Program Outcomes

Program Outcomes of Bachelor of Arts (B.A.)Pass-course

Student seeking admission fo rB.A.programmeisexpectedtoimbuewithfollowingqualitywhich helps them in their future life to achieve the expected goals.

- PO 1. Thestudents acquire knowledge in thefield of social sciences, literature and humanitieswhich make them sensitive and sensible enough.
- PO2.TheB.A.graduateswillbeacquaintedwiththesocial,economic,historical,geographica l, political, ideological and philosophical tradition and thinking.
- PO 3. The program also empowers the graduates to appear for various competitive examinations orchoose the post graduate programme of their choice.
- PO 4.The B. A. program enables the students to acquire the knowledge with human values framingthe base to deal with various problems in life with courage and humanity.
- PO5.Thestudentswillbeignitedenoughtothinkandactoverforthesolutionofvariousissues prevailed in the human life to make this world better than ever.
- PO 6. Programme provides the base to be the Critical temper, Creative ability, Realization of human values, Sense of social service responsible and dutiful citizen.

ProgramOutcomesofBachelorof Commerce(B.Com.) Pass-course

- PO 1. The B. Com. Graduates would be able to acquire basic and fundamental knowledge and skills for doing business and commercial activities of their choice.
- PO2.Theprogramalsoempowersthegraduatestoappearforvariouscompetitiveexamsorchoosea profession of their choice such as CA, CS, ICWA, MBA, M.Com etc.
- PO 3. The program enables the students to acquire the accounting knowledge, management principles, retail trading, banking and insurance transactions, business economics and financial management.
- PO4.Thestudentsalsoacquireknowledgeinthefieldofmanagementaccounting,corporateaccounting, statistical and mathematical techniques and knowledge relating to corporate law and businesslaws.
- PO5.Thestudents becomecapableofdoingabusinessoftheirchoiceorchoosingaprofessionorcanbecome employees having basic knowledge and skill required for suchactivities.
- . The students also acquire the knowledge and skills of taxation laws by which they can start the

business offilling Income tax and GST returns.

Program Outcomes of Bachelorof Science (B.Sc.) (N.M.)

PO-1: **Disciplinary knowledge and skill**: A B.Sc. graduate student is expected to be capable of demonstrating comprehensive knowledge and understanding both theoretical and practical knowledge in all disciplines of Chemistry, physics and maths. Students can solve their subjective problems very methodically, independently and finally draw a logical conclusion and apply it for practical applications of daily life problems. Further, the student will be capable of applying modern technologies, handling advanced instruments and Chemistry related soft-wares for chemical analysis, characterization of materials and in separation technology.

PO-2: **Skilled Presenter**: The program curriculum incorporates basics and advanced training in order to make a graduate student capable of expressing the subject through technical writing as well as through oral presentation.

PO-3: Critical thinking and problem solving attitude devlopment: The program curriculum also includes components that can be helpful to graduate students to develop critical thinking, logical approach and to design, carry out, record and analyze the results of chemical reactions, mathematical calculations and concepts of physics. Students will be able to think and apply evidence based comparative approach to explain chemical synthesis and analysis.

PO-4: Sense of inquiry: It is expected that the course curriculum will develop an inquisitive characteristics among the students through appropriate questions, planning and reporting experimental investigation.

PO-5: Team player: The course curriculum has been designed to provide opportunity to act as team player by contributing in laboratory, field based situation and industry.

PO-6: Skilled project manager: The course curriculum has been designed in such a manner as to enabling a graduate student to become a skilled project manager by acquiring knowledge about chemistry, physics and maths based project management, writing, planning, study of ethical standards and rules and regulations pertaining to scientific project operation.

PO-7: Digitally literate: The course curriculum has been so designed to impart a good working knowledge in understanding and carrying out data analysis, use of library search tools, use of chemical simulation software and related computational work.

PO-8: Ethical awareness: A graduate student requires understanding and developing ethical awareness or reasoning which is adequately provided through the course curriculum. Students can also create an awareness of the impact of chemistry on the environment, society, and also make development outside the scientific community.

PO-9: Environmental Awareness: As an inhabitant of this green planet a Chemistry graduate student should have many social responsibilities. The course curriculum is designed to teach a Chemistry graduate student to follow the green routes for the synthesis of chemical compounds and also find out new greener routes for sustainable development. The course also helps them to understand the causes of environmental pollution and thereby applying environmental friendly

policies instead of environmentally hazard ones in every aspect.

PO-10: Lifelong learner: The course curriculum is designed to inculcate a habit of learning continuously through use of advanced ICT technique and other available e-techniques, e-book sand e-journals for personal academic growth.

PO-11: Analytical skill development and job opportunity: The course curriculum is designed in such a way that Chemistry graduate students can handle many Chemistry based software, decent instruments and advanced technologies to synthesize, characterize and analyze the chemical compounds very skillfully. Such a wonderful practice in the graduate level will bring a good opportunity to the students for getting job in industries besides academic and administrative works.

Program Outcomes of Post graduate programme in Geography:

Students are able to:

- **PSO1:** Understand not only the place where they live in but also about the lives of people living in other areas of the interconnected world. It also enhances understanding of the relationship between the global and the local level and the outcomes of these relationships (relationship between global processes and their local manifestations).
- **PSO2:** Have deep knowledge about places, regions and spatial relationship as result of series of inter-related factors of nature, culture and individual human actions.
- **PSO3:** Make the social and cultural differences (race, ethnicity, gender, age, class) their geographical embeddedness.
- **PSO4:**Sensitisetheneedtoconserveenvironment,resourcesinordertohaveamoresustainableearth.
- **PSO5:**Havethetheoreticalknowledgewithlocalrealities bymakingfield visitstodifferent areas.
- **PSO6:**Useandmapthedigitalspatialdatainmorerationalway.
- **PSO7**: Understand the paradigm shifts all along with the process of historical development of geography as a subject of learning.

Program Outcomes of Post graduate programme in M.A HISTORY

The master's programme in History trains students to specialise in a particular sub-field of history. In the course of the programme, students are trained to become academics who can answer research questions arising from the latest developments in academic thinking in a critical, creative and innovative way. Moreover, after completing this programme, students will have the knowledge and competence required for positions outside the university that require an academic level of thinking.

This programme enables students to develop critical and analytical skills. it trains them in ways of evaluating evidence and encourages them to reflect on different modes of presenting information in print and electronic formats. The taught programme aims to increase students' awareness of the nature of historical change and to deepen their understanding of the mentalities of other historical periods. In doing so, they develop a critical awareness of the relationship between current events and political, social, economic and cultural processes in the

past. Students are introduced to a wide range of historical sources and taught to appreciate and understand many different kinds of source from estate rolls and depositions to newspapers, memoirs and oral evidence. Lecturers on the programme include historians working in ancient, medieval, and modern history across a range of geographical areas and using a variety of historical approaches. Students are encouraged to develop comparative perspectives across Indian, European, American, Chinese and world history. Students will take courses that explore the movement of peoples, ideas and goods across national borders.

Program Outcomes of Post g programme in M.A. POL SCIENCE

Scheme of examination of the Course along with POs, PSOs, COs and Mapping Matrix

PROGRAMME OUTCOMES (POs):-

1. **KNOWLEDGE:** - Demonstrate knowledge of historical emergence, questions asked, and distinctive contributions of the social science disciplines to the analysis of human behavior and social issues.
2. **PROBLEM SOLVING:**-conceptualize, articulate, and solve complex problems through experimentation and observation using theoretical framework of social science disciplines.
3. **CRITICAL THINKING:**- Critically analyze everyday problems faced by the society, evaluate specific policy proposals, compare arguments with different conclusions to a specific societal issue.
4. **SCIENTIFIC ENQUIRY:**- Develop the capability of defining problems, formulate hypothesis, collect relevant data, develop empirical evidence and interpret the results of such analyses.
5. **USAGE OF ANALYTICAL TOOLS:**- Develop the ability to apply appropriate quantitative/qualitative techniques used in social science disciplines along with ICT, Software's etc.
6. **SPECIALIZATION AND EMPLOYBILITY:**- Develop deeper understanding, creativity, originality, analytical and critical skills in chosen specialized areas of social science disciplines leading to employability.
7. **INTERDISCIPLINARY KNOWLEDGE & ADAPTATION:**- Enhance the ability to integrate as well as synthesize the acquired knowledge within the social sciences and beyond.
8. **ETHICS:** - Articulate and apply ethics, values and ideals that demonstrate awareness of current societal challenges.
9. **LEADERSHIP:** - Build skills to work as part of a team and lead others, setting directions and formulating inspiring vision.
10. **COMMUNICATION:** - Communicate conclusions, interpretations and implications clearly, concisely and effectively, both orally and in writing for different types of audiences.

PROGRAMME SPECIFIC OUTCOMES (PSOs):-

1. The students will be able to have an in depth understanding of theoretical and conceptual underpinnings of politics to examine political behaviour.
2. The students will be able to develop the ability to comprehend and analyze political phenomena.
3. The students shall acquire the capacity to observe the politics through various perspectives and approaches.
4. The students will be able to comprehend and critically examine various institutions, issues, processes and challenges inherent in the political system.

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CourseOutcomes(COs)

B.A.CourseOutcomes(COs)

B.A.English Compulsory

- B.A. English (SEM-1) C.O. 1:- Essays- Contain inspirational Contents about various mythological and scientific concepts about origin of universe, culture, scientific development and moral ethical learning and offer scope for effective spoken and writing skills.
- B.A. English (SEM-2) C.O.2:- Stories- offer interaction with life in various phases and cultural and economic backgrounds and scope for grammar learning and application for developing effective writing ability.
- B.A. English (SEM-3) C.O.3:- „Poetry" offers interaction to forms of Poetry, stanza forms and various poetic styles and offers ample scope in building up aesthetic rhyming skills and communication skills.
- B.A. English (SEM-4) C.O.4:- One Act plays offer glimpse of life and render effective training in coping up with precarious situations in life.
- B.A. English (SEM-5) C.O.5:- Fiction has the novel Kanthapura in the syllabus which offers interaction to Indian writing in English and India"s political, economic and social history in pre- independence times and role of Gandhian ideology and awakening in tackling exploitation ofcolonial rulers.
- B.A. English (SEM-6) C.O. -6:- Drama has „The Merchant of Venice" in the syllabus and it sensitizes the students regarding prevailing religious conflicts and promoting sense of sacrifice for promoting friendship and fighting inhumanity and cruelty.

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B.A./B.Sc. COURSE OUTCOMES
MATHEMATICS

1ST Semester

Subject: Algebra (20UMTH101)

Course objectives: To familiarize the students with the concept of rank of a matrix, eigen values and eigen vectors, applications of matrices to a system of linear equations, relations between the roots and coefficients of general equation in one variable, nature of the roots of equation, solution of cubic and biquadratic equations

Subject: Calculus (20UMTH102)
Course objectives: Calculus is primarily concerned with developing the students' understanding of the concepts of calculus and providing experience with its methods and applications. The course emphasizes a multi-representational approach to calculus, with concepts, results, and problems being expressed geometrically, numerically, analytically, and verbally.

2ND SEMESTER

Subject:Number Theory & Trigonometry(20UMTH201)
Course objectives: The objective of this course is to familiarize the students with basic concept of elementary number theory such as results on divisibility, congruence, solution of linearcongruence equations. Further some basic results on trigonometric functions are also taught

Subject: Vector Calculus & Geometry (20UMTH202)
Course objectives: To familiarize the students with the concept of scalar and vector product of three and four vectors, vector differentiation, gradient, divergence and curl, orthogonal curvilinear coordinates, vector integration, line integral, surface integral and volume integral.

3RD SEMESTER

Subject:Differential Equations (20UMTH301)
Course objectives: This course has been devised to make the students learn the theory of differential Equations. Exact differential equations and their integrating Factors along with equations of first order but of higher degree are solved. To taught the students Orthogonal Trajectories and Linear Differential of Various orders, transformation of equations to normal form, change of dependent and independent variable, solutions of simultaneous and total differential Equations, Linear and non-linear partial equations along with Homogeneous and Non Homogeneous equations. To make them understand the underlying theories of classifying them.

Subject:Numerical Methods with Programming in C(20UMTH302
Course objectives: To provide the student with numerical methods of solving the non-linear equations, interpolation, differentiation, and integration. To improve the student's skills in numerical methods by using the numerical analysis software and computer facilities.

4THSEMESTER

Subject:Mechanics(20UMTH401)
Course objectives: To familiarize the students with the concept of composition and resolution of forces, resultant of two parallel forces, moments and couples and velocity and acceleration along radial, transvers, tangential and normal directions, Newton's Laws of motion

Subject:Groups & Rings(20UMTH402)

Course objectives. The objective of this course is to familiarize the students with basic concept of modern algebra such as results on groups, cyclic groups, normal subgroups, Lagrange's theorem and its consequences, group homomorphism, permutation groups, Cayley's theorem, some basic concepts of rings such as ideal, maximal ideal, field, Euclidean rings, Principle ideal rings, Unique factorization domain are also taught.

5TH SEMESTER

Subject:Statics & Dynamics(20UMTH501)
Course objectives: This course introduces the concept based on forces in equilibrium. The syllabus describes static equilibrium of particles and rigid bodies both in two dimensions and in three dimensions and introduce the concept of velocity, acceleration motion along curve, simple harmonic motion, elastic strings, Newton's laws of motion, Kepler's laws of motion etc.

Subject:Statistical Inference(20UMTH502)

Course Objective: This course deals with fundamental concepts of statistical inference including estimation and tests of simple and composite hypotheses. A brief revision will also be given of some basic topics in probability theory as well as single and multiple random variables.

6TH SEMESTER

Subject:Special Functions & Integral Transforms(20UMTH601)
Course objectives: To acquaint the students with Series solution of differential equations - Power series method, Beta and Gamma functions, Bessel, Legendre and Hermite functions, recurrence relations, generating functions, Rodrigues Formula Orthogonality of Bessel functions, Laplace Transforms, Fourier transforms and solution of differential Equations using Laplace & Fourier Transforms

Subject:Solid Geometry (20UMTH602)

Course objectives: The course is aimed to give information about tracing of conics and also aimed to give information about tangents and normal to the conics. Here we provide the knowledge of central conicoid and their generating lines.

B.AEconomics

B.AEconomicsMicroEconomics1st and2nd Semester

- CO1:DemonstrateunderstandingofbasicconceptsofBusinessEconomics.
- CO2:AnalysetheConsumerbehaviourthroughdifferentapproaches.
- CO3:CarryOuttheconsumerbehaviourunderdifferenttypesofgoods.
- CO4:AnalysetheConsumerBehaviourunderCertaintyandUncertainty.
- CO5:DemonstratetheConceptofProduction function i.e.to analyses the economicbehaviour of producer and Concept related to it.
- CO6:ExplaintheeconomicbehaviourofMarketindifferenttypesofmarketstructure.
- CO7:Criticallyassessthetheoriesandmodelrelatedtomarket.
- CO8:Explaintheconceptofcostandhowitaffectsfirm‟sdecision.

B.A3rd and4th SemesterMacroeconomics

CO1:Demonstratethebasicconceptsofmacroeconomicsanditsvariousvariables.

- CO2:Carryouttheaccountingofnationalincomeusingvariousmethods.
- CO3:Understandaboutvariousschoolofthoughtsrelatedtomacroeconomics.
- CO4:ExplainConceptualknowledgeaboutInvestmentanditsvarioustheories.
- CO5:DemonstratethebasicunderstandingaboutMoneyDemandanditsrelated concepts.
- CO6:ExplainaboutMoneySupplyandroleofCentralbank.
- CO7:CarryouttheanalysisofMonetaryandFiscalPolicyofIndia.
- CO8:ExplaintheconceptofInflationandhowitaffectseconomy.

B.A5th and6th SemesterDevelopmentandInternational Economics

- CO1:Understandtheconceptofeconomic,economicgrowthandsustainable development.
- CO2:Explainthemethodsofmeasuringeconomicinequalityandpoverty.
- CO3:Analyzetheeconomiccontributionofsomeclassicaleconomistsingrowth theories.
- CO4:Understandtheimplacabilityofsomeverycriticalgrowthmodelsin economic development so far. CO5: Understand and compare some growthmodels with each other for some betterment of economic growth models.
- CO6:Analyzetheroleofeducation,learningandskillinhumancapitalformation.
- CO7:Explaintheroleoftechnologicalprogressinacountry.
- CO8:Explainbalancedandunbalancedmodelofdevelopment.
- CO9:Understandtheconceptofinternationaltrade.Theoryofinternationaltrade, Concept of BOP and Foreign Exchange.
- CO10:CriticallyEvaluationofInternationalOrganizationi.e.IMF,WTO,IBRD BRICS.

BAHistory

B.A (Sem-I): History of India (from earliest times -1200 A.D.), Sources of ancient India, Hardpan civilization, Vedic Age, Religious movements, Maryann and Gupta Empire.

B.A (Sem-II): History of India (1200 A.D. to 1707 A.D.),Delhi Sultanate, Munhall Empire, Administrative Institutional, Bhakti movement, Sufi movement.

B.A (Sem-III): History of India (1707 A.D. to 1947 A.D.),Disintegration of Central authority, Revolt of 1857,Indian cultural renaissance, British land revenue policy,Nationalfreedommovement(1885-1947),ConstitutionalDevelopment 1909 to 1935.

B.A (Sem-IV) : History of Haryana(from earliest times to 1947 A.D.),sources of Haryana, Kurus, YaudhyasandAgras, Revolt of1857,Arya Samaj,Freedom movement in Haryana. **.A**

(Sem-V) : Ancient and Medieval world, Pre-Historic cultures, Bronze age civilization, Iron Age, Federalism, Islamic world, Reformation.

B.A(Sem-VI): Mercantilismandbeginningofcapitalism,AgriculturalRevolution, French Revolution, First and Second world war.

BA(Political Science)

(Sem-01)PAPER:Indianconstitution

- ItisveryusefulforthecompetitiveexamslikeUPSC,HPSC,andSSCetc.
- Wegettheknowledgeoffundamentalduties&rights.
- WealsogettheinformationaboutUnion,stateexecutives,legislature&judiciary.

(Sem-02)PAPER:IndianPolitics

- Wegettoknowaboutourelections&EVMmachines.
- WefoundtheinformationaboutourMLA"s& MP"sjobs&responsibilities.
- It"salsoimportanttoknowabouttheroles& responsibilitiesofourstate&centralministers.
- Usefulincompetitiveexams.
- **(Sem-03)PAPER:PrinciplesofPoliticalScience–I**
- Gettheknowledgeofstate,itselements,origin&itsdevelopment.
- Foundtheinformationregardingthedistinctionbetweenstate&society.
- Italsoprovidestheinformationaboutsovereignty,itsnature&kinds.

(Sem-04)PAPER:PrinciplesofPoliticalScience–II

- Wegettoknowaboutrighttoinformationandconsumerprotection.
- Alsogettheknowledgeofnation,nationalism&citizenship.
- Findtheinformationaboutrights,liberty&equality.
- **(Sem-05)PAPER5:ComparativePolitics**
- Wegettoknowaboutthevotingbehaviorofcountry.
- Itprovidesustheinformationaboutstructuralfunctions&politicaldevelopmentapproaches.
- Alsofindtheknowledgeaboutconstitutionalism.
- **(Sem-06)PAPER:ComparativeconstitutionsofUK&USA**
- StudentsgettoknowaboutthecomparativestudyofUS&USAfortheirgovernment&constituti ons.
- WegettoknowabouttherulesofGovt.makinginothercountrieslikeUS&USA.
- WecangetcomparativeelementsofconstitutionsofUS&USA.
- Usefulincompetitiveexamsaswell.

BA Geography

Semester1st Geography

Thesyllabusofgeographyforundergraduatecoursehasbeendividedintosix semesterthroughwhichdifferenttheoriesandpracticalpapershavetaughttothe students to enhance their knowledge about subjects.

- During1st semestertheorypaperofGeographyofIndiaandpracticalpaperMap and Scales teaches to the students. The basic objectives of theory paper are todevelop the comprehensive understanding of the geographical profile of India.
- The roll of geographical attributes in determining social and economic structure of country has very much significant.
- The overall outcome of this course is to enable the students to enhance the basic understanding about physical and cultural features of our country.
- Whereas if you talk about practical paper, this course aimed to provide the basic understandingofparticulartechniqueofdrawing,cartograms,mapstoshow various natural and socio- economic attributes of a region.

Semester2nd Geography

- TheknowledgeofphysicalGeographyhasgiventostudentsduring2nd semester.
- The main objective of this course is to introduce the students the basic and fundamental concepts of physical geography and geomorphology.
- In this semester practical paper Representation of Physical Features has been introduced aiming with to provide basic understanding about structure of Topographical maps and representation of geographical features through various techniques on maps to students.

Semester3rd Geography

- Climatology and Oceanography are two important branches of Physical geography have been taught to the students during this semester.
- The major objectives of this course is to enhance the basic understanding

about structure of atmosphere and its circulation, weather, climate and other associating phenomena.

- Theoriginmovementsandconfigurationofoceansarealsocoveredinthissemester.
- Where as in be unable to acquaint themselves about the different instruments to measuring various weather elements and methods to represent them on the plain paper.

- practical paper Representation of climate data, the students would

Semester4th Geography

- During4thsemesterthetheorypaperHumanGeographyhasbeenintroducedand the main aim of this course is to acquaint the students with basics of human geography- nature of man environment relationship and human capability to adoptand modify the environment under its various conditions from primitive life style to modern living; to identify and understand environment and population in terms of their quality and spatialdistributionpatternandtocomprehendto contemporary issue facing global community.

- In practical paper Map Projection, the students have to enable to understand various methodsofmapmakingandtypesofmapprojection.Mapprojectionsare necessary for accurate transformation of 3-D surface.

- Thebasicaimofthiscourseittodevelopbasicunderstandingofmapsand selection of suitable projection for them.

