PHYSICS( PHY-HC-3026) | Thefocusin thiscourseisto get familiar with the 3 laws of thermodynamics,andrelatedtopicslikeentropy,thermodynamicpotentials,andkinetictheory. |
| PHYSICS-C-3LAB | THERMALPHYSICS(LAB) (PHY-HC-3026) | Studentswouldgetacquaintedwithpracticaldeterminationof constants like coefficient of thermal conductivity, linear expansion,andthermal coefficient ofresistance. |
| PHYSICS-C-3 | DIGITALSYSTEMS ANDAPPLICATIONS (PHY-HC-3036) | Thefocusinthiscourseisto learnimportanttopicsrelatedtodigital systems and computers like microprocessor, Boolean algebra,computerorganisation, etc. |
| PHYSICS-C-3-LAB | DIGITALSYSTEMS ANDAPPLICATIONS(LAB) (PHY-HC-3036) | Experiments in this course are designed for the students to getfamiliarwiththeoperationofmicroprocessor,CRO,multivibrator,flipflops,etc. |
| PHYSICS-SEC-3 | PHYSICS WORKSHOP SKILL (PHY-SE-3014) | Theaimofthiscourseistoenable thestudentstogetfamiliarandexperiencewithvariousmechanicalandelectricaltoolsthrough hands-onmode. |
| PHYSICS-C-4 | MATHEMATICALPHYSICS-III (PHY-HC-4016) | Theemphasisofthecourseisin solvingproblems ofinteresttothePhysicscommunitythroughuse of advanced mathematical techniqueslikecomplexanalysis,Laplacetransforms,convolutiontheorem. |
| PHYSICS-C-4-LAB | MATHEMATICALPHYSICS–III (LAB) (PHY-HC-4016) | The focus of this course is to solve special problems of interest byapplyingnumericaltechniquesandcomputerprogramming. |
| PHYSICS-C-4 | ELEMENTSOF MODERN PHYSICS (PHY-HC-4026) | Thefocusofthiscourseistounderstandthevariousconceptsrelatedtothe development ofquantummechanics. |
| PHYSICS-C-4-LAB | ELEMENTS OFMODERNPHYSICS(LAB) (PHY-HC-4026) | The focus of experiments in this course is on the elements of modernphysicslikePlank'sconstant,photoelectriceffect,etc. |
| PHYSICS-C-4 | ANALOG SYSTEMS ANDAPPLICATIONS (PHY-HC-4036) | Theemphasisinthiscourseisonsemiconductordiodes, bipolarjunctiontransistors,amplifiersand Op-Amps. |

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| PHYSICS-C-4LAB | ANALOGSYSTEM SAND APPLICATIONS (LAB) (PHY-HC-4036) | The focus of experiments in this course is on PN junction diode,Zenerdiode,transistoramplifier. |
|---|---|---|
| PHYSICS-C-5 | QUANTUMMECHANICS ANDAPPLICATIONS (PHY-HC-5016) | Thestructureofthecourseisintendedtoprovide basicintroduction ofquantummechanicswhichincludes Schrodingerequation,andsolutionofhydrogen-likeatoms. |
| PHYSICS-C-5LAB | QUANTUMMECHANICSAND APPLICATIONS(LAB) (PHY-HC-5016) | The aim of this course is to enable the students to learn to obtainapproximatesolutionsforquantummechanicalproblemswhereexactsolutionis notpossible. |
| PHYSICS-C-5 | SOLID STATEPHYSICS (PHY-HC-5026) | Thecourseisintendedto provide a throughintroductionto solidstate physicsstartingfromcrystal structureupto superconductivity. |

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| PHYSICS-C- | SOLID STATEPHYSICS(LAB) (PHY-HC-5026) | Theexperiments inthecourse aredesignedto measureconstantslikeHallcoefficient,dielectricconstant,etc. |
|---|---|---|
| PHYSICS-DSE- | CLASSICAL DYNAMICS (PHY-HE-6056) | The aim of the course is to get the student acquainted with theLagrangianandHamiltonianformulationofclassicalmechanics,anda lso applications like small amplitude oscillations and fluiddynamics. |
| PHYSICS-DSE- | NUCLEAR ANDPARTICLE PHYSICS (PHY-HE-5056) | Thecourseisintendedtoprovide abasicintroductionto nuclearphysics,andalso particlephysics. |
|  | ADVANCEDMATHE MATICALPHYSICS (PHY-HE-5036) | Thecourseisintendedtoprovideadvancedlevelmathematical techniquesusedbyphysicists,liketransformationtheory, grouptheoryand tensors. |
| PHYSICS-C-6 | ELECTROMAGNETI CTHEORY (PHY-HC-6016) | Theaimof the courseis toacquaintthestudent withMaxwell equations,EMwavepropagations,andapplicationslikewaveguidesando ptical fibres. |
| PHYSICS-C-6-LAB | ELECTROMAGNE TIC THEORY(LA B) (PHY-HC-6016) | Theexperimentsofthiscourseareintendedtostudyproperties of EMwavelikepolarization,totalenergy(Stefan'slaw). |
| PHYSICS-C-6 | STATISTICALMECH ANICS (PHY-HC-6026) | The aim of this course is to provide a thorough introduction toclassicalstatistics,FDstatisticsand BEstatistics. |
| PHYSICS-C-6-LAB | STATISTICAL MECHANICS(L AB) (PHY-HC-6026) | The experiments in this course are intended to make calculations ofsimple problems instatistical mechanics. |
| PHYSICS-DSE-6 | ASTRONOMY ANDASTROPHYSI CS (PHY-HE-6046) | The course is intended to familiarize the students with introductoryconceptsin AstronomyandAstrophysics. |

**CourseOutcomeforB.Sc.Physics(General)underCBCS:**

| Course Code | CourseName | CourseOutcome |
|---|---|---|
| PHYSICS -DSC-1 | MECHANICS (PHY-HG-1016) | The aim of the course is to equip the student with the elementaryconcepts and ideas of mechanics., fluids and special theory ofrelativity. |
| PHYSICS -DSC-1-LAB | MECHANICS(LAB) (PHY-HG-1016) | Experimentsinthiscourseareintendedforcarryingoutmea suremtsof length, g,springconstant,etc. |

