NEP and Learning Outcome-based Curriculum Framework (LOCF)

For

SchemeUGA2: Undergraduate Program (B.A.): Single Major

GEOGRAPHY SUBJECT

(TobeeffectivefromtheAcademicSession2024-25)

GURUGRAMUNIVERSITY, GURUGRAM

(A State University established by Govt. of Haryana Act No. 17 of 2017)

Scheme of Programme

SchemeUGA2: Undergraduate Program: Single Major (Geography Subject)

Semester1

Course Code	Course Title	Course ID	L	T	P	L	T	P	Total Credits	MARKS				
			(Hrs)			Credits				TI	TE	PI	PE	Total
Core Course(s)														
CC-A1	Geography of India (Theory)	240/GEO/CC101	3	1	0	3	1	0	4	30	70	-	-	100
CC-A2	Geography of Environment (Theory)	240/GEO/CC102	3	1	0	3	1	0	4	30	70	-	-	100
CC-A3	General Cartography (Practical)	240/GEO/CC103	0	0	8	0	0	4	4	-	-	30	70	100
Minor/Vocational Course(s)														
MIC-1	One from Pool								2					50
Multidisciplinary Course(s)														
MDC-1	One from Pool								3					75
Ability Enhancement Course(s)														
AEC-1	One from Pool								2					50
Skill Enhancement Course(s)														
SEC-1	One from Pool								3					75
Value-added Course(s)														
VAC-1	One from Pool								2					50
Total Credits									24					600

Semester2

Course Code	Course Title	Course ID	L (Hrs)	T (Hrs)	P (Hrs)	L Credits	T Credits	P Credits	Credits	MARKS TI	MARKS TE	MARKS PI	MARKS PE	MARKS Total
Core Course (s)														
CC-A4	Geomorphology (Theory)	240/GEO/CC201	3	1	0	3	1	0	4	30	70	-	-	100
CC-A5	Fundamental of Human Geography (Theory)	240/GEO/CC202	3	1	0	3	1	0	4	30	70	-	-	100
CC-A6	Representation of Physical Features (Practical)	240/GEO/CC203	0	0	8	0	0	4	4	-	-	30	70	100
Minor/Vocational Course(s)														
MIC-2	One from Pool								2					50
Multidisciplinary Course(s)														
MDC-2	One from Pool								3					75
Ability Enhancement Course(s)														
AEC-2	One from Pool								2					50
Skill Enhancement Course(s)														
SEC-2	One from Pool								3					75
Value-added Course(s)														
VAC-2	One from Pool								2					50
Total Credits									24					600

Semester3

Course Code	Course Title	Course ID	L (Hrs)	T (Hrs)	P (Hrs)	L Credits	T Credits	P Credits	Credits	MARKS				
										TI	TE	PI	PE	Total
Core Course(s)														
CC-A7	Oceanography (Theory)	240/GEO/CC301	3	1	0	3	1	0	4	30	70	-	-	100
CC-A8	Introduction to Philosophy of Geography (Theory)	240/GEO/CC302	3	1	0	3	1	0	4	30	70	-	-	100
CC-A9	Principles of Land Surveying (Practical)	240/GEO/CC303	0	0	8	0	0	4	4	-	-	30	70	100
Minor/Vocational Course(s)														
MIC-3	Onefrom Pool								4					100
Multidisciplinary Course(s)														
MDC-3	Onefrom Pool								3					75
AbilityEnhancement Course(s)														
AEC-3	One from Pool								2					50
Total Credits									21					525

Semester4

Course Code	Course Title	Course ID	L (Hrs)	T (Hrs)	P (Hrs)	L Credits	T Credits	P Credits	Credits	MARKS TI	MARKS TE	MARKS PI	MARKS PE	MARKS Total
Core Course(s)														
CC-A10	Introductory Climatology (Theory)	240/GEO/CC401	3	1	0	3	1	0	4	30	70	-	-	100
CC-A11	Statistical Methods in Geography (Theory)	240/GEO/CC402	3	1	0	3	1	0	4	30	70	-	-	100
CC-A12	Statistical Methods in Geography (Practical)	240/GEO/CC403	0	0	8	0	0	4	4	-	-	30	70	100
Minor/Vocational Course(s)														
MIC/VOC-4	One from Pool								4					100
Ability Enhancement Course(s)														
AEC-4	One from Pool								2					50
Value-added Course(s)														
VAC-3	One from Pool								2					50
Total Credits									20					500

Internship is to be done during summer break after 4th Semester; Marks will be added in 5th Semester.

Semester5

Course Code	Course Title	Course ID	L (Hrs)	T (Hrs)	P (Hrs)	L Credits	T Credits	P Credits	Credits	MARKS				
										TI	TE	PI	PE	Total
Core Course(s)														
CC-A13	Economic and Resource Geography (Theory)	240/GEO/CC501	3	1	0	3	1	0	4	30	70	-	-	100
CC-A14	Regional Geography of Asia (Theory)	240/GEO/CC502	3	1	0	3	1	0	4	30	70	-	-	100
CC-A15	Map Projections and Contemporary Techniques of Cartography (Practical)	240/GEO/CC503	0	0	8	0	0	4	4	-	-	30	70	100
Minor/ Vocational Course(s)														
MIC-5	One from Pool								4					100
Skill Enhancement Course(s)														
Internship									4					100
Total Credits									20					500

Semester6

Course Code	Course Title	Course ID	L (Hrs)	T (Hrs)	P (Hrs)	L Credits	T Credits	P Credits	Credits	MARKS TI	MARKS TE	MARKS PI	MARKS PE	MARKS Total
Core Course(s)														
CC-A16	Introduction to Geo-spatial technology (Theory)	240/GEO/CC601	3	1	0	3	1	0	4	30	70	-	-	100
CC-A17	Element of Population Geography (Theory)	240/GEO/CC602	0	0	8	0	0	4	4	-	-	30	70	100
CC-A18	Aerial Photographs and Field Work (Practical)	240/GEO/CC603	2	1	0	2	1	0	3	25	50	-	-	75
Minor/Vocational Course(s)														
MIC-6	Onefrom Pool								4					100
MIC-7	One from Pool								4					100
Skill Enhancement Course(s)														
SEC-3	One from Pool								3					75
Total Credits									22					550

1. *Thecurriculumofsemester7and8willisprovidedinduecourseof time.*

Based on the scheme for the under graduate program-Single Major (GEOGRAPHY)

This Learning Outcome based Curriculum Framework (LOCF) is designed to emphasize the teaching and learning process at the undergraduate (B.A.) program-Single Major **(Geography)** from teacher centric to student centric by strengthening the quality of teaching and learning in the present day real life scenario of global, regional and local level. It is considered learning as an activity of creativity of innovations and analyzing geographical phenomena. The purpose is to enhance the capability of the students in perceiving, creating and analyzing sound geographical bases and concepts.

Geography has been broadly accepted as a bridge discipline between human and physical sciences. In the beginning, geography focused on the physical aspects of the earth but the modern geography is an all-encompassing discipline that seeks to understand the earth and all of its human and natural processes as integrating elements. Geography has emerged through time as a Trans- disciplinary subject integrating the regional diversity with the concepts of the timing of space and the spacing of time. It provides broad, human and place- centred perspectives on the transformation of rural ecology to globalized urban landscape at different levels, from the local/regional/national to global.