Semester5th Geography

- In their 5th semester, students have to learn about Economic geography, one of the major branches of human geography.
- Themainobjectiveofthiscourseittointroducethestudentsaboutbasicconcepts of economic geography, types of economic activities and its determinants, various recourses which were used by human being through various methods and means.
- Where as in practical paper, distribution maps and diagrams, the main objective

ofthiscourseistoprovidethestudentsaboutbasicunderstandingandrepresentation

of map making for the distribution of various geographical elements.

Semester6thGeography

- The theory paper „Introduction to Remote Sensing, GIS and Quantitative methods" has beenintroduced in last semester of UG course.
- The aim of this course is to introduce the students to modern technology i.e. remote sensing its basic concepts and digital satellite imageries, data set and theirapplication.
- The students have to learn different statistical methods that will be very fruitful for them.Inpracticalpapertheaimofthiscourseistoacquaintthestudentsabout aerialphotographandsatelliteimageries,theirprocessandmethodologyandal

Course outcome hindi

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- हिन्दी
- प्रथम सेमेस्टर
-
- हिन्दी साहित्य का इतिहास :-
- हिन्दी साहित्य के इतिहास के, आदिकाल, भक्तिकाल
- , रीतिकाल और आधुनिक काल की राजनीतिक, आर्थिक, सामाजिक और सांस्कृतिक परिसीथति व प्रवृतियों / विशेषताओं के संदर्भ में साहित्य व समाज को समझना ।
-
- सृजनात्मक लेखन के विविध क्षेत्र –
-
- सृजनात्मक लेखन के क्षेत्र के अंतर्गत कला साहित्य में अभिरुचि उत्पन्न करना व नवीन क्षेत्र में निर्माण कार्य की योग्यता छात्रों में विकसित करना।
- हिन्दी भाषा और संप्रेषण :- विधार्थियों को भाषा में अर्थ- ग्रहण की प्रकिया के बारे में सजग और जिज्ञासु बनाना। ध्वनियों में सूक्ष्म अंतर शब्द योजना, शुद्ध वर्तनी का ज्ञान कराना। लोकोक्ति, मुहावरे आदि का प्रसंगानुकूल अर्थ निकालना और स्वराधात एवं बलाघाट के अनुसार अर्थबोध ग्रहण करने में योग्य बनाना।
-
- द्वितीय सेमेस्टर
-
- मध्यकालीन हिन्दी कविता-
-
- कबीरदास, सूरदास, तुलसीदास, मीराबाई, रसखान, बिहारी. धनानंद आदि भक्त कवि और रीतिकालीन कवियों की कविताओं का अध्ययन करना ।
-
-
- हिन्दी भाषा और संप्रेषण:-
-
- अनुवाद:- अनुवाद का उद्देश्य स्रोत भाषा की अभिव्यक्ति का लक्ष्य भाषा में समतुल्य अर्थ खोजना है ।
-
- तृतीय सेमेस्टर
-
- आधुनिक हिन्दी कविता :
- -
- आधुार्मिक हिन्दी कवियों की कविताओं का अध्ययन करना। विद्यार्थियों में मानवीय गुणों का विकास करना मानसिक क्षमता, कियाशीलता, संवेदनशीलता का विकास करना।
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- चतुर्थ सेमेस्टर
-
- हिन्दी गध साहित्य:-
-
- पुख्यात हिन्दी कथाकारों की उनकी कहानियों के माध्यम से साहित्यिक योगदान के साथ-साथ जीवन – दर्शन को समझना। विद्यार्थियों में निष्पक्ष रूप से समस्याओं और स्थितियों को एक खुले दृष्टिकोण के साथ समझने की क्षमता, तार्किक और विस्लेसनात्मक कौशल को विकासत करना।
-
- पंचम सेमेस्टर
-
-
-
- संपादन प्रक्रिया और साज सज्जा:-
-
- किसी भी समाचार पत्र – पत्रिका के लिए समाचारों, लेखो का चयन, उसको कृमबंद करना, सामग्री का प्रस्तुतीकरण निश्चित करना, संशोधित करना, उसकी भाषा, व्याकरण और शैली में सुधार एवं विश्लेषण करना और उसे पढ़नीय योग्य बनाना।
-
- हिन्दी संचार कौशल.
-
- धात्राओं में उन क्षमताओं और तकनीकों को विकसित करना है जिनका उपयोग विचारों और सूचनाओं को दूसरों तक प्रभावि ढंग से पहुंचने के लिए किया जाता है।
-
- षष्ठम सेमेस्टर
-
-
- हिन्दी व्याकरण और संप्रेषव:
- विद्यार्थियों को हिन्दी भाषा की व्याकरणिक एवं रचनात्मक पक्ष की सामान्य जानकारी प्राप्त करवाने के साथ ही प्रभावशाली संप्रेषण की तकनीकों से भी परिचित कराना है।

ENVIRONMENTALSTUDIES(B.A,B.COM,B.SC1)

- Understandingenvironmentalconcernsbythestudentsattheundergraduatelevel.
- Understanding the relationshipof man with the environmentand helpthem change his attitude for more positive, proactive, eco-friendly and sustainable lifestyles.
- Getting information about climate change, global warming, acid rain, greenhouse effect , ozone layer depletion.

Cultivatingattitudestosafeguardtheenvironmentbuiltparticularlywithfield experience.

- Controlofenvironmentalpollutionslikeair,water,soil,noiseande-pollutionsetc.
- Realizationoftheimpactofhumanactionsontheimmediateenvironmentand the linkage with the larger issues.
- Conservationandmanagementofnaturalresourceslikeair,water, mineral , forest and biodiversity etc.
- Motivatingpublicforsustainabledevelopmenti.e.economicdevelopment without degrading the environment.
- Gettinginformationaboutenvironmentprotectionactsandlaws.

Acquiretheskillsforidentifyingandsolvingenvironmentalproblemslike deforestation, water crises

B.COM COURSE OUTCOMES

B.com Ist

1) Financial Accounting- knowing how to prepare financial statement is important for students because it helps them understand and analyze the financial health of a business or organization, students can apply accounting principles in everyday life to inform decision making and improve financial well being.

2) Business Management: - Business Management gives skills and knowledge that are directly applicable in all aspects of our life. It is the process of planning, organizing, directing and controlling the activities of a business or organization to achieve its goals and objectives.

Bus B.Com II

Business Ethics: Business ethics inform, a company's values and goals, as well as how it runs its day-to-day operations. The purpose of ethics in students is to guide their actions and behaviour, ensuring they act responsibly and consider the well being of themselves and others.

Corporate Law: - It acquire knowledge and develop understanding of the regulatory framework of companies with reference to various provision of companies act and its schedule, rules, notifications, circulars, clarification there under including cases laws.

Corporate Accounting: It provides comprehensive financial transparency by accurately providing detailed and analytical financial information.

B.Com III

Financial Market operation: A financial market is a place where firms and individuals enter into contracts to sell or buy a specific product such as bond, Stock, shares etc. Buyers seek to buy at the lowest available prices and sellers seek to sell at the highest available price.

Income Tax : Income Tax is one of the sources of revenue for the government. Every first time tax payer should know the basics of how income tax is levied in India.

B.Sc. COURSE OUTCOMES
PHYSICS

B.Sc.1ST Semester

Subject:Mechanics 1(SubjectCode:20UPHY-101)

- Gettheknowledgeaboutforceshelpsthestudentsintheirdailylife.
- Thevelocityandaccelerationparametergivetheknowledgeabouthowthemovevehicles.
- Theinformationwillteachthestudentsabouttherolling concept.

Subject:ElectrostaticandMagnetism(SubjectCode:20UPHY-102)

- ExplainvariousphenomenonlikeFerromagnetism,anti-ferromagnetismetc.
- UnderstandtherelationinbetweenElectromagnetictheory.
- Explainvariousphenomenonabout capacitance.

B.Sc.2nd Semester

Subject:Machenisc 2(Subjectcode:20U**PHY-201)**

- Students will be able to identify the type of force, type of supports and the reactions onbeamsandplaneframes.
- The students shall be familiar with the fundamental principles of the general theory ofrelativity.
- They shall know the meaning of basic concepts like the equivalence principles; inertialframes and time dilation establish the non-existence of the hypothesized stationaryeatherthroughthenullresultofMichelson-Morleyexperimentswithinterferometer.

- ExplainthetruenatureofNewtonianmechanicsandLorentzTransformationequations. Understand the concept of constant relative motion of different bodies indifferentframesofreferences
-

Subject:wave and electrodynamics(SubjectCode:20UPHY-202)

Afterthecompletionofthecourse,Studentswillbeableto:

- Studentsshalllearnaboutthesignificanceofelectriccomponents.
- Significanceofvariousdevicesandhowtheywilloperate.
- Itwillteachthestudentsabouttheforce osscillator.
- Aboutthelongitudinal wave.

B.Sc.3rdSemester

Subject:Thermodynamics(SubjectCode:20UPHY-301)

- Understandtheconceptofthermodynamicsandtherelaws.
- UnderstandtheHeatEngineandthereuses.
- Describethethermodynamicfunctionandtherere lations.

Subject:Optics(SubjectCode:20UPHY-302)

- Understandthephysicsbehindvariousphenomenoninwaveandoptics.
- Understandvariousphenomenonandthecauseororiginofthem.
- Explaintherelationshipinbetweenvariousopticalphenomenonwiththe Fourierseriesandmatrix.
-

B.Sc.4thSemester

Subject:Semiconductor Device(SubjectCode:20UPHY-401)

- Theyareabletodifferenttypes Semiconductor Device.
- Studentshaveunderstoodtheconceptofdiodes.
- They can easily distinguish between different types of transistor.
- After studying this subject, students have learnt to deal with much electronic circuitsysteminreallife.

Subject:Quantummechanics(SubjectCode:20UPHY-402)

- Historicalaspectsofdevelopmentororiginofquantummechanics.
- Toexplainthedifferencesbetweenclassicalandquantummechanics.
- Understandtheideaofwavefunctionanditsphysicalsignificance.
- Understandtheuncertaintyprincipalandsolvedthevariousproblembasedonit.
- AbletoSolveSchrodingerequationsforsimplepotentialsbarrier,particlesininfinitepotentialboxandharmonicoscillator.

B.Sc.5thSemester

Subject:SolidStatePhysics(Subjectcode:20UPHY-501A)

- Demonstrate an understanding of the crystal lattice and how the main lattice types aredescribed
- FormulatethetheoryofX-raydiffractioninthereciprocallattice(k-space)formalismandapplythisknowledgetogeneralizetheformulationformatterwavesbe ableto performstructure determinationofsimplestructures
- LearnthatDulong-PetitLawisvalidonlyathigh temperature.
- LearnthatlatticespecificheatofsolidvaryT3atverylowtemperature.

Subject:StatisticalPhysics(SubjectCode:20UPHY-502A)

- Theyareabletointerpretdifferenttypesofevents.
- Studentshaveunderstoodtheconceptofphasespaceanditsvolume.

- They can easily distinguish between different types of particles and statistics and caneasilydistributebosons,fermionsandclassicalparticlesamon genergylevels.
- After studying Fermi Dirac statistics, students have learnt to deal with much electronsysteminreallife.

B.Sc.6thSemester

Subject:NuclearPhysics(SubjectCode:20UPHY-601A)

- Aftertakingthiscourse,studentscandeterminethecharge,massofa nynucleusbyusing variousspectrographs.
- Theycanunderstandthesizeofnucleusandallitsproperties.
- Thiscoursehasledthestudentstounderstandinteractionofvarioustypesofradiation withmatterwhichthey observeintheirdailylife.It'seasyforthemnowtorelatethetheoryto practical.
- Studentsnowknowvariousmethodsofacceleratingvarioustypesof particlestoperformscattering experiments.
- Studentscanunderstandthedetectingmethodsandinstrumentsford ifferenttypesofcharged andneutralparticles.

Subject:Atomic,MolecularandLaserPhysics(SubjectCode:20UPHY-602A)

- Describetheoriesexplainingthestructureofatomsandtheoriginoftheobservedsp ectra.
- IdentifyatomiceffectsuchasZeemanEffectandStarkeffect.
- Listdifferenttypesofatomicspectra.
- Explaintheobserveddependenceofatomicspectrallinesonextern allyappliedelectricandmagnetic fields.
- TostudythedifferenttypeofLaserusedinvariousapplicationsand comparativestudyofdifferenttype oflaser.

COURSE OUTCOMES OF CHEMISTRY B.Sc. PASS COURSE UNDER CBCS

The CBCS Course curriculum of the discipline of Chemistry is well designed, promising and competent enough to enrich the subject knowledge of the students and increase their confidence and skills in the field of both academia and industry. Generic electives make integration among various interdisciplinary courses thereby fulfilling the vision and mission of designing the course. The introduction of Skill Enhancement Courses (SEC) would help to gain more practical knowledge not only in their core Chemistry subject but also in interrelated multidisciplinary subjects depicting their importance in daily lives. The inclusion of Discipline Specific Courses (DSE) has provided an opportunity in front of students to choose the desired course as per their requirement and allow them to gain knowledge on various naturally and industrially important useful materials. To sum up, the student graduated with this curriculum would be able to disseminate subject knowledge equipped with necessary skills to suffice their capabilities for different fields i.e. academia, entrepreneurship and industry etc. After careful analysis of the course, the department of Chemistry has pointed out the following outcomes of the course:

CourseOutcomes

Semester	Course Code	Course Outcomes
Sem-1	**20UCHE101**	**CO-1** To understand Atomic Structure Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, quantum numbers, wave functions and shapes of s, p, d orbitals. **CO-2** To study about types of chemical bonds, Valence bond theory and its limitations, directional characteristics of covalent bond, various types of hybridization and shapes of simple inorganic molecules and ions, Valence shell electron pair repulsion theory, MO theory. **CO-3** To understand fundamentals of organic chemistry: inductive effect, Electromeric effect, resonance effect, hyperconjugation, Concept of isomerism. Electrophiles, Nucleophiles, Reactive intermediates (Carbocations, carboanions and free radicals), Concept of Aromaticity of benzenoid compounds, Huckel's Rule. **CO-4** To study about Stereochemistry of Organic Compounds, R & S systems of nomenclature, E & Z system of nomenclature, Conformational isomerism, Newman projection and Sawhorse formulae
	20UCHE102	**CO-1** To understand Gaseous States- Maxwell's

		distribution of velocities and energies, Calculation of root mean square velocity, average velocity and most probable velocity. Deviation of Real gases from ideal behavior. Derivation of Vander Waal's Equation of State, its application in the calculation of Boyle's temperature and Explanation of behaviour of real gases using Vander Waal's equation. **CO-2** To study about To Liquid States Structure of liquids. Properties of liquids – surface tension, viscosity vapour pressure and optical rotations and their determination. **CO-3** To study about Solid State Classification of solids, Laws of crystallography. Unit cell & space lattice. Bravais lattices, crystal system. X-ray diffraction by crystals. Derivation of Bragg equation. Determination of crystal structure o NaCl, KCl, CsCl, Defects in crystals, Glasses and liquid crystals. **CO-4** To study about IUPAC nomenclature, classification, Isomerism in alkanes, sources, methods of formation alkane and cyclo alkanes, Baeyer's strain theory and its limitations. **CO-5** To study the preparation and chemical reactions of alkenes and alkynes: Hydration, Ozonolysis, Oxymercuration-demercuration and Hydroboration – oxidation of alkenes, oxidation of alkynes with hot alkaline $KMnO_4$
Sem-1	**20UCHE103**	**CO-1** To perform redox titrations using $KMnO_4$ and $K_2Cr_2O_7$ **CO-2** To determine the surface tension of liquids/solutions by drop number and drop weight method **CO-3** To determine the Viscosity of liquids/solutions by using Ostwald's viscometer. **CO-4** To perform the sublimation of Camphor and Phthalic acid **CO-5** Separation of mixtures by paper chromatography and determination of retention factor.
Sem. -II	**20UCHE201**	**CO-1** To study the chemistry of s-block elements, Crown ethers, Cryptates of group I **CO-2** To study the preparation, properties and uses of

		inorganic compounds (Diborane, Borazine, silicates) of boron family **CO-3** To study the inorganic compounds (Carbides, Fluorocarbons, trihalides of boron) of carbon family, Catenation **CO-4** To study the chemistry of Nitrogen, Oxygen and Halogen family, Oxoacids, Allotropic forms, Interhalogen compounds, Chemistry of Noble gases **CO-5** Preparation and chemical reactions of Aromatic Hydrocarbons, Electrophilic Substitution reactions, Side chain oxidation of substituted akyl benzenes **CO-6** Preparation and chemical reactions of Alkyl and aryl halides, Elimination vs substitution reactions, Reactivity and relative strength of C-halogen bond in alkyl, allyl, benzyl, vinyl and aryl halides.
	20UCHE202	**CO-1** To understand the thermodynamic terms and processes, To Understand the Zeroth Law, First law of thermodynamics & Joule's law. **CO-2** To calculate w, q, dU & dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process, Kirchoff's equation. Bond energies. **CO-3** Second and third law of thermodynamics, Carnot cycle and its efficiency, study of entropy changes under different conditions, Nernst heat theorem, studying Gibb's and Helmholtz functions for both spontaneous and non-spontaneous processes. **CO-4** Preparation and chemical reactions of Alcohols and phenols, diols, oxidation of diols, Pinacol-pinacolone rearrangement, ethers (aliphatic and aromatic), cleavage of ethers with HI. **CO-5** Preparation and chemical reactions of aldehydes and ketones, Condensation reactions
Sem-1I	**20UCHE203**	**CO-1** To perform iodometric titrations using Hypo solution. **CO-2** To perform inorganic preparations: cuprous chloride, Chrome alum, Prussian blue **CO-3** To learn the different experimental determinations of thermochemistry

		CO-4 To perform the organic preparations of iodoform from ethanol and p-bromoacetanilide from acetanilide, purification of organic compounds by crystallization **CO-5** To determine the melting points of unknown compounds and to evaluate the effect of impurities on melting point.
Sem -III	**20 UCHE301**	**CO-1** To understand Equilibrium constant and free energy, concept of chemical potential, Temperature dependence of equilibrium constant; Applications of Le-Chatetier's principle and Clausius – Clapeyron equation. **CO-2** To understand Nernst distribution law, effect of dissociation, association and chemical combination on distribution law, applications of distribution law **CO-3** To understand Nomenclature, structure and bonding, physical properties, acidity of carboxylic acids, preparation and chemical reactions of carboxylic acids **CO-4** To understand nomenclature, structure, preparation and chemical reactions of carboxylic acid derivatives: acid chlorides, amides, esters and anhydrides; their inter conversion
	20UCHE302	**CO-1** To study Coordination Compounds, Werner's coordination theory, valence bond theory and crystal field theory **CO-2** To understand Magnetic Properties of Transition Metal Complexes. Types of magnetic behavior, Electron Spectra of Transition Metal Complexes, types of electronic transitions, selection rules for d-d transitions, spectroscopic ground states, Orgel energy diagram for d^1 and d^9 states. **CO-3** To understand Rate of reaction, rate equation, factors influencing the rate of a reaction, Kinetics of different order reaction, methods of determination of order of reaction **CO-4** To study about Effect of temperature on the rate of reaction – Arrhenius equation. Theories of reaction rates, enzymatic reaction- Michaelis-Menton treatment, Acid-base catalyzed reactions
Sem-1II	**20UCHE303**	**CO-1** To perform Complexometric titrations of Mg^{2+} and

		Zn^{2+} using EDTA **CO-2** To perform quantitative estimation of copper as copper thiocyanate and nickel as Ni-dimethylglyoxime using gravimetric analysis **CO-3** To determine the specific reaction rate of acid catalyzed hydrolysis of methyl/ethyl acetate at room temperature **CO-4** To prepare arsenious sulphide sol and compare the precipitating power of mono-, bi- and trivalent anions **CO-5** To prepare and purify the organic compounds using substitution and condensation chemical reactions **CO-6** To prepare one solid derivative of mono- and bi-functional organic compounds
Sem -IV	**20UCHE401**	**CO-1** To understand Structure, nomenclature, physical properties, basicity; preparation and chemical reactions of alkyl and aryl amines, separation of amines. **CO-2** To understand preparation and chemical reactions of diazonium salts and nitro compounds, the mechanism of diazotization, structure of benzene diazonium chloride **CO-3** To understand Electrolytic conduction, factors affecting electrolytic conduction.Arrhenius theory of ionization, Ostwald's Dilution Law, Debye- Huckel – Onsager's equation for strong electrolytes, To study about Kohlarausch's Law study about strong and weak electrolytes. conductometric titrations **CO-4** Electrolytic and galvanic cells, calculation of thermodynamic quantities of cell reaction, different types of electrodes, Applications of EMF measurements.
	20UCHE402	**CO-1** To Study about. Dilute Solutions and Colligative Properties, Osmosis law of osmotic pressure, Elevation of boiling point and depression of freezing point **CO-2** To Study about Phase Equilibrium, Gibbs phase rule, phase equilibria of one component system. Phase equilibria of two component systems solid-liquid equilibria, eutectic mixtures **CO-3** To Study of Carbohydrates, Monosaccharides, mechanism of osazone formation, interconversion of glucose and fructose, Formation of glycosides, ethers and

		esters. Determination of ring size of glucose and fructose, Mechanism of mutarotation. Structures of ribose and deoxyribose, disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) **CO-4** To Study of Amino Acids, Peptides & Proteins, end group analysis, selective hydrolysis of peptides, Classical peptide synthesis, solid– phase peptide synthesis. Structures of peptides and proteins: Primary & Secondary structure
	20UCHE403	**CO-1** To verify Beer-Lambert law for $KMnO_4$ and $K_2Cr_2O_7$ and to determine their concentrations **CO-2** To analyse the inorganic cations and anions by paper chromatography **CO-3** To determine specific refractivity of given liquid and CST of phenol-water system **CO-4** To study the distribution of iodine between water and CCl_4 **CO-5** To perform steam distillation for purification of naphthalene and separation of o- and p-nitrophenols **CO-6** To separate fluorescein and methylene blue, separation of leaf pigments, R_f determination using chromatography methods
	20UCHE404	**CO-1** To introduce the concept of Green Chemistry, its need, emergence and goals; Limitation in pursuit of its goals and pollution prevention Act of 1990 **CO-2** To make the about the principles of Green Chemistry by providing the suitable examples and evaluating the benefits **CO-3** To prepare the adipic acid and catechol using green synthesis, Green reagents- Non-phosgene, Isocyanate Synthesis, Selective methylation using dimethylcarbonate **CO-4** Microwave assisted solvent free synthesis of copper phthalocyanine; Microwave assisted reactions in water: Hofmann elimination, methyl benzoate to benzoic acid; Ultrasound assisted reactions **CO-5** To make them aware about the future trends in Green Chemistry: Carbon sequestration, Ozone depletion, Oxidation reagents and catalysts, Biomimicry and green

		chemistry, Multifunctional reagents, green chemistry for sustainable development
Sem-V	**20UCHE501**	**DSE-I: Chemistry of Heterocyclic Compounds** **CO-1** To make students aware about the nomenclature of heterocyclic (monocyclic and polycyclic) compounds-Trivial, Hantzch-Widman, Replacement, Polarity, Tautomerism, aromaticity, electrophilic substitution **CO-2** To learn the preparation and reactions of three and four membered heterocyclic compounds containing O, N and S as heteroatoms. **CO-3** To Study five and six Heterocyclic Compounds-pyrrole, furan, thiophene and pyridine. Methods of synthesis and chemical reactions with mechanism of electrophilic substitution, nucleophilic substitution reactions, Comparison of basicity of pyridine, piperidine and pyrrole. **CO-4** To Study the fused heterocyclic compounds-Preparation and reactions of indole, quinoline and isoquinoline, Mechanism of electrophilic substitution reactions of quinoline and isoquinoline **DSE –II; Organometallics and Bioinorganic** **CO-1** To make students learn about the different concepts of organometallic compounds with focus on metal carbonyls, their preparation, structure and pi-acceptor behavior, synergistic effect and to study back-bonding using IR data **CO-2** To study the preparation, structure and chemical reactions of Zeise's salt, metal alkyls (methyl lithium and trialkylaluminium) and ferrocene **CO-3** To make students aware about some common industrial processes with mechanism to gain insight into catalysis by organometallic compounds **CO-4** To let them realize about the role of metal ions and processes in biological system to make them about the importance in their functioning.
	20UCHE502	**DSE-I: Organic Spectroscopy-I** **CO-1** To know about Ultraviolet (UV) absorption spectroscopy Concept of chromophore and auxochrome.