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| | | |
|---|---|---|
| PHYSICS-DSC- | ELECTRICITY, MAGNETISM ANDEMT (PHY-HG-2016) | The course provides a general overview of all the topics fallingunderclassical electromagnetictheory. |
| PHYSICS-DSC-LAB | ELECTRICITY,MAGNETISM ANDEMT (LAB) (PHY-HG-2016) | Experimentsinthiscourseareintendedforbasic measurement techniquesinelectromagnetism,likecurrent,resistance,magneticfield,etc. |
| PHYSICS-DSC- | THERMALPHYSICS ANDSTATISTICAL MECHANICS (PHY-HG-3016) | The focus in this course is get familiar with the 3 laws ofthermodynamics,andrelatedtopicslikeentropy,thermodynamicpotentials,and kinetictheory. |
| PHYSICS-DSC--LAB | THERMALPHYSICSAND STATISTICALMECHANICS(LAB) (PHY-HG-3016) | Students would get acquainted with practical determination ofconstants like coefficient of thermal conductivity, linearexpansion,andthermal coefficientofresistance. |
| PHYSICS-DSC-4 | WAVES ANDOPTICS (PHY-HG-4016) | Studentswouldlearnbasicconceptsofwaveslikesuperposition, velocity,and alsotopicsfromwave opticslikeinterference,diffractionand holography. |
| PHYSICS-DSC-LAB | WAVES ANDOPTICS(LAB) (PHY-HG-4016) | Studentswouldgetfamiliarwithpracticalmeasurementof wavelengthandfrequencyof awave, andalsorefractiveindexoftransparentmaterial. |

**DepartmentofMathematics**

**CBCS Course Structure for B.Sc. (Hons.) Mathematics Programme**
**SEMESTER WISE PLACEMENT OF THE COURSES**

| Sem | Core Course(14) | Ability Enhancement Compulsory Course (AECC)(2) | Skill Enhancement Course (SEC)(2) | Discipline SpecificElective (DSE)(4) | GenericElective(GE)(4) (Otherthan Mathematics Honours) |
|---|---|---|---|---|---|
| I | MAT-HC-1016: Calculus(including practical) | ENG-AE-1014 | | | MAT-HG-1016 / MAT-RC-1016 MAT-HG 1026 |
| | MAT-HC-1026: Algebra | | | | |
| II | MAT-HC-2016: Real Analysis | ENV-AE-2014 | | | MAT-HG-2016 / MAT-RC-2016 MAT-HG-2026 |
| | MAT-HC-2026: Differential Equations(including practical) | | | | |
| III | MAT-HC-3016: Theory of Real Functions | | MAT-SE-3014 MAT-SE-3024 | | MAT-HG-3016 / MAT-RC-3016 MAT-HG-3026 |
| | MAT-HC-3026: Group Theory-I | | | | |
| | MAT-HC-3036: Analytical Geometry | | | | |
| IV | MAT-HC-4016:Multivariate Calculus | | MAT-SE-4014 MAT-SE-4024 | | MAT-HG-4016 / MAT-RC-4016 MAT-HG-4026 |
| | MAT-HC-4026: Numerical Methods (including practical) | | | | |
| | MAT-HC-4036: Ring Theory | | | | |
| V | MAT-HC-5016: Riemann Integration and Metric spaces | | | DSE-1 MAT-HE-5016 MAT-HE-5026 MAT-HE-5036 | |
| | MAT-HC-5026: Linear Algebra | | | DSE-2 MAT-HE-5046 MAT-HE-5056 MAT-HE-5066 | |
| VI | MAT-HC-6016: ComplexAnalysis | | | DSE-3 MAT-HE-6016 MAT-HE-6026 MAT-HE-6036 MAT-HE-6046 | |
| | MAT-HC-6026: Partial Differential Equations (including practical) | | | DSE-4 MAT-HE-6056 MAT-HE-6066 MAT-HE-6076 | |
| | | | | Project In lieu of DSE-3 and DSE-4 | |

**Legends:HC: Core Papers          HE: Discipline Specific Elective Papers**

**SE: Skill Enhancement PapersHG: Generic Elective Papers**

## Core Papers:

1. MAT-HC-1016: Calculus (including practical)
2. MAT-HC-1026: Algebra
3. MAT-HC-2016: Real Analysis
4. MAT-HC-2026:  Differential Equations(including practical)
5. MAT-HC-3016: Theory of Real Functions
6. MAT-HC-3026: Group Theory-I
7. MAT-HC-3036: Analytical Geometry
8. MAT-HC-4016:Multivariate  Calculus
9. MAT-HC-4026: Numerical Methods (including practical)
10. MAT-HC-4036: Ring Theory
11. MAT-HC-5016: Riemann Integration and Metric spaces
12. MAT-HC-5026: Linear Algebra
13. MAT-HC-6016: Complex Analysis
14. MAT-HC-6026: Partial Differential Equations (including practical)

## Skill Enhancement Course (SEC) papersSEC 1(chooseone)

(i) MAT-SE-3014: Computer Algebra Systems and Related Software
(ii) MAT-SE-3024: Combinatorics and Graph Theory

## SEC 2 (choose one)

(i)  MAT-SE-4014: R-Programming
(ii) MAT-SE-4024: LATEX and HTML

## Discipline Specific Electives (DSE) papersDSE 1 (choose one)

(i) MAT-HE-5016: Number Theory
(ii) MAT-HE-5026: Mechanics
(iii) MAT-HE-5036: Probability and Statistics

## DSE 2 (choose one)

(i) MAT-HE-5046: Linear Programming
(ii) MAT-HE-5056: Spherical Trigonometry and Astronomy
(iii) MAT-HE-5066: Programming in C

## DSE-3 (choose one)

(i) MAT-HE-6016: Boolean Algebra and Automata Theory
(ii) MAT-HE-6026: Bio-Mathematics
(iii) MAT-HE-6036: Mathematical Modeling
(iv) MAT-HE-6046: Hydromechanics

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## DSE 4 (choose one)

(i)   MAT-HE-6056:  Rigid  Dynamics
(ii)  MAT-HE-6066: Group Theory II
(iii) MAT-HE-6076:  Mathematical  Finance

## Project (in lieu of DSE3 and DSE4)

**Generic Elective (GE) papers**

## GE 1 (choose one)

(i).     MAT-HG-1016/MAT-RC-1016:  Calculus
(ii).    MAT-HG-1026:  Analytic  Geometry

## GE 2 (Choose one)

(i).     MAT-HG-2016/MAT-RC-2016:  Algebra
(ii).    MAT-HG-2026:  Discrete  Mathematics

## GE 3 (choose one)

(i).     MAT-HG-3016/MAT-RC-3016:
Differential Equations(ii).        MAT-HG-
3026: Linear Programming

## GE 4 (choose one)

(i).     MAT-HG-4016/MAT-RC-4016: Real Analysis(ii).        MAT-HG-4026: Numerical
Analysis

B.A./B.SC.(HONOURS)-MATHEMATICS

## CORE PAPER-1

## CALCULUS

**Objective:** The main emphasis of this course is to equip the student with necessary analytic andtechnical skills to handle problems of mathematical nature as well as practical problems. More precisely, main target of this course is to explore the different tools for higher order derivatives, to plot the various curves and to solve the problems associated with differentiation and integration of vector functions.

