



**ROYAL SCHOOL OF ENVIRONMENTAL AND EARTH
SCIENCES
(RSEES)**

DEPARTMENT OF GEOGRAPHY

**COURSE STRUCTURE & SYLLABUS (BASED ON NATIONAL EDUCATION
POLICY 2020)**

FOR

**B.A/ B.Sc. GEOGRAPHY
(4 YEARS SINGLE MAJOR)**

W.E.F

AY - 2025– 26

B.A/B.Sc. (Honours) in Geography
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1. Preamble

The National Education Policy (NEP) 2020 conceives a new vision for India's higher education system. It recognizes that higher education plays an extremely important role in promoting equity, human as well as societal well-being and in developing India as envisioned in its Constitution. It is desired that higher education will significantly contribute towards sustainable livelihoods and economic development of the nation as India moves towards becoming a knowledge economy and society.

If we focus on the 21st century requirements, the higher education framework of the nation must aim to develop good, thoughtful, well-rounded, and creative individuals and must enable an individual to study one or more specialized areas of interest at a deep level, and also develop character, ethical and Constitutional values, intellectual curiosity, scientific temper, creativity, spirit of service, and twenty-first-century capabilities across a range of disciplines including sciences, social sciences, arts, humanities, languages, as well as professional, technical, and vocational subjects. A quality higher education should be capable enough to enable personal accomplishment and enlightenment, constructive public engagement, and productive contribution to the society. Overall, it should focus on preparing students for more meaningful and satisfying lives and work roles and enable economic independence.

Towards the attainment of holistic and multidisciplinary education, the flexible curricula of the University will include credit-based courses, projects in the areas of community engagement and service, environmental education, and value-based education. As part of holistic education, students will also be provided with opportunities for internships with local industries, businesses, artists, crafts persons, and so on, as well as research internships with faculty and researchers at the University, so that students may actively engage with the practical aspects of their learning and thereby improve their employability.

The undergraduate curriculums are diverse and have varied subjects to be covered to. As per the recommendations from the UGC, introduction of courses related to Indian Knowledge System (IKS) is being incorporated in the curriculum structure which encompasses all of the systematized disciplines of Knowledge which were developed to a high degree of sophistication in India from ancient times and all of the traditions and practises that the various communities of India—including the tribal communities—have evolved, refined and preserved over generations, like for example Vedic Mathematics, Vedangas, Indian Astronomy, Fine Arts, Metallurgy, etc

At RGU, we are committed that at the societal level, higher education will enable each student to develop themselves to be an enlightened, socially conscious, knowledgeable, and skilled citizen who can find and implement robust solutions to its own problems. For the students at the University, Higher education is expected to form the basis for knowledge creation and innovation thereby contributing to a more vibrant,

socially engaged, cooperative community leading towards a happier, cohesive, cultured, productive, innovative, progressive, and prosperous nation.”

SECTION 1

OVERVIEW OF THE NEP 2020 SYLLABUS

1.1. Introduction

The National Education Policy (NEP) 2020 clearly indicates that higher education plays an extremely important role in promoting human as well as societal well-being in India. As envisioned in the 21st-century requirements, quality higher education must aim to develop good, thoughtful, well-rounded, and creative individuals. According to the new education policy, assessments of educational approaches in undergraduate education will integrate the humanities and arts with Science, Technology, Engineering and Mathematics (STEM) that will lead to positive learning outcomes. This will lead to develop creativity and innovation, critical thinking and higher-order thinking capacities, problem-solving abilities, teamwork, communication skills, more in-depth learning, and mastery of curricula across fields, increases in social and moral awareness, etc., besides general engagement and enjoyment of learning, and more in-depth learning.

The NEP highlights that the following fundamental principles that have a direct bearing on the curricula would guide the education system at large, viz.

- a. Recognizing, identifying, and fostering the unique capabilities of each student to promote her/his holistic development.
- b. Flexibility, so that learners can select their learning trajectories and programmes, and thereby choose their own paths in life according to their talents and interests.
- c. Multidisciplinary and holistic education across the sciences, social sciences, arts, humanities, and sports for a multidisciplinary world.
- d. Emphasis on conceptual understanding rather than rote learning; critical thinking to encourage logical decision-making and innovation; ethics and human & constitutional values, and life skills such as communication, teamwork, leadership, and resilience.
- e. Extensive use of technology in teaching and learning, removing language barriers, increasing access for Divyang students, and educational planning and management.
- f. Respect for diversity and respect for the local context in all curricula, pedagogy, and policy.