		Bathochromic, hypsochromic, hyperchromic and hypochromic shifts. Woodward-Fieser rules. **CO-2** To learn in detail about Infrared (IR) absorption spectroscopy and Applications of IR spectroscopy in structure elucidation of organic compounds **CO-3** To Study of Principle of NMR, the PMR signals, peak areas, equivalent and nonequivalent protons, positions and chemical shift, shielding and deshielding, proton counting, splitting of signals and coupling constants, magnetic equivalence of protons. **CO-4** To Study of PMR spectra of the molecules: ethyl bromide, npropyl bromide, isopropyl bromide, 1,1-dibromoethane, 1,1,2- tribromoethane, ethanol, acetaldehyde, ethyl acetate, toluene, benzaldehyde and acetophenone; PMR spectroscopy for structure determination of organic compounds. **DSE-II: Chemistry of Polymers** **CO-1** To introduce the history and nomenclature of polymeric materials to students, Molecular forces and chemical bonding in polymers, classification of polymerization processes, extent of reaction and degree of polymerization **CO-2** To study the mechanism and kinetics of step growth, radical chain growth, ionic chain and co-ordination polymerization, different polymerization techniques **CO-3** To understand the structure, properties and application of polyacetylene, polyaniline, poly9p-phenylenesulphide), polypyrrole, polythiophene **CO-4** To understand the structure, properties and application of polyolefins, polystyrene, poly(vinyl chloride), poly(vinyl acetate), acrylic polymers, fluoro polymers, polyamides, phenol formaldehyde resins, polyurethanes, silicone polymers
Sem-V	**20UCHE503**	**CO-1** To practice the inorganic preparations: Tetraamminecopper(II)sulphate, Acetylacetonate complexes, Tetraamminecarbonatocobalt(III)nitrate, Potassium tri(oxalato)ferrate (III) **CO-2** To make students aware about the practical aspects

		of Conductometery, determination of cell constant, equivalence conductance, degree of dissociation, and disscociation constant of weak acid; Conductometric titrations of both strong and weak acids with strong base **CO-3** To make efficient in qualitative analysis of unknown organic compounds.
	20UCHE504 SEC-III	**CO-1** To introduce students about sources of air pollution, their classification based on particle size and chemical nature, Methods of their estimation, control measures, effects of air pollution on organisms and vegetation, greenhouse effect, global warming **CO-2** To make students aware about hydrological cycle, water resources, source and nature of water pollutants, water purification methods industrial waste management, incineration of waste, water treatment and purification, water quality parameters for waste water, industrial water and domestic water **CO-3** To introduce students to traditional (coal, petrol and natural gas) and renewable sources of energy (nuclear fusion/fission, solar, Hydrogen, geothermal, tidal and hydel etc. **CO-4** To study sources of nuclear pollution, its disposal, nuclear disaster and management. **CO-5** Introduction to biocatalysis and its importance in "Green Chemistry " and Chemical industry
Sem-VI	**20UCHE601**	**DSE-I: Organic Spectroscopy-II** **CO-1** Applications of far and near IR for structure elucidation of metal –ligand complexes (with CO, -CN, nitro and nitrite ligands) and for evaluating the substitution pattern in substituted aromatic compounds **CO-2** Detailed study of the different phenomenon in NMR, instrumentation, simplification of complex spectra, distinction of geometrical isomers, NOE, Study of dynamic effects by ^{1}H NMR **CO-3** Introduction to ^{13}C NMR Spectroscopy and its applications, introduction to ^{2}D techniques **CO-4** Introduction to mass spectroscopy, different types of fragmentation techniques, Mclafferty rearrangement, mass spectral fragmentation of organic compounds having

		common functional groups **CO-5** To make efficient in structure determination and other structural changes in organic and inorganic compounds
		DSE-II: Inorganic materials of industrial importance **CO-1** To study the classification , preparation, processing and properties of different glasses **CO-2** To study the types and manufacture of important clays and feldspar, High technology ceramics and their ceramics **CO-3** To study the preparation, properties and usage limits of different kinds of fertilizers **CO-4** Different alloys, specific properties of elements in alloys, manufacture of steel and surface treatment **CO-5** To study the general principles and properties of catalysts, applications of zeolites
	20UCHE602	**DSE-I: Quantum Mechanics and Molecular Spctroscopy** **CO-1** To understand about Quantum mechanics, Postulates of quantum mechanics, Role of operators in quantum mechanics, To show quantum mechanically that position and momentum cannot be predicated simultaneously, Determination of wave function & energy of a particle in one dimensional box, Pictorial representation and its significance **CO-2** To make them able to relate the qualitative solutions from Schrodinger wave equation and quantum mechanics **CO-3** To Study the rotational, vibrational and Raman and electronic spectroscopy for molecular species which is required for structure determintaiona and also to understand various processes **CO-5** To Study about Photochemistry. Laws of photochemistry, Jablonski diagram, photo-sensitized reactions-energy transfer processes.
Sem-VI		**DSE-II: Chemistry of Cosmetics and Perfumes** **CO-1** To make students understand the introduction, history, CO-classification, composition and formulation of cosmetics and perfumes **CO-2** To make them aware about the chemical processes undergoing in their processing and their functioning

		CO-3 To study about the advances in cosmetics and ways to control quality **CO-4** To provide them the theoretical knowledge on cosmetics and perfumes
	20UCHE503	**CO-1** To make them efficient in the estimation of the concentration of the absorbant in the given colored solution using Beer-Lambert's law. **CO-2** To perform the potentiometric titrations of i.) strong and weak acid with strong base, ii.) Potassium dichromate with Mohr's salt **CO-3** To perform the organic preparations: o-chlorobenzoic acid from anthranilic acid, p-bromoaniline from p-bromoacetanilide, m-nitroaniline from m-dinitrobenzene, S-Benzyl-iso-thiouronium chloride from thiourea

M.A.-History-Semester-I

Principles of History
19-HIS-101

Unit-I

Understating of History

Meaning, Definition and Scope; Nature and Subject matter; History relation with other social science.

Unit-II

Types of HistorY

Political, Social, Religious, Economic, Agrarian, Urban, Art and Architectural, History of Ideas, Traditionand Folklore.

Unit-III

Fundamentals of History

Problem of Periodization, Historical Facts, Analysis and Interpretation.

Unit-IV

Importance of History

Use and Misuse of History, Idea of Progress in History, Significance and truth in History.

M.A.-History-Semester-I

Ancient World
19HIS- 102

Unit-I

Stone Age
Origin of Tool Making, Palaeolithic Cultures of the World, Palaeolithic Art, Mesolithic and NeolithicCulture. Origin of Agriculture, Settled Life and Craft Specialization.

Unit-II

Bronze Age Civilizations in Mesopotamia and Egypt
The Geography and Pre-Historical Background, Origin of State Structure, Society, Economy, Religionand Contribution to World Civilization.

Unit-III

Harappan Civilization
Origin, Extent, State Structure, Town Planning, Art and Crafts, Social and Economic Conditions,Religion, Trade and Commerce, Decline and legacy.
Chinese Civilization
Beginning of Middle Kingdom, Shang Civilization, Socio-Economic Life and Religious Beliefs.

Unit-IV

Maya Civilization
Socio-Economic Life, Arts, Science and Technology. Inca CivilizationSocio-Economic Life, Arts, Science and Technology.

M.A.-History-Semester-I

Medieval World
19HIS-103

Unit-I

Medieval Europe: Political Structure

Transition from Ancient to Medieval Society, Role of Church, State and Church, Church and Society.European Feudalism
Origin, Nature, Features, Merits and Demerits, Causes of Decline.

Unit-II

Medieval Europe: Economic, Religious and Cultural History

Trade and Commerce, Technology, Renaissance, Reformation and scientific revolution.

Unit-III

Background, Emergence and Growth of Islam

Geographical Condition of Arabian Peninsula, Social and Economic Condition of Pre-Islamic Arabia.Religious and Political Condition of Pre-Islamic Arabia, Life and Teaching of Prophet Muhammand, Character and Achievements of Orthodox Caliphs.
Evolution of Islamic State under Umayyad Dynasty
Society and Economy, Administrative Institutions, Cultural Achievements and Decline.Evolution of Islamic State under Abbasid Dynasty
Society and Economy, Administrative Institutions, Cultural Achievements and Decline.

Unit-IV

India: Political Structural Changes and Continuity and Administrative Institutions Transition from Ancient to Medieval India, Structure of Medieval State and Nature (Sultanate andMughal), Iqatadari, Manasabdari, Jagirdari System, Jamindari Systems.

M.A.-History, Semester-I

Modern World 19HIS-104

Unit-I

Mercantilism and the Beginning of Capitalism

Features of Mercantilism, Mercantilism Activities of Various Countries, Beginning of CapitalismNon-Political Revolutions in Western Europe:
Agricultural Revolution, Scientific and Technological Revolution, Industrial Revolution.

Unit-II

Political Revolutions in Modern World

American Revolution (1775-1783).
French Revolution (1789).
Russian Revolution (1917).
Chinese Revolutions (1911-12, 1931 and 1949)

Unit-III

Development of Imperialism

Geographic Expansion in Asia and Africa and Its Theories: Economic and Non Economic Development of Liberalism in Britain: Background, Classical Liberalism, Beginning of ModernLiberalism, Result and Analysis
Theories of Nationalism: Italy and Germany

Unit-IV

FirstWorldWar
Origin, Nature and Impact, Peace Settlement of 1919. Totalitarian Regimes- Fascism in Italy and Nazismin Germany.
Second World War
Origin, Nature,
Impact
ColdwarPeriod
NATO, Warsaw Pact, Non-Alignment Movement.

M.A.-History, Semester-I

History of Haryana
19HIS-105

Unit-I

Sources (Literary and Archaeological).
Stone Age culture, Harappan civilization in Haryana. Vedic Culture and Epic Age(Mahabharata).Republic States: Yaudheyas, Agras and Kunindas.

Unit-II

Pusyabhutis.
Gurajara – Pratiharas. Tomars, Chahamanas. Battles of Tarain and their Impact.

Unit-III

Haryana during Sultanate period.
Battles of Panipat and their Historical Significance. Resistance of Jats, Revolt of Satnamis and Maratha.George Thomas and East India Company.

Unit-IV

First war of Independence and Haryana (1857). Religious movements: Arya Samaj and Sanatan Dharam.Unionist Party: Educational and Agricultural Reforms.
National Movement 1885-1947.

M.A.-History, Semester-I

Rise of Modern China (1834-1967 A.D.) 19 HIS-106

Unit-I

China's National Humiliation During the 19th Century Opium wars and its consequences - Open doorpolicy and Scramble for concession 1899- Reform movements in china, Taiping, Self - strengthening Movement and1898 reform movement.

Unit-II

Re-emergence of Nationalism in China Boxer Movements and its Consequences – Revolution of 1911 –Sun Yat Sen and his three Principles - May Fourth Movement- its Nature and Significance.

Unit-III

Nationalism and Communism in China Political Crisis in the 1920's – KMT and the first United Front,Second United Front – Communist Movement, 1928-1949.

Unit-IV

Cross-Strait Relation and the Cultural Revolution Political Rivalry and tension in South China Sea – TheRed Guards – The Transition of Power; Gang of Four - Role of Zhou Enlai and Deng Xiaoping – Mao Zedong and Tiannamen Square – Various views on Cultural Revolution.

M.A.-History, Semester-I

Fundamentals of Information Technology (A.E.C.) 19HIS-107

Objective: The objective of this paper is create a basic understanding of the computer in general purpose office use. Students will get acquainted with the basic IT tools and packages, necessary for day to day office operations

Unit-I

Fundamentals of Computer

Introduction to computer, Classification & Generations of Computer Block diagram and Anatomy ofComputer, Input and Output devices

Basic concept of Data & Information, Various Characteristics of Information, Terminology for IT Software: Types of Software (Propriety & Open Sourced) Operating System, Functions of OS, Types ofOS, Features of OS (Based on Windows)

Unit-2

Introduction to Internet & Networking

Data Communication: Types of Communication, Digital Data Communication Techniques, Variousapplications of Data Communications

Concept of Network, Types of Network, LAN Topologies, Computer Protocols History of Internet,Intranet, Web Browsers, Search Engine, Working with Internet, Applications of Internet

Mobile Communication: Fundamentals of Mobile Communication, 2G, 3G, 4G Technologies (GPRS,3GPP, LTE)

Social Media Tools & Marketing Strategies, E-Commerce: Types, Tools, Electronic Payment System

Unit-3

Business Data Processing

Concept of Database, Architecture of Database, Types of Database

Introduction to Data Processing, Data Storage, Data Hierarchy, Methods of Organizing DataVarious Data Processing Files, File Organizing, Various Utilities of Files

Various Applications of Commerce, Accounting, Purchase, Healthcare, Mathematics, HumanitiesVideoconferencing: Tools of Videoconferencing, Types of videoconferencing

Unit-4

Applications & Packages

File Management: Desktop Components, Start Menu and Taskbar, Types of Icons, Viewing, Arranging,and Working with Files and Folders

MS Word: Toolbars, Menu, editing a Document, Previewing Document, Printing Documents, Mail MergeMS PowerPoint: PowerPoint Basics, Insert, Tools, Format, Slide Show, Formatting Slides, Create Presentations, Insert and Modify Text, Work with Graphics and Media MS Excel: Entering and Editing Worksheet Data, Worksheet Operations, Introducing Tables, Pivot Table, Charts and Graphics, Graphing and Summarizing Data

MS Access: Toolbars, Entering & Editing the Data, Data Operations, Introduction Tables, Data Analysis

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Semester-II

M.A.-History, Semester-II

Archive and History
19HIS-201

Unit- I

The archive as an institution of social memory Memory, history and experience, Narrative and historyThe colonial archive, Describe the functions of archives

Unit- II

Explore significance of records to individuals and organizations Analyze the changing definitions ofrecords as information or evidence
Identify the basic concepts and theories influencing archives and records management

Unit- III

Writing and documentation Law, evidence and
the archiveCollecting, Taxonomy, Objectification

Unit- IV

Identify the specific challenges of managing electronic records Articulate the role of archivists andrecords managers in society

M.A.-History, Semester-II

Enviourmental History
19 HIS-202

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Unit-I Ecology
What is Ecology, scope of Ecology.
Ecology science or art, its relation to other subjects. Terminology of Ecology. Approaches to Ecology.

Unit-II Environment
What is Environment, Component of Environment, Living and Non-Living Components. Management ofConservation of Living and Non- Living Resources of Environment forSustainable Development.
Environmental Degradation and its Impact on Present and Future Generations. The Concept of Nature inour Spiritual Traditions.

Unit-III
Environment and Ecological Consciousness in Ancient India
Indus Valley Civilization: Planned Organization, Drainage System, Watershed Management and WasteManagement, Worship of different Components of Nature.
Early Vedic and Later Vedic Culture. Forest and Wild Life Management in Arthaśāstra of Kautilya.

Unit-IV
Environmental and Ecological Consciousness in Medieval and British India
Exploitation of Natural Resources for Economic Development in Early Medieval Indiaand DelhiSultanate.
Exploitation of Natural Resources for Sustainable Economic Development in Mughal Period; OverExploitation and Ecological Destabilization During Later Mughal Period.
British Economic Policy and Imperialism: Ruins of Indian Small Scale Industry, over Exploitation ofNatural Resources.

M.A.-History, Semester-II

Iron Age Civilization
19 HIS-203

Unit-I

Beginning of Iron Age in the World

Problems and issues.
Debate on the advent of Iron, and its implementation,Iron based Agrarian Society.
Role of Iron technology in Ancient Civilizations.

Unit-II

Iron Age in India

The role of Iron technology in Ancient India.
Megalithic culture of India: origin, distribution, typology and material culture. Painted Grey Ware culture:distribution and material remains. Second urbanization: Iron and state formation in early India.

Unit-III

Greek Civilization

Early civilization in the Aegean
Greek city states (Athens and Sparta): political, social and economic life;
Greeco-Parsian wars,Peloponnesian war.
The Athenian Empire and Athenian Democracy. Contribution of Greek Civilization.

Unit-IV

Roman Civilization

Roman Republic and concept of Empire.
Social and economic life, Science and technology.
Role of Iron in consolidating Roman civilization, decline of Rome.

M.A.-History, Semester-II

Diaspora in Colonial India 19 HIS-204

Unit-I

Diaspora: The concept; origin; evolution and contemporary usage; Diasporic identities and their nature; categories of Indian Diaspora; People of Indian Origin and NRIs; Regional, linguistic, religious and castedivisions.

Unit-II

Different Stages of Colonial Migrations: Emigration to British Plantation colonies Fiji; Surinam; Guyana;Mauritius; Malaysia; Trinidad & South Africa; their economic position and social status.

Unit-III

Migrations in the 20 th Century: Indian Diaspora in Western Countries (USA, UK and Canada); Migration to Canada & the USA in late 19 th and 20 th centuries; Migration between 1920s to 1947; Migrations of professionals to USA, Canada, Australia and other developed nations; Migrations to GulfCountries.

Unit-IV

Indian Diaspora, Social and Economic Position: Indian Diaspora with reference to their social status (Race and Ethnicity); Economic position vis-à-vis other ethnic communities; participation and culturalactivities; India's policy towards her Diaspora.

M.A.-History, Semester- II

Nationalism: Theories and Historical Explanation 19HIS205

Unit - I

State and Nation: definitions, types.
Civic nationalism: France and the
United StatesEthnic/Romantic
nationalism: Germany
Early theorists: Rousseau, Jefferson, Herder, Renan

Unit – II

The nation as a historically constructed entity: the invention of tradition and the imagining of community.The Western nation-state and modernity: anti-clericalism, vernacularization and print- capitalism.
Critiques of and alternatives to the nation-state and nationalism: Marxism, Anarchism, Pan- Islamism andImperialism.
Modern Western theorists: Stalin, Weber, Gellner, Hobsbawm, Anderson,

Unit – III

Non-Western nation states and the templates of Western
nationalism.Turkey and Japan as derivative nationalisms

Unit-IV

Indian nationalism as the exception to the
Andersonian ruleRSS, Hindu Mahasabha
Post-colonial theorists: Chatterjee, Chakravarty, Guha and Bhabha.

M.A.-History, Semester- II

History of U.S.A. (1820-1973 A.D.) 19HIS-206

Unit-I

The new territories in the west: expansion in Texas, the war with Mexico; Moral and ideological tensions: Growth of sectionalism, causes and consequences of the Civil War, Reconstruction of the South; The new economy: growth of industrialisation and new technologies, Big Business, 1875-1900; Growth of cities.

Unit-II

Emergence as a World Power: War with Spain; causes and results; decision for economic imperialism;Overseas Expansion: The Carribean and the Pacific, 1896-1915; World Involvement: Unnatural neutrality; the U.S.A. at World War-I; The Treaty and the League.

Unit-III

Populist and Progressive Movements: Leaders and achievements, 1890-1917; The onset of Great Depression: Causes and impact; the Hoover Program; The New Deal: New Deal Legislation; foreignpolicy during the New Deal period.

Unit-IV

The Second World War: Issue of neutrality; the U.S.A. at war, planning a new World order; balance ofterror: Colder War: Origins; diplomacy of Cold War; containment of communism; Détente; Social Movements: Movements for Social Justice: The Feminist Movement; Temperance; Suffrage; Civil Rights.

M.A.-History, Semester- II

Communication Skills
21ENG100

Course Objectives:

1. To familiarize the student with the nature and importance of communication
2. To orient the students towards theory and practice of Communication Skills.
3. To impart knowledge of common courtesies and conversational practices.
4. To acquaite the student with positive attributes of personality.