**Excepted Outcomes:** After completing the course, students are expected to be able to use Leibnitz's rule to evaluate derivatives of higher order, able to study the geometry of various types of functions, evaluate the area, volume using the techniques of integrations, able to identify the difference between scalar and vector, acquired knowledge on some the basic properties of vector functions.

### BOOKS RECOMMENDED:

1.    H.Anton, I.Bivensand S.Davis, *Calculus*,10thEd., JohnWileyand Sons(Asia) P.Ltd., Singapore, 2002.

### BOOKS FOR REFERNCE:

1.    Shanti Narayan, P. K. Mittal, Differential Calculus, S. Chand, 2014.

2.    Shanti Narayan, P. K. Mittal, Integral Calculus, S. Chand, 2014.

## CORE PAPER-II

## DISCRETE MATHEMATICS

**Objective:** This is a preliminary course for the basic courses in mathematics and all its applications. The objective is to acquaint students with basic counting principles, set theory and logic, matrix theory and

graph theory.

**Expected Outcomes:** The acquired knowledge will help students in simple mathematical modeling. They can study advance courses in mathematical modeling, computer science, statistics, physics, chemistry etc.

## BOOKS RECOMMENDED:

1. Edgar G. Goodaire and Michael M. Parmenter, Discrete Mathematics with Graph Theory, 3rd Ed., Pearson Education (Singapore) P. Ltd., Indian Reprint, 2005.

2. Kenneth Rosen Discrete mathematics and its applications Mc Graw Hill Education 7th edition.

## BOOKS FOR REFERENCE:

1. J. L. Mott, A. Kendel and T.P. Baker: Discrete mathematics for Computer Scientists and Mathematicians, Prentice Hall of India Pvt Ltd, 2008.

# CORE PAPER-III

## REAL ANALYSIS

**Objective:** The objective of the course is to have the knowledge on basic properties of the field of real numbers, studying Bolzano-Weierstrass Theorem , sequences and convergence of sequences, series of real numbers and its convergence etc. This is one of the core courses essential to start doing mathematics.

**Expected Outcome:** On successful completion of this course, students will be able to handle fundamental properties of the real numbers that lead to the formal development of real analysis and understand limits and their use in sequences, series, differentiation and integration. Students will appreciate how abstract ideas and rigorous methods in mathematical analysis can be applied to important practical problems.

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BOOKS RECOMMENDED:

1. R.G. Bartle and D. R. Sherbert, Introduction to Real Analysis($3^{rd}$ Edition), John Wiley and Sons (Asia) Pvt. Ltd., Singapore,2002.

2. Gerald G. Bilodeau, Paul R. Thie, G.E. Keough, *An Introductionto Analysis,*Jones & Bartlett, Second Edition, 2010.

BOOKS FOR REFERENCE:

1. S.C. Mallik and S. Arora-Mathematical Analysis, New Age InternationalPublications.
2. BrianS.*Thomson*,Andrew.M.*Bruckner*,andJudithB.*Bruckner*,*ElementaryReal Analysis,* Prentice Hall,2001.

## CORE PAPER-IV DIFFERENTIAL EQUATIONS

**Objective:** Differential Equations introduced by Leibnitz in 1676 models almost all Physical, Biological, Chemical systems in nature. The objective of this course is to familiarize thestudents with various methods of solving differential equations and to have a qualitative applications through models. The students have to solve problems to understand the methods.

**Expected Outcomes:** A student completing the course is able to solve differential equations and is able to model problems in nature using Ordinary Differential Equations. This is also prerequisite for studying the course in Partial Differential Equations and models dealing with Partial Differential Equations.

## Practical / Lab work to be performed on a computer:

Modeling of the following problems using *Matlab / Mathematica / Maple* etc.

1. Plotting of second & third order solution family of differentialequations.

2. Growth & Decay model (exponential caseonly).

3. (a) Lake pollution model (with constant/seasonal flow and pollution concentration)/

    (b) Case of single cold pill and a course of cold pills.

    (c) Limited growth of population (with and without harvesting).

4. (a) Predatory-prey model (basic volterra model, with density dependence, effect of DDT, two prey one predator).

### BOOKS RECOMMENDED:

1. Simmons G F, Differential equation, Tata Mc GrawHill, 1991.
2. Belinda Barnes and Glenn R. Fulford, *Mathematical Modeling with Case Studies,A DifferentialEquationApproachusingMapleandMatlab,*2ndEd.,TaylorandFrancisgroup, London and New York,2009.

3. Martin Braun, Differential Equations and their Applications, Springer International, Student Ed.

### BOOKS  FOR REFERENCE:

1. S. L. Ross, Differential Equations, 3rd Edition, John Wiley and Sons, India.

2. C.Y. Lin, Theory and Examples of Ordinary Differential Equations, World Scientific, 2011.

## CORE PAPER-V

## THEORY OF REAL FUNCTIONS

**Objective:** The objective of the course is to have knowledge on limit theorems on functions, limits of functions, continuity of functions and its properties, uniform continuity, differentiability of functions, algebra of functions and Taylor's theorem and, its applications. The student how to deal with real

functions and understands uniform continuity, mean value theorems also.

**Expected Outcome**: On the completion of the course, students will have working knowledge on the concepts and theorems of the elementary calculus of functions of one real variable. They will work out problems involving derivatives of function and their applications. They can use derivatives to analyze and sketch the graph of a function of one variable, can also obtain absolute value and relative extrema of functions. This knowledge is basic and students can take all other analysis courses after learning this course.