1.2. Credits in Indian Context:

1.2.1. Choice-Based Credit System (CBCS) By UGC

Under the CBCS system, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be earned by the

students. This framework is being implemented in several universities across States in India. The main highlights of CBCS are as below:

- The CBCS provides flexibility in designing curriculum and assigning credits based on the course content and learning hours.
- The CBCS provides for a system wherein students can take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning.
- CBCS also provides opportunity for vertical mobility to students from a bachelor's degree programme to masters and research degree programmes.

1.3. Definitions

1.3.1. Academic Credit:

An academic credit is a unit by which a course is weighted. It is fixed by the number of hours of instructions offered per week. As per the National Credit Framework ;

1 Credit = 30 NOTIONAL CREDIT HOURS (NCH)

Yearly Learning Hours = 1200 Notional Hours (@40 Credits x 30 NCH)

30 Notional Credit Hours		
Lecture/Tutorial	Practicum	Experiential Learning
1 Credit = 15 -22 LectureHours	10-15 Practicum Hours	0-8 Experiential Learning Hours

1.3.2. Course of Study:

Course of study indicate pursuance of study in a particular discipline/programme. Discipline/Programmes shall offer Major Courses (Core), Minor Courses, Skill Enhancement Courses (SEC), Value Added Courses (VAC), Ability Enhancement Compulsory Courses (AECCs) and Interdisciplinary courses.

1.3.3. Disciplinary Major:

The major would provide the opportunity for a student to pursue in-depth study of a particular subject or discipline. Students may be allowed to change major within the broad discipline at the end of the second semester by giving her/him sufficient time to explore interdisciplinary courses during the first year. Advanced-level disciplinary/interdisciplinary courses, a course in research methodology, and a project/dissertation will be conducted in the seventh semester. The final semester will be devoted to seminar presentation, preparation, and submission of project report/dissertation. The project work/dissertation will be on a topic in the disciplinary programme of study or an interdisciplinary topic.

1.3.4. Disciplinary/interdisciplinary minors:

Students will have the option to choose courses from disciplinary/interdisciplinary minors and skill-based courses. Students who take a sufficient number of courses in a discipline or an interdisciplinary area of study other than the chosen major will qualify for a minor in that discipline or in the chosen interdisciplinary area of study. A student may declare the choice of the minor at the end of the second semester, after exploring various courses.

1.3.5. Courses from Other Disciplines (Interdisciplinary):

All UG students are required to undergo 3 introductory-level courses relating to any of the broad disciplines given below. These courses are intended to broaden the intellectual experience and form part of liberal arts and science education. Students are not allowed to choose or repeat courses already undergone at the higher secondary level (12th class) in the proposed major and minor stream under this category.

i. Natural and Physical Sciences: Students can choose basic courses from disciplines such as Natural Science, for example, Biology, Botany, Zoology, Biotechnology, Biochemistry, Chemistry, Physics, Biophysics, Astronomy and Astrophysics, Earth and Environmental Sciences, etc.

ii. Mathematics, Statistics, and Computer Applications: Courses under this category will facilitate the students to use and apply tools and techniques in their major and minor disciplines. The course may include training in programming software like Python among others and applications software like STATA, SPSS, Tally, etc. Basic courses under this category will be helpful for science and social science in data analysis and the application of quantitative tools.

iii. Library, Information, and Media Sciences: Courses from this category will help the students to understand the recent developments in information and media science (journalism, mass media, and communication)

iv. Commerce and Management: Courses include business management, accountancy, finance, financial institutions, fintech, etc.,

v. Humanities and Social Sciences: The courses relating to Social Sciences, for example, Anthropology, Communication and Media, Economics, History, Linguistics, Political Science, Psychology, Social Work, Sociology, etc. will enable students to understand the individuals and their social behaviour, society, and nation. Students be introduced to survey methodology and available large-scale databases for India. The courses under humanities include, for example, Archaeology, History, Comparative Literature, Arts & Creative expressions, Creative Writing and Literature, language(s), Philosophy, etc., and interdisciplinary courses relating to humanities. The list of Courses can include interdisciplinary subjects such as Cognitive Science, Environmental Science, Gender Studies, Global Environment & Health, International Relations, Political Economy and Development, Sustainable Development, Women's, and Gender Studies, etc. will be useful to understand society.

1.3.6. Ability Enhancement Courses (AEC): Modern Indian Language (MIL) & English language focused on language and communication skills.

Students are required to achieve competency in a Modern Indian Language (MIL) and in the English language with special emphasis on language and communication skills. The courses aim at enabling the students to acquire and demonstrate the core linguistic skills, including critical reading and expository and academic writing skills, that help students articulate their arguments and present their thinking clearly and coherently and recognize the importance of language as a mediator of knowledge and identity. They would also enable students to acquaint themselves with the cultural and intellectual heritage of the chosen MIL and English language, as well as to provide a reflective understanding of the structure and complexity of the language/literature related to both the MIL and English language. The courses will also emphasize the development and enhancement of skills such as communication, and the ability to participate/conduct discussion and debate.