Course Outcomes:

1. Students should be able to understand the nature and importance of Communication Skills.
2. Student would gain knowledge of common countesies and conversational practices in varioussitations.
3. Students would be acquainted with the knowledge of skills necessary for personalitydevelopment.
4. Students would be able to demonstrate the skills and knowledge of effective communication.

Unit-I

Human Communication:

Verbal and non verbal communication, barrieers to communication: seven C's of effective communication, Types of communication (Self-communication, Interpersonal communication, smallgroup communication Mass communication), Preparing for interviews, CV/Resume.

Common Courtesies:

Introducing Oneself formally and informally, introducing oneself on social media, making requests. Asking for and giving permission, offering help, offering help, giving instruction and direction, Art ofsmall talk, making enquiries.

Unit-II

Speaking Skills:

Public speaking- Introduction, welcome and introductory speech, Vote of Thanks speech, farewellspeech
Audience analysis.

Conversational Practice in Various Situations:

Quitting and finding jobs, office conversationals, conversations about shol/college/university, theEnglish classesetc. (Student shall develop –based conversations on the given situations).

Unit-III

Personality development Skills:

Personal grooming; Assertiveness; Significance of critical thinking; confidence bulding; SWOCanalysis.

Group discussion: Introduction.

Opening and summarizing group discussion, Some tips for group discussion.

Unit-IV

Writing Skills:

Email writing: Guiding principles for composition, maintaining common etiquette, Correspondence (Personal, business); writing: Tips for developing good writing style, Writing research article, Plagiarism.

Professional Presentation:

Preparing PPT's and delivering presentation- Rehearsal, body language, Handling questions**.**

Semester-III

Group-A, Archaeology

M.A.-History, Semester-III

Historiography: Concepts, Method &Tools **19 HIS-301**

Unit-I

Basic Concepts: what is historiography? - definition, nature and scope; historical facts; historyand therelationship with allied disciplines-anthropology, archaeology, psychology, economics, sociology, geography, political science

Unit-II

Early Trends in History: Greeco-Roman, Chinese historiography and ancient Indianhistoriography;Medieval Trends: western-church historiography, Arab historiography

Unit-III

Western Approach: idealistic approach of Hegel; positivist approach of Augustus Comte &Ranke;materialistic approach of Karl Marx; post-modernism; the idea of total history- Annalschool

Unit-IV

Approaches of Indian History: colonial, Cambridge, Marxist, nationalist, subaltern studies

Group-A, Archaeology

M.A.-History, Semester-III

Pre- History of India

19HIS-301GA

Unit-I

Prehistory: Its aim, scope and method
Climatic fluctuations during the
Pleistocene periodGeneral background of
World Prehistory
Stone Age, Tools, techniques & probable uses

Unit-II

Lower Palaeolithic Culture in India
Potwar region
Beas and Banganga
ValleyNarbada Valley
South India

Unit-III

Middle Palaeolithic Culture in
IndiaUpper Palaeolithic
Culture
Mesolithic Culture: Eastern India, Western India, Southern India, Rajasthan and Uttar Pradesh

Unit-IV

Neolithic
CulturesNorth
India Eastern
India
North Eastern
IndiaSouth India

Group-A, Archaeology
M.A.-History, Semester-III

Proto- History of India
19HIS-302GA

Unit-I

Harappan Civilization:

Early Phase of Harappan Civilization
Mature Phase of Harappan Civilization: extent, chronology, characteristicsUrban Decline and Cultural transformations: Late Harappan horizons

Unit-II

Chalcolithic Cultures:

Central India: Kaytha, Ahar and Malwa CulturesRajasthan: Ahar (Banas) Culture
Deccan: Jorwe Culture

Unit-III

Ochre Coloured Pottery
Gangetic Valley Copper Hoards
Problem of Black- and -Red Ware

Unit-IV

Iron Age Cultures:

Antiquity of Iron in IndiaPainted Grey Ware
South Indian Megalithic Culture-Burial types and salient features

Group-A, Archaeology
M.A.-History,
Semester-III

Ancient Indian Epigraphy and Palaeography-I19 HIS-303 GA

Unit-I

Inscriptions as a source of Indian History
Origin and antiquity of the art of writing in India Origin of Brahmi script
Origin of Kharoshthi script

Unit-II

Historical and Cultural study of the following inscriptions:
Asokan Rock Edict - II
(Girnar) Asokan Rock Edict - XII (Girnar)
Asokan Rock Edict - XIII (Shahbazgarhi)
Asokan Pillar Edict - II (Delhi - Topra: North Face)

Unit-III

Historical and Cultural study of the following inscriptions**:**
Besnagar Garuda Pillar Inscription of Heliodorus Ayodhya Stone Inscription of Dhanadeva
Shinkot Relic Casket Inscription of the time of Menander Hathigumpha Inscription of Kharavela

Unit-IV

Note: Inscriptions for decipherment into Devanagari/Roman script and transliteration into original script(in part or full):
Asokan Rock Edict-II (Girnar)
Rummindei Pillar inscription of Asoka Sarnath Minor Pillar Edict of Asoka Ayodhya Stone Inscription of Dhanadeva

Group-A, Archaeology
M.A.-History, Semester-III

Ancient Indian Numismatics-I **19HIS-304GA**

Unit-I

Numismatics: Aim, Method and ScopeNumismatic Terminology
Coins as a source of History
History of Numismatic studies in India

Unit-II

Origin and evolution of coinage in IndiaAntiquity of Indian coins
Techniques of manufacturing coins

Unit-III

Punch Marked Coins
Uninscribed and inscribed cast coinsCity Coins

Unit-IV

Indo-Greek coins
Tribal Coins: Audumbara, Kuninda, Yaudheya Coins for DecipherментIndo-Greek Coins
Tribal Coins: Kuninda and Yaudheya

Group-A, Archaeology
M.A.-History, Semester-III

Art and Architecture of Ancient India **19HIS-305GA**

Unit-I
Rock art of India: Bhimbetka; Harappan art & architecture, town planning; regional style ofart andarchitecture: Mathura, Gandhara, Amravati and Nagarjunikonda

Unit-II
Shilpa and Kala in Indian societies with special reference on artists and their activities; Mauryan art: rockcut art/cave art and Mauryan architecture;
integration of sculpture and architecture in the stupa: narrative art at Bharhut and Sanchi withspecial emphasis on its generated nature; terracotta art – a general outline on social context; Buddhist art, Jainaart,

Unit-III
The art of devalays, chaityas, pratimas/murtis and bhiti-chitras-300 B.C.E. to 600 A.D; evaluation of temple architecture in India- a general outline; temple and rock cut architectureat Ajanta, paintings ofBagh and Ajanta – a general outline

Unit-IV
General outline of art & architecture: Khajuraho-kandariya and mahadeva; Vijayanagar, Jaunpur, Gujarat,Rajputana, Bharatpur and Malwa;

Group-A, Archaeology

M.A.-History, Semester-III

Conservation &Preservation **19HIS-306GA**

Unit-1: History and Principles of Conservation &
Preservation History of archaeological conservation
and preservation in India
General principles and guidelines for conservation and preservation of monuments / sites and excavatedremains in India
Distribution of monuments in different geographical zones and their conservation problem

Unit-2: Conservation: Materials and Techniques
Stone: classification, quarries, selection, specifications, defects, types of masonry, techniques of jointingand pointing
Brick: types, kilns, material composition, techniques of manufacturing, characteristics, specifications,bonding and laying,
Wood: structure of timber, seasoning, defects and treatment, use in buildings,
causes of decay andremedies

Unit-3: Foundation, Scaffolding and Constructional Members
Foundation: types of foundation, typical failures of foundation, Consolidating and strengthening offoundations.
Scaffolding: types of scaffolding, temporary supports, propping and strutting, centering, shoring,timbering of deep trenches, providing of chutes, safety measures
Constructional Members: pointing, underpinning, inlay work, stucco work and tile work

Unit-4: Preservation of Antiquities
Metallic Antiquities: Gold, Silver, Copper, Bronze
and IronOrganic Antiquities: Ivory, Bone, Wood
and Textile
Siliceous and Argillaceous Antiquities: Stone, Semi-precious stone, Terracotta and Pottery

Group-B, Ancient India

M.A.-History, Semester- III

Political History Upto-326 B.C. 19HIS-301GB

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eightshort answer type questions covering the entire syllabus. Two questions will be asked from eachunit. Student will have to attempt one question from each unit. Each question shall carry equal marks

Unit-I Sources:

Sources of Ancient Indian History: Archaeological & LiteraryMain Features of the Stone Age

Unit-II

Indus Civilization:

Origin, extent
Town Planning and Drainage systemPolitical System,
Decline
Vedic and Post Vedic Civilization:
Emergence of Tribal State and KingshipPolitical Institutions
Monarchical and Republican States on the eve of BuddhismBuddhism and Jainism

Unit-III

Rise of Magadhan Empire:

Haryanka
dynasty
Sisunag
dynasty Nanda
dynasty

Unit-IV

Political Condition and Events:

Political Condition of India on the eve of Alexander's InvasionAlexander's Invasion, events & effects

Group-B, Ancient India
M.A.- History, Semester-III

Political History 326 B.C.-320 A.D **19HIS-302GB**

Unit-I

The Mauryan Empire**:**
Chadragupta Maurya and his achievementsAsoka and his dhamma
Mauryan Administration
Downfall of the Empire

Unit-II

New Political DevelopmentThe Sungas
The Satavahanas
The Indo-Greeks

Unit-III

Rise of New Powers:
The Saka-KshatrapasThe Pahlavas
The Kusanas

Unit-IV

Republics:
The Yaudheyas
The Kunindas
The Audumbras
Political Condition of India before the rise of Guptas

Group-B, Ancient India
M.A.-History, Semester-III

Social History upto-1200 A.D. **19HIS-303GB**

Unit-I

Socio-Cultural Formation:
Enquiries into Socio-Cultural life of
Harappan PeopleVedic Society
Society at Buddha's Time

Unit-II

Social
Institutions-I:
Family
Organisation
Varna system
Asrama system

Unit-III

Social
Institutions-II:
Samskaras
Purusarthas

Unit-IV

Social Institutions -
III:Marriage
Caste
system
Slavery

Group-B, Ancient India

M.A.-History, Semester-III

Economic History Upto 1200 A.D. 19HIS-304GB

Unit-I

Stone Age to Later Vedic Age

Stone age economy; silent features of Harappan economy; pastoral economy of Vedic age; agrarianeconomy during later Vedic age

Unit-II

P.G.W to Post Mauryan Economy

Economic importance of PGW and NBPW pottery; guild system; origin of coins and barter trade system;trade and commercial activities during 600-185 B.C.E.; post-Mauryan economy (185 B.C.to 320A.D.)

Unit-III

Land System

Land types, land rights, irrigation system and revenue system from 600B.C. to 600 A.D.; feudal economyand land grants in ancient India; peasantry in ancient India.

Unit-IV

Trading Economy (321 B.C.E. to 1200 A.D.)

Inland trade of northern and southern India; trade routes: inland or foreign (land or sea); foreign trade: Roman and south Asian countries special reference to south India; tax, insurance, commodities, mode oftransportation, guild system, usury and labour; Temple economy of south India

Group-B, Ancient India

M.A.-History, Semester-III

Art & Architecture in Ancient India **19HIS-305GB**

Unit-I

Rock art of India: Bhimbetka; Harappan art & architecture, town planning; regional style ofart andarchitecture: Mathura, Gandhara, Amravati and Nagarjunikonda

Unit-II

Shilpa and Kala in Indian societies with special reference on artists and their activities; Mauryan art: rockcut art/cave art and Mauryan architecture;
integration of sculpture and architecture in the stupa: narrative art at Bharhut and Sanchi withspecial emphasis on its generated nature; terracotta art **–** a general outline on social context; Buddhist art, Jainaart,

Unit-III

The art of devalays, chaityas, pratimas/murtis and bhiti-chitras-300 B.C.E. to 600 A.D; evaluation of temple architecture in India- a general outline; temple and rock cut architectureat Ajanta, paintings ofBagh and Ajanta **–** a general outline

Unit-IV

General outline of art & architecture: Khajuraho-kandariya and mahadeva; Vijayanagar, Jaunpur, Gujarat,Rajputana, Bharatpur and Malwa;

Group-B, Ancient India
M.A.-History, Semester-III

Gender &Women in Ancient India **19HIS-306GB**

Unit 1: Introduction:

Historiography-Colonial, Nationalist, Marxist and Others; Original Sources. Women in various religiousTraditions-Brahanical, Buddhist, Jaina, Bhakti, Tantrik. Anicent Indian Women-An Overview.

Unit-2: Women in Ancient Indian Literary Tradition:
Women in Early Indian Inscriptions.
Understanding Women through Ancient Indian Literature. Position of Women as depicted in Smritis andLaw books

Unit-3: Women and Family:
The Patriarchy and the Accommodation of Female; The concept and working of matriliny –Anthropological and Sociological perspectives in historical reconstructions.
The Socio-Sexual Construction of Womanhood-Education, Marriage, Family and Household. Women andProperty-The issue of Stridhana. Legal Position of Women in Family.

Unit-4: Reflections on Various Facets:
Women for Pleasure- The Institutions of Devdasi and Prostituion; Women in Public Sphere-WageEarners, Rulers and Patrons.
Body, Sex, Eroticism and Love as depicted in Classical Literature.
Socio-Religious Movements and Women-Virsaivas and Srivaisanava Community; Ascetic Women.

Group-C, Medieval India
M.A.-History, Semester-III

Early Medieval India (600 A.D.-1200A.D.)

Unit I

Understanding Early Medieval India: 1. Transition from early historical to early medieval: historiographywith reference to the perceptions of continuity and change, problems of periodisation into 'ancient', 'medieval' and 'modern', the position of early medieval India in history and fixing of the chronology.

Unit II

Historiographical Approaches to early medieval India: theories and perspectives, early medieval India inthe pre- 1940s works, Marx and Oriental Despotism, Nationalist view of a centralised state, segmentary state concept, integrative and lineage polities, patrimonial bureaucracy, new frame works for the study onthe nature of state

Unit-III

Structure of Regional Polities, Evolution and Changing Power Configurations Formation of regional polities: with special reference to the Rajputs, Pallava-Cholas, Orissa, new royalty, landholding and clan structures and relationships, landed bureaucracy and power hierarchy,shifting centres of power, emergence of lineage polities and inter-lineage networks, consolidation oflineage families as ruling elites, landholding rights and integration through hierarchy.

Unit-IV

Islam and Early Medieval India: conquest of Sindh, aspects of interaction with West Asia and the regional states, coming of the Turks and establishment of the Delhi Sultanate, issues of representations,ideas of 'invasions', 'iconoclasm', 'Hindu-Muslim interface'.

Forms of Royal Legitimation and Control:

Brhamana-kshatriya network, acculturation of local population, caste and varna hierarchies, brhamanicalideologies, origin myths and legends, genealogies and rituals of kingship, forms of local and supra local control.

Group-C, Medieval India

M.A.-History, Semester-III

Society and Culture of India (c. 1200 -1526 A.D.) 19HIS-303GC

Unit-I

Society on the eve of Turkish Invasiona. Main features of Social Structure Religio-Cultural TraditionsEstablishment of Delhi Sultanate and Challenges to Indian Society

Unit-II

Social Structurea.
Ruling Class
Religious Classes- Ulema, Sayyads and Sufis
Service classArtisans, Peasantry

Unit-III

Development of Indian Islam
Bhakti Movement: - Rise, Growth and ImpactRadicals -
Kabir, Nanak

Unit-IV

Sufism -
Rise Growth and ImpactSilsilahs -
Chisti
Suhrawar
di

Group-C, Medieval India
M.A.-History, Semester-III

Caste Proliferation in Medieval India
19HIS-304 GC

Unit I

Theories of Caste in India European perception of the caste – social division and ethnicity – Dumont and Homo Hiearchicus – critical evaluation – occupational and labour based theories – Bougle, Senart and Meillasoux-Endogamy and 'marriage circles' Jaiswal and Klass.

Unit II

Caste and the Village Community Structure of power and the caste system, Brahmanical hegemony – systems of distancing and pollution – differentiation of access to resources – caste and forms of labour –caste and the lay out of the village – nucleated and continuous villages and distribution of population – legal system – differential systems of punishments.

Unit III

Caste and Urban Centers Growth of the artisanal castes in North India – caste and temple centers – artisans, kaikkolar and the kudis – caste in the South Indian Nagaram – Occupational differentiation within the urban centers.

Unit IV

Caste and Medieval Ideology Legitimation of the caste – Varnasrama dharma-karma theory – rituals and ceremonies – caste, marriage and gender – Bhakti as a legitimation process of stratification – role of Sufism – Bhakti and the oppressed castes – Western Indian Bhakti-Siddha Literature.

Caste in Organised form Early rebellions – the Kaivartta revolt – Formation of Idangai and Velangai

– Panthic sects in North India – Caste and peasant rebellions – Jats, Sikhs and Satnamis – caste organization of the Marathas.

Group-C, Medieval India
M.A.-History, Semester-III

Unit-I

Pre-Sultanate Economy
Land revenue System: Early Turks, Khaljis, Tughlaqs and Lodhis Peasantry, Famine
Irrigation and Changes in Crop-pattern

Unit-II

Iqta System
Market Control Policy and Prices of Commodities Village Organisation
Khuts, Muqaddams and Chaudharies

Unit-III

Technological changes and Economy Merchants Class
Usury
Currency System

Unit-IV

Industries
Trade and Commerce: Inland and External Trade Growth of Towns
Urbanization

Group-C, Medieval India
M.A.-History, Semester-III

Unit-I

Main features of important buildings of the Sultanate period; detailed study of Qutb Complex; theTughlaq Monuments; Sayyid, Lodhi and Sur Architecture.

Unit-II

Provincial Style of Architecture: Gujarat (Ahmedabad); Bengal; Malwa;

Unit-III

Jaunpur; Vijaynagar; The Deccan: The Bahmani Dyansty.

Unit-IV

Rajputana Art and Architecture: Fort, Temple, Masque, Paintings

Group-D, Modern India
M.A.-History, Semester-III

Unit-I

Indian Nationalism 1859 – 1885: Different historiographic schools of Indian Nationalism: Early associations and peasant uprisings 1859-1880s; theories of Origin and foundation of the Indian NationalCongress; social basis of the Indian National Congress.

Unit-II

National awakening in India in its early phase: National Awakening and Socio-Religious, Social Reforms;the Moderate phase of the Indian National Congress; Growth of Extremism; the Indian Council Act of 1909; Home-Rule Movement; Government of India Act of 1919.

Unit-III

Nationalism under Gandhi's leadership: Emergence of Gandhi and his ideology of mass participation; critical assessment of Non-cooperation and Khilafat Movement, Civil Disobedience Movement; 1940, Satyagraha and Quit India Movement; Freedom Struggle in the princely states.

Unit-IV

Other strands of the National Movement: Revolutionary Movement since 1905; Left Wing Politics and Youth Organizations; the Indian National Army; Communal Strands; Muslim League and Hindu Mahasabha; last phase of the struggle; freedom and partition-why Congress and Gandhi accept partition.

Group-D, Modern India
M.A.-History, Semester-III

Unit I

Colonialism, information and knowledge The historicity of caste The social history of law

Unit II

The colonial city and urbanization Labour and migration Gender and the 'Hindu nation'

Unit III

Agrarian relations and peasant rebellion; Famines, epidemics and the crises of society Army, war andsociety;

Unit IV

Race and colonial rule
Religious community, revival and reform

Group-D, Modern India

M.A.-History, Semester-III

Indian Economic History (1750 A.D.-1850A.D.)

Unit I

Introduction Issues and problems of Indian Economic History – Different approaches and theirlimitations- Sources of Economic History of British India.

Unit II

Indian Economy in the Mid-Eighteenth Century Nature and structure of economy – rural and urban- Agrarian and non-agrarian production – Technology and methods of Production-Trade and indigenousbanking.

Unit III

Early Phase of Colonial Economy Mercantilism and European economic interests in India – The EastIndia Company and its rule in Bengal-The Early Drain of Wealth and its mechanism, magnitude and effects.

Unit IV

Agrarian Settlements and Agrarian Production the Permanent Settlement – objectives, operations, effects and official critiques-Ryotwari Settlements and Mahalwari System-Commercialization of Agriculture andits impact.

Traditional Handicraft Industry and the question of De-Industrialization Artisans and Handicraft Product-Background-De-Industrialization-Capital and labour in handicraft industry.

Group-D, Modern India

M.A.-History, Semester-III

Colonial India (1757A.D.-1857A.D.)

Unit-I

Successor States and their Polity Debate on the 18th century
Emerging political rivalry between states Political patronage and European trade

Unit-II

European rivalry and the bid for political Power
Politics of Territorial Aggrandizement Foundation of East India Company's rule
British relations withMysore

Unit-III

Anglo-Maratha rivalry Anglo-Sikh
relationsColonial Rule and Early
Policies
Institutional changes (Revenue, Law, Administration, Education and Social legislation)

Unit-IV

Impact of colonial rule in India
Anti colonial protests before 1857 Making of
the revoltRevolt and its regional dimensions

Group-D, Modern India

M.A.-History, Semester-III

Peasant Movement in Modern India **MaximumMarks-100**

19-HIS- 305 GD

Unit-I

Historiography of the Peasant Movements in India; Definition of Peasants; Class Consciousness; Familyand kinship ties, Caste and Peasantry in India

Unit-II

Classification of peasants, Growth of modern landlordism - Commercialisation of agriculture & its impacton land relations.

Unit-III

Agrarian Conditions (1900-1947): Movements of prices, rent & revenue, british policies towards the landlords; Impact of First World War on Peasantry, Great Depression & Peasantry, the intensificationafter struggle for rent, relief & land; Peasant Movements - Champaran Satyagraha, Kheda Movement,Kisan Sabha, Moplah uprising.

Unit-IV

Peasant Movements (1928-1947): Baradoli agitation (1928), Peasant movements during the Civil Disobedience Movement (1930-1934), Formation of the first All India Kisan Sabha (1938), Peasantinvestment (1946-47), Telangana uprising, The National Movement and the Indian Peasantry.