BOOKS RECOMMENDED:
1. R.G. Bartle & D. R. Sherbert, Introduction to Real Analysis, John Wiley &Sons.
2. G. Das and S. Pattanayak, *Fundamentals of mathematics analysis*, TMH Publishing Co.
3. S. C. Mallik and S. Arora, *Mathematical analysis*, New Age International Ltd., New Delhi.

BOOK FOR REFERENCES:
1. A. Kumar, S. Kumaresan, *A basic course in Real Analysis*, CRC Press, 2014
2. K. A. Ross, *Elementary analysis: the theory of calculus*, Undergraduate Texts in Mathematics, Springer (SIE), Indian reprint, 2004A.Mattuck, Introduction toAnalysis, Prentice Hall
3. Charles G. Denlinger, *Elements of real analysis*, Jones and Bartlett (Student Edition), 2011.

CORE PAPER-VI
**GROUP THEORY-I**

**Objective:** Group theory is one of the building blocks of modern algebra. Objective of this course is to introduce students to basic concepts of group theory and examples of groups and their properties. This course will lead to future basic courses in advanced mathematics, such as Group theory-II and ring theory.

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**Expected Outcomes:** A student learning this course gets idea on concept and examples of groups and their properties . He understands cyclic groups, permutation groups, normal subgroups and related results. After this course he can opt for courses in ring theory, field theory, commutative algebras, linear classical groups etc. and can be apply this knowledge to problems in physics, computer science, economics and engineering.

### BOOKS RECOMMENDED:

1. Joseph A. Gallian, *Contemporary Abstract Algebra* (4th Edition), Narosa Publishing House, New Delhi

2. John B. Fraleigh, *A First Course in Abstract Algebra,* 7th Ed., Pearson, 2002.

### BOOK FOR REFERENCES:

1. M. *Artin, Abstract Algebra,* 2nd Ed., Pearson, 2011.

2. Joseph 1. Rotman, *An Introduction to the Theory of Groups,* 4th Ed., Springer Verlag, 1995.

3. I. N. Herstein, *Topics in Algebra,* Wiley Eastern Limited, India, 1975.

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## CORE PAPER-VII

### PARTIAL DIFFERENTIAL EQUATIONS AND SYSTEM OF ODEs

**Objective:** The objective of this course is to understand basic methods for solving Partial Differential Equations of first order and second order. In the process, students will be exposedto Charpit's Method, Jacobi Method and solve wave equation, heat equation, Laplace Equation etc. They will also learn classification of Partial Differential Equations and system of ordinary differential equations.

**Expected Outcomes:** After completing this course, a student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, non linear evolution equations etc. All these courses are important in engineering and industrial applications for solving boundary value problem.

## BOOKS RECOMMENDED :

1. Tyn Myint-U and Lokenath Debnath, *Linear Partial Differential Equations for Scientists and Engineers,* 4th edition, Birkhauser, Indian reprint, 2014.

2. S.L. Ross, *Differential equations,* 3rd Ed., John Wiley and Sons, India,

### BOOK FOR REFERENCES:

1. J Sinha Roy and S Padhy:A course of Ordinary and Partial differential equation Kalyani Publishers,New Delhi,

2. Martha L Abell, James P Braselton, *Differential equations with MATHEMATICA,* 3rd Ed., Elsevier Academic Press, 2004.

3. Robert C. McOwen: Partial Differential Equations, Pearson Education Inc.

4. T Amarnath: An Elementary Course in Partial Differential Equations, Narosa Publications.

## CORE PAPER-VIII

### NUMERICAL METHODS AND SCIENTIFIC COMPUTING

Use of Scientific Calculator is allowed.

**Objective:** Calculation of error and approximation is a necessity in all real life, industrial and scientific

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computing. The objective of this course is to acquaint students with various numerical methods of finding solution of different type of problems, which arises in different branches of science such as locating roots of equations, finding solution of systems of linear equations and differential equations, interpolation, differentiation, evaluating integration.

**Expected Outcome:** Students can handle physical problems to find an approximated solution. After getting trained a student can opt for advance courses in Numerical analysis in higher mathematics. Use of good mathematical software will help in getting the accuracy one need from the computer and can assess the reliability of the numerical results, and determine the effect of round off error or loss of significance.

## BOOKS RECOMMENDED:

1. M. K. Jain, S. R. K. Iyengar and R. K. Jain, *Numerical Methods for Scientific and Engineering Computation,* New age International Publisher, India,
2. Michael Heath: Scientific Computing : An introductory Survey.

## BOOK FOR REFERENCES:

1. B. Bradie, *A Friendly Introduction to Numerical Analysis,* Pearson Education, India, 2007.
2. Kendall E. Atkinson: An Introduction to Numerical Analysis
3. C. F. Gerald and P. O. Wheatley, *App.ied Numerical Analysis,* Pearson Education, India, 7th Edition, 2008
4. S. D. Conte & S. de Boor: Elementary Numerical Analysis: An Algorithmic Approach.

## CORE PAPER-IX

## TOPOLOGY OF METRIC SPACES

**Objective:** This is an introductory course in topology of metric spaces. The objective of this course is to impart knowledge on open sets, closed sets, continuous functions, connectedness and compactness in metric spaces.

**Expected Outcomes:** On successful completion of the course students will learn to work with abstract topological spaces. This is a foundation course for all analysis courses in future.

## BOOKS RECOMMENDED:

1. Satish Shirali & Harikishan L. Vasudeva, *Metric Spaces*, Springer Verlag London (2006)(First Indian Reprint 2009)

## BOOK FOR REFERENCES:

1. S. Kumaresan, *Topology of Metric Spaces*, Narosa Publishing House, Second Edition 2011.

## CORE PAPER-X

## RING THEORY

**Objective:** This is a second course in modern algebra which deals with ring theory. Somebasics of ring theory like rings, subrings, ideals, ring homomorphisms and their properties and. This course is an integral part of any course on Modern algebra the ohers being Group theory and Field Theory.

**Expected Outcomes:** After completing this course, this will help students to continue more courses in advanced Ring theory  modules, Galois groups.

## BOOKS RECOMMENDED:

1. Joseph A. Gallian, *Contemporary Abstract Algebra* (4th Edition), Narosa Publishing House, New Delhi.
2. John B. Fraleigh, *A First Course in Abstract Algebra,* 7th Ed., Pearson, 2002.