1.3.7. Skill Enhancement Course (SEC): These courses are aimed at imparting practical skills, hands-on training, soft skills, etc., to enhance the employability of students and should be related to Major Discipline. They will aim at providing hands-on training, competencies, proficiency, and skill to students. SEC course will be a basket course to provide skill-based instruction. For example, SEC of English Discipline may include Public Speaking, Translation & Editing and Content writing.

1.3.8. Summer Internship /Apprenticeship:

The intention is induction into actual work situations. All students must undergo internships / Apprenticeships in a firm, industry, or organization or Training in labs with faculty and researchers in their own or other HEIs/research institutions during the **summer term**. Students should take up opportunities for internships with local industry, business organizations, health and allied areas, local governments (such as panchayats, municipalities), Parliament or elected representatives, media organizations, artists, crafts persons, and a wide variety of organizations so that students may actively engage with the practical side of their learning and, as a by-product, further improve their employability. Students who wish to exit after the first two semesters will undergo a 4-credit work-based learning/internship during the summer term to get a UG Certificate.

1.3.9. Indian Knowledge System:

In view of the importance accorded in the NEP 2020 to rooting our curricula and pedagogy in the Indian context all the students who are enrolled in the four-year UG programmes should be encouraged to take an adequate number of courses in IKS so that the **total credits of the courses taken in IKS amount to at least five per cent of the total mandated credits** (i.e. min. 8 credits for a 4 yr. UGP & 6 credits for a 3 yr. UGP. The students may be encouraged to take these courses, preferably during the first four semesters of the UG programme.

1.3.10. Experiential Learning:

One of the most unique, practical & beneficial features of the National Credit Framework is assignment of credits/credit points/ weightage to the experiential learning including relevant experience and professional levels acquired/ proficiency/ professional levels of a learner/student.

2. Award of Degree and Credit Structure with ME-ME

Award	Year	Credits to earn	Additional Credits	Re-entry allowed within (yrs)	Years to Complete
UG Certificate	1	40	4	3	7
UG Diploma	2	80	4	3	7
3-year UG Degree (Major)	3	120	x	x	x
4-year UG Degree (Honours)	4	160	x	x	x
4-year UG Degree (Honors with Research):	4	160	Students who secure cumulative 75% marks and above in the first six semesters		

3. GRADUATE ATTRIBUTES IN GEOGRAPHY

Some of the characteristic attributes of an Honors graduate in Geography include:

G A 1. Disciplinary Knowledge: Students gain in-depth knowledge of basic and applied areas of geography. Core and discipline courses train them in fundamental branches of the subject. Technical and skill courses help them to learn tools and techniques. Geography student gets a unique opportunity to experiment and observe on the field.

G A 2. Complex Problem Solving: The understanding about surroundings, the issues that concern life, climate or to that matter water crisis etc makes students yearn to look for solutions. Geography discipline has the flair which connects to everyday living and survival thus generates problem solving aptitude.

G A 3. Analytical and critical thinking: The geography course teaches variety of tools, techniques and data handling which develop analytical reasoning to solve the issues. In fact, the training in all these courses is meant to develop the analytical reasoning, mining the data from satellite images, aerial photographs, and observations to arrive at interpretations and inferences.

G A 4. Creativity: The Geography course teaches to create, perform, or think in different and diverse ways about the same objects or scenarios and deal with problems and situations that do not have simple solutions. Think 'out of the box' and generate solutions to complex problems in unfamiliar

contexts by adopting innovative, imaginative, lateral thinking, interpersonal skills and emotional intelligence

G A 5. Communication Skills: Students develop effective communication skills through oral presentations, and group discussions on the subject content. Besides interviewing people, field surveys and public dealing with different cadre of people makes him/her confident in communication. The compiling, processing, and analyzing the information from the field; and presenting in the form of reports enhances written communication skills.

G A 6. Research Related Skills: Course will develop research aptitude, critical analysis of theories and models, raising critical questions about the theories and models, developing hypothesis and learning their testing. Many of the courses in geography are truly scientific in nature which will generate research aptitude and also skills to look towards new approaches.

G A 7. Collaboration: The course enables to develop skill to work with students of diverse backgrounds and collaborate on same topic will increase better understanding. The group assignments and presentations are essential elements in the course design that will inculcate the team spirits. The field excursions help develop great bonding, working and executing the plans on ground. They also learn to work as team in case any emergency with group member away from institution/home/or city.