Geography is transformed through:-

- Journey from Village Ecology to Urban Regional Studies
- Qualitative Techniques to Spatial Information Technology
- Global to Micro-level Community Perception Approach

It is essential to focus on the current socio-spatial problems, issues and challenges to make the students aware of the application of geography to sort out the societal upcoming problems. It is essential to rejuvenate the ancestral geographical knowledge to address the current local and global problems. Geography curriculum is also essential to revision incorporates dynamic processes including fundamental and modern techniques, contemporary paradigms such as global initiatives like Sustainable Development Goals (SDGs), Disaster Risk Reduction (DRR), Climate Action and national initiatives like smart cities, Securities of food, water, energy, human health and livelihood, biodiversity, and disaster management. The approaches are to make geography more scientific and societal-need oriented that could be the panacea of India's developmental challenges. Geography uses scientific knowledge with the current focus that includes spatio-temporal analysis, skill development, GI Science, sustainable development and human security.

The following objectives would be achieved from the Single Major- Geography Course framework:-

- To orient the students towards identification and analysis of various facets of geographical features and processes.
- To develop an overall idea about the natural, social and cultural environment over the surface.
- To facilitate the students to learn skills of map making.
- To develop students' aptitude for acquiring basic skills of carrying out fieldwork.
- To guide students to learn the science and art of collecting, processing and interpreting the data.
- To expose the students to the use of the updated technologies of remote sensing, IRNSS (Indian Regional Navigation Satellite System), GNSS (Global Navigation Satellite System), Geographical Information System (GIS) and GIScience (Geographic Information Science).

ProgramOutcomes(POs):-

- To achieve a holistic understanding of the subject, putting equal weightage to the core content and techniques used in Geography.
- To impart basic knowledge on Geography as a spatial science and train the undergraduates tosecure employment in the sectors of geospatial analysis, development and planning, mapping, and surveying.
- To secure a job at the end of the undergraduate programme. Keeping this in mind and in tune with the changing nature of Geography, adequate emphasis is rendered on applied aspects of the subject such as emerging techniques of mapping and field-based data generation, especially in the single major course.
- To achieve an overall idea about the natural, social and cultural environment developed over the surface.
- To get the idea of daily weather and climate system, consequences of climate change and most ofall the causes and consequences of global warming which are the burning topic/problems of the present times.
- To learn the idea of making suitable questionnaire, data collection, tabulation and analysis and to make correlation of the physical and socio-economic features of any area by visiting and surveying the area.
- To correlate the theoretical knowledge with practical curricula to develop a holistic idea on various landforms in the light of their evolution.
- To get an idea about the first-hand feel of independent research activities which is done after surveying an area as per the rules of the curriculum. This acts as a foundation for their future research activities.

- ❖ To develop the soft skill of the students by introducing the computer and software oriented courses (GIS) which is now an essential requisite for the scholars who intend to pursue higher studies and research.
- ❖ .To cultivate ability to evaluate critically the wider chain of network of spatial aspects from global to local level on various time scales as well.
- ❖ Recognize the skill development in Geographical studies programme as part of popular career avenues in various fields like academics (teacher/lecturer/professor), researcher in organisations, administrator, cartographers, Environmental consultant, urban planner, tourism officer, GIS specialist, demographer, hydrologist etc.

ProgramSpecificOutcomes(PSOs):-

Fivedistinctandnewlearningoutcomeshavebeenincorporated fromeachcoursesuchas to:

- Understandtherelevance ofgeographicalknowledgetoeverydaylife.
- Getting the ability to communicate geographic informationby utilizing both lecture and practicalexercises.
- Inculcatetheabilitytoevaluate and solve geographicalproblems effectively.
- Based on the field knowledge and advanced technologies, the students should be able tc understand the on-going geographical problems in different regions and levels with appropriate pragmatic solutions.
- Exhibittheskillinusinggeographicalresearchtoolsincludingspatialstatistics, generalcartography & advanced cartography, RS, GIS, IRNSS and GIScience.

OutlineofUndergraduate(SingleMajor-Geography)SyllabusbasedonNEP:-

1. Core Course (CC): A course which should compulsorily be studied by a candidate as a core requirement is termed as a CC.

2. Multidisciplinary Course (MDC): Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/subject of study or which provides an extended scope or which enables an exposure to some other discipline/ subject/ domain or nurtures the candidate's proficiency/skill is called an MDC.

3. Minor/Vocational Course (MIC): An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure is called a Minor.

A core course offered in a discipline/subject maybe treated as an elective by other discipline/subject and vice versa and such electives may also be referred to as Minor/Vocational.

4. Skill Enhancement Course (SEC): Skill Enhancement Course means a course designed to provide value-based or skill-based knowledge and should contain both theory and lab/hands-on/training/fieldwork. The main purpose of these courses is to provide students with life-skills in the hands-on mode to increase their employability.

5. Value-added Course (VAC): Value-added courses are conducted by the faculty members of the department or interfacing with the industry to bridge the gap between the curriculum and the requirements of the industry.

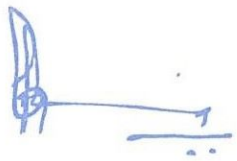
6. Educational Tours–The visit to major industries, resources places, different cultural and social places in Haryana and visit also to a local polluted site-Urban/Rural/Industrial/Agricultural will provide the students with a firsthand experience of the topics of study and emphasize their importance and significance to the present world.

7. Field Work/Study–Takingup a small project on a related topic that could include collection of data through surveys or interviews could enhance communication skills of the students and enable them to propose a study subject and produce a report based on the data collected. This will form a vital part of the skill acquisition to undertake further research.

8. Writing Assignments- Since international relations studies would also entail extensive writing ability, practical training in writing essays, reports and favoring or opposing an argument or thesis, students must continuouslybe subjected to assignment writing so that they are well versed with the nuances of writing for a variety of purposes.

9. Seminar Presentation – Conducting seminars where student choose specific topics on which theyresearchandpresent toanaudienceforms avitalpartofdevelopingskillsofcommunicationas well as organizing thought in a logical and cohesive manner.

10. Project work- Project work is considered as a special course involving application of knowledge in solving/analyzing/exploring a real-life situation/difficult problem. A Project work may be given in lieu of a discipline specific elective paper.



B.A. Geography (SingleMajor)

(Asper NEP 2020 w.e.f session2024-25)

Semester-I

Geography of India

CourseCode:**CC-A1 (Theory: Core Paper)**

CourseId:**240/GEO/CC101**

Programme/Class:B.A. Year:1 Semester:I Credit:04(3+1+0)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:3Hours	End Semester Exam:	70 Marks
Course Outcome:- 1. They can know about their own countries land formation, climate and natural vegetation. 2. They understand the economic resources of India. 3. They understand the social distributionofpopulationof their country. 4. Developanideaaboutregionalisationof India.	Internal Assessment: Attendance Assignment SessionalExam	30 Marks 5 5 20
InstructionsforPaper-Setter:-Question1iscompulsorycomprisingsevensub-partsspreadoverthe entiresyllabus(twomarksforeachsub-part),tobeansweredin15-20words.Therewillbeeightlong questions,twofromeach unit.Thecandidatehastoanswerfourlongquestions,atleastonequestionfrom each unit. All questions carry equal marks.		