## BOOK FOR REFERENCES:

1. M. *Artin, Abstract Algebra,* 2nd Ed., Pearson, 2011.
2. Joseph 1. Rotman, *An Introduction to the Theory of Groups,* 4th Ed., Springer Verlag, 1995.
3. I. N. Herstein, *Topics in Algebra,* Wiley Eastern Limited, India, 1975.

## CORE PAPER - XI MULTIVARIATE CALCULUS

**Objective:** The objective of this course to introduce functions of several variable to a student after he has taken a course in one variable calculus. The course will introduce partial derivatives and several of its consequences and will introduce double and triple integrals along with line integrals which are fundamental to all streams where calculus can be used.

**Expected Outcomes:** After reading this course a student will be able to calculate partial derivatives,directional derivatives,extremum values and can calculate double, triple and line integrals. He will have idea of basic vector calculus including green's theorem, divergence theorem.and stokes theorem. He can take courses in calculus on manifolds, Differential geometry and can help in numerical computations involving several variables.

## BOOKS RECOMMENDED:

1. M. J,.Strauss, G. L. Bradley and K. J. Smith, Calculus (3rd Edition), Dorling Kindersley (India) Pvt. Ltd. (Pearson Education), Delhi, 2007.

2. S C Mallik  and S Arora: Mathematical Analysis, New Age International Publications

## BOOK FOR REFERENCES:

1. G.B. Thomas and R.L. Finney, *Calculus,* 9th Ed., Pearson Education, Delhi, 2005.

2. E. Marsden, A.J. Tromba and A. Weinstein, *Basic Multivariable Calculus,*Springer(SIE). Indian reprint, 2005.

3. James Stewart, *Multivariable Calculus, Concepts and Contexts,*2nd Ed., Brooks/*Cole,* Thomson Learning, USA, 2001.

4. S Ghorpade, B V Limaye,  Multivariable calculus, Springer international edition

## CORE PAPER –XIILINEAR ALGEBRA

**Objective:** Linear algebra is a basic course in almost all branches of science. A full course in undergraduate program will help students in finding real life applications later.. The objective of this course is  to introduce a student the basics of linear  algebra and some of its application

**Expected Outcomes:** The student will use this knowledge wherever he/She goes after undergraduate program. It has applications in computer science, finance mathematics, industrialmathematics, bio

mathematics and what not.

## BOOKS RECOMMENDED:

1. Stephen H. Friedberg, Arnold J. Insel, Lawrence E. Spence, *Linear Algebra* (4th Edition),Pearson, 2018.

## BOOKS FOR REFERENCE:

1. Rao A R and Bhim Sankaram  Linear Algebra  Hindustan Publishing house.

2. Gilbert Strang, Linear Algebra and its Applications, Thomson, 2007.

## CORE PAPER-XIII COMPLEX ANALYSIS

**Objectives:** The objective of the courseis aimed to provide an introduction to the theories for functions of a complex variable. The concepts of analyticity and complex integration arepresented. The Cauchy's theoremand its applications, the calculus of residues and its applications are discussed in detail.

**Expected Outcomes:** Students will be able to handle certain integrals not evaluated earlier and will know a technique for counting the zeros of polynomials. This course is  prerequisite to many other advance analysis courses.

## BOOKS RECOMMENDED:

1. Elias M. Stein & Rami Shakarchi, Complex Analysis, Princeton University press, Princetonand Oxford, 2003.

## BOOKS FOR REFERENCE:

1. James Ward Brown and Ruel V. Churchill, *Complex Variables and Applications* (Eighth Edition), McGraw - Hill International Edition, 2009.

2. G. F. Simmons, *Introduction to Topology and Modern Analysis*, Mcgraw-Hill, Edition 2004.

3. Joseph Bak and Donald 1. Newman, *Complex analysis* (2ndEdition), Undergraduate Texts in

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Discipline Specific Elective Paper-1

## LINEAR PROGRAMMING

**Objective:** The objective of this course is to familiarize industrial problems to students with various methods of solving Linear Programming Problems, Transportation Problems, Assignment Problems and their applications. Also, students will know the application of linear Programming method in Game Theory.

**Expected Outcomes:** More knowledge on this topic in higher studies will help students to deal industrial models. This is also prerequisite for studying advanced courses in Nonlinear Programming Problems, Inventory Control Problem and Queuing Theory etc.

### BOOKS RECOMMENDED:

1. Kanti Swarup, Operations Research, Sultan Chand & Sons, New Delhi. Books.

### BOOKS FOR REFERENCE:

1. S. Hillier and G.J. Lieberman, *Introduction to Operations Research- Concepts and Cases* (9thEdition), TataMcGraw Hill, 2010.

2. Mokhtar S. Bazaraa, John J. Jarvis and Hanif D. Sherali, *LinearProgramming and NetworkFlows* (2nd edition), John Wiley and Sons, India, 2004.

3. G. Hadley, *Linear Programming,* Narosa Publishing House, New Delhi, 2002.
4. Hamdy A. Taha, *Operations Research: An Introduction* (10th edition), Pearson, 2017.

### Discipline Specific Elective Paper-II

## Probability and Statistics

**Objective:** The objective of the course is to expertise the student to the extensive role of statistics in everyday life and computation, which has made this course a core course in allbranches of mathematical and engineering sciences.

**Expected Outcome:** The students shall learn probability and statistics for various random variables, multivariate distributions, correlations and relations. He shall learn law of largenumbers and shall be able to do basic numerical calculations.

### BOOKS RECOMMENDED:

*1.* Irwin Miller and Marylees Miller, *John E. Freund's Mathematical Statistics with Applications* (8thEdition), Pearson, Asia, 2014.

### BOOK FOR REFERENCES:

l. Robert V. Hogg, Joseph W. McKean and Allen T. Craig, *Introduction to MathematicalStatistics,* Pearson Education, Asia, 2007.

2. Alexander M. Mood, Franklin A. Graybill and Duane C. Boes, *Introduction to the Theory ofStatistics,* (3rd Edition), Tata McGraw- Hill, Reprint 2007.

3. Sheldon Ross, *Introduction to Probability Models* (9th Edition), Academic Press, IndianReprint, 2007.

Discipline Specific Elective Paper-III

NUMBER THEORY

**Objective**: The main objective of this course is to build up the basic theory of the integers,prime numbers and their primitive roots, the theory of congruence, quadratic reciprocity law and number theoretic functions, Fermat's last theorem, to acquire knowledge in cryptography specially in RSA encryption and decryption.