G A 8. Leadership Readiness/ Quality: A good leader needs to have the knowledge, rational thinking and ready to act at the time of need. Geography encourages to have descriptive and explanatory knowledge of one's surroundings and the globe as a whole, it develops rational thinking and prepares the students to think about alternative social, economic and environmental futures. So, a geography student will

G A 9. Digital and technological skills: Geography is a discipline which involves the learning of GIS, Remote sensing and other technological skills. The course helps to access, evaluate, and use a variety of relevant information sources and use appropriate software for analysis of data

G A 10. Environmental awareness and action: A graduate in the discipline of geography enables one to understand the ways to mitigate the effects of environmental degradation, climate change, and pollution. A student should develop the technique of effective waste management, conservation of biological diversity, management of biological resources and biodiversity, forest and wildlife conservation, and sustainable development and living.

4. The Programme Learning Outcomes (PLO) relating to B.A./B.Sc. (Honours) degree programme in Geography

The learning outcome is to prepare the students of BA/BSc Honours degree in Geography, to understand the development of the subject and delve around issues suited to the needs of the contemporary world. It covers a wide range of papers

covering various themes and maintains uniformity of structure across universities in the country. Geography being interdisciplinary in nature integrates learning derived from all basic and applied sciences/social sciences.

PLO 1: Knowledge of Geography: Students of the BA/BSc Honours degree in Geography will learn to use geographic understanding of various sub fields such as physiography, resources, global economic systems, socio- cultural aspects, rural and urban milieu, environmental and disaster studies, and mapping methods.

PLO 2: Understanding of complex global problems: They will also develop an understanding of complex global issues from economic, social, environmental, and political perspectives, which has relevance in further studies across the globe.

PLO 3: Develop analytical and critical thinking with diverse perspective: After the completion of the course, students will be able to evaluate, analyze, synthesize, and critique key concepts and experiences, and apply diverse perspectives to find creative solutions to problems concerning society and the natural world

PLO 4: Develop ability to create: They will develop creativity as they will be trained to read and interpret maps and generate maps and other geographic representations as well as extract, analyze, and present information from a spatial perspective.

PLO 5: Develop effective communication skills: The course will better-equip students to face the challenges of an increasingly communicate with intercultural world, and contribute to improving tolerance within the diverse societies of India and World. They will also develop zeal of exploration and investigation, travel exploration and effective communication skills and teamwork.

PLO 6: Develop research and development skills: Students will acquire knowledge of scientific methods of data handling, hypothesis generation, testing and analysis. The learners will have a general understanding of the various theoretical and methodological approaches in both physical and human geography and be able to develop research questions and critically analyze both qualitative and quantitative data to answer those questions

PLO 7: Develop team building ability: They will also be able to learn how to undertake collaborative works with teamwork experiences in the classroom and field excursions and use them to their advantage to further their career.

PLO 8: Develop leadership skills: Students will develop the ethical aptitudes and dispositions necessary to acquire and hold leadership positions in industry, government, and professional organizations.

PLO 9: Develop digital and technological skills: Students will be able to assess and build upon previous learning and experiences to pursue new learning, independently and in collaboration with others.

PLO 10: Develop environmental awareness and ability to address the issue: The geography graduates will be able to pursue wide range of knowledge and experience from various fields. They will be well informed citizens who can play immense role in the civil society too and also be able to pursue career as planners, administrators, academicians, and managers in the field of environmental and earth sciences.

5. Programme Specific Outcomes

1. Correlate the knowledge of physical geography with the human geography. They will analyze the problems of physical as well as cultural environments of both rural and urban areas.
2. Develop a sustainable approach towards the ecosystem and the biosphere with a view to conserve natural environment and analyze how physical environment, human societies and global economic systems are integrated to the principles of sustainable development.
3. Explain the cultural geographic processes, the global distribution of cultural mosaics, and comprehend how variations in culture and personal experiences may affect our perception and management of places and regions.
4. Identify socio-economic problems of their community through field experience envisaged in the curriculum by applying statistical and cartographic techniques, GIS and remote sensing process. Course learning outcomes are specific to the learning for a given course of study related to a disciplinary or interdisciplinary/multi-disciplinary area of learning. Some courses of study are highly structured, with a closely laid down progression of compulsory/core courses to be taken at different phases/stages of learning.