Group-D, Modern India
M.A.-History, Semester-III

History of Health and Medicine in Colonial India

Unit– I

Towards Evolving a Policy of Public Health
Pre-colonial systems of preventive medicine and therapies, Early concerns about health, Potential sourcesof disease and epidemics and colonial medical intervention, Popular perceptions of and response to colonial medical intervention

Unit –II

Divergence and convergence
Colonial discourse on topical disease, Dialogue between western and indigenous medicines, Dialoguewithin indigenous systems, Resolving the issue of gender

Unit – III

Politicization of Health
Political economy of health, Public debate over health, Nationalist perspective, Political mobilizationagainst western medicine

Unit-IV

The Ayurveda tradition
Yunani healing and its
practitioners Vaids, hakims,
homoeopaths and doctors
Medical institutions: colleges, hospitals, pharmacies A visit to a healing/medical institution is part of thiscourse.

SemesterIV

Comman Paper

M.A.-History, Semester-IV

Research Methodology & Historical Investigation

Unit-I

Research Methodology **–** a brief introduction, objectivity, causation, generalization

Unit-II

Historical Investigation of Sources: archaeological and archival sources, primary sources and secondarysources, critical analysis of sources, how to read a historical book

Unit-III

Selection of theme, hypothesis, methods of data collection, arrangement of bibliography, footnotes/references, glossary & appendix.

Unit-IV

Making of Research Proposal; review of literature according to selected theme; Book Reviews: UrbanDecay in India by R.S. Sharma,
The Agrarian System of Mughal India:1556-1707 by IrfanHabib, Studies in Medieval Indian History andCulture by K.A. Nizami, From Lineage toState by Romila Thapar, History of Freedom Movement in India by Tara Chand, The Emergence ofIndian Nationalism by AnilSeal,

Group-A, Archaeology

M.A.-History, Semester- IV

Principles and Methods of Archaeology

Unit-I

Archaeology: meaning, definition, aim and scope; history of Indian archaeology fromupto1947; relationship of archaeology with natural and social science; the role of science inArchaeological research

Unit-II

Significance of pottery in archaeology; paintings, flora and fauna; early occurrence of Iron inIndia withspecial reference to PGW and NBPW sites.

Unit-III

Relative and absolute dating methods, recording of excavated finds, threedimensional measurements; preparation of section drawing, Drafting of excavating site andphotography, excavation and explorationtechniques
Metallurgy with special reference to Iron and Copper

Unit-IV

Chemical treatment and preservation of Archaeological finds, Threats to Archaeological sites,Archaeology and public awareness
A detailed study of sites: Farmana, Lothal, Kunal, Rakhigarhi, Shikarpur, Jalilpur

Group-A, Archaeology
M.A.-History, Semester- IV

Unit-I

Relationship of Archaeology with History
Northern Black Polished Ware Culture: extent, chronology and Characteristics Historical Urbanization
Significance of Pottery

Unit-II

Detailed study of the following excavated sites

Taxila
Rupar
Thanes
ar

Unit-III

Detailed study of the following excavated sites:

Hastinapu
r
Atranjikhe
ra
Kausambi

Unit-IV

Detailed study of the following excavated sites:

Vaishali
Nagarahuniko
nda Arikamedu

Group-A, Archaeology
M.A.-History, Semester- IV

Unit-I

Historical and Cultural importance of the following inscriptions:
Sarnath Buddhist Image inscription of the time of Kanishka I
(Regnal year 3)Nasik cave inscription of VasishthiputraPulumavi
(Regnal Year 19)
Girnar (Junagadh) Rock inscription of
Rudradaman IMathura Stone inscription of
Huvishka

Unit-II

Historical and cultural importance of the following inscriptions**:**
Allahabad Pillar Inscription of
Samudragupta Mehrauli Iron Pillar
Inscription of ChandraguptaBhitari Stone
Pillar Inscription of Skandagupta
Mandsor Pillar Inscription of YasodharmanVishnuvardhana (M.S. 589)

Unit-III

Historical and cultural importance of the following inscription**:**
Haraha Inscription of Isanavarman
Banskhera Copper-Plate Inscription of
HarshaAihole Inscription of Pulakesin-
II
Gwalior Inscription of Mihirabhoja

Unit-IV

Note: Inscriptions for decipherment into Devanagari/Roman script and Transliteration intooriginal script(in part or full):
Sarnath Buddhist Image inscription of Kanishka
(Regnal Year 3)Mathura Stone Inscription of Huvishka
(Year 28)
Nasik Cave Inscription of Yajna Satakarni
(Year 7)Mehrauli Iron Pillar Inscription of
Chandra

Group-A, Archaeology
M.A.-History, Semester- IV

Unit-I
Kushana Numismatics
Early Kushana Coins:
KujulaKadphisesSotermagus and
WimaKadphises Kushane
Sassanid Coins
KidaraKushana, Kota, PuriKushana Coins

Unit-II
Early Coins of South and Western India
Satavahana Coins
Western Kshatrapa
Coins
Roman and Byzantine Coins in South India

Unit-III Gupta Coins
Coins of Chandragupta- I and Kacha
GuptaCoins of Samundragupta
Coins of
Chandragupta-II
Coins of
Kumaragupta Coins
of Skanda gupta

Unit-IV
Early Medieval
CoinsHuna Coins
GurjaraPratihara
CoinsShahi Coins
Coins for Decipherment (Gold
coins only)Kushana Coins
Gupta Coins

Group-A, Archaeology

M.A.-History, Semester- IV

19HIS-405GA

Unit-I

History of antiquarian laws in India - Problems and implementation.

Unit- II

The Ancient Monuments and Archaeological Sites and Remains Act, 1958 - The AncientMonuments andArchaeological Sites and Remains Rules, 1959 - The Ancient Monumentsand Archaeological Sites and Remains (Amendment and Validation) Act, 1958.

Unit-III

The Indian Treasure Trove Act, 1878 - The Ancient Monuments Preservation Act, 1904. The Antiquities and Art Treasures Act, 1972 - The Antiquities and Art Treasures Rules,1973.

Unit- IV

Land Acquisition Act, 1894 - Public Premises (Eviction of unauthorized occupants) Act,1971 - PublicPremises (Eviction of unauthorized occupants) Rules.

Group-B, Ancient India
M.A.-History, Semester-IV

Political History 320 A.D. to 1200 A.D. **19 HIS-401 GB**

Unit-I
Gupta Empire &Vakatakas Empire
The rise of Gupta empire, Samunder Gupta achievements, administration of Guptas, politicsof matrimonyof Guptas, Chandragupta-II achievements and his policies; political system of Vakatakas rulers; origin and growth of Indian feudalism, urban decay

Unit-II
Post Guptas
Maukharis; achievements of Hunas; achievements of Harshvardhan; polity and administrationofChalukya, rise of Sri-KanthJanapad

Unit-III
Early Medieval India-I
Polity of Gurjara-Partihars, administration of Rastrukutas, polity of Pala rulers; tripartite struggle forKanauj

Unit-IV
Early Medieval India-II
Local self-government of Chola rulers; administration of Chauhan rulers; polity & administration ofGahadvals, Pallavas and Chandelas

Group-B, Ancient India
M.A.-History, Semester-IV

Knowledge and Culture in Ancient India

Unit-I

Genesis of Ancient Indian Knowledge

Cosmology of the Vedas – Growth of Astronomy, Calendar and Linguistics – Knowledge in the Sutra Literature – The World view of the Upanishads.

Development of Knowledge in a stratified Society

Buddhist and Jaina epistemology and Cosmology – Concepts of Dharma and Karma – Arthasastra and later concepts of State craft – Evolution of social philosophy – The Dharma Sastrs.

Unit-II

Evolution of Classical Philosophical systems

Roots of Classical systems – Contestations with Budhists, Jainas and Lokayatikas – Ritualism of Purva Mimamsa – Evolutionism of Samkhya and Yoga – Realism of Nyaya – Vaiseshika – Absolute Idealism of Advaita Vedanta.

Unit-III

Theoretical Concepts

Growth of logic – Anvikshiki – tarka, jalpa and vitanda – language and discourse – dhvani, rasa and sphota – cosmology – Jiva-atma – and loka – panchabhutas – padarthas – concepts of truth Laukika, Vyavaharika and paramarthika. V. Growth of science, technology and arts Technology of the Bronze Age and Iron Age cultures – Astronomy and Mathematics – Anatomy and medicine – Art and architecture – Natyasastra.

Unit-IV

Knowledge in South India and Others part of the World

Tolkappiyam and manual – contributions of Tiruvalluvar – linguistic and grammar – Temple culture and worship – the Agamas – Arts and Crafts.

Interaction of India with other parts of the world

Early interactions with West Asia – Babylonian astronomy and Romaka – PaulisaSiddhanta – interactions with China and Tibet, Srilanka and South-East Asia – Ancient Indian geographical concepts.

Group-B, Ancient India

M.A.-History, Semester-IV

Society, Culture and Religious Changes in Ancient India

Unit-1: Educational Changes**:**
Historiography;
Sources.
Educational System.
Major educational
Institutions. Impact of
Education in Society.

Unit-2: Religious Changes:
Evolution of Brahamanical Religion.
Spread and Schism- Vaisanavism, Shaivism.
Hetrodox Sects-Buddhism, Jainism-Emergence, Causes,
Teachings, Spread.Tantricism.

Unit-3: Cultural Changes:
Historiography; Sources.
Cultural Interaction between India and Asia with special Reference to South East and East Asia.Spread of Sastric-Epic-Puranic Ideas.
India in the accounts of the people from outside the subcontinent: The Periplus; Ptolemy's Geography;Hsuan-tsang'sSi-yu-kiand Alberuni'sKitabul Hind.

Unit-4: Major Themes:
Religious Beliefs and Social Stratification: A Study of Vedism.
Love and sexuality/pleasure- Human and divine love; Kama. Bhakti. Represention of love and sexualityin Literature.
Violence and non-violence- Killing, sacrifice and war. Violence in the public and private domains.Injuring animals and plants: Buddhist and Jaina environmental ethics.
Understanding Dynamics of Religion.

Session-2022-2023

Group-B, Ancient India

M.A.-History, Semester-IV

Historical Geography of Ancient India

Unit- I

Sources of ancient Indian historical geography and their importance: Archaeological and Literary

Unit-II

The main geographical divisions of India Himalyas, Eastern India, South India, Central India

Unit-III

Mountains and rivers.

Unit-IV

The countries, the people and the states.The cities and towns

Group-B, Ancient India
M.A.-History, Semester-IV

Science & Technology in Ancient India **19-HIS-405GB**

Unit-I
History of science and technology: meaning, definition and scope; sources of history ofscience and technology in ancient India; the developments of science and technology ofastronomy and mathematics

Unit-II
Science & technology in Harappan civilization: pottery technology, bronze metallurgy andbricks making;iron technology of megalithic age; ceramics- polished ware technology, PGWand NBPW and early writing style of Harappan; bead technology

Unit-III
Arthasastra as a tool of various knowledge's; Varahamihira as an astrologer and astronomer; Astronomy and mathematics special reference of Aryabhata and Bhaskaracharaya; Relationship and the developmentof medical knowledge of Greek (Yunani theory) andAyruveda (Indian theory)

Unit-IV
Metal technology: Harappan copper tools; coins minting; invention of iron plough and warsweaponsspecial reference of Maurya and Gupta age

Group-C, Medieval India
M.A.-History, Semester-IV

19HIS-401GC

Unit-I

Sources of Mughal History
Construction of Imperial
AuthorityLegitimacy and
Kingship

Unit-II

Relations with Rajputs
Zamindari Policy of the
MughalsMansabdari
System

Unit-III

aS) Provincial
GovernmentCentral
Government Nature of
Mughal

Unit-IV

Decline of Mughal and the Eighteenth Century
DebateModern Historiography on the Decline

Session-2022-2023

Group-C, Medieval India

M.A.-History, Semester-IV

Society & Culture of India (1526-1757 AD)

Unit-I

Babur's description of the social life of India **Social Structure**

Ruling class
Middle class
Peasantry
Women and Gender Relations

Unit-II

Bhakti Movement

Radical-DaduDayal
Traditionalist-
Tulsidas Woman
Bhakta-Meerabai
Impact of Bhakti Movement on Indian Society

Unit-III

Sufism Silsilahs

a) Qadri b) Naqshbandi State and the Ulemas

Unit-IV

Evolution of Akbar's Religious Ideas

From Orthodoxy to Liberalism Sulh-i-Kul
Tawhid-i-Ilahi
Muslim Orthodoxy and the Mughal state in the 16th and 17th Century

Group-C, Medieval India

M.A.-History, Semester-IV

Economic History of India (1526-1757 A.D.) **MaximumMarks-100**

Unit-I

Land Revenue System: Magnitude: Methods of Assessment, Mode of Payment; Other RuralTaxes andExaction
Categories of
PeasantsVillage
Community

Unit-II

Jagir System and its
crisisAgrarian Crisis
Ijara System
Madad-i-Maash Grants

Unit-III

Potentialities of Capitalists Development under the
MughalsUsuary
Dadni System
Role of Cash Nexus

Unit-IV

Industries and Mineral Resources
Trade and Commerce: Inland and
External TradeCentres of Large Scale
Production
Euro-Indian Trade: Merchants and Brokers

Group-C, Medieval India
M.A.-History, Semester-IV

Science and Technology in Medieval India **MaximumMarks-100**

Unit -1: Introduction:
Historiography.
Introduction to the History of Science and Technology.Traditions, Changes and Continuity.
Mughal Emperors and Science and Technology.

Unit -2: Development in Various Fields:
Technology in Agriculture.
Technology in Industry.
Military Technology.
Technology and every Day Life.

Unit -3: Spread and Development:
Health and Medicine; Beliefs and Practices; Concept of Pure, Impure, Sanitation and hygiene.Inventions and Innovations; Centres; Impact of Technological Development.
Dissemination of Knowledge; Agencies of Dissemination; Centres of Exchange; Indian Science andInteraction with the Arab World and with Other South Asian Countries.

Unit- 4: Medieval Science and Tehcnology and Literature:Sanskrit
Arabic and Persian
Vernacular Literature

Group-C, Medieval India

M.A.-History, Semester-IV

Art and Architecture in Mughal Period **MaximumMarks-100**

Unit-I

Early phases of Mughal Architecture; Akbar's buildings at Fatehpur Sikri; elements of change under Jahangir; crystallisation of Mughal style under Shah Jahan; Islamization of architecture under Aurangzeb;building decoration: Pietra dura, lattice work (Jali) and Ceramic Art.

Unit-II

Painting in North India before 1540; establishment of Shahi Qalam; emergence of new tradition underJahangir; response to European techniques and themes;

Unit-III

Growth of local styles: The dominance of Rajput painting; Fort, dance and music. Asiatic and IndianInffluence

Unit-IV

Pahari Paintings: Kangra, Basoli, and Garhwal

Group-D, Modern India

M.A.-History, Semester-IV

Political History of Independent India **MaximumMarks-100**

Unit– I

Emergence of Contemporary India: Adoption of the Constitution-salient features; Provisional Parliament,First General Elections and the Formation of Central and Provincial Governments, Structure of Democratic Institutions.

The Process of Nation-Building: Unity in Diversity and Diversity in Unity, Secularism, The Problem of Linguistic identity and the issue of official Language; The Reorganization of States; concerns for Tribal and Scheduled castes; Regionalism versus National integration; Development for Education, science andTechnology; Panchayati Raj and Community Development Projects.

Foreign Policy: The Initial years.

Unit–II

Political Parties: The Congress, the Left; Communal and Regional Parties; The Naxalites.

The Era of LalBahadur Shastri and Indira Gandhi, 1964-1977: Conflicts with Pakistan, 1965 and 1971; Origin of coalition politics and Governments; Politics in the States; Congress split 1969. The J. P. Movement and the Emergency.

The Janata Experiment and the Re-emergence of Indira Gandhi: Crisis in Janata Party; Revival of theCongress; The Punjab Crisis.

Unit –II

The Rajiv Gandhi Years: The vision of New millennium; Bofors and its Political implication; The issue ofBabri Masjid and Ram Janam Bhumi.

V.P. Singh and the National Front Government; Growth of caste politics and revival of communalism.

Unit-IV

Indian Economy: Five Year Plans; Zamindari Abolition; Ceiling and Bhoodan Movement; Mixed Economy, Grow More Food Campaign; Green Revolution; Agrarian unrest after independence; Economysince 1991.

Experiment with Coalition Government at the Centre.

Session-2022-2023

Group-D, Modern India
M.A.-History, Semester-IV

19HIS-402GD **MaximumMarks-100**

Unit I
Railways and Indian Economy Economic and political Compulsions-Effects on agrarian production andexport of raw material – commercialization of Agriculture-Famines and British policy.

Unit II
Large Scale Industry Modern industry in pre-1914 phase and post 1914 phase – its nature – main industries: cotton, jute, iron and Steel-Rise of industrial labour – labour force in large scale industry.

Unit III
Foreign Trade and Balance of Payments Changing nature of external Trade-Mercantilism, industrialcapital and finance Capital-Drain of Wealth and British overseas trade.

Unit-IV
The Fiscal System Shift from direct to indirect Taxation-Tariff and Excise-Monetary policies and creditsystem.
National Income and Population Movements of national income after 1858- 'De-Urbanization' Controversy-Population growth – Pre and Post-Census estimates.

Group-D, Modern India

M.A.-History, Semester-IV

Gender Studies in Modern India **MaximumMarks-100**

Unit-I

Introduction: Historiography of Gender Relations; Research Methodology; different perspective ofwomen in Ancient India; Socio-Cultural practices in Medieval India; Women in major religious traditions; structures of patriarchy.

Unit-II

Colonial Period: Impact of Social Reforms; Personal and Customary law; Impact of education; Economicposition; Formation of Women's Organizations; Women's struggle and participation in the National Movement.

Unit-III

Post Independence Initiatives: Role of the state in Empowering Women; Political Participation; Legalprovisions; Development of Women's Movement; Women's struggles for rights; Peasant and Dalit Women's Movements.

Unit-IV

Post Colonial Status: Education and change; Role of Women in Economy; Social Position; Violenceagainst Women; Images of Women in the Media; Continuity and change.

Group-D, Modern India

M.A.-History, Semester-IV

History of Caste and Caste Politics in Modern India MaximumMarks-100

Unit-I

Scope, concepts and method an introduction to the debates about caste; its historiography and the natureof power in society; The debate on the nature of hierarchies in society in India and the west; the caste- class conundrum; Presence of caste in the historiography of the national movement.

Unit-II

The period of the anti-colonial movements The "Indian renaissance" of the nineteenth century and the issue of caste; Manifestations of caste based exclusion; and protest against caste discrimination in the 19th and early 20 th century; Efforts and inclusions based on caste during the national movement.

Unit-III

Creation of a formal infrastructure for social inclusion and its working Caste and the constitution of 1950;Antinomies in operationalising the constitutional provisions; and State sponsored social and economic welfare schemes for the upliftment of the people in a plural society; The Mandal Commission of 1979, ananalysis of its recommendations; and the social and political impact on politics in modern India.

Unit-IV

The democratisation of India's polity since the 1960s Politicisation of caste in the electoral arena, 1950- 1967; the rise to power of regional parties; and their caste based successes; The politics of inclusion andits impact on national integration.

Group-D, Modern India
M.A.-History, Semester-IV

History of Indian Cinema **MaximumMarks-100**

Unit I: Beginning of Cinema in India**:**
Historiography;
Sources.
Theorizing Films.
Beginning-Tool, Technique and Idea in the Ist Decade of
Indian Cinema.Maker of Indian Cinema-Dada Saheb Phalke.

Unit II: Indian Cinema during Imperial Rule:
Thematic Development-Mythology, Patriotism, Romance and Violence.
British Policy on Indian Cinema-Laws, Censorship and Freedom of
Expression.Talking Film, Changing Technique and Growing
Impact.

Unit-III: Post Independent Development:
The Troika of Bollywood-Dilip Kumar, Raj Kapur and Devanand.
History of Parallel Cinema-Theme, Directors, Budget, Response
and Impact.Women in Indian Cinema.
Stardom, Glamour, Industries and the Popular
Psyche. Mughal-e-Azam, Mother India, Sholay,
Lagaan and Satya.

Unit-IV: Development of Regional Film Industries:
South Indian Film Industry-Malyalam, Tamil, Telgu and
Kannada.Bengal Film Industry.
Marathi Film Industry.
Other Regional Film Industries-Oriya, Assamese and Bhojpuri.

Course outcomes M.A.POL SCIENCE

M.A. POLITICAL SCIENCE

SEMESTER-I

Public Administration –I
23POL104

MaximumMarks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs.

Note: *There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.*

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-104.1 Understand the basic concepts and principles of Public Administration.
23POL-104.2 Comprehend various approaches to the study of Public Administration and theories of Organization..
23POL-104.3 Understand basics of organizational theories of Leadership and Motivation.
23POL-104.4 Comprehend the role of Executive Judiciary and legislative in Public Administration and tools of accountability in Public Administration.

M.A. POLITICAL SCIENCE
SEMESTER-I

International Relations –I
23POL103

MaximumMarks-100
External Examination-80
Internal Assessment-20
Max. Time- 3 Hrs.

Note: ***There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.***

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-103.1 Have broad understanding of dynamic nature of internationals relations, its key concepts and types of international system.

23POL-103.2 Acquire a comprehensive knowledge of mainstream theories that have shaped and influenced international relations and assess the relevance of these theories in the present context.

23POL-103.3 Identify the concepts and core features of different contemporary theories in international relations.

23POL-103.4 Acquire cognitive and analytical skills to apply theories to the question of international politics in practice.

M.A. POLITICAL SCIENCE
SEMESTER-I

Research Methodology -I
23POL105

MaximumMarks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs

Note: *There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.*

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-105.1 Understand the meaning, nature, types and methods of Research in Social Science.
23POL-105.2 To know about Hypothesis and Research Design.
23POL-105.3 Grasps various method of Sampling in Research.
23POL-105.4 Examine sources of Data and tools of collection of Data.