UNIT-I

Geologicalregionsof India;Physiographicdivisionsof India:Himalayas, Indo-GangeticPlains,Peninsular Plateaus, Thar desert, Coastal plains, Islands. Extra peninsular drainage: Indus, Ganga and Brahmaputra Riversystems;Peninsulardrainage:eastflowingriversand westflowingriver;differenceinpeninsularand extra-peninsular drainage.

UNIT-II

Characteristics and distribution of soil in India, Major type of vegetation found in India, climate system in India. Indian monsoon: Classical and Modern theory; Koppen's Classification of India.

UNIT-III

ThePeoplingofIndia;Populationdistribution,densityandgrowth.Populationcomposition:ethnicand socio-cultural attributes (castes and tribes), Population explosion and food security.

UNIT-IV

Unityindiversityin India;Distributionandproductionofmajoragriculturalcrops;distributionand production of iron, coal and petroleum, transportation network.

SuggestedReading:

- Bindra,S.S.(1989),"IndiaandHerNeighbors",DeepandDeepPublications,NewDelhi.
- Chatterjee,Rupali.(2015),"GeographyofIndia",GlobalAcademicPublishers,NewDelhi.
- Deshpande,C.D(1992),"India-ARegionalInterpretation",NorthernBookCentre,NewDelhi.
- Farmer,B.H.(1983),"AnIntroductiontoSouthAsia",Methuen,London.
- GautamA.(2009),"AdvancedGeographyofIndia",ShardaPustakbhawan, Allahabad.
- GopalKrishan(2017),"TheVitalityofIndia:ARegionalPerspective",RawatPublication,Jaipur.
- Johnson,B.L.C.(1963),"DevelopmentinSouthAsia",PenguinBooks,Harmon's worth.

- Johnson,B.L.C.(1980),"India:ResourcesandDevelopment",Arnord-Hinemann,London.
- Krishnan,M.S.(1982), 'GeologyofIndiaandBurma",CASPublishersandDistributors, Delhi.
- Khullar,D.R.(2007),"India:AComprehensiveGeography",KalyaniPublishers,NewDelhi.
- Majid,H.(2020),"GeographyofIndia",McGrawHillEducation(India)PrivateLtd.
- Mamoria,C.B.andMishra,J.P.(2021),"BharatkaBhugol".SahityaBhawanPublication,Agra.
- Nag,P.andGupta,S.S.(1992),"Geographyof India",ConceptPublishingCompany,New Delhi.
- Sharma,T.C.andCoutinho,O.(2003),"EconomicandCommercialGeographyof India",VikasPublishing House Private Ltd. New Delhi.
- Singh,G.(1995),"AGeographyofIndia",AtmaRam&Sons,NewDelhi.
- Singh,R.L.(ed.)(1971),"India:ARegionalGeography.NationalGeographicalSocietyofIndia",Varanasi.
- Spate,O.H.K.andA.T.A.learmonth(1967),"Geographyof IndiaandPakistan",MethuenLondon(first Indian Edition, 1984, Munshiram Manoharlal, New Delhi).
- Spate,O.H.K.,LearmonthA.T.A.andFarmer,B.H.(1996),"India,PakistanandSriLanka",Methuen, London, 7th edition.
- SukhwaI,B.L.(1987),"India:EconomicResourceBaseandContemporaryPoliticalPatterns",Sterling Publication, New Delhi.
- Tirtha,R.&GopalKrishan(1992),"EmergingIndia",ConpubandArbourPublishers,Michigan.
- Tirtha,R.(2004),"GeographyofIndia",RawatPublications,Jaipur
- Tiwari,R.C.(2007),"GeographyofIndia",PrayagPustakBhawan, Allahabad.
- Wadia,D.N.(1959),"GeologyofIndia",Mac-Millan&Company,Londonandstudentedition, Madras.

Semester-
IGeographyofEnvironment

CourseCode:**CC-A2(Theory:CorePaper)**

CourseId:**240/GEO/CC102**

Programme/Class: B.A. Year:1 Semester:I Credit:04(3+1+0)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:3Hours	EndSemesterExam:	70 Marks
Course Outcome:- 1. Gainknowledgeaboutconcept,scopeofenvironmental geography and components of environment. 2. Developanideaaboutmajorecosystemandhuman-environment relationships. 3. Buildanideaaboutecosystem andbiodiversity. 4. Knowaboutenvironmentalpollution,programmesand policies.	InternalAssessment: Atterdance Assignment SessionalExam	30 Marks 5 5 20
InstructionsforPaper-Setter:-Question1iscompulsorycomprisingsevensub-partsspreadoverthe entiresyllabus(twomarksforeachsub-part),tobeansweredin15-20words.Therewillbeeightlong questions,twofromeachunit.Thecandidatehastoanswerfourlongquestions,atleastonequestionfrom each unit. All questions carry equal marks.		

UNIT–I

Ecology, ecosystem, structure and function of ecosystem, Energy flow in an ecosystem, ecotone, food chain, food web and ecological succession, Major ecosystems: Desert ecosystem, Forest ecosystem, Grassland ecosystem, Aquatic ecosystem.

UNIT-II

Biogeography zones of India; biodiversity patterns and global biodiversity hot spots. Threats to biodiversity: habitat loss, poaching of wildlife, in-situ and ex-situ conservation of biodiversity.

UNIT-III

Ecosystem and biodiversity services: ecological, economic, social, ethical, aesthetic and informational value, biome, classification of biome.

UNIT–IV

Environmental pollution, types, causes, effects and controls; Air, water, soil, chemical and noise pollution. Climate change, global warming, ozone layer depletion, acid rain, Impacts on human communities and agriculture. Concept of sustainable development.

Project Work: Visit to an area to document environmental assets; river/forest/flora/fauna, etc. Visit to a local polluted site – urban/rural/industrial/agricultural. Study of simple ecosystems- pond, river, Delhiridge etc.

SuggestedReading:

- AgarwalKC(2001),"EnvironmentalBiology",NidiPublishersLtd.Bikaner.
- Anderson J.M. (1981), "Ecology for Environmental Science: Biosphere, Ecosystems and Man", Arnold, London.