6. The Qualification Specifications:

Qualification type	Purpose of the qualification
Undergraduate Certificate	The students will be able to apply technical and theoretical concepts and specialized knowledge and skills in a broad range of contexts to undertake skilled or paraprofessional work and/or to pursue further study/learning at higher levels.
Undergraduate Diploma	The students will be able to apply specialized knowledge in a range of contexts to undertake advanced skilled or paraprofessional work and/or to pursue further learning/study at higher levels.
Bachelor's degree	The students will be able to apply a broad and coherent body of knowledge and skills in a range of contexts to undertake professional work and/or for further learning.
Bachelor's degree (Honours/ Honours with Research)	The students will be able to apply the knowledge in a specific context to undertake professional work and for research and further learning.
	The students will be able to apply an advanced body of knowledge in a range of contexts to undertake professional work and apply specialized knowledge and skills for research and scholarship, and/or for further learning relating to the chosen field(s) of learning, work/vocation, or professional practice.

7. Teaching Learning Process:

Teaching and learning in this programme involve classroom lectures, computer lab and tutorials.

It allows-

1. Tutorials and remedial classes
2. Written assignments and projects submitted by students
3. Project-based learning
4. Group discussion
5. Home assignments
6. Class tests
7. Quizzes
8. PPT presentations, Seminars, interactive sessions
9. Co-curricular activity etc.
10. Field visit

8. Programme Evaluation

1. The Programme structures and examinations shall normally be based on Semester System. However, the Academic Council may approve Trimester/Annual System for specified programmes.
2. In addition to end term examinations, student shall be evaluated for his/her academic performance in a
3. Programme through, presentations, analysis, homework assignments, term papers, projects, field work, seminars, quizzes, class tests or any other mode as may be prescribed in the syllabi. The basic structure of each Programme shall be prescribed by the Board of Studies and approved by the Academic Council.
4. Each Programme shall have a number of credits assigned to it depending upon the academic load of the Programme which shall be assessed on the basis of weekly contact hours of lecture, tutorial and laboratory classes, self-study. The credits for the project and the dissertation shall be based on the quantum of work expected.
5. Depending upon the nature of the programme, the components of internal assessment may vary. However, the following suggestive table indicates the distribution of marks for various components in a semester: -

	Components of Evaluation	Marks	Frequency	Code	Weightage (%)
A	Continuous Evaluation				
i	Analysis/Class test	Combination of any three from (i) to (v) with 5 marks each	1-3	C	45%
ii	Home Assignment		1-3	H	
iii	Project		1	P	
iv	Seminar		1-2	S	
v	Viva-Voce/Presentation		1-2	V	
vi	MSE	MSE shall be of 10 marks	1-3	Q/CT	
vii	Attendance	Attendance shall be of 5 marks	100%	A	5%
B	Semester End Examination		1	SEE	50%
	Total				100%

**B.A/B.Sc. (H) Geography
Programme Structure
YEAR- 1**

Semester 1				
Sl. No	Subject Code	Names of subjects	Level of courses	Credit
		Major Course		
1	GEO162M101	Geography of Human and Cultural Landscape	100	3
2	GEO162M102	Geomorphology	100	3
		Minor		
3	GEO162N101	Fundamentals of Physical Geography	100	3
		Interdisciplinary		
4	IKS992K101	Indian Knowledge System-I	100	3
		Ability Enhancement Compulsory Course		
5	CEN982A101	Communicative English	100	2
	BHS982A102	Behavioral Science -I		
		Skill Enhancement Courses (SEC)		
6	GEO162S111	Basics of Cartography	100	3
		Value Added Courses (VAC)		
7		Basket course	100	3
		Swayam Course(s)		
8		Upcoming		3/4
		TOTAL		20+3/4
Semester - 2				
Sl. No	Subject Code	Names of subjects	Level of courses	Credit
		Major Courses		
1	GEO162M201	Climatology and Oceanography	100	3
2	GEO162M202	Geography of Tourism	100	3
		Minor		
3	GEO162N201	Fundamentals of Human Geography	100	3
		Interdisciplinary		
4	IKS992K201	Indian Knowledge System -II	100	3
		Ability Enhancement Compulsory Course		
5	CEN982A201	Communicative English	100	1
	BHS982A202	Behavioral Science -II	100	1
		Skill Enhancement Courses (SEC)		
6	GEO162S211	Fundamentals of Geoinformatics	100	3
		Value Added Courses (VAC)		
7	VAC992V2015	Geography of India	100	3
		Swayam Course(s)		
8		Upcoming		3/4
		Total		20+3/4