**Expected Outcomes**: Upon successful completion of this course students will able to know the basic definitions and theorems in number theory, to identify order of an integer, primitive roots, Euler's criterion,the Legendre symbol, Jacobi symboland theirproperties, to understand modular arithmetic number-theoretic functions and apply them to cryptography.

## BOOKS RECOMMENDED:

1. David M.Burton, *Elementary Number Theory* (6thEdition), TataMcGraw-Hill Edition,Indian reprint, 2007.

## BOOK FOR REFERENCES:

1. Thomas Koshy, *ElementaryNumber Theory with Applications (*2nd Edition),Academic Press, 2007.
2. Neville Robinns, *Beginning Number Theory* (2ndEdition), Narosa Publishing HousePvt.Limited, Delhi,2007.

Discipline Specific Elective Paper-IV

PROJECT

**Guidelines for +3(CBCS) Under Graduate(B.A./B.Sc.) Mathematics(Honours) Project**

1. Any student registering for doing project is required to inform the HOD, Mathematics the name of his/her project supervisor(s) at the time of pre-registration.

2. By the last date of add and drop, the student must submit the "Project Registration Form'', appended as Annexure-I to this document, to the HOD, Mathematics. This form requires a project title, the signature of the student, signature(s) of the supervisor(s) and the signature of the HOD, Mathematics of the college/university.

3. The project supervisor(s) should normally be a faculty member(s) of the Department of Mathematics and the topic of the project should be relevant to Mathematical Sciences. Ifa student desires to have a Project Supervisor from another department of the institute, the prior approval for the same should be sought from the HOD, Mathematics.

4. A student may have at the most two Project Supervisors. If a student desires to have two supervisors, at least one of these should be from the Department of Mathematics.

5. The student(s) will be required to submit one progress report and a final report of the Project to the

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HOD, Mathematics. The progress report is to be submitted in the sixth week of the semester in which the project is undertaken. The hard copy and an electronic version of the final report of the project should be submitted two weeks before the end semester examination of the sixth semester. In addition the student will be required to make an oral presentation in front of a committee (Under Graduate (B.A./B.Sc.) Mathematics (Honours) Project committee of the college in which supervisor is one of the members) constituted for this purpose by the Department of Mathematics of the college.

6. The student is expected to devote about 100 hours. The project will be evaluated by a committee of faculty members at the end of the sixth semester. The committee will be constituted by the Under Graduate (B.A./B.Sc.) Mathematics(Honours) Project committee of the college keeping in mind the areas of project they will cover.

7. In each semester the grade of a student will be awarded by the committee in consultation with his/her project supervisor(s). The project is evaluated on the basis of the following components: First Progress Reports: 20%; second/Final Report: 30%; Presentation: 30%; Viva:20%.

8. Project progress reports should normally be no longer than 250 words and final report should not be longer than 40 A4 size pages in double spacing. Each final project report need to contain the following:
(i) Abstract (ii) Table of contents (iii)Review of literature
(iv) Main text(v) List of references. It may be desirable to arrange the main text as an introduction, the main body and conclusions.

## GENERIC ELECTIVES (TWO PAPER CHOICE)

### Generic Elective Paper I
## CALCULUS AND DIFFERENTIAL EQUATIONS

**Objective:** Calculus invented by Newton and Leibnitz is a powerful analytical tool to solve mathematical problems which arise in all branches of science and engineering. The main emphasis of this course is to equip the student with necessary analytic and technical skills to handle problems of a mathematical nature as well as practical problems using calculus and differential equation. The aim should be to expose the students to basic ideas quickly without much theoretical emphasis with importance on applications.

**Excepted Outcomes:** After completing the course, students are expected to be able to apply knowledge of calculus and

differential equations in the areas of their own interest.

## BOOKS RECOMMENDED:

1. Shanti Narayan, P. K. Mittal, Differential Calculus, S. Chand, 2014.

2. Shanti Narayan, P. K. Mittal, Integral Calculus, S. Chand, 2014.

3. S.C. Mallik and S. Arora-Mathematical Analysis, New Age InternationalPublications.

4. J. Sinharoy and S. Padhy: A Course of Ordinary and Partial DifferentialEquations, Kalyani Publishers.

## BOOK FOR REFERENCES:

1. H.Anton,I.Bivensand      S.Davis,*Calculus*,10thEd.,JohnWileyand Sons(Asia)P.Ltd.,Singapore, 2002.

2. Shanti Narayan and P.K. Mittal-Analytical Solid Geometry, S. Chand & Company Pvt.Ltd., New Delhi.

3. Martin Braun-Differential Equations and their Applications-Martin Braun,    SpringerInternational.

4. B. P.AcharyaandD. C.Sahu:AnalyticalGeometryofQuadraticSurfaces,KalyaniPublishers.

### Generic Elective Paper II

### ALGEBRA

**Objective:** This is a preliminary course for the basic courses in mathematics like, abstract algebra and linear algebra. The objective is to acquaint students with the properties of natural numbers i.e. Euclidean algorithm, congruence relation, fundamental theorem of arithmetic, etc. The basics of  linear algebra i.e. vector spaces, matrices are introduced here.

**Expected Outcomes:** Theacquired knowledge will help students to study further courses in mathematics like, group theory, ring theory and field theory and linear algebra. It has applications not only in higher mathematics but also in other science subjects like computer science, statistics, physics, chemistry etc.

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### BOOKS RECOMMENDED:

1. Edgar G. Goodaire and Michael M. Parmenter, Discrete Mathematics with Graph Theory, 3rd Ed., Pearson Education (Singapore) P. Ltd., Indian Reprint, 2005.

2. V Krishna Murthy, V P Mainra, J L Arora, An Introduction to Linear Algebra , AffiliatedEast-West

   Press Pvt. Ltd

### BOOKS FOR REFERENCE:

1.            DavidC.Lay,LinearAlgebraanditsApplications,3rdEd.,PearsonEducationAsia, Indian

Reprint,2007.

2. B S Vatsa and Suchi Vatsa Theory of Matrices New age International third edition 2010.

3. Ward Cheney, David kincaid. Linear algebra theory and applications, Jones and Bartlett ,2010.

## GENERIC ELECTIVES ( FOR FOUR  PAPERS CHOICE)

### Generic Elective Paper III

## REAL ANALYSIS

**Objective:** The objective of the course is to have the knowledge on basic properties of the field of real numbers, studying Bolzano-Weiersstrass Theorem, sequences and convergence of sequences, series of real numbers and its convergence etc. This is one of the core courses essential to start doing mathematics.