- BharuchaErach(2003),"TheBiodiversityofIndia",MapinPublishingPvt.Ltd,Ahmedabad, India.
- BrunnerRC(1989),"HazardousWasteIncineration",McGrawHillInc.
- Cunningham WP, Cooper TH, Gorhani E & Hepworth MT (2001), "Environmental Encyclopedia", Jaico Publishing House, Mumbai.
- GleickHP(1993),"WaterinCrisis",PacificInstituteforStudiesinDevelopment,Environmentand Security, Stockholm Environmental Institute, Oxford University Press.
- Goudie,Andrew(1984),"TheNatureoftheEnvironment",OxfordKaterpringCo.Ltd.
- HeywoodVHandWatsonRT(1995),"GlobalBiodiversityAssessment",CambridgeUniversityPress.
- Jadhav H and Bhosale VM (1995), "Environmental Protection and Laws", Himalaya Publishing House, Delhi.
- NobelandWright(1996),"EnvironmentalScience",PrenticeHall,NewYork.
- Odum,E.P.(1971),"Fundamentalof Ecology",W.B.Sanders,Philadelphia.
- Saxena,H.M.(1994),"PrayavaranevnParisthitikiBhugool(GeographyofEnvironmentandEcology)", Rajasthan Hindi Granth Academy, Jaipur.
- Singh,Savindra(1991),"EnvironmentalGeography",PrayagPustakBhawan,Allahabad.
- Singh,R.B.(ed.)(1989),"EnvironmentalGeography",Heritage,NewDelhi.
- Strahler,A.N.andStrahler,A.H.(1973),"EnvironmentalGeosciences:Interactionbetweennatural systems and Man", John Wiley and Sons, New York.
- Strahler,A.H.andStrahlerA.N.(1977),"GeographyandMansEnvironment",JohnWiley,New York.
- William,M.M.andJohn,G.(1996),"Environmental Geography - Science, Landuse and Earth System", John Wiley and Sons, New York.

Semester-
IGeneralCartography

CourseCode:**CC-A3(Practical:CorePaper)**
CourseId:**240/GEO/CC103**

Programme/Class: B.A. Year:I Semester:I Credit:04(0+0+8)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:4Hours	EndSemesterPract. Pract.writtenExam: Viva-voce	70 Marks 50 Marks 20 Marks
Course Outcome:- 1. Developanideaaboutscaleanddrawdifferenttypesof scale like linear and diagonal. 2. Understandandpreparedifferentkindsofmaps. 3. Recognizebasicthemesofmapmaking. 4. Acquireknowledgedifferent typesof diagram.	InternalAssessment: Attendance Pract.Assign./Pract. File/record	30 Marks 5 25
Note & Instructions for Paper-Setter:- At least **thirty exercises** are to be prepared covering all the topics. The question paper will be set from the content of entire syllabus. A board of two external examiners shall conduct the Practical Examination. The answer copies of the students will be checked by external and internal examiners on the day of examination. In the end semester practical examination,**Part-Ithelabtest**willconsistof5MCQtypequestionscarrying2markseach (5question x 2 marks= 10 marks). **Part-II** thelab test shall comprise of eight questions in all with at least two questions from each unit (4 question x 10 marks= 40 marks.		

UNIT –I

Basic Concepts of Cartography: Meaning, nature and subject matter of Cartography; Calculation of R.F. from arcs of meridians and parallels, Map: Definition, Significance, Classification, Usefulness and Principles of Map Design.

MapScales:

(i) Methodsofexpressingascale
(ii) ConversionofStatementofScaleinto R.F.andR.F.tostatement ofscale.
(iii) PlainScale(Kmandmile)
(iv) ComparativeScale
(v) DiagonalScale

UNIT-II

Measurementofdistancesandareas onMaps;enlargement and reductionofMaps;Latitudeand Longitude; GlobalTime: Indianstandardtime,Worldtime-zones, Internationaldate-line.Representationofpopulation distribution by Uniform and Multiple Dots., Representation of urban Population by spheres, proportional circles, cubes and Pyramid diagram.

SuggestedReading:

- AnsonR.andOrmellingF.J.(1994),"InternationalCartographicAssociation:Basic Cartographic", Vol. Pregmen Press.
- D.R.Khullar(2022),"PracticalGeography",KalyaniPublisher,NewDelhi.
- D.R.Khullar(2024),"PhysicalGeographyandPracticalGeography",KalyaniPublisher,NewDelhi.
- GuptaK.K.andTyagi,V. C. (1992),"WorkingwithMap, Surveyof India",DST,New Delhi.
- MishraR.P.andRamesh,A.(1989),"FundamentalsofCartography",Concept,NewDelhi.
- Monkhouse,F.J.andWilkinson,F.J.(1985),"MapsandDiagrams",Methuen.London.

- Raisz,E.(1962),"GeneralCartography",JohnWileyandSons,NewYork.5thedition.
- RhindD.W.andTaylorD.R.F.,(eds.)(1989),"Cartography:Past,PresentandFuture",Elsevier, International Cartographic Association.
- RobinsonA.H.(2009),"ElementsofCartography",JohnWileyandSons,NewYork.
- Sarkar, A. (2015), "Practical geography: A systematic approach", Orient Black Swan Private Ltd., New Delhi.
- SinghRL&RanaPBSingh(1991),"PrayogtmakBhugolkeMoolTatva",KalyaniPublishers,New Delhi.
- Singh,R.L.andSingh,RanaP.B.(1993),"ElementsofPracticalGeography",(HindiandEnglisheditions). Kalyani Publishers, New Delhi.
- SinghR. L. andSinghR. P.B.(1999),"ElementsofPracticalGeography",KalyaniPublishers.
- Singh,R.L.(2006),"FundamentalsofPracticalGeography",ShardaPustakBhawan,Allahabad.
- SharmaJ.P.(2010),"PrayogicBhugol",RastogiPublishers,Meerut.
- Singh,RL&Dutta,PK(2012),"PrayogatmakBhugol",CentralBookDepot, Allahabad.

Semester-II

Geomorphology

CourseCode:**CC-A4(Theory:CorePaper)**

CourseId:**240/GEO/CC201**

Programme/Class:B.A. Year:1 Semester:II Credit:04(3+1+0)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:3Hours	EndSemesterExam:	70 Marks
Course Outcome:- 1. Understand the theories and fundamental concepts of Geomorphology. Understand earth's tectonic andstructural evolution. Gain knowledge about earth'sinterior. Develop an idea about concept of plate tectonics, and resultant landforms. 2. Acquire knowledge about types of folds and faults and earthquakes, volcanoes and associated landforms. 3. Understanding crustal mobility and tectonics; with special emphasis on their role in landform development. 4. Overview and critical appraisal of landform development models.	InternalAssessment: Attendance Assignment SessionalExam	30 Marks 5 5 20
InstructionsforPaper-Setter:-Question1iscompulsorycomprisingsevensub-partsspreadoverthe entiresyllabus(twomarksforeachsub-part),tobeansweredin15-20words.Therewillbeeightlong questions,twofromeachunit.Thecandidatehastoanswerfourlongquestions,atleastonequestionfrom each unit. All questions carry equal marks.		

UNIT–I

Origin of the Earth, Geological Time Scale, Internal structure of the earth, Moho's hardness scale, Theory of Isostasy, Continental Drift Theory, Plate Tectonic Theory, Sea-Floor Spreading.

UNIT-II

Earth movements, Major Landforms (Mountains, Plateaus, Plains), Earthquakes and Volcanoes--Origin, Types, Distribution, Structure and Landforms— Folded and Faulted.

UNIT-III

Weathering (Mechanical, Chemical, Organic), Mass Movement Erosion (Cycle of Erosion-Penck-Davis, Rejuvenation) ; Fluvial Actions, Overland Flow Landforms made by Rivers, Wind Erosion, Landforms made caused by Aeolian Actions, Glacier, Classification of Glaciers, Landforms caused by GlacialActions.

UNIT–IV

TimeandSpaceinGeomorphology,ConceptofEquilibriumandThreshold,Systemsandfeedbackin Geomorphology, Cyclic and non-cyclic approaches in Geomorphology.