YEAR- 2

Semester -3				
Sl. No	Subject Code	Names of subjects	Level of courses	Credit
		Major Course		
1	GEO162M301	Economic Geography	200	4
2	GEO162M302	Soil and Biogeography	200	4
		Minor		
3	GEO162N301	Biogeography	200	4
		Interdisciplinary		
4	GEO162I301	Agricultural Practices in India	200	3
		Ability Enhancement Compulsory Course		
5	CEN982A301	Communicative English -III	200	1
	BHS982A302	Behavioral Science -III	200	1
		Skill Enhancement Course		
6	GEO162S3111	Introduction to Quantitative Techniques	200	3
		Swayam Course(s)		
7		Upcoming		3/4
		TOTAL		20+3/4
Semester 4				
Sl. No	Subject Code	Names of subjects	Level of courses	Credit
		Major Courses		
1	GEO162M401	Social and Political Geography	200	4
2	GEO162M402	Environmental Geography	200	4
3	GEO162M403	Indian Knowledge System on Geography (IKS)	200	4
		Minor		
4	GEO162N401	Economic Geography	200	3
5	GEO162N402	Regional development	200	3
		Ability Enhancement Compulsory Course		
6	CEN982A401	Communicative English -III	200	1
	BHS982A402	Behavioral Science -III	200	1
		Swayam Course(s)		
7		Upcoming		3/4
		TOTAL		20+3/4

YEAR- 3

Semester 5				
Sl. No	Subject Code	Names of subjects	Level of courses	Credit
		Major Course		
1	GEO162M501	Regional Planning and Development	300	4
2	GEO162M502	Population and Settlement Geography	300	4
3	GEO162M503	Disaster Management	300	4
		Minor		
4	GEO162N501	Population and Political Geography	300	4
		Internship		
5	GEO162M524	6 weeks internship	300	4
		TOTAL		20
Semester 6				
Sl. No	Subject Code	Names of subjects	Level of courses	Credit
		Major Courses		
1	GEO162M601	Geography of India	300	4
2	GEO162 M602	Geographical Thought	300	4
3	GEO162 M603	Agricultural Geography	300	4
4	GEO162 M604	Practical in Geography	300	4
		Minor		
5	GEO162N601	Geography of Development of India	300	4
				20

YEAR- 4

Semester 7				
Sl. No	Subject Code	Names of subjects	Level of courses	Credit
		Major Course		
1	GEO162 M701	Geography of Rural Development	400	4
2	GEO162 M702	Urban Geography	400	4
3	GEO162 M703	Geography of North East India and Assam	400	4
4	GEO162 M704	Field Techniques in Geography	400	4
		Minor		
5	GEO162N701	Geography of North East India	400	4
		TOTAL		20
Semester 8				
Sl. No	Subject Code	Names of subjects		Credit
		Major Courses		
1	GEO162M801	Quantitative Methods in Geography	400	4
2	GEO162M803	Research Methodology	400	4
3	GEO162M823	Dissertation/Research Project	400	12
400 level advance core course		In lieu of Dissertation /Research Project		
	GEO162M804	Global Climate Change	400	4
	GEO162M805	Environment and Sustainable Development	400	4
	GEO162M806	Geography of Health	400	4

Semester 1

Semester 1
Major course

Paper I Core Course	GEOGRAPHY OF HUMAN AND CULTURAL LANDSCAPE L-T-P-C: 3-0-0-3 Scheme of Evaluation: (T) Course Level : 100	Subject Code: GEO162M101
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Course Objectives: *The objective of this course is to make the student look into the chronology of development of human geography through contribution of varied scholars, approaches and schools of human geography, major themes and components of cultural geography.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
C01	Define the various parameters and components of the sub-branch.	BT1
C02	Interpret the development of a humanistic view of geography.	BT2
C03	Identify the various aspects of human geography.	BT3
C04	Discover the humanistic perspective and its dimensions in Geography in relation to the physical and cultural surrounding.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Meaning, contents and Scope of Human Geography, human versus physical geography; branches of Human Geography; Development of Human Geography; Contributions of German and French Geographers.	15
Unit 2	Approaches to the study of human geography: Determinism, possibilism, human ecology, positivism, Schools of human geography: Ecology and landscape	15
Unit 3	Definition, Scope and Approaches of Cultural Geography; Major themes of Cultural Geography: Concept of cultural hearth, cultural region, cultural landscape and cultural integration.	15
Unit 4	Characteristics of culture, its components, and functions; Cultural diffusion and factors associated with it, Major cultural regions of the World and their characteristics.	15
	Total	60

Notional Credit Hours for the course: 30X3= 90

Total credit in the paper	Lecture/Tutorial	Experiential Learning
3	60 hours	30 hours
		Field visit for studying landscapes with geo-cultural significance

Text Books:

1. Huntington, E., 1951: *Principles of Human Geography*, John Wiley & Sons, Inc, New York
2. Hussain, M., 1994: *Human Geography*, Rawat Publication, New Delhi.