Unit I

M.A. POLITICAL SCIENCE
SEMESTER-I

Geopolitics and World Affairs
23POL-106 (Optional-I)

MaximumMarks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs

Note: *There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.*

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-106(I).1 Understand the historical evolution of Geopolitics, imagination and visualization of world and chronology of Geopolitics from Imperical to "New World Order".

23POL-106(I).2 Identify Twenty First Century Geopolitics and Geopolitical visions U.S.A, Russia, India and Pakistan.

23POL-106(I).3 Comprehend the views of global strategic thinkers.

23POL-106(I).4 Acquire a deeper knowledge of geopolitical significance of Asian region.

M.A. POLITICAL SCIENCE
SEMESTER-I

Public Policy in India
23POL-106 (Optional-II)

MaximumMarks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs.

***Note:** There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.*

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-106(II).1 Understand the concept, characteristics and significance of Public Policy.
23POL-106(II).2 Comprehend the various approaches and models to the study of Public Policy.
23POL-106(II).3 Understand the role of organizations in policy making process.
23POL-106(II).4 Know about current policies in India.

M.A.-POLITICAL SCIENCE
SEMESTER-II

Western Political Thought-II
23POL201

Maximum Marks-100
External Examination-80
InternalAssessment-20
Max.Time- 3Hrs.

Note: ***There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.***

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-201.1 Assess the political ideas of G.W.H. Hegel and T.H. Green.

23POL-201.2 critically examines the thoughts of Karl Marx and Mao Zedong.

23POL-201.3 Have a comprehensive understanding of the political concepts of Antonio Gramsci and Rosa Luxemburg.

23POL-201.4 Know the contemporary political thoughts of John Rawls, Michel Foucault and Hannah Arendt.

M.A.-POLITICAL SCIENCE
SEMESTER-II

Indian Government and Politics-II
23POL202

Maximum Marks-100
External Examination-80
InternalAssessment-20
Max.Time- 3 Hrs.

Note: ***There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.***

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-202.1 Understand the election system and voting behavior in Indian democracy.

23POL-202.2 Have in depth knowledge of party system and nature of coalition politics in India.

23POL-202.3 critically analyses the role of national commissions to uplift the depressed classes and fulfillment of social justice.

23POL-202.4 Understand the social factors on Indian political system and effects of globalization on political economy in India.

M.A.-POLITICAL SCIENCE
SEMESTER-II

International Relations –II

23P0L203

MaximumMarks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs

Note: *There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.*

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-203.1 Understand the nature, types and elements of power and depth knowledge of international law.

23POL-203.2 Equip them to understand Cold War politics and Post-Cold War world order.

23POL-203.3 Develop the skill to analyses the role of international and regional organizations in world politics.

23POL-203.4 Understand the idea of Human Security and political debates related to the new aspects in a changing world.

M.A.-POLITICAL SCIENCE
SEMESTER-II

Research Methodology –II

23POL205

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max. Time- 3 Hrs.

Note: ***There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.***

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-205.1 Have depth knowledge of Editing, Codification and presentation of Data.

23POL-205.2 Understand the techniques of Data presentation and the analysis of Data.

23POL-205.3 Understand use of statistical technique and Computer in research work.

23POL-205.4 Develop the skill to present Data and learn how to write a Research Report, Research Paper and to know about research ethics.

M.A.-POLITICAL SCIENCE
SEMESTER-II

International Political Economy
23POL-206 (Optional-I)

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max. Time- 3 Hrs.

Note: ***There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.***

Course Correction:

After the completion of this course, the students would be able to:

23POL-206 (I).1 Understand the concept of International Political Economy (IPE).

23POL-206 (I).2 Have deeper knowledge of theoretical aspects of Political Economy and global economic institutions.

23POL-206 (I).3 Understand the international trade & international alignments with environment governance.

23POL-206 (I).4 Know global movements, North-South Dialogue and the idea of global justice.

M.A.-POLITICAL SCIENCE

SEMESTER-II

Public Administration –II
23POL204

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max. Time- 3 Hrs.

***Note:** There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eightshort answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.*

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-204.1 Comprehend the basics of personnel administration and the process of recruitment, training and conduct of Civil Services.

23POL-204.2 Understand the concept and different types of Budget and budgetary process in India.

23POL-204.3 Have depth knowledge of administration laws and administration reforms.

23POL-204.4 Understand policy making and implementation of public policy & role in nation-building.

Unit-I

M.A.-POLITICAL SCIENCE
SEMESTER-II

Parties, Election & Political Process in India
23POL-206 (Optional-II)

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max. Time- 3 Hrs.

Note: *There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks. Question Paper will be set in Hindi and English Languages.*

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-206 (II).1 Understand different typology of Political Parties in India.

23POL-206 (II).2 Comprehend the role and working of Political Parties and the issue of Coalition Politics and Regionalism in Indian Politics.

23POL-206 (II).3 Evaluate the bases of Political Parties and their performance in electoral process.

23POL-206 (II).4 Understand the origin and development of Regional Parties, voting behaviour & election reforms in India.

M.A.-POLITICAL SCIENCE
SEMESTER-III

Contemporary Political Theory
23POL-301

Maximum Marks -100
External Examination-80
Internal Assessment-20
Max. Time- 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-301.1 Understand the concept of Political Theory from ancient to modern era.

23POL-301.2 Comprehend the relevance of contemporary theories & Political Ideologies.

23POL-301.3 Understand the different types of State and the idea of Sovereignty.

23POL-301.4 Acquire a deeper understanding of the different theories of Democracy.

M.A POLITICAL SCIENCE

SEMESTER-III

Comparative Politics and Political Analysis –I

23POL-302

Maximum Marks -100
External Examination-80
Internal Assessment-20
Max. Time- 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes:

After the completion of this course, the students would be able to:
23POL-302.1 Comprehend the meaning and evolution of Comparative Politics & various approaches to study Comparative Politics.
23POL-302.2 Develop an understanding about the idea of Constitutionalism along with other concepts i.e. Rule of Law & Separation of Powers.
23POL-302.3 Understand the various forms of Governments in U.K., USA, France and India.
23POL-302.4 Compare and assess different organizations of the governments of U.K., USA and France.

M.A POLITICAL SCIENCE

SEMESTER-III

Indian Political Thought -I
23POL-303

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes: After the completion of this course, the students would be able to:
23POL-303.1 Have in depth knowledge and understanding of ancient Indian political thinkers like Kautilya & Gautam Buddha & relevance of ancient Indian texts i.e Shantiparva, Manusmriti.
23POL-303.2 Develop a comparative understanding of political thoughts of Guru Nanak Dev, Kabir and Barani.
23POL-303.3 Identify the key ideas of Swami Vivekananda, Swami Dayananda Saraswati and Sri Aurobindo Ghosh.
23POL-303.4 Develop an understanding of the ideas of Rajaram Mohan Roy, Jyotiba Rao Phule and Pandita Rama Bai.

M.A POLITICAL SCIENCE
SEMESTER III

India's Foreign Policy
23POL-304

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes: After the completion of this course, the students would be able to:

23POL-304.1 Possess the knowledge of key principles and objectives of India's foreign policy and how it is shaped by domestic and external factors.

23POL-304.2 Explore the different institutions involved in the making of foreign policy of India and also to comprehend the intricacies of making of India's foreign policy.

23POL-304.3 Understand relation of India's foreign policy and global economic institutions and evaluate the role of institutions i.e. W.T.O., I.M.F. and World Bank.

23POL-304.4 Examine the new security challenges and to know about India's Nuclear Policy.

M.A POLITICAL SCIENCE
SEMESTER III

HUMAN RIGHTS & DUTIES –
23POL-305 (Option-1)

Maximum Marks-10
External Examination- 8
Internal Assessment-2
Max. Time- 3 Hrs

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes: After the completion of this course, the students would be able to:

23POL-305(i).1 Understand the basics of Human Rights and the role of state in protection of Human Rights.

23POL-305(i).2 Know the relationship between Human Rights and Duties & UNESCO Declaration, U.N. Article -29.

23POL-305(i).3 Understand Magna Carta, British & American Bill of Rights, Slogans of French Revolution and Asian values.

23POL-305(i).4 Understand the role of UN in Protection of civil, political, economic, social and cultural rights.

M.A POLITICAL SCIENCE

SEMESTER III

DEFENCE AND SECURITY STUDIES (THEORITICAL ASPECTS) - 1

23POL-305 (Option-2)

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes: After the completion of this course, the students would be able to:

23POL-305 (ii).1 Understand the basics of Defence and Security along with the security concerns of major powers.

23POL-305 (ii).2 Know the strategic thoughts of Sun Zu, Kautilya, Clausewitz and K. Subrahmanyam.

23POL-305 (ii).3 Comprehend various causes and consequence of War and theories of War.

23POL-305 (ii).4 Understand the psychological factor of war and concept of cyber security at national and global level.

M.A POLITICAL SCIENCE
SEMESTER III

Nationalism: Theory and Context
23POL-306 (Option-1)

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs.

Note: There shall be nine questions in all. Question no. I consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes: After the completion of this course, the students would be able to:

1. Understand the meaning of Nation-State and origin & development of Nationalism, various forms of Nationalism.
2. Comprehend various approaches to the study of Nationalism and theories of Nationalism.
3. Understand the views of Indian Nationalist thinkers.
4. Acquire the deeper knowledge of Colonialism, decolonialism and post-colonialism and the concept of Globalisation.

M.A POLITICAL SCIENCE
SEMESTER III

Political Sociology with Special Reference to India
23POL-306 (Option-II)

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes:

After the completion of this course, the students would be able to:

23POL-306 (ii).1 Understand the nature and scope, historical development of Political Sociology.

23POL-306 (ii).2 Comprehend the theories of Marx, Weber and L. Dumont on social stratification.

23POL-306 (ii).3 Understand the theories of conflict formation and caste and communal conflicts.

23POL-306 (ii).4 Acquire the knowledge about the role of farmer, labour and pressure groups in political sociology.

M.A. POLITICAL SCIENCE
SEMESTER-IV

Political Theory-II
23POL-401

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes: After the completion of this course, the students would be able to:

23POL-401.1 Understand the concept of Negative and Positive Liberty by different theorists.

23POL-401.2 Have a comprehensive understanding of various ideologies like Nationalism, Multi-culturalism, Fundamentalism and Socialism.

23POL-401.3 Have a broad understanding of Rights and Duties & their relationship and know about them through Gandhian, Communitarianism & Conservatism perspective.

23POL-401.4 Understand the concept of Justice & critically examine John Rawls's conception of justice by Marxists, Liberals and Feminists.

Course Title: Communication Skills

Course Code: 23ENG100
Contact Hours (L-T-P): 2-0-0
Credit: 2

Maximum Marks: 100
External evaluation: 50 (Theory paper)
External evaluation: 30 (Viva Voce/Presentation)
Internal Assessment: 20

Course Objectives:

1. To familiarize the students with the nature and importance of communication
2. To orient the students towards theory and practice of communication skills
3. To impart knowledge of common courtesies and conversational practices
4. To acquaint the students with positive attributes of personality

Course Outcomes:

1. Students would be able to understand the nature and importance of Communication Skills.
2. Students would gain knowledge of common courtesies and conversational practices in various situations.
3. Students would be acquainted with the knowledge of skills necessary for Personality Development.
4. Students would be able to demonstrate the skills and knowledge of effective communication.

M.A POLITICAL SCIENCE
SEMESTER-IV

Comparative Politics and Political Analysis-II
23POL-402

Maximum Marks-100
External Examination-80
Internal Assessment-20
Max.Time- 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes: After the completion of this course, the students would be able to:

23POL-402.1 Understand the concept of Political Modernism, Political Socialization, and Political Obligation & Political Development.

23POL-402.2 become familiar with the concept of Political Elite, Democracy, Bureaucracy & also understand different types of Regimes.

23POL-402.3 Compare and assess the role of Political Parties, Pressure Groups, Civil Society and Social Movements.

23POL-402.4 Have deeper knowledge of challenges to the Democracy & to become familiar about Judicial and Electoral Reforms.

M.A. POLITICAL SCIENCE
SEMESTER IV

Indian Political Thought-II
23POL-403

Maximum Marks-100
External Examination-80
Internaal Assessment-20
Max.Time- 3 Hrs.

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes: After the completion of this course, the students would be able to:

23POL-403.1 Have a depth knowledge and understanding of radical thinkers i.e. Lala Lajpat Rai, Bal Gangadhar Tilak and Bipin Chandra Pal.

23POL-403.2 Develop an understanding about the political ideas of V.D. Savarkar and Subhash Chander Bose.

23POL-403.3 Identify and describe the key ideas of Mahatma Gandhi, Dr. Bhim Rao Ambedkar and Deen Dayal Upadhyaya.

23POL-403.4 Develop an understanding of the political & socialist ideas of Jai Prakash Narayan and Ram Manohar Lohia.

M.A Political Science
Semester-IV

India and the World
23POL-404

Maximum Marks –100
External Marks–80
Internal Assessment –20
Time – 3Hrs.

Note: There shall be nine questions in all. Question no. 1 consisting of eight short answer type questions covering the entire syllabus shall be compulsory. Two questions will be asked from each unit. Student will have to attempt one question from each unit. All questions shall carry equal marks. Question Paper will be set in Hindi and English Languages.

Course Outcomes: After the completion of this course, the students would be able to:
23POL-404.1 Have a broad understanding of India's Relations with Pakistan, China, Sri Lanka and Bangladesh.
23POL-404.2 Acquire Comprehensive knowledge of India's Post-Cold War relations with U.S.A., Russia, U.K. and Japan.
23POL-404.3 Identify original and core featured of Regional organizations like E.U., SAARC, BRICS and BIMSTEC.
23POL-404.4 Acquire deeper knowledge about the role of United Nations in a changing world and to know about India's relations with West Asian countries, South-East Asian countries.

M.Sc. (Geography) Outcomes (Course)

C.O.

M.Sc. Geography Semester I

19 GEO 101 Geomorphology

Objective: The course aims to familiarize the students with the need for understanding of geomorphology with reference to certain fundamental concepts, focusing on the unity of geomorphology in the earth materials and the processes with or without an element of time. A few selected applications of geomorphology to societal requirements and quality of environment are also dealt with in the course.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked

from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Fundamental Concepts in Geomorphology

Geomorphology: Nature, Scope & Concept. Basic Principal of Geomorphology, Climatogenetic Geomorphology, Concepts of Threshold & Magnitude. Recent trends in geomorphology.

Unit II: Earth interior & Dynamic Forces

Continental drift theory and its basic considerations; Plate tectonics – Plate margins and boundaries, movement and distribution of plates, tectonic activities along the boundaries. Earthquake – causes, classification, intensity and magnitude, geographical distribution. Volcanism – mechanism and causes, classification and geographical distribution. Classification of geomorphic Processes: Exogenetic Processes, Endogenetic processes – Faulting, folding and their geomorphic expressions.

Unit III: Exogenetic Processes

Exogenetic Processes –Weathering: Causes, type of weathering: mechanical, chemical and biological; rock weathering and soil formation. Mass wasting: causes, classifications and types of mass movement- slow and rapid mass movements, Hillslope analysis: techniques and theories, mode and rate of slope retreat.

Unit IV: Applied Geomorphology

Applied geomorphology: meaning and concept; role of geomorphology in environmental management, Geomorphic processes and resulting landforms: Fluvial, Glacial, Aeolian and Karst.

M.Sc. Geography Semester I

19 GEO 102 Economic Geography

Objective: The basic aim of this course is to provide the basic understanding of nature & scope of economic geography with reference to the economic development, structure and role of world trade blocks in globalizing world.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Nature & Scope in Economic Geography

Economic Geography: Definition, nature, scope and approaches; Relationship of economic geography with economics and other branches of social sciences; World Economies: bases of classification, patterns and characteristics of developed and developing economies of the world.

Unit II: Functional Classification of Economic Activities

Functional Classification of Economic Activities: Primary, Secondary, Tertiary activities, Knowledge & Quaternary. World production and distribution of energy resources: coal and

petroleum. World production and distribution of mineral resources: iron ore and bauxite.

Unit III: Network Structure and Economic Activities

Network structure and economic activities, impact of transport on economic activities, Classification of industries: Resource based and footloose industries. Theories of industrial location - Ullman, Weber, Isard and Losch.

Unit IV: Concept of Economic Growth and Development

Concept of economic growth and development, globalization and pattern of economic development,Emergence of a new global economy – transnational integration and its spatial outcomes. Major regional trade blocks of the world, free trade initiatives (GATT, UNCTAD, WTO).

M.Sc. Geography Semester I

19 GEO 103 Geography of India

Objective: The basic aim of this course is to provide understanding about the location and geographical dimensions of India with detailed elaborations of physiography, climatic conditions, social composition, economic development and regionalization of India.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Physical Structure

India: size, shape and location. Unity in Diversity; Geological structure and relief, drainage system, climatic conditions, Soil and natural vegetation - Distribution, characteristics and conservation.

Unit II: Population Characteristics & Social Composition

Population distribution and growth, age and sex composition; literacy rate and differentials; Ethnic groups; linguistic and religious groups in context of unity in diversity in India. Features of Urbanization.

Unit III: Distribution of Resources and Economy

Economy: main features and problems of Indian agriculture, Green, white, blue and yellow revolutions; Regional distribution of major minerals and power resources – iron ore, mica, bauxite, copper, coal, petroleum and natural gas. Industrial Regions; New Industrial Policy; Problems and prospect of transportation with reference to railways, roadways, waterways, airways and pipelines.

Unit IV: Regionalisation of India

Region of India: D. Stamp, Desh Pandey ;Geographic region of India by R.L. Singh, Prakasha Rao & Ashok Mitra; .Economic & Planning Region of India: P. Sengupta, Economic region of India, Resources region of India, Development & Planning region of India.

1. Dixit K R, Ramprit K and Dixit J K (2014) North-East India: Land, People and Economy, Springer.

2. Spate O H K (1979) India and Pakistan – A General and Regional Geography, Methuen and Co., London.

M.Sc. Geography Semester I

19 GEO 104 Statistical Methods in Geography

Objectives: The course aims to provide understanding to the students about the nature and types of data; and to provide the basic understanding of application of statistical tools & technique for analyzing the Spatial Data.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Descriptive Statistics : Tools & Techniques

Geography and statistics, significance of statistics in geographical studies. Descriptive statistics: tabulation and graphical representation of data. Measures of central tendency: mean, median and mode. Partitioned values: Quartiles and deciles. Comparing the mean, median and mode.

Unit II: Measure of Dispersion

Measure of dispersion: absolute measure; Range, quartile deviation; mean deviation and standard deviation. Relative measure of dispersion: coefficient of variation. Measures of inequality: location quotient and Lorenz curve.

Unit III: Bivariate Analysis

Bivariate analysis: scatter diagram, correlation analysis, Spearman's rank correlation and Karl Pearson's correlation coefficient. Test of significance: Chi-square test, student's T-test, F-test.

Unit IV: Regression Analysis

Simple linear regression model: regression equations, construction of regression line, computation of residuals and mapping. Basis of multivariate analysis: correlation matrix, partial and multiple correlations. Measure of composite Indices (Scale Biasness weightage, Z Score and Principal Component Analysis).

M.Sc. Geography Semester I

19 GEO 105 Cartography and Morphometric Analysis (Theory)

Objective: The basic aim of this course is to provide basic understanding of Cartography, Thematic mapping & to provide the training for spatial Data Analysis.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Nature and Scope of Cartography

Nature and scope of Cartography, Historical evolution, Development and Recent advancements in cartography, Types and characteristics of distribution maps:
(i) Chorochromatic (ii) Choroschematic (iii) Isopleth (iv) Choropleth (v) Dot and (vi) Diagrammatic.

Unit II: Statistical Diagrams & Their Classification

Types and characteristics of statistical diagrams: (i) One dimensional (bar, line), (ii) Two dimensional (circular, rectangular, square), (iii) Three dimensional (block, sphere, cube) and (iv) Other diagrams (Snail, pyramid, flow diagram/cartogram). Characteristics of graph/diagrams/maps representing climatic data: (i) Rainfall deviation, (ii) Climograph (Taylor and Foster), (iii) Hythergraph, (iv) Star/Wind rose diagram (v) Isopleths (vi) Line and bar (vii) polygraph.

Unit III: Interpretation of Topographical Sheets

Arrangement, identification and interpretation of topographical sheets of India; Delineation of drainage basin and its geographical significance; Profile: Transverse and longitudinal; Drainage network analysis: Linear and areal properties; Relationship between stream order, number and length.

Unit IV: Analysis of Drainage Basin

Relief aspect of drainage basin: (i) area-height curve, (ii) Altimetric frequency curve, (iii) Hypsographic curve, (iv) Hypsometric integral curve and (v) Clinographic curve. Development of slope and various methods of its analysis (Wentworth and Smith's method).

M.Sc. Geography Semester I

19 GEO 106 Cartography (Practical)

Objective: The aim of the course is to apprise the students with latest trends in the development of cartography as a tool in mapping thematic and quantitative data to facilitate spatial analysis and synthesis, and to provide training in application of modern tools and techniques to data in a variety of regional studies at local, regional and national levels.

Note: The examiner shall set six questions, two from each unit. The candidate shall attempt three questions/exercises in all, selecting at least one question/exercise from each unit.

Unit I: Representation of Climatic Data

Climate data representation by diagrams and maps:

- Line and bar graph (1)
- Poly graph (1)
- Rainfall deviation diagram (1)
- Climograph (Taylor and Foster's) (2)
- Hythergraph (1)
- Isopleth (1)
- Wind rose diagram (1)

Unit II: Graphical Representation of Socio-Economic Data

Diagrams: Types and properties of diagrams representing socio-economic data:

One dimensional diagram
Bar diagram: Simple bar (1),
Multiple bar (1),
Comparative bar (1)
Two dimensional diagrams – Pie diagram, Proportional circle (1).
Three dimensional diagrams – Sphere (1)

Unit III: Spatial Representation of Socio-Economic Data

Distribution maps
- Dot method (1)
- Choropleth – monovariate (1) and bivariate (1)

Miscellaneous diagrams and graphs
- Trend graph (1)
- Age and Sex pyramid (1), Snail Diagram (1).
- Flow diagram, cartogram and accessibility maps (2).