SuggestedReading:

- Bloom,A.L.(1992),"Geomorphology",SecondEdition,PrenticeHallofIndia,NewDelhi.
- Dayal,P.(1990)."ATextBookofGeomorphology",ShuklaBookDepot, Patna.
- Husain Majid (2002), "Fundamentals of Physical Geography", Second Edition, Rawat Publications,Jaipur and New Delhi.
- Huggett,RichardJohn(2016),"FundamentalsofGeomorphology"4thEdition,Taylor&Francis, UK.
- Singh,Savindra(1993),"PhysicalGeography",PrayagPustakBhawan,Allahabad.
- SinghSavindra(1998),"Geomorphology",PravalikaPublication,Allahabad.
- Sharma,H.S.(eds)(1980),"PerspectiveinGeomorphology"Concept,NewDelhi.
- Skinner,B.J.&Potter,S.C.(1995), "TheDynamicEarth",JohnWiley,New York.
- Sparks,B.W.(1960),"Geomorphology",Longman,London.
- Strahler,A.N.(1988),"EarthSciences",HarperandRowPublishers,N.D.
- Strahler, A.N. and Strahler, A.H. (1996), "Introducing Physical Geography", John Willey and Sons,New York.
- Thornbury, W.D.(1991),"PrinciplesofGeomorphology",JohnWiley,NewDelhi.
- Wooldridge,S.WandMorgan,R.S.(1991),"AnOutlineofGeomorphology",OrientLongmans, Calcutta.

Semester-
IIFundamentalofHumanGeography

CourseCode:**CC-A5(Theory:CorePaper)**
CourseId:**240/GEO/CC202**

Programme/Class:B.A. Year:1 Semester:II Credit:04(3+1+0)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:3Hours	EndSemesterExam:	70 Marks
Course Outcome:- 1. Gain knowledge about major themes of human Geography. 2. Acquire knowledge on the history and evolution of humans. 3. Understand the approaches and processes ofHuman Geography as well as the diverse patternsof habitat and adaptations. 4. Developan ideaabout nationand state.	InternalAssessment: Attendance Assignment SessionalExam	30 Marks 5 5 20
InstructionsforPaper-Setter:-Question 1 is compulsory comprising sevensub-parts spread overtheentiresyllabus(twomarksforeachsub-part),tobeansweredin15-20words.There willbeeightlongquestions,twofromeachunit.Thecandidatehastoanswerfourlongquestions, at least one question from each unit. All questions carry equal marks.		

UNIT–I

Introduction: meaning, nature and scope of Human Geography, branches of human geography;development of human geography; dichotomy of physical and human geography;concept of man and environment relationship;environmental determinism and possibilism.

UNIT-II

Population: Patterns of population distribution growth and distribution of population in the world; Age-sex structure; Demographic transition theory; Migration: recent theories, causes and consequences; Human Development Index (HDI).

UNIT-III

Human settlements: Origin and evolution of rural settlements; types and patternsof rural settlements; origin and growth of urban settlements; Process and pattern of urbanization;trends and patterns of world urbanization.

UNIT–IV

Space and Society: distribution and characteristics ofrace,religion,language,and cultural regions; distribution of indigenous people and major tribes throughout the World and in India. man in ecosystem; ecological adaptation; human adaptation in equatorial, monsoon, tundra and hot desert.

SuggestedReading:

- Chisholm,M.(2nd Ed1985),"HumanGeography",PenguinBooks,London.
- DeBlij,H.J.(1996),"HumanGeography:Culture,SocietyandSpace",2ndedition. John Wiley and Sons, New York.
- Haggett,P.(2004),"Geography:AModernSynthesis",8thedition,Harper andRow,New York.
- Husain,M.(inEnglish&Hindi1994),"HumanGeography",RawatPublications,Jaipur.
- Hussain, Majid (2012),"Manav Bhugol", Rawat Publications, Jaipur
- Husain,Majidhusain6thedition(6September2021)Human geography.

- Johnston R; Gregory D, Pratt G. et al. (2008),"The Dictionary of Human Geography", Blackwell Publication.
- Kaushik,S.D.andSharma,A.K.(1996),"PrinciplesofHumanGeography"(inHindi), Rastogi Publication, Meerut.
- Kaushik, S.D. (2010),"Manav Bhugol", Rastogi Publication, Meerut.
- Maurya, S.D. (2012),"Manav Bhugol", Sharda Pustak Bhawan. Allahabad.Michael,C.M.(1997),"ProcessandChangeinHumanGeography",Nelson,London.
- Norton,W.(2008),"HumanGeography",OxfordUniversityPress,NewYork.5thed.
- Singh,R.L.(2005),"FundamentalsofHumanGeography",ShardaPustakBhawan, Allahabad.
- Stoddard, R.H., Wishart, D.J. and Blouet, B.W. (1986), "Human Geography", Prentice-Hall,Englewood Cliffs, New Jersey.

Semester-
IIRepresentationofPhysicalFeatures

CourseCode:**CC-A6(Practical:CorePaper)**

CourseId:**240/GEO/CC203**

Programme/Class:B.A. Year:1 Semester:II Credit:04(0+0+8)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:4Hours	EndSemester Pract. Pract.writtenExam: Viva-voce	70Marks 50 Marks 20 Marks
Course Outcome:- 1. Willbeabletorepresentthetopographicalmaps. 2. Will be able to represent relief features through superimposed / composite / serial or projected profiles. 3. Will become able to express components of weather map. 4. Will be able to draw height diagrams, hypsometric curve etc.	InternalAssessment: Attendance Pract.Assign./Pract. File/record	30Marks 5 25
Note & Instructions for Paper-Setter:- At least **thirty exercises** are to be prepared covering all the topics. The question paper will be set from the content of entire syllabus. A boardoftwo externalexaminers shallconduct the PracticalExamination.Theanswercopies of the students will be checked by external and internal examiners on the day of examination. In the end semester practical examination, **Part-I the lab test** will consist of 5 MCQtypequestionscarrying2markseach(5questionx2marks=10marks).**Part-II** thelab test shall comprise of eight questions in all with at least two questions from each unit (4 question x 10 marks= 40 marks.		

UNIT–I

Topographical Maps; Conventional signs and symbols; Interpretation of topographical maps: physical landscape and cultural landscape characteristics and components of weather map; Interpretation of Indian Daily Weather Map of India: Pre-monsoon, monsoon and Post-monsoon.

UNIT-II

Indivisibility: determination methods; interpolation of contours. Profiles: types of profiles, drawing of profiles and cross sections; representation of relief – methods; Representation of different landforms with the help of profiles and cross sections; Area: height diagrams, hypsometric curve and altimetric frequency histogram.