**Expected Outcome:** On successful completion of this  course,  students  will  be  able  to handle fundamental properties of the real numbers that lead to the formal development of real analysis and understand limits and their use in sequences, series,  differentiation  and  integration. Students  will  appreciate  how  abstract  ideas  and  rigorous  methods  in mathematical analysis can be applied to important practical problems.

### BOOKS RECOMMENDED:

1. S.C. Mallik and S. Arora-Mathematical Analysis, New Age InternationalPublications.
2. G. Das and S. Pattanayak, Fundamentals of Mathematical Analysis, TMH Publishing Co.

### BOOKS FOR REFERENCE:

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1. R.G. Bartle and D. R. Sherbert, Introduction to Real Analysis(3$^{rd}$ Edition), John Wiley andSons (Asia) Pvt. Ltd., Singapore,2002.

2. A.Kumar, S. Kumaresan, *A basic course in Real Analysis*, CRC Press, 2014.

3. BrianS.*Thomson*,Andrew.M.*Bruckner*,andJudithB.*Bruckner*,*ElementaryReal Analysis,* Prentice Hall,2001.

4. Gerald G. Bilodeau, Paul R. Thie, G.E. Keough, *An Introductionto Analysis,* Jones &Bartlett, Second Edition, 2010.

Generic Elective Paper IV

NUMERICAL METHODS

**Objective:** Calculation of error and approximation is a necessity in all real life, industrial and scientific computing. The objective of this course is to acquaint students with various numerical methods of finding solution of different type of problems, which arises in different branches of science such as locating roots of equations, finding solution of nonlinear equations, systems of linear equations, differential equations, Interpolation, differentiation, evaluatingintegration.

**Expected Outcome:** Students can handle physical problems to find an approximated solution. After getting trained a student can opt for advance courses in Numerical analysis in higher mathematics. Use of good mathematical software will help in getting the accuracy one need from the computer and can assess the reliability of the numerical results, and determine the effect of round off error or loss of significance.

### BOOKS RECOMMENDED:

1. M.K. Jain, S.R.K. Iyengar and R.K. Jain, *Numerical Methods for ScientificandEngineering Computation*, 5th Ed., New age International Publisher, India,2007.

### BOOKS FOR REFERENCE:

1. S. S. Sastry, Introductory method for Numerical Analysis, PHI New Delhi,2012.
2. S. D. Conte and Carl De Boor, Elementary Numerical Analysis, Mc Graw Hill, 1980.

# Required Equipment/Technical Experts

The following equipment /software are to be provided to colleges / universities forsmooth running of practical/ project:

1. There should be funding to Computer Lab with minimum of 15 computer systems for 30 students with licensed MATLAB/ /MAPPLE/PYTHON/R/MATHEMATICA/SKILAB software.

At least one computer programmer must be assigned in computer labs during practical session.

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## DepartmentofZoology

PROGRAMOUTCOME(CBCS)

TheDepartmentofZoology,

offers the following two programmes of study:1.B.Sc. (General) & 2. B.Sc. (Honours)Theprogrammesandcourseareexecutedbythedepartmentthatisdesignedandprescribedbythe Gauhati University. Guwahati. It covers topics like genetics, molecular biology, biochemistry, developmental biology,animal behaviour, animal physiology, ecology, fish and fisheries, apiculture, sericulture, immunology, etc.that primarily aims to provide students with deep and extensive understanding of the subject. The courseincludesboth theoretical and practicalaspects ofthe subject.

Asthestudentcompletesthecourse,he/she will beableto----

1. DevelopabasicandstrongfoundationinZoology.
2. Developand improvetheskillofapplyingconcepts andtechniqueswithdiverse reallifesituations.
3. Theknowledge gatheredfrompractical,fieldworksand studytourretainsinthemind.
4. Inculcateethicalvalues,teamwork,leadershipandmanagerialskills.
5. Theprogrammeprovidesplatformtolucrativecareeropportunitiesfromcomfortableindoorsettingsto outdoor environmentdependingon theirinterests.

Thecareeroptions maybeas –

i) Research Positions: After completion of B.Sc. and M.Sc. one can be availed at reputed researchinstitutes like IISc, IIT, CMFRI, CIBA, CIFT, CIFA, NFDB, NBFGR, NIO, RGCA, NCBS,ATREE,etc.
ii) Field Positions: Researching animals in their natural habitats can lead to avail jobs as wildlifetechnician, Animal services, associate, veterinary assistant, animal adoption specialist, researchtechnician,animal caregiverand zoo-keeper.
iii) Conservation Positions: Zoologists can work in local federal or state government agencies todevelopandimplementconservationmeasuresandprogramstoprotectthedwindlingwildlife.
iv) Teaching Position: One can availed at school levels after the completion of B.Sc. After B.Sc.,studentscan pursuehigherlevelofeducation likeM.Sc.,M.Phil.,Ph.D. to avail teachingpositionatCollege and Universitylevels.
v) Channels like National Geography, Animal Planet, Discovery, etc. are in constant need ofZoologistsforresearch anddocumentaries.
vi) Acquiring a degree in Zoology also enables an individual to be hired in museums as curators, asForensicexperts, Lab.Techniciansand many more.

vii) Livestock entrepreneurship is also an emerging self-employment option for graduates in Zoology.COURSEOUTCOME (CBCS)

The program notonly focuses to provide studentswith the theoretical knowledge,so it emphasiseson field works and visits to areas of zoological importance thus enabling the students to understand thesubject better. Italso teaches the students the analysisofskills with which they can comprehend andparticipateintherealworld,preparethemforfurtherstudiesandtoachievesuccessinprofessionalcareers.