Reference books:

1. Haggett, P., 1972: *Geography: A Modern Synthesis*, Harper & Row, New York
2. Singh, S., 1991: *Environmental Geography*, PustakBhawan, Allahabad
3. Strahler, A.N. & A.H. Strahler, 1976: *Geography and Man's Environment*, John Willey, New York
4. Knowles, R. and Wareing, J., 1990: *Economic and Social Geography*, Rupa Publications India

Paper II Core Course	GEOMORPHOLOGY L-T-P-C: 3-0-0-3 Scheme of Evaluation: (T) Course Level : 100	Subject Code: GE0162M102
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Course Objectives: *The pivotal point of this course is to make students familiar with the fundamental concepts of geomorphology which incorporates the topics related to geomorphic structure and processes, earth's interior and composition, evolution of landforms and so on.*

Course Outcomes:

After successful completion of the course, the students will be able to:

Sl. No.	Course Outcome	Blooms Taxonomy Level
C01	Define the functioning of Earth systems in real time.	BT1
C02	Outline the roles of structure, stage and time in shaping the landforms along with interpreting geomorphological maps.	BT2
C03	Apply the knowledge in geographical research.	BT3
C04	Distinguish between the mechanisms that control these processes and also analyse how the natural and anthropogenic operating factors affect the development of landforms.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Geomorphology: Nature, Scope, key concepts and theories of landform development, Systems approach	15
Unit 2	Composition of the Earth with special reference to seismology; Earth's Interior and its Structure, Earth Movements: Isostasy, Plate Tectonics, Types of Folds and Faults, Earthquakes and Volcanoes.	15
Unit 3	Geomorphic Processes: Weathering, Mass Wasting, Cycle of Erosion (Views of Davis and Penck); Profile drawing (Serial, Superimposed, Composite, Projected) -	15
Unit 4	Evolution of Landforms (Erosional and Depositional): Fluvial, Karst, Aeolian and Glacial; Applied Geomorphology; Drainage basin delimitation, Ordering of streams, calculation of bifurcation ratio, length ratio, computation of basin circularity ratio	15
	Total	60

Notional Credit Hours for the course: 30X3= 90

Total credit in the paper	Lecture/Tutorial	Experiential Learning
3	60 hours	30 hours
		Field visit for studying landforms of geomorphic significance

Text Books:

1. Ahmed, E., 1985: *Geomorphology*, Kalyani Publishers, New Delhi
2. Singh, Savindra., 1998: *Geomorphology*, Pravalika Publications, Allahabad, Uttar Pradesh.
3. Thornbury W.D., 2004: Principles of Geomorphology, CBS, India

Reference Books:

1. Bridges E. M., 1990: *World Geomorphology*, Cambridge University Press, Cambridge.
2. Dayal, P. (2nd Ed.) 1996, A Textbook of Geomorphology, Shukla Book Depot, Patna
3. Khullar D.R. 2012: Physical Geography, Kalyani Publishers, New Delhi
4. Bloom A. L., 2003: *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms*, Prentice-Hall of India, New Delhi.

Minor

Paper: Minor course	FUNDAMENTALS OF PHYSICAL GEOGRAPHY L-T-P-C: 3-0-0-3 Scheme of Evaluation: (T) Course Level : 100	Subject Code: GE0162N101
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Course Objectives: *The course aims to make students aware about physical surroundings (landforms, climate, ecosystems and oceanic landforms) their processes and patterns on the earth's surface and acquire knowledge on Ecological balance, Global climatic changes and consequences.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
C01	Define the basic terms and terminologies related to physical earth.	BT1
C02	Compare different global climatic patterns, climate change and its related consequences.	BT2
C03	Identify physical processes and the resultant environment and its impact which shapes our life on planet earth.	BT3
C04	Examine ecological, climatic and atmospheric phenomena of the earth.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Nature, Scope and branches of Physical Geography; Processes of landform development - Exogenic and endogenic processes; Earth materials- Composition of the earth's crust, Rocks and minerals (3); Concept of Cycle of Erosion (1)	15
Unit 2	The lithosphere and Plate Tectonics; Distribution of plants and animals, Structure, functioning and material cycles of Ecosystem, Ecological Balance, Traditional ecological knowledge	15
Unit 3	Elements and factors of weather and climate; Structure and Composition of Atmosphere; Air Circulation, Pressure Systems, Cyclones and anticyclones, Global Climatic patterns and Climatic change and its consequences.	15
Unit 4	Bottom Configuration of oceans with special reference to the Atlantic Ocean, Distribution of salinity, temperature and ocean deposits and resources, and ocean Currents.	15
		60

Notional Credit Hours for the course: 30X3= 90

Total credit in the paper	Lecture/Tutorial	Experiential Learning
3	60 hours	30 hours
		Field work and report making

Text Books:

1. Ahmed, E., 1985: ***Geomorphology***, Kalyani Publishers, New Delhi
2. Bloom A. L., 2003: ***Geomorphology: A Systematic Analysis of Late Cenozoic Landforms***, Prentice-Hall of India, New Delhi.
3. Singh, Savindra., 1998: ***Geomorphology***, Pravalika Publications, Allahabad, Uttar Pradesh.