M.Sc. Geography Semester I

19 GEO 107 Morphometric Analysis (Practical)

Objective: The aim of the course is to apprise the students with latest trends in the development of cartography as a tool in mapping thematic and quantitative data to facilitate spatial analysis and synthesis, and to provide training in application of modern tools and techniques to data in a variety of regional studies at local, regional and national levels.

Note: The examiner shall set six questions, two from each unit. The candidate shall attempt three questions/exercises in all, selecting at least one question/exercise from each unit.

Unit I: Interpretation of Toposheets

Interpretation of toposheets: (a) Physical features and (b) Cultural features (2)
Delineation of Watershed (All the exercises of morphometry shall be based on delineated watershed) (1)
Profile Analysis: Transverse and Longitudinal

a. Serial Profiles (1)
b. Superimposed Profiles (1)
c. Composite Profiles (1)
d. Projected Profiles (1)
e. Longitudinal or valley Thalweg Profile (1)

Unit II: Linear Aspects of Streams

Linear Aspects of streams:

a. Relationship between stream order and stream Number (1)
b. Relationship between stream order and Average stream length (1)
c. Bifurcation ration (1)

Areal Aspects of streams:

a. Drainage Frequency (1)
b. Drainage Density (1)

Unit III: Relief & Slope Aspect

Relief & Slope Aspect

a) Area Height Curve (1)
b) Altimetric frequency curve (1)
c) Hypsographic Curve (1)
d) Hypsometric Integral Curve (1)
e) Clinographic or clinometric curve (1)

Slope Analysis

a) Wentworth's Method of Average Slope (1)
b) G. H. Smith's Method of Relative Relief (1)

M.Sc. Geography Semester I

19 GEO 108 Academic Writing and Communication Skills

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Internal Assessment will be a continuous evaluation process on the basis of the students' expression of effective communication skills through participation in activities like presentations, group-discussions, mock-interviews, etc.

Unit I

Human Communication, Verbal and Non Verbal Communication, Barriers to communication; the seven C"s of effective communication. Preparing for interviews, CV/ Biodata, Group Discussion, Public Speaking, Mass Communication.

Unit II

Greeting and Introducing, Making Requests, Asking for and Giving Permission, Offering Help, Giving Instructions and Directions, Art of Small Talk, Participating in Conversations, Making a Short Formal Speech, Describing People, Places, Events and Things.

Unit III

Understanding Telephone Communication: Types of Calls, Handling Calls, Leaving a Message, Making Requests, Asking for and Giving Information, Giving Instructions, Agreeing and Disagreeing, Making or Changing Appointments, Reminding, Making Complaints and Handing Complaints, Telephone Etiquette.

Unit IV

Personality Development Skills: Personal Grooming; Assertiveness; Improving Self-Esteem; Significance of Critical Thinking; Confidence Building; SWOC analysis. Emotional intelligence: Recognizing and Managing Emotions and Situations; Stress and Anger Management; Positive Thinking; Developing Sense of Humour.

Semester-II

M.Sc. Geography Semester II
19 GEO 201 Geographical Thought

Objective: The course aims to enlighten the students to the philosophical and methodological foundations of the subject and its place in the world of knowledge and to familiarize them with the major landmark development in geographical thoughts at different time periods and dualism in geography.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Geography in the Realm of Knowledge

Place of Geography in the realm of knowledge, Geography as a science and its relationship with other science, Significance of space, place and location in geography. Explanations in Geography: Methodological and philosophical settings.

Unit II: Evolution & Development of Geographical knowledge

Development of Geographical knowledge during ancient (Greek and Roman) and medieval (Arab) periods, Foundation of Modern Geography- Varenius, Kant, Humboldt and Ritter.

Unit III: Dualism in Geography

Concepts of Modern Geography- chorology, landscapes, areal differentiation, environmental determinism and possibilism. Dualism in Geography: Physical vs Human Geography and Systematic v/s Regional Geography.

Unit IV: Recent Trends & Post-Modernism Geography

Quantitative Revolution and Emergence of theoretical geography, Positivist Explanations in Geography - Laws, theories, models, Inductive & deductive logic. Behavioural and Humanistic Perspectives in Geography, Social Relevance in Geography – Welfare, Radical and Feminist Perspectives, Postmodernism and Geography.

M.Sc. Geography Semester II
19 GEO 202 Climatology

Objective: The basic aim of this course is to foster comprehensive understanding of atmosphere, its evolution, characteristics, circulation and associated climatic phenomena, dynamics of global climates, recent climate change.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Nature & Scope of Climatology

Climatology: Definition, nature and scope; Climatology and Meteorology. Atmosphere: composition and structure. Insolation: Solar radiation and terrestrial radiation, latitudinal and seasonal variations; Effects of atmosphere: green house effect, heat budget and latitudinal

heat balance. Temperature: Processes of heat energy transfer, heating and cooling of atmosphere, horizontal and vertical distribution, inversion of temperature.

Unit II: Atmospheric Circulation

Atmospheric pressure: measurement and its distribution pattern – vertical, horizontal and seasonal variations. General circulation: planetary, geostrophic, subtropical, westerlies and polar winds, tricellular meridional circulation, walker circulation-ENSO and La Nina; Circulation pattern in vertical and horizontal planes. Origin of monsoon and jet streams.

Unit III: Atmospheric Dynamic Process

Atmospheric moisture: sources of atmospheric moisture; types and distribution of humidity and evaporation. Condensation: conditions, forms and types. Precipitation: process, form, types and distribution. Atmospheric equilibrium: stability and instability. Adiabatic process of temperature change, lapse rate: dry and wet adiabatic rate.

Unit IV: Climate Change & its Classification

Air masses: definition, characteristics, modification and classification. Fronts: frontogenesis, frontlysis and classification. Atmospheric disturbances: extra tropical and tropical cyclones, their origin and associated weather, thunderstorms, tornadoes and waterspouts. Climatic classification: Bases of climatic classification by Koppen and Thornthwaite. Climatic changes – Evidences; Theories of Climate Change: - Milankovitch Cycle, Atmospheric Dust Hypothesis, Carbon Dioxide Theory and Astronomic Theory of Climate Change.

M.Sc. Geography Semester II

19 GEO 203 Agricultural Geography

Objective: The basic aim of this course is to provide fundamental understanding about concept, origin and development of agriculture; along with recent dynamics, contemporary issues and challenges faced by the agrigarian system and communities.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Agricultural Geography: Definition, Nature & Scope

Agricultural Geography: Definition, nature, scope and significance; Approaches: commodity, systematic, and regional; Origin and dispersal of agriculture; gene-centres of agriculture; Determinants of agricultural patterns: physical, technological and cultural factors.

Unit II: Concepts Classification of Land Capability

Concepts of land capability classification (India), Land use survey and Classification (British and Indian), land use and cropping pattern; Agricultural concept and their measurement- (a) intensity of cropping, (b) degree of commercialization, (c) diversification and specialization, (d) agricultural efficiency and productivity, (e) crop combination and concentration; Von Thunen Model of agricultural land use.

Unit III: Concept of Agricultural Regionalisation

Agricultural Regionalisation: Concept and criteria, Whittlesey's agricultural systems; and agricultural typology by Kostrowiki; Agro-climatic zonation: Concept and agro-climatic regions of India. Agricultural regions of India, Regional imbalances in agricultural productivity in India. Green revolution: Its impact and consequences in India.

Unit IV: Contemporary Agriculture Issues & its Impacts

Neo-liberalization and Indian agriculture; Food Security: Concept and components, Food Security in India; Contemporary Issues: Food, nutrition and hunger, food security, drought and food security, food aid programmes; environmental degradation, New Perspectives in Agriculture: Urban agriculture, Contract Farming, Agri-business, Sustainable Agricultural Development; Agriculture and climate change: Impacts and adaptation, role of irrigation.

M.Sc. Geography Semester II

19 GEO 204 Population and Settlement Geography

Objective: The basic aim of this course is to provide fundamental understanding about population, its distribution, structure and composition. Along with this course also provide an idea for settlement, evolution, types and its association with population geography.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Scope of Population Studies

Evolution of Population Geography, Scope and content of population geography, Sources of data and Nature of data. World population distribution and growth with respect to stages of demographic transition. Population growth, distribution and trend with respect to India at sub-national level.

Unit II: Population Structure

Age-sex structure, Overall sex ratio, child sex ratio, sex ratio at birth, elderly sex ratio and their temporal trend and spatial pattern in India, Phenomenon of ageing population.

Population Dynamics: Fertility, mortality and migration- Basic measures, spatial and temporal trends. Socio-cultural (Literacy and education, religious composition; rural-urban residence).

Unit III: Settlement Geography

Definition and Scope of settlement geography. Locational Aspects- Site, Situation, Characteristics (Size, Pattern, Shape, Functions), Distribution – Density, Spatial Distribution Pattern and Methods of Analysis of Distribution.

Unit IV: Settlement Types and Functions

Settlements Types based on Site, Situation, Population size and functions. Spatial and Temporal trends in size and growth of settlements with special reference to India, Functions of Settlements- Rural/ Urban Distribution. Empirical and theoretical models explaining the functional classification of towns & villages; functional classification of urban centres, functional typology of villages, functional landscape, functional structure of towns in India.

M.Sc. Geography Semester II

19 GEO 205 Physical & Socio Economic Landscapes (Theory)

Objective: The basic aim of the course is to provide theoretical background for conducting field Survey, its preparation & conduct field work for the understanding Physical & socio-economic landforms .

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Basic of Landscape Evolution

Earth surface processes and associated landforms. Geomorphic structure, processes and landscape evolutions, dynamic equilibrium, and topographic response to tectonic activities and climatic forcing, morphogenetic region, Topographical and Terrain analysis with field mapping , analysis of remotely sensed data and numerical models.

Unit II: Landscape Mapping Analysis

Landscape Analysis with Maps & Aerial Photos, Geomorphological mapping, Field mapping, Field surveying techniques. Identification of facies and genies of landforms, Stratigraphy, Sediment texture, structure, Particle morphology, Fabric analysis: General considerations; Clast macrofabrics and microstructural description, Clast mesofabrics and Laboratory analysis.

Unit III: Formation of Research Design

Significance of Field work in Geography; Identification of Research Problem and Formulation of Research Design in geography; Types and Sources of Data: Characteristics of primary and secondary data; Types of Questionnaires and their formulation.

Unit IV: Research Design & Report Writing

Selection of sample household; Preparation of field Questionnaire, Field sample survey design & preparation of Locational maps. Collection of demographic and socio-economic data from the field; Retrieval and analysis of data collected from field; Format of field project report writing; Data entry: coding and Tabulation, Planned report writing and Ethics of report writing.

M.Sc. Geography Semester II

19 GEO 206 Project Report based on Physical Landscape (Practical)

Objectives: The main objective of this course is to provide basic understanding about structure, landforms, their evolution & genesis and their association with the flora, fauna & human activities in the selected area.

Note: The report need to be supplemented with maps, sketches, photographs etc.

Course Contents:

1. Trace the prominent features of selected area. Identify salient landform and features of the selected area with the help of topographical sheet of survey of India.
2. Identify the earth surface processes actively operating in the study area. Trace the erosional and depositional landforms, their facies and genesis, stratiography, particle size analysis, morphology and clast fabric.
3. Identify and classify the biodiversity in the area (Flora & Fauna).
4. Observe the relationship of various landforms, flora and fauna with land use, settlement structure and life style of people.
5. Based on the results obtained from Geomorphological analysis based on various techniques. Prepare a field report with field photographs, sketches, maps and diagrams. Along with students have to submit their field diary.

M.Sc. Geography Semester II

19 GEO 207 Field Work Socio Economic (Practical)

Objective: Main objective of this course is to provide the students with the understanding of ground reality of a chosen village/town by observation; mapping of land quality, land use and cropping pattern and conducting Socio-economic survey of the households with the help of a specially prepared questionnaire.

Course Contents:

1. Procure a topographic map of 1:50,000 or 1: 25,000 scale to study the settlements selected in its regional setting.
2. Collect demographic, social & economic data of the village/town from Census Reports to study the temporal changes in the profile of such characteristics.
3. Procure a cadastral map of the village/town for field mapping of the features of landuse and land quality. Procure/prepare the settlement-site map through rapid survey to map the residential, commercial, recreational (parks, playgrounds), educational, religious and other prominent features.
4. Conduct a socio-economic survey of the households with a structured questionnaire. Supplement the information by personal observations and perceptions.
5. Based on results of the land-use and socio-economic enquiry of the households, prepare a critical field-survey report. Photographs and sketches, in addition to maps and diagrams, may supplement the report.

M.Sc. Geography Semester II

19 GEO 208 Fundamental of Information Technology

Note: There shall be nine questions in all. Question no. I shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I:

Basic Concept of IT, Data & Information, Characteristics of Information, Data Processing Introduction to Computers, Classification and Generation of Computer, Real-time Applications of Computer, Block Diagram and Anatomy of Computer, Input and Output Devices, Types of Software, Free and Open Source Software, Operating System, Types of Operating System, Function of Operating System, Features of Window OS

Unit II:

File Management: Desktop Components, Start Menu and Taskbar, Types of Icons, Viewing, Arranging, and Working with Files and Folders MS Word: Toolbars, Menu, Editing a Document, Previewing Document, Printing Documents, Mail Merge. MS Excel: Entering and Editing Worksheet Data, Worksheet Operations, Introducing Tables, Pivot Table, Charts and Graphics, Graphing and Summarizing Data; Statistical Processing of Data, Spreadsheet Formulas and Functions: Mathematical, Statistical and Financial Functions, Conditional Formatting; MS PowerPoint: PowerPoint Basics, Insert, Tools, Format, Slide Show, Formatting Slides, Create Presentations, Insert and Modify Text, Work with Graphics and Media

Unit III:

Social Media: Introduction to Class and Social Media, Measuring, Monitoring, and Analyzing Social Media Trends and Impact, Domains of Application in Social Media, Social Media Marketing Strategy; Mobile Communication: Fundamentals of Mobile Communication, 2G and 3G Technology, 3GPP LTE, GSM Evolution in GPRS and EDGE, Emerging Technologies for 4G; Data Communication: General Block Diagram of Communication System, Types of Communication, Applications of Data Communications, Digital Data Communication Techniques; Concept of Network, Types of Network, LAN Topologies, Computer Protocols

Unit IV:

History of Internet, Intranet, Web Browsers, Search Engine, Working with Internet, Applications of Internet; E-Commerce: Evolution and Architecture of E-Commerce, Computer Application in Business; Computer Application in Various Field of Commerce: Accounting, Purchasing, Banking, Cost and Budget Management; Internet Payment Systems. Concept of Mobile Commerce; Multimedia, Concept of Multimedia & application of Multimedia

M.Sc. Geography Semester II

19 GEO 209 General Geography of India (Open Elective)

Objective: The course aims to provide understanding to the students about the geographic dimensions of India in terms of its political and administrative characteristics. It also familiarize the students with the physical, climatic, human and economic dimensions of India in a spatial perspective.

Note: There will be seven questions in all. Question No. 1 is compulsory and consists of 4 subparts (short notes not exceeding 50 words each). Short notes shall cover entire syllabus. There will be 6 long questions, three from each unit. The candidate shall attempt THREE long questions, at least one from each unit. Question 1 carries 8 marks. Long questions carry 9 marks each.

Unit I:

India: Locational Setting and Geographical Expansion.
Relief and Drainage Systems.
Climate, Soil and Natural Vegetation.
Geographical Regions of India.

Unit II:

Peoples of India.
Population; Distribution, Density and Growth.
Population Composition: Ethnic and Socio-cultural attributes (caste and tribes).
Unity in Diversity in India.

Unit III:

Agriculture: Production, Productivity and Yield of major crops.

M.Sc. Geography Semester III
19 GEO 301 Oceanography

Objective: The course aims to introduce students to the many facets of Oceans, such as, evolution of the oceans, physical and chemical properties of sea water, atmospheric and oceanographic circulation, the fascinating world of marine life and the characteristic of marine environment and the impact of man on the marine environment.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Nature and Scope of Oceanography

Definition, Nature and Scope of Oceanography; Distribution of Land and Water; Thermohaline Circulation and its association with the global climate, Origin of Ocean Basins.

Unit II: Features of Ocean Basins

Features of Ocean Basins; Continental Margins and Deep Oceanic Basins; Oceanic Floor Profile: Continental self, Slope, Ridge and Deeps, Abyssal Plains; Submarine Canyons; Coral reefs: Types, Origin and Distribution; Configuration of Ocean Floor of Indian, Atlantic and Pacific Ocean.

Unit III: Ocean Currents and Dynamics

Ocean Currents: origin, types and dynamics; Currents of Pacific, Atlantic, and Indian ocean; Impact of ocean currents; Climate change and ocean circulation, Physiochemical properties of sea water: Temperature, Density, Salinity and Dissolved Gases; Ocean movement: Waves, Tides; (Theory of Tides)and currents.

Unit IV: Marine Resources and Environment

Life in the Ocean: Bio zones; Types of Organism- Plankton, Nekton and Benthos; Ocean and livelihood; Oceans as Source of Food, Mineral and Energy Sources; Oceans Deposits; Sea Level Change: Evidences and Impacts; Sustainable marine environment.

M.Sc. Geography Semester III
19 GEO 302 Urban Geography

Objective: The objectives of the course are to understand the process of urbanization and origin, growth and classification of urban settlements with relevant theories and models. It also aims to relate urbanization process and the evolution of urban system and examine the contemporary urban issues..

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Urban Geography: Nature, Scope & Concept

Defining Urban, Urbanization and Urbanism; Urban Geography: Definition, nature and scope origin growth & stages of urban systems; (Conurbation, Megalopolis, etc.) Lewis Mumford & Griffith Taylor. Urban population characteristics, Urban systems in Ancient Civilization. Medieval and Modern India. Trend of Urbanization in World & India.

Unit II: Interaction Between City & Surrounding Regions

City and region; Spatial linkages (rural urban linkages) and interactions; Rural Urban fringe. Suburbanization; Spatial network framework - Central Place Theory: Christaller. Losch. Walter Isard; Size and spacing of cities: Rank Size Rule, Primate City; Functional classification of cities: concepts and scheme of classification.

Unit III: Urban Land Use Models

Urban Morphology and land use; Models of city structure: Concentric Zone model, by E.W. Burgess, Sector model by Homer Hoyet, Multiple nuclei model by Harris and Ullman; Contemporary urban morphology in the wake of globalization – global city.

Unit IV: Urban Environment & Planning

Urbanisation in India: Patterns and Trends; Urban problems: Environmental issues, overcrowding, transportation and mobility; Urban Inequality: Urban Poverty, Slums & squatter housing, access to housing and amenities; Urban basic services; Quality of Urban Life; Urban Planning in India: National urban policy, Study of master plans of Delhi and Chandigarh; The Smart & sustainable cities.

M.Sc. Geography Semester III
19 GEO 303 Fluvial Geomorphology

Objective: The rivers being the major geomorphic agent of erosion, the course assumes significance as it mainly deals with an understanding of the fluvial forms and processes. The evolution of drainage pattern and alluvial channels are governed by the forces resisting and driving the flow of water. The students are introduced to the activities of these two forces and their resultant effects on the flow patterns, sediment load and channel patterns.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Basic Concepts of Fluvial Geomorphology

Basic concept of Fluvial Geomorphology and Geography; hydrological cycle and subcycle; drainage pattern evolution; limits of drainage development; channel changes with time.

Unit II: Fluvial Morphology and River Profile

Fundamentals of river mechanics: types of flow and flow discrimination; forces acting in channels; Low regimes; sediment load of streams. sediment transport; competent velocity; lift force; critical tractive force, Hydraulic geometry of streams at a station and down-stream; channel thalweg; causes of concavity; channel patterns, equilibrium profile - straight, meandering and braided.

Unit III: Process: Basin Morphology

Drainage basin as a fundamental geomorphic unit. Drainage basin - form and process; drainage basin morphometry; morphometric interrelations.

Unit IV: Applied Fluvial Geomorphology

Applied fluvial geomorphology; human adjustment to flood plain, alluvial fans and deltaic environments (case studies). Effects of reservoirs on fluvial systems. Remote sensing and GIS application to fluvial environments.

M.Sc. Geography Semester III
19 GEO 304 Political Geography

Objective: This course aims to expose the students to the strategic importance of geographical parameters in the Political Science at global, regional and local level, to sensitize the students to geopolitical dimensions and the understanding of conflicts and regional cooperation and to make them familiar with the international geopolities.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Concepts and Contribution in Political Geography

Ideas in Political Geography, Geography and its relationship with political economy and political sociology. Theoretical contributions to political geography: Ratzel, Hartshorne, Taylor and Harvey.

Unit II: Political Geography of Ocean

Political Geography of Ocean: Maritime Boundaries, delimitations: principles and problems, international law of the sea. UNCLOS III, Theories of international trade and economic zones and organizations, role of WTO in international geopolitics.

Unit III: Theories and Models of Geopolitics

Geo-strategic views: Mahan, Mackinder, Spikeman, conflict between states and conflict resolutions, supranational organisations and their geographical significance. Political Geography of the world order: Theories of international systems, evolution of contemporary world order, alternate models of development for the future.

Unit IV: Administrative Organization of Space

Administrative organisation of space: Methods of administrative organisation, territory: Electoral Geography: electoral systems, methods of studying electoral geography, geographical influence in voting; public administrations and landscape formation, polity as an agent of landscape change.

M.Sc. Geography Semester III

19 GEO 305 Environmental Geography

Objective: This course aims to provide the understanding about the importance of biodiversity to maintain ecological balance and various environmental issues at national and international level.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Nature and Scope

Scope of Environment Geography, Basic Principles of Environmental Geography: Composition and types of Environment, Ecological Principles, Man – Environment relationship, Restoration of Ecology.

Unit II: Ecosystem

Ecosystem: Concept and components, Trophic levels, Food chains and food webs, Energy flow in the ecosystem, Ecosystem stability, high land – low land interactive system, human ecological adaptation.