SuggestedReading:

- AnsonR.and OrmellingF.J. (1994),"International Cartographic Association: Basic Cartographic", Vol.Pregmen Press.
- D.R.Khullar(2022),"PracticalGeography",KalyaniPublisher,NewDelhi.
- D.R.Khullar(2024),"PhysicalGeographyandPracticalGeography",KalyaniPublisher, New Delhi.
- GuptaK.K.andTyagi,V.C.(1992),"WorkingwithMap,SurveyofIndia",DST, New Delhi.
- MishraR.P.andRamesh,A.(1989),"FundamentalsofCartography",Concept,NewDelhi.
- Monkhouse,F.J.andWilkinson,F.J.(1985),"MapsandDiagrams",Methuen,London.
- Raisz,E.(1962),"GeneralCartography",JohnWileyandSons,NewYork.5thedition.
- Rhind D.W. and Taylor D. R. F., (eds.) (1989), "Cartography:Past,PresentandFuture", Elsevier, International Cartographic Association.
- RobinsonA.H.(2009),"ElementsofCartography",JohnWileyandSons,NewYork.
- Sarkar,A.(2015),"Practical geography: A systematic approach",Orient BlackSwanPrivate Ltd., New Delhi.
- SinghRL&RanaPBSingh(1991),"PrayogtmakBhugolkeMoolTatva",Kalyani Publishers, New Delhi.
- Singh,R.L.andSingh,RanaP.B.(1993),"ElementsofPracticalGeography",(Hindiand English editions). Kalyani Publishers, New Delhi.
- Singh R. L. and Singh R. P. B. (1999), "Elements of Practical Geography", KalyaniPublishers.
- Singh,R.L.(2006),"FundamentalsofPracticalGeography",ShardaPustakBhawan, Allahabad.
- SharmaJ.P.(2010),"PrayogicBhugol",RastogiPublishers,Meerut.
- Singh,RL&Dutta,PK(2012),"PrayogatmakBhugol",CentralBookDepot, Allahabad.

Semester-III

Oceanography

CourseCode:**CC-A7(Theory: Core Paper)**

Courseld:**240/GEO/CC301**

Programme/ Class: B.A. Year:2 Semester: III Credit:04(3+1+0)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:3Hours	EndSemesterExam:	70 Marks
Course Outcome:- 1. Gain knowledge of what and why and skills related to the physical, chemical and biological components and phenomena for a better understanding of oceanography. 2. Understandthe salinity and temperature distribution of ocean water. 3. Understand the relationship between marine organisms and their environment. 4. Developan ideaaboutthe problems and policies for sustainable oceansand SDG 14.	InternalAssessment: Attendance Assignment SessionalExam	30 Marks 5 5 20
Instructions for Paper- Setter:-Question 1 is compulsory comprising seven sub-parts spread over the entire syllabus(twomarksforeachsub-part),to be answered in15-20words.There willbeeightlongquestions,twofromeachunit.Thecandidatehastoanswerfourlongquestions, at least one question from each unit. All questions carry equal marks.		

UNIT–I

Oceanography: Definition, nature and scope; Reliefs of the ocean basins: Pacific, Atlantic and Indian Ocean.

UNIT-II

Properties of ocean water: Salinity and Temperature (horizontal and vertical distribution); Circulation of Oceanic water tides and oceanic currents.

UNIT-III

Marine Ecosystems and Challenges: Coral reef, mangrove, open and deep sea. Ocean deposits: Ooz.,organic matter, and minerals

UNIT–IV

Marine management: Marine policy, Integrated Coastal Zone Management with reference to India and SDG 14; Life below Water, Sea level changes .

Suggested Reading:

- Basu S.K. (2003),"Hand Book of Oceanography", Global Vision, Delhi.
- Chisholm,M.(2nd Ed1985),"HumanGeography",PenguinBooks,London.
- Davis, R. J.A. (1996), "Oceanography: An Introduction to the Marine Environment", Wm, C. Brown, Lowa.
- Garrison Tom (2012),"Geography: An Invitation to Marrine Science", Brooks/Cole, New York.
- Garrison, T. (2016),"Oceanography: An Invitation to Marine Science", 9th ed, Cengage Learning, Boston.
- Hussain, Majid. 2010. Fundamentals of Physical Geography, New Delhi.
- Lal, D.S. (in Hindi, 1999), "Samundar Vigyan", Sharda Pustak Bhawan, Allahabad.
- Lake, P. (2002), "Physical Geography (Indian Edition)", Mohit Publications, New Delhi.
- Lal. D.S. (2003),"Oceanography", Sharada Pustak Bhavan, Allahabad.
- Pinet, P.R. (2014),"Invitation to Oceanography", 7th ed, Jones and Barlett Publishers, Burlington.
- Sverdrup K. A. and Armrest, E. V. (2008),"An Introduction to the World Ocean", McGraw Hill, Boston. Readings(Hindi).
- Siddhartha, K. (2013),"Oceanography: A Brief Introduction", Kisalaya Pub., New Delhi 19.
- Singh, S. (2015), "Oceanography" Pravalika Publication, Allahabad.
- Singh, S. (2015),"Samudra Vigyan", Pravalika Publication, Allahabad.
- Sharma, R. C. and Vatal, M. (2018),"Oceanography for Geographer", Surjeet Publications, Delhi.

Semester-III

Introduction to Philosophy of Geography

CourseCode:**CC-A8(Theory: CorePaper)**

CourseId: **240/GEO/CC302**

Programme/Class:B.A. Year:2 Semester:III Credit:04(3+1+0)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:3Hours	EndSemesterExam:	70 Marks
Course Outcome:- 1. Perceive the evolution of the philosophy of Geography. • 2. Appreciate the contribution of the thinkers in Geography. • 3. Discussing the evolution of geographical thought from ancient to modern times. 4. Analyzing modern and contemporary principles of Empiricism, Positivism, Structuralism, Human and Behavioral Approaches in Geography.	InternalAssessment: Attendance Assignment SessionalExam	30 Marks 5 5 20
Instructions for Paper- Setter:-Question 1 is compulsory comprising sevensub-parts spread over the entire syllabus (two marks foreachsub-part),tobeansweredin15-20words.There Will be eight longquestions,twofromeachunit.Thecandidatehastoanswerfourlongquesticns, at least one question from each unit. All questions carry equal marks.		

UNIT–I

Pre-Modern: Early origins of geographical thinking with reference to the classical and medieval Philosophies.

UNIT-II

Modern: Evolution of geographical thinking and disciplinary trends in Germany, France, Britain, United States of America.

UNIT-III

Dualism: Physical V/s Human , systematic and regional, determinism and possibilism, ideographic and nomeothetic, paradigms in Geography.

UNIT–IV

Approaches: Quantitative, Behavioral, Systems, Radical, Feminist; Environmental, Evolution and development of the concept of space in Geography, Emerging Future of trends in Geography.

SuggestedReading:

- Dikshit,R.D.(1994),"Bhugolik Chintan ka Vikas", PrenticeHall ofIndia,New Delhi.
- Dikshit, R.D. (1997), "Geographical Thought: A Contextual History of Ideas", Prentice-Hall of IndiaPvt Ltd. New Delhi.
- Holt-Jensen A. (2011),"Geography: History and Its Concepts: A Students Guide", SAGE.
- Johnston R. J. (Ed.),"Dictionary of Human Geography", Routledge.
- Johnston R. J. (1997),"Geography and Geographers, Anglo-American Human Geography since 1945", Arnold, London.
- Kaushik, S.D. (2007), "Prichyatmak Bhugol", Rastogi Publications, Meerut.
- Kapur A., (2001),"Indian Geography Voice of Concern", Concept Publications, New Delhi.
- Martin Geoffrey J., (2005),"All Possible Worlds: A History of Geographical Ideas", Oxford.
- Prasad, D. (in Hindi), "Bhugolik Chintan Ki Samiksha", Sharda Pustak Bhawan,Allahabad.
- Rana, L. (2008), "Geographical Thought: A Systematic Record of evolution", Concept Publishing Company, New Delhi.

- Soja, Edward (1989),"Post-modern Geographies", Verso, London. Reprinted 1997: Rawat Publ., Jaipur and New Delhi.

Semester-III
Principal of Land Surveying

CourseCode:**CC-A9(Practical:CorePaper)**

CourseId:**240/GEO/CC303**

Programme / Class: B.A. Year:2 Semester: III Credit:04(0+0+8) L+T+P Hrs/Week	Total Marks:	100
ExaminationTime:4Hours	End Semester Practical Practical Written Exam: Viva-voce	70Marks 50 Marks 20 Marks
Course Outcome:- 1. Comprehend the concept of land survey. 2. Learn the usages of survey instruments. 3. Brings direct interaction of different types of surveying instruments like clinometers. 4. Develop an idea about different types of survey mapping techniques.	Internal Assessment: Attendance Practical Assignment/ Practical File/record	30Marks 5 25
Note & Instructions for Paper-Setter:- At least **twenty exercises** are to be prepared covering all the topics. The question paper will be set from the content of entire syllabus. The external examiners shall conduct the Practical Examination. The answer copies of the students will be checked by external and internal examiners on the day of examination. In the end semester practical examination, **Part-I the lab test** will consist of 5 MCQtypequestionscarrying2markseach(5questionx2marks=10marks).**Part-II** the lab test shall comprise of eight questions in all with at least two questions from each unit (4 question x 10 marks= 40 marks.		

UNIT–I

Surveying: Definition, Importance and different types of surveying. Plain and Geodatic Surveying ,Chain and tape survey: Plan Preparation, Measuring chains; Tie lines, methods: open and close traverse, triangulation.

UNIT-II

Plane table survey: plan preparation, methods: radiation and intersection; two point and three point Problems; Error correction. Measurement of height and contouring: Clinometers.

SuggestedReading:

- AnsonR.and OrmellingF.J. (1994),"International Cartographic Association: Basic Cartographic", Vol.Pregmen Press.
- D.R.Khullar(2022),"PracticalGeography",KalyaniPublisher,NewDelhi.
- D.R.Khullar(2024),"PhysicalGeographyandPracticalGeography",KalyaniPublisher, New Delhi.
- GuptaK.K.andTyagi,V.C.(1992),"WorkingwithMap,SurveyofIndia",DST, New Delhi.
- MishraR.P.andRamesh,A.(1989),"FundamentalsofCartography",Concept,NewDelhi.
- Monkhouse,F.J.andWilkinson,F.J.(1985),"MapsandDiagrams",Methuen,London.
- Raisz,E.(1962),"GeneralCartography",JohnWileyandSons,NewYork.5thedition.
- Rhind D.W. and Taylor D. R. F., (eds.) (1989), "Cartography:Past,PresentandFuture", Elsevier, International Cartographic Association.
- RobinsonA.H.(2009),"ElementsofCartography",JohnWileyandSons,NewYork.
- Sarkar,A.(2015),"Practical geography: A systematic approach",Orient BlackSwanPrivate Ltd.,

New Delhi.
- SinghRL&RanaPBSingh(1991),"PrayogtmakBhugolkeMoolTatva",Kalyani Publishers, New Delhi.
- Singh,R.L.andSingh,RanaP.B.(1993),"ElementsofPracticalGeography",(Hindiand English editions). Kalyani Publishers, New Delhi.
- Singh R. L. and Singh R. P. B. (1999), "Elements of Practical Geography", KalyaniPublishers.
- Singh,R.L.(2006),"FundamentalsofPracticalGeography",ShardaPustakBhawan, Allahabad.
- SharmaJ.P.(2010),"PrayogicBhugol",RastogiPublishers.Meerut.
- Singh,RL&Dutta.PK(2012),"PrayogatmakBhugol",CentralBookDepot, Allahabad.

Semester-IV
Introductory Climatology

CourseCode:**CC-A10(Theory:CorePaper)**
CourseId:**240/GEO/CC401**

Programme/Class:B.A. Year:2 Semester:IV Credit:04(3+1+0)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:3Hours	EndSemesterExam:	70 Marks
Course Outcome:- 1. Understand the elements of climate. different atmospheric phenomena and climate change. 2. Learn the interaction between the atmosphere and the earth's surface. Understand the importance of the atmospheric pressure and winds. 3. To analyze the dynamics of the Earth's atmosphere and global climate. Assessing the role of man in global climate change. 4. Learn to associate climate with other environmental and human issues. Approaches to climate classification.	InternalAssessment: Attendance Assignment SessionalExam	30 Marks 5 5 20
InstructionsforPaper-Setter:-Question 1 is compulsory comprising sevensub-parts spread overtheentiresyllabus(twomarksforeachsub-part),tobeanswered in15-20words.There Will be eight longquestions,twofromeachunit.Thecandidatehastoanswerfourlongquestions, at least one question from each unit. All questions carry equal marks.		

UNIT–I

Weather and climate: elements and type, Atmospheric composition and structure: Insolation and temperature: variation with altitude, latitude and season, factors and distribution, heat budget, temperature inversion.Temperature anomaly.

UNIT-II

Atmospheric pressure and winds: Winds, forces affecting winds, general circulation, Jet streams, El-nino,La-nino, Humidity : Evaporation, condensation, fog and clouds, precipitation .

UNIT-III

Air masses: concepts and classification; atmospheric disturbances; tropical and extra tropical cyclones and anticyclone; Mechanism of monsoon.

UNIT–IV

Climatic region: classification of Koppen and Thornthwaite: Climatic Issues: Climate changes, Global warming, Green House effect, Heat wave .

Suggested Reading:

- Barry R. G. and Carleton A. M., (2001),"Synoptic and Dynamic Climatology", Routledge, UK.

- Barry R. G. and Corley R. J., (1998),"Atmosphere, Weather and Climate", Routledge, New York.
- Critchfield H. J., (1987),"General Climatology", Prentice-Hall of India, New Delhi.
- Gupta L S(2000),"Jalvayu Vigyan, Hindi Madhyam Karyanvay Nidishalya", Delhi Vishwa Vidhyalaya, Delhi
- Lal, D S (2006),"Jalvayu Vigyan", Prayag Pustak Bhavan, Allahabad.
- Lutgens F. K., Tarbuck E. J. and Tasa D., (2009),"The Atmosphere: An Introduction to Meteorology", Prentice-Hall, Englewood Cliffs, New Jersey.
- Oliver J. E. and Hidore J. J., (2002), "Climatology: An Atmospheric Science", Pearson Education, New Delhi.
- Singh, S (2009),"Jalvayu Vigyan", Prayag Pustak Bhawan, Allahabad.
- Trewartha G. T. and Horne L. H., 1980: An Introduction to Climate, McGraw-Hill.
- Vatal, M (1986): Bhautik Bhugol, Central Book Depot, Allahabad.