Reference Books:

1. Bridges E. M., 1990: *World Geomorphology*, Cambridge University Press, Cambridge.
1. Dayal, P. (2nd Ed.) 1996, A Textbook of Geomorphology, Shukla Book Depot, Patna
2. Khullar D.R. 2012: Physical Geography, Kalyani Publishers, New Delhi

SEC

Paper SEC Course	Basics of Cartography L-T-P-C: 0-0-6-3 Scheme of Evaluation: (T) Course Level : 100	Subject Code: GEO162S111
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Course Objectives: *This course primarily focuses on the basic concepts of art and science cartography and map making in geographical study.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
C01	Recall knowledge regarding the classification and elements of maps.	BT1
C02	Interpret graphs and prepare qualitative and quantitative thematic maps.	BT2
C03	Apply the maps for the proper utilization in the process of development.	BT3
C04	Examine the preparation of various thematic maps with the application of various techniques.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Cartography: meaning, trends of development and importance in geography; Map: definition, types, basic characteristics and map symbols; Thematic Mapping: concept and characteristics of Isopleth, Choropleth and Chorochromatic.	15
Unit 2	Concept and types of Map Scale; conversion of map scale from one to another; construction of graphical scale; representation of data through pie graph, sphere graph, bar graph and line graph.	15
Unit 3	Interpretation of topographical maps in terms of physical and cultural features; construction of transect chart.	15
Unit 4	Map Projection: definition, classification and principles of construction- Zenithal Polar, Gnomonic Projection, Gall's Projection, Stereographic Cylindrical Projection and Simple Conical Projection with one standard parallel; Mapping of slope by Wentworth's method; Profile Drawing: Serial, Superimposed, Composite and Projected.	15
	Total	60

Notional Credit Hours for the course: 30X3= 90

Total credit in the paper	Lecture/Tutorial	Practicum	Experiential Learning
3	-	90 hours	-

Text Books:

1. Cuff J. D. and Mattson M. T., 1982: ***Thematic Maps: Their Design and Production***, Methuen Young Book
2. Dent B. D., Torguson J. S., and Holder T. W., 2008: ***Cartography: Thematic Map Design (6th Edition)***, Mcgraw-Hill Higher Education

Reference books:

1. Gupta K. K. and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi. 4.
2. Kraak M.-J. and Ormeling F., 2003: Cartography: Visualization of Geo-Spatial Data, Prentice-Hall
3. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept, New Delhi.
4. Tyner J. A., 2010: Principles of Map Design, The Guilford Press
5. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers
6. Sarkar, A., 2000: Practical Geography: A Systematic Approach, Orient BlackSwan, India.
7. Monkhouse, F. J., and Wilkinson, H. R., 2022: Maps and Diagram: Their Compilation and Construction, Alphanumera Publisher.

Semester 2

B.A/B. Sc. (Honours) Course in Geography: Semester-II**Major (Course)**

Paper I Core Course	CLIMATOLOGY AND OCEANOGRAPHY L-T-P-C: 3-0-0-3 Scheme of Evaluation: T Course Level : 200	Subject Code: GEO162M- 201
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Course Objectives: *The course aims to illustrate the atmospheric elements, processes and resultant weather and climates, the impact of climates on planet earth, the oceanic processes, ocean floor topography and marine resources.*

Course Outcomes:

After successful completion of the course, the students will be able to:

Sl. No.	Course Outcome	Blooms Taxonomy Level
C01	Define the elements of weather and climate and its impacts at different scales.	BT1
C02	Demonstrate weather charts, hythergraph and other similar practical exercises.	BT2
C03	Develop the climatic aspects and its bearing on planet earth and the oceanic process and availability of resources.	BT3
C04	Distinguish between the different aspects of climatic and oceanic terms.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	The structure and composition of Earth's atmosphere; Elements of weather and climate; Factors affecting the distribution of temperature; Vertical and horizontal and seasonal distribution of temperature; Insolation and heat budget; Temperature inversion; Atmospheric pressure and circulation of planetary winds; Air masses and their characteristics	15
Unit 2	Cyclones: Tropical Cyclones, Temperate Cyclones, Monsoon - Origin and Mechanism, Jet Streams; Atmospheric Moisture: Evaporation, Humidity, Condensation, Fog and Clouds, Precipitation Types, Stability and Instability; Climatic Regions, Climate change and global warming, El Nino	15
Unit 3	Ocean floor topography of Indian, Atlantic