| Sl.No. | Nameof Course | CourseOutcome |
|--------|---------------|---------------|
| 1 | Non-ChordatesI: Protista toPseudocoelomat es | Itbasicallyintendsthestudentstostudyaboutthestructure, function, biodiversity, identification and classification ofinvertebrateanimalsfromProtiststo Psuedocoelomates. |

| 2 | Principlesof Ecology | This chapter helps the student to understand how organisms relatewith each other and their environment. The students learn aboutecology,bioticandabioticfactors,Populationecologylikepopulationsize,itsdensity,interactionbetweenorganismsofthe same population, community characteristics, ecosystem and appliedecologysuchasforestry,conservationandmanagementofwildlife. |
|---|---|---|
| 3 | Non-Chordates II:Coelomates | Itbasicallyintendsthestudentstostudyaboutthestructure, function, biodiversity, identification and classification ofinvertebrateanimalsfromAnnelidato Echinodermata. |
| 4 | CellBiology | As CellBiology isthe study ofthe structure and functionof thecells so this will enable the students to know about different cellorganelles and their functions and also about cell division and cellsignalling. |
| 5 | Diversityof Chordates | Itbasicallyintendsthestudentstostudyaboutthestructure,function,biodiversity,identificationandclassificationofinvertebrate animals from Chordates to Mammals. It also includeszoogeography-realms, distribution,barriers,dispersalof animals. |
| 6 | Animal Physiology:Controlling andCoordinating Systemsand Life Sustainingsystems | Physiologyistheprincipalbranchofbiologicalscience.Itisthescienceof processestakingplaceinlivingorganism.Itsstudyhelpstoknowthefunctionoftheorganism,theactivitiesofitsdifferentorganintheirinteractionwithenvironment,foreg- Theworkofmuscles,heart,brainandspinalcord.Thestudentsgettheknowledgeofthestructureofdifferentorgansinrelationtotheirfunction,eg;testis,ovaryandphysiologyofreproduction.Theycanhavetheideaaboutendocrinology whichmeansthestudy ofendocrineglandsandthehormonessecretedby themandalsoknow aboutMechanismin action,Regulationoftheirsecretionetc. |
| 7 | Fundamentals ofBiochemistry | Thevariouslifeprocessessuchasbirthdevelopment,digestion,metabolism,respiration,excretion,etc.aretheresultofbiochemicalevents.Hence, biochemistryisavitalbranchofBiology.Itencompassestheareasthatrequirephysiochemicalapproachesmethodsandtechniques.ThefundamentalsofbiochemistryhelpsthestudentstoknowabouttheCarbohydrates,Lipids,Proteins,Nucleicacidssuchasstructures ofDNAandRNA,typesandEnzymesand theMechanismofenzyme action. |
| 8 | Comparative AnatomyofVertebrates | Thestudentscancompareandstudytheanatomyofdifferentgroups of vertebrates. |
| 9 | Biochemistry ofMetabolicProcesses | Thestudyof biochemistryof metabolicprocesseshelpsthestudentstoknowaboutmetabolismslikeCarbohydratemetabolism, Lipid metabolism, Protein metabolism and OxidativePhosphorylation |
| 10 | MolecularBiology | Molecularbiologyisthestudyofbiomoleculesandtheirmetabolism in the cell. Study of molecular biology will help thestudentstoknowaboutnucleicacidslikeDNA,RNA,DNAreplicationetc.Asitdealswithgenes,theywillalsohave knowledge about the regulation of genes and their products ofexpression. |

| 11 | PrinciplesofGenetics | Genetics is the science of heredity. From this chapter the studentscanlearnaboutthePrincipleofinheritance,Linkageofgenes,Crossingover,MutationofgeneandChromosomalaberrations.TheywillalsohavetheideaaboutthemechanismofSex determination and Extra chromosomal inheritance and transposonsin bacteriaandhumans |
|---|---|---|
| 12 | Developmental Biology | DevelopmentalBiologydealswithalleventsoftheentiredevelopmental period of an animal. The study of developmentalbiology helps the students to know the development of animal thatstarts from gametogenesis and proceeds with fertilization, cleavage,gastrulation,regenerationetc.Theycanalsohavetheknowledge aboutthe implicationofdevelopmentbiologylike In vitroFertilization,StemcellandAmniocentesisetc. |
| 13 | EvolutionaryBiology | Evolution means unfolding or unrolling- a gradual, orderly changefrom one condition to another. This topic deals with the beginningandevolutionoflifefromasinglecellbacteriatomulticellular man, evidences to support evolution- fossil records, geological timescale,theoriesandbygenetics. |
| 14 | Immunology | Immunology isa branch ofbiochemical science that covers thestudy of all aspects of the immune system. The students can knowthebasicconceptsinimmunology,immunesystem,cellsandorgans of the immune system, the properties of antigens, antibodies.They can have an idea about the application of immunology-<br>i)Diagnosticmicrobiology,likediagnosisof AIDSbyELISAtest.<br>ii) Applicationinmedicine,inpreventivemedicinelikevaccines<br>iii) Treatmentofdiseasesandmanymore.<br>Learning Immunology helps to keep ones own defence in a betterworkingconditionandthishelpsusto leadadisease-free life. |
| 15 | ReproductiveBiology | Thestudentscanlearnaboutthereproductivesystemandthehormones responsible for the process of reproduction, functionalanatomyofmaleandfemalereproduction,hormonalregulationand reproductive health like causes of infertility in male and female,diagnosis,reproductivetechnology,etc. |
| 16 | FishandFisheries | Fish and fisheries is related to catching of inland and marine fishesfor commercial purposes .The students can learn about the generaldescription of fish, classification based on feeding habit, habitat etc.italsoinvolvesaquaculture,gears,navigation,aquarium management, breeding, special products and by-products and fishdiseases. |
| 17 | Animal Behaviour andChronobiology | Ethologyisthestudyofanimalbehaviourtofindoutnaturalresponses of animals to various environmental stimuli. The studentcan learn about the experiments conducted by Karl von Frish andIvanPavlov,patternsofbehaviour,socialandsexualbehaviour, historical developments in chronobiology, biological clocks,biologicalrhythmsetc. |

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| 18 | Apiculture | Theartandtechniqueofbeekeepingiscalledapiculture.Thischapteremphasisesontheclassificationandbiologyofhoneybees,rearing ofbees,diseases andenemies,control andpreventivemeasures,beeeconomy,entrepreneurshipinapiculture. |
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| | | |
|----|----|----|
| 19 | Sericulture | Thestudentscanlearnaboutthelifecycleofexoticand indigeneousracesofsilkworm,rearingofsilkwormsandentrep reneurshipinsericulture. |
| 20 | Aquarium FishKeeping | Thischapteremphasisesonthepotentialscopeofaquariumfishindustrya sacottageindustry,exoticandendemicspeciesofaquariumfishes.Italsoi nvolvesbiology,foodandfeedingofaquariumfishes,fishtransportation andmaintenanceofaquarium. |

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