Semester-IV
Statistical Methods in Geography

CourseCode:**CC-A11(Theory: Core Paper)**
CourseId:**240/GEO/CC402**

Programme/ Class: B.A. Year:2 Semester: IV Credit:04(3+1+0)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:3Hours	EndSemesterExam:	70 Marks
Course Outcome:- 1. Understand the significance of statistics in geography. 2. Recognize the importance and application of Statistics in Geography. 3. Interpret statistical data for a holistic understanding of geographical phenomena. 4. Understand the significance of correlation and regression.	InternalAssessment: Attendance Assignment SessionalExam	30 Marks 5 5 20
Instructions for Paper-Setter:-Question 1 is compulsory comprising sevensub-parts spread overtheentiresyllabus(twomarksforeachsub-part),tobeansweredin15-20words.There Will be eight long questions,twofromeachunit.Thecandidatehastoanswerfourlongquestions, at least one question from each unit. All questions carry equal marks.		

UNIT–I

Statistics: Meaning, Significance in Geography, Data: Sources, type, organization, Tabulation, Frequency distribution and data series , Graphical representation (Histogram, Frequency polygon and Ogive) ,Sampling: types and significance.

UNIT-II

Measures of central tendency: Mean Median and Mode; Partition values: Quartile, Decile and Percentile.

UNIT-III

Measures of dispersion: Range, Mean deviation ,Quartile davition, and Standard deviation; Coefficient of variation.

UNIT–IV

Correlation and regression: Karl Pearson's method and Spearman's Rank Correlation method. Significance testing of correlation. Regression analysis. Linear step regression.

SuggestedReading:

- Bart James E and Gerld M.Barber, (1996),"Elementary Statistics for Geographers, The Guieford Press, London.
- Eldon, D., (1983),"Statistics in Geography: A Practical Approach", Blackwell, London.
- Cressie, N.A.C., (1991),"Statistics for Spatial Analysis", Wiley, New York.
- Gregory, S., (1978),"Statistical Methods and the Geographer (4th Edition)", Longman, London.
- Haining, R.P., (1990),"Spatial Data Analysis in the Social and Environmental Science", Cambridge University Press, Cambridge.
- Mc Grew, Jr. and Cahrles, B. M., (1993),"An Introduction to Statistical Problem Solving in Geography", W.C. Brocan Publishers, New Jersey. 7.
- Mathews, J.A., (1987),"Quantitative and Statistical Approaches to Geography: A Practical Manual Pergamon", Oxford.
- Pal, S.K., (1998),"Statistics for Geo-scientists : Techniques and Applications", Concept Publishing Company, New Delhi.

Semester-IV

Statistical Methods in Geography

CourseCode:**CC-A12(Practical: Core Paper)**

CourseId:**240/GEO/CC403**

Programme/Class:B.A. Year:2 Semester: III Credit:04(0+0+8)L+T+PHrs/Week	TotalMarks:	100
ExaminationTime:4Hours	EndSemester Pract. Pract.writtenExam: Viva-voce	70Marks 50 Marks 20 Marks
Course Outcome:- 1. Learn the importance of use of data in geography. 2. Know about different types of diagram. 3. Learn to use tabulation of data. 4. Gain knowledge about association and correlation.	InternalAssessment: Attendance Pract.Assign./Pract. File/record	30Marks 5 25
Note & Instructions for Paper-Setter:- At least **twenty exercises** are to be prepared covering all the topics. The question paper will be set from the content of entire syllabus. A boardoftwo externalexaminers shallconduct the PracticalExamination.Theanswercopies of the students will be checked by external and internal examiners on the day of examination. In the end semester practical examination, **Part-I the lab test** will consist of 5 MCQtypequestionscarrying2markseach(5questionx2marks=10marks).**Part-II** thelabtest shall comprise of eight questions in all with at least two questions from each unit (4 question x 10 marks= 40 marks.		

UNIT–I

Sources of data: Tally bar, Construction of frequency distribution table, Data Series inclusive and exclusive: Graphical representation of frequency distribution table: Bar graph, Line graph, Histogram, Frequency polygon and Ogive; pie diagram , Scatter diagram, Regression analysis: construction of regression equations and regression line.

UNIT-II

Centrographic techniques: Mean centre, Median centre and Standard distance: Measures of inequality: Lorenz curve, Location quotient and Crop combination: Weaver's method. Nearest Neighbor Analysis:

Note: Any Statistical Software Package (SPSS, MS Excel, etc.) may be used for practice.

Suggested Reading:

- AnsonR.and OrmellingF.J. (1994),"International Cartographic Association: Basic Cartographic", Vol.Pregmen Press.
- D.R.Khullar(2022),"PracticalGeography",KalyaniPublisher,NewDelhi.
- D.R.Khullar(2024),"PhysicalGeographyandPracticalGeography",KalyaniPublisher, New

Delhi.
- GuptaK.K. and Tyagi,V.C.(1992),"WorkingwithMap,SurveyofIndia",DST, New Delhi.
- MishraR.P.andRamesh,A.(1989),"FundamentalsofCartography",Concept,NewDelhi.
- Monkhouse,F.J.andWilkinson,F.J.(1985),"MapsandDiagrams",Methuen,London.
- Raisz,E.(1962),"GeneralCartography",JohnWileyandSons,NewYork.5thedition.
- Rhind D.W. and Taylor D. R. F., (eds.) (1989), "Cartography:Past,PresentandFuture", Elsevier, International Cartographic Association.
- RobinsonA.H.(2009),"ElementsofCartography",JohnWileyandSons,NewYork.
- Sarkar,A.(2015),"Practical geography: A systematic approach",Orient BlackSwanPrivate Ltd., New Delhi.
- SinghRL&RanaPBSingh(1991),"PrayogtmakBhugolkeMoolTatva",Kalyani Publishers, New Delhi.
- Singh,R.L.andSingh,RanaP.B.(1993),"ElementsofPracticalGeography",(Hindiand English editions). Kalyani Publishers, New Delhi.
- Singh R. L. and Singh R. P. B. (1999), "Elements of Practical Geography", KalyaniPublishers.
- Singh,R.L.(2006),"FundamentalsofPracticalGeography",ShardaPustakBhawan, Allahabad.
- SharmaJ.P.(2010),"PrayogicBhugol",RastogiPublishers,Meerut.
- Singh,RL&Dutta,PK(2012),"PrayogatmakBhugol",CentralBookDepot, Allahabad.
- Bart James E and Gerld M.Barber, (1996),"Elementary Statistics for Geographers, The Guieford Press, London.
- Eldon, D., (1983),"Statistics in Geography: A Practical Approach", Blackwell, London.
- Cressie, N.A.C., (1991),"Statistics for Spatial Analysis", Wiley, New York.
- Gregory, S., (1978),"Statistical Methods and the Geographer (4th Edition)", Longman, London.
- Haining, R.P., (1990),"Spatial Data Analysis in the Social and Environmental Science", Cambridge University Press, Cambridge.
- Mc Grew, Jr. and Cahrles, B. M., (1993),"An Introduction to Statistical Problem Solving in Geography", W.C. Brocan Publishers, New Jersey.
- Mathews, J.A., (1987),"Quantitative and Statistical Approaches to Geography: A Practical Manual Pergamon", Oxford.
- S.K., (1998),"Statistics for Geoscientists : Techniques and Applications", Concept Publishing Company, New Delhi.