Unit III: Concepts of Ecosystem

Concept of ecosystem, Environmental Degradation, Environmental Pollution (Air, Water and Solid Waste), Ganga Pollution & Ganga action Plan, Environmental Problems – Global Warming, Ozone Depletion and Green house effects, transformation of nature by man, global ecological imbalances, wetland ecosystem with reference to Haryana.

Unit IV: Environmental Management and Planning

Environmental Management: Concept and approaches: Ecosystem Management Strategies, Environmental Dimension in Planning – Sustainable Development, Eco- Development, Limits to growth, Environmental Consciousness, National Environmental Policies and Programmes, Environmental Impact assessment, Rio Summit, Kyoto Protocol & Carbon Trading, Paris climate summit and environmental footprints.

M.Sc. Geography Semester III

19 GEO 306 Aeolian Geomorphology

Objective: Aeolian environments are particularly sensitive to aridity, bio-mass and human interferences. All these activities affect wind shear in different degrees, set time in motion the processes of erosion and deposition. These processes and their resulting forms are highlighted in the course content. A direction is set for the application of aeolian geomorphic principles for the efficient management of land-based human economic activities through advanced monitoring technique with special reference to India.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Aeolian Processes

Wind environment: introduction; desert wind systems; directional variability and resultant. Drift potential; scope of aeolian geomorphology. Grain in motion: fluid flows –flow types; interaction of the wind and the bed-wind shear; entrainment-lift and drag: Thresholds of movement: static and dynamic; modes of transport saltation, creep, reputation and suspension; transport rates.

Unit II: Aeolian Landforms

Wind erosion and landforms: processes: abrasion, deflation and aerodynamic erosion; landforms; yardangs, ventifacts, pans, stone pavements, deflation hollows, desert varnish: processes and significance. Dusts-sources; -contemporary and proximal, mineral composition; dust-generating and dust yielding systems, gross spatial patterns of production and removal; deposition; loess, types, palaeo-environmental significance.

Unit III: Depositional Processes and Palaeo Environment

Forms of wind deposition: sand ripples, obstacle dunes; dune- classification schemes; morphodynamics of the crescentic, longitudinal and complex dunes. Palaeo—environments: Introduction; sediment movement in the past; relic and active dunes; dating aeolion deposits; pre-leistocene sand dunes; Pleistocene and Holocene dunes; Aeolinites - composition and distribution.

Unit IV: Applied Aeolian Geomorphology

Applied Aeolian Geomorphology: Introduction; wind erosion on agricultural fields; controls of dust; Management of coastal dunes and dunes in semi -arid areas; desertification and its controls with special reference to India. Remote sensing and GIS applications in aeolian settings.

M.Sc. Geography Semester III

19 GEO 307 Social Geography

Objective: This course aims to familiarize the students with the understanding of the society through concepts and social theories, philosophical approaches and spatial processes, social distortion and various components of social well- being in India.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Nature and Scope of Social Geography

Nature and Scope of Social Geography; Developments in the field of social geography; Concepts in social geography: social differentiation, region formation, social evolution, social change & transformation, social space, social and spatial justice, ethnicity, social wellbeing.

Unit II: Elements of Socio-cultural Regionalism

Socio-cultural formation of society in India; Geography and caste: regional/spatial framework of dominant caste and land inequality, social and spatial segregation/exclusion, regional/cultural forms of untouchability in India- continuity and change; tribes and geographical isolation, tribe as a social formation: scheduled tribes and scheduled areas; regional studies of the major and minor tribes in India.

Unit III: Linguistic Dimensions

Language and dialect, language families, India as a linguistic area, linguistic diversity in India, Greenberg's linguistic diversity index, Mother tongue, Bi-lingualism, multi-lingualism, language shifts and retention, linguistic regionalism and minority languages; space and religion: religious diversity in India, religious minorities, communalism and space.

Unit IV: Social Transformation

Social Change and transformation in India: Modernization, role of rural urban interaction, problems of social transformation, social wellbeing- overview of concept; social and ethnic diversity of India and national integration: cultural pluralism and development.

M.Sc. Geography Semester III

19 GEO 308 Geography & Disaster Management

Objective: This basic aim of this course is to provide the theoretical understanding of various disasters, their origin, management and mitigation. Along with this course will also provide understanding for vulnerability and developing community resilience.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Geographical Setup of India and Regional Hazard Risks

Regional physiography, geology, soils, drainage, climate, land use and land cover of India, and natural hazards risk prone areas. Hazard risk, vulnerability and disaster: concepts and relationships; measuring hazard risks, vulnerability and disasters.

Unit II: Disaster Extremes in India & Their Impact

Regional extreme events in India: earthquakes, floods, drought, cyclone, tsunami, landslides, avalanches, snow, rain, and wind storms. Disaster magnitude and impacts: case study/ examples from recent disasters.

Unit III: Regional Patterns of Disaster & Vulnerability in India

Earthquake disaster vulnerability assessment (case study of metropolitan and other major cities). Flood disaster zonation and vulnerability assessment (case study of Brahmaputra and Ganga river systems). Landslides and avalanches disaster zonation and mapping (case study of Himalayas and north east region). Drought disasters zonation and mapping. Multi hazard risk assessment.

Unit IV: Disaster Management and Response System

Understanding manmade disasters, fires and forest fires; nuclear, biological and chemical disaster, road accident and building collapses. Regional capacity, preparedness and response; governance and institutions for disaster management; awareness among people, capacity building, state disaster management plan.

M.Sc. Geography Semester III

19 GEO 309 Fundamentals of Remote Sensing (Theory)

Objective: The aim of this course is to:

1. Disseminate basic concepts and applications of Electromagnetic Spectrum in Remote Sensing, Energy Balance and Data acquisition platforms, sensors and their characteristics.
2. Enhance student's knowledge about optical, thermal and microwaves based Remote Sensing and Applications for solving real life problems.
3. Introduce students to digital image processing tools and techniques.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Remote Sensing

Remote Sensing: History, Development, Definition, Concept & Principles, Electromagnetic Radiation (EMR) and Its Characteristics, Wavelength Regions and their Significance, Interaction of EMR with Atmosphere and Earth's Surface: Absorption, Reflectance and Scattering, Atmospheric Windows, Energy Balance Equation.

Unit II: Imaging and Non-Imaging

Imaging and Non-Imaging, Active and Passive, Multispectral, Superspectral and Hyperspectral Sensors, Electro-Optical Systems, Opto-Mechanical Scanners, Infrared Scanners, Scatterometer, Thermal Properties of Terrain, Thermal IR Environmental Considerations, Thermal Infrared and Thermal Scanners, Microwave Remote sensing concepts: Backscattering, Range Direction, Azimuth Direction, Incident Angle, Depression Angle, Polarization, Dielectric Propertics, Surface Roughness and Interpretation, Speckle and Its Reduction, Applications of optical, thermal and microwave remote sensing.

Unit III: Concepts about Digital Image

Concepts about digital image and its characteristics, Sources of image degradation - Image restoration and Noise Abatement , Radiometric and Geometric correction technique, linear and non linear transformation for geometric corrections, Look-up Tables (LUT) and Types of image displays and FCC, Radiometric enhancement techniques, Spatial enhancement techniques, Contrast stretching: Linear and non-linear methods, Low Pass Filtering: Image smoothing, High Pass Filtering: Edge enhancement and Edge detection, Gradient filters, Directional and non-directional filtering.

Unit IV: Concept of Pattern Recognition

Concept of Pattern Recognition, Multi-spectral pattern recognition, Spectral discrimination, Signature bank, Parametric and Non-Parametric classifiers, Unsupervised classification methods, Supervised classification techniques, Limitations of standard classifiers.

M.Sc. Geography Semester III

19 GEO 310 Lab work on Aerial Photographs & Satellite Images (Practical)

Objective: This course aims to make the student learn practical aspects related to:

1. Usage of diverse remote sensing data for extracting needed geo-spatial information.
2. Execution of various analogue and digital information extraction techniques, both manually and using computers.

Note: The examiner shall set four questions, two from each unit. The candidate shall attempt three questions in all, selecting at least one question/exercise from each unit.

LAB EXERCISES

- Understanding Remote Sensing Data and Visual Interpretation
- Import / Export of Satellite Data, Display, Analysis, and Digital interpretation of earth surface features in Standard FCC
- Radiometric and atmospheric corrections
- Geo-referencing and Geo-coding
- Field Spectra Collection: vegetation, bare soil, and concrete using Spectro Radiometer
- Analysis of satellite derived spectral response and field spectra
- Study of the various contrast enhancement techniques
- Spectral Enhancement (Ratio images and PCA) Techniques
- Spatial Enhancement: Low Pass Filtering & High Pass Filtering Techniques
- Unsupervised Classification
- Supervised Classification & Accuracy Evaluation
- Advance Classification

M.Sc. Geography Semester III

19 GEO 311 Remote Sensing Project Report (Practical)

Objective: This course aims to familiarize and enhance the student's knowledge about the Remote Sensing and GIS techniques along with their application value in the Earth observation. And enable them to write the project report based on application of remote sensing.

Note: Student has to submit a Remote Sensing Project Report individually on the approved topic by the department from the following themes. Report should be of minimum 50 pages as per the Performa decided by the department.

Themes for the Remote Sensing Project Report:

- Land Use Land Cover (LULC)
- Agriculture, Crop Combination & Pattern
- Transport Network Analysis at micro-level
- Urban Land use, Land Cover and Planning

- Deforestation and Land degradation
- Land degradation and desertification
- Water Management
- Hotspot Analysis
- Planning for smart cities
- Micro climate of Urban areas
- Infrastructure development and planning
- Mining and environmental degradation
- Snow cover and glacial mapping
- Hydrological and Runoff Modelling

Outline for Project Report:

Student has to submit a report based on the analysis of remotely sensed data and field observations as mentioned:

- Statement of the problem
- Research Objectives
- Database
- Research Methodology
- Analysis of Data
- Discussion and Research Findings
- References
- Annexure and Additional Data

M.Sc. Geography Semester III

19 GEO 312 Basic of Climatology (Open Elective Course)

Objective: The overall objective of the course is to foster comprehensive understanding of atmospheric phenomena; dynamics and global climates.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I:

Definition of weather and climate; Climatology and Meteorology. Origin, composition and structure of atmosphere; Solar radiation, greenhouse effect, heat budget and temperature distribution.

Unit II:

Atmospheric pressure and its distribution pattern. Theories of general circulation and planetary winds, Walker circulation- ENSO and La Nina, origin of monsoons and jet streams.

Unit III:

Atmospheric Moisture humidity, evaporation, condensation, precipitation formation theories and types of precipitation, acid rain, Stability and instability of atmosphere, air masses and

fronts;

Unit IV:

Weather systems: Origin and characteristics of extra tropical and tropical cyclones; Climatic change: pattern, evidences and theories of climate change; Global warming and its impacts on earth systems.

M.Sc. Geography Semester IV

19 GEO 401 Regional Developments and Planning

Objective: The basic aim of this course is to provide the theoretical foundations and conceptual framework for the regional development process. It also sensitizes the students about the changes taking place in regional structure of Indian economy, about the concept of region in Geography and the regional development and planning process in India.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Concepts of Regional Development

Concept of regional development, concept of region, classification of region and method of region delineation, types of planning region; concept of regional planning and development.

Unit II: Developmental Models and Theories

Development Theories: Trickle-down Theory (Hirschman), Growth Pole Model (Parroux), Cumulative causation model (Myrdal), Core-Periphery Theory (Friedman); Recent Divergence and convergence theories: Kuznets curve, Dependency theory, bio-regionalism, Eco-feminism, Deep ecology, sustainable development,

Unit III: Planning Region

Planning Region: Characteristics and need; Planning Process- Sectoral, Temporal and Spatial dimensions; Short-term and Long-term Perspective of Planning; Planning for a Region's development and Multi-regional planning in National Context; sectoral-spatial development with special reference to agricultural and industrial development in India; decentralization and development; State, civil society and market in the Neo-liberal economic framework; Globalization.

Unit IV: Regional Planning: Policy and Strategies

Regional Planning in India: Regional Imbalances/Disparities- Causes and Consequences; Measurements of Regional Disparities; Planning Policies for Regional Development; National Capital Region, study of regional development planning and programmes; Backward area development, Tribal area development, Hilly area development, Arid Desert area development, flood and drought prone areas development and coastal area development.

M.Sc. Geography Semester IV

19 GEO 402 Geography of Haryana

Objective: The basic aim of this course is to introduce the students with the glorious past of

the state of Haryana, its Physiogtaphy, Climate, People, Society, resource base and Economic structure

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Haryana: An Introduction

Haryana: Physiography: Relief characteristics and physiographical divisions, Drainage systems and their significance, Chronology and Palaeo Channel of Sarasvati River and its association with Vedic Civilisation, Climatic regions of state, Soil and vegetation, forest regions , characteristics and conservation.

Unit II: People and Society

History of the State, Vedic Civilisation, Geography of Vedas & Puranas Growth of Population, distribution of Demographic attributes: sex-ratio, literacy rate and work force participation. Population problems and policies, Human Resources: Potential and Prospects, Contemporary issues related to gender Ratio and women empowerment.

Unit III: Agriculture

Agriculture: Agro-climatic Region, Traditional agriculture system, Cropping Pattern, Green Revolution and Agricultural development in Haryana and problems related to agriculture. Irrigation: Types of irrigation, Major irrigation projects: Bhakra Nangal, Agriculture Potential and Management, Prospects and Potential of Agro-processing Industries, Storage and Marketing of Agriculture Products, Contemporary issues related to agriculture and farmer sustainability.

Unit IV: Resource and Economy

Trend and Pattern of Urbanisation, Contemporary Issues and Challenges in Urban Areas, Distribution of Natural and Human Resources, Transport System and Growth, Manufacturing and Service hubs, knowledge economy Any Case Study of Automobile and Information and Technology Hub

M.Sc. Geography Semester IV

19 GEO 403 Cultural Geography

Objective: This course aims to understand diversity of cultures in the world as well as in India, to comprehend the diffusion of various ethnic traits and religions and to understand the relationship between cultures and pattern of living and economic development.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Nature and Scope of Cultural Geography

Introduction: Nature and scope of cultural geography; Definition, cultural element and components of culture; convergence and divergence processes; cultural changes: perception, behaviouralism and cultural relativism.

Unit II: Cultural Diversity

Cultural Diversity: Bases of cultural diversity-race, religion and language. Cultural diversity in the world, cultural diversity and regionalization in India. Geography of ethnic groups and tribal groups. Religion and its diffusion; diffusion of ethnic traits in world as well as in India; ethnic landscape and economy of the area; Diffusion in folk geography; cultural landscape and cultural ecology in folk Geography; Religion: origin, diffusion and spatial distribution.

Unit III: Patterns of Livelihood

Patterns of livelihood: various economic activities & cultural adaptations; agriculture, industrialization and modernization; technological changes and their geographical implications.

Unit IV: Human Settlements Pattern

Human settlements: Relation to ideology, social structure and technology, social structure and technology, pattern of rural & urban society, social processes in the city, the city in the developing countries.

M.Sc. Geography Semester IV

19 GEO 404 Biogeography

Objective: This course aims to introduce the students the concept of Biogeography and its, interpretation. Information and their application; interaction between living organisms with climate and physical environment, with special reference to India.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Students will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Significance of Biogeography

Nature, scope and significance of biogeography, Basic ecological principles: Bio-energy cycles in territorial ecosystem (Carbon and Nitrogen), energy flow, trophic levels and food web, Origin of fauna and flora.

Unit II: Biomes of the World

Major biomes of the world: forests, grasslands and deserts, Distribution of plant life on the earth and its relation to soil, climate and human activities, Geographical distribution of animals on the earth and its relation to vegetation types, climate and human activities.

Unit III: Communities and Ecosystems

Communities: Nature of communities and ecosystems: bio-diversities; human induced community change; habitat decay and conservation of biotic resources, Ecosystem services and its significance.

Unit IV: Environmental Hazards and Ecological Consequences

Environmental hazards, Ecological consequences, human perception and adjustment with respect to flood, drought and earthquake, Bio-Reserves of India, National forest and wild life policy of India.

M.Sc. Geography Semester IV

19 GEO 405 Geography of Health

Objective: This course aims to provide the understanding about the perspectives on health, its relation with development and global environmental change.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Perspectives on Health

Perspectives on Health: Definitions; linking environment, development and health; driving forces in health and environmental trends- population dynamics, urbanization, poverty and inequality, science and technology and life styles. Pressure on Environmental Quality and Health: Human activities and environmental pressure- land use and agricultural development; industrialization; transport and energy.

Unit II: Exposure and Health Risks

Exposure and Health Risks: Air pollution; household wastes; water; housing; workplace; global environment change; multiple challenges for health protection. Health and Disease in Environmental Context with special reference to India: Estimating the burden of disease- acute respiratory infections, diarrhoeal diseases , tropical vector-born and newly emerging diseases, injuries and poisoning; mental health conditions, cardiovascular diseases and cancer.

Unit III: Climate Change and Human Health

Climate Change and Human Health: Changes in climate system - heat, cold and air pollution; extreme weather events; sea level fluctuation; ozone depletion; effects on biological disease agents; food production and nutrition.

Unit IV: Linkage Methods for Environment, Development and Health Analysis

Linkage Methods for Environment, Development and Health Analysis: Approaches to linkage analysis; health and environmental analysis for decision making; development of environmental health indicators; assessment of health effects. Promotion of environmentally sound healthy settings in India: Districts; cities, neighborhoods, institutions, markets.

M.Sc. Geography Semester IV

19 Geo 406 Glacial and Periglacial Geomorphology

Objective: This course aims to provide in-depth understanding about glaciations and related morphological processes on the earth surface.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of

eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Ice Ages and World Glaciations

Ice Ages and World Glaciations: Causes of Ice Ages-Pleistocene Glaciation: onset and retreat, direct and indirect effects of Pleistocene Glaciation-glacier regimes: definition, mass balance and response to climatic changes-glacier ice: physical and thermal properties, glacier flow and internal deformation.

Unit II: Erosional Process

Erosional Process: glacial erosion: ice and melt water-mechanical and chemical processes of erosion; development of erosional landforms-morphodynamics of the features of erosion at or inside glacier margins-glacial thermofrost; superglacial, englacial, and basal.

Unit III: Depositional Process

Depositional Process: Processes-stratified and non-stratified; drifts-morphodynamics of moraines: forms of moraines-glaciofluvial and glacio-lacustrine environment; Pleistocene glaciation in South Asia-Hazards in glacial environment: glacial surges and glacier dam bursts.

Unit IV: Periglacial Processes: Frozen Ground Phenomenon

Periglacial Processes: frozen ground phenomenon: identification, depth variations, thermal properties, classification and distribution-ground ice: types and morphodynamics of periglacial processes: mechanism of frost action, mass wasting, nivation. Periglacial landforms; frost actions and landforms-mass wasting and landforms adaptation of human beings to periglacial environment.

M.Sc. Geography Semester IV

19 GEO 407 Settlement Geography

Objective: This course aims to provide the understanding about historical development, patterns, types of settlement system in India and world.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Evolution, Size and Growth

Evolution, size and growth of human settlements: Theories of evolution of settlements; size, distribution, spatial and temporal trends in size and growth of settlements. Distribution Pattern: Spatial distribution pattern of settlements: Theoretical models and empirical findings.

Unit II: Settlement Structure

Settlement Structure: Physical (characteristics of internal structure and external form, theories explaining internal morphological structure of cities; empirical and theoretical models explaining the functional classification of towns & villages; functional classification of urban centres, functional typology of villages, functions and scope, functional structure of towns in

India. Land use (principles and theories of land use in urban and rural setting: house types and building materials, environmental, socio-economic/cultural factors influencing the dynamics of settlement structure.

Unit III: Settlement Hierarchy

Settlement Hierarchy: theories of Christaller and Losch and their application to settlement hierarchy, factors contributing to hierarchy, Central Place theory: measurement of centrality and hierarchy. Hierarchy of settlements in India – an empirical exercise. Issues, perspectives and policies on Population and Human Settlements. Interface between human settlements and environment.

Unit IV: Issues, Perspectives & Policies on Population

Issues, perspectives and policies on Population and Human Settlements. Interface between human settlements and environment.

M.Sc. Geography Semester IV
19 GEO 408 Transport Geography

Objective: The basic aim of this course is to provide basic understanding about the development of Transport Network and its spatial linkages and Network Analysis.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: Spatial Interaction & Transport

Transport for spatial interaction: Spatial interaction and time-space convergence, enlarging the catmint area of markets, dynamic relationship between transport and spatial readjustment-
--Role of transport as a lead sector.

Unit II: Network Analysis

Problem of accessibility: The transport network; Network shape and location; Regional variations in its density; Methods of measurement, transport and spatial processes; Traffic flow and regional interaction.

Unit III: Network Efficiency

Graph theory and Network Geometry; Concept of topology, topological measurement of network efficiency. Urban Transport: Profile of urban transport facilities; Traffic in towns; Transport services and urban land use pattern, role of intermediary transport modes; modal split.

Unit IV: Transport Planning

Regional Transport Planning: The framework of regional transport Planning traffic generation; methods of forecasting; zonal interchange of traffic; mode and route assignment methods. Indian Transport: Transport development during colonial and plan periods; transport and regional structure of Indian Economy.

M.Sc. Geography Semester IV
19 GEO 409 Principal of GIS and Navigation System (Theory)

Objective: This course aims to familiarize and enhance the student's knowledge about the Remote Sensing and GIS techniques along with their application value in the Earth observation.

Note: There shall be nine questions in all. Question no. 1 shall be compulsory, consisting of eight short answer type questions covering the entire syllabus. Two questions will be asked from each unit. Student will have to attempt one question from each unit. Each question shall carry equal marks.

Unit I: GIS Basic

GIS: Definition and Applications; Components and Elements of GIS; Development of GIS technology; Geographic objects: point, line and area; analog and digital maps; theoretical models and framework for GIS, representation of geographic data-base, coordinate systems and map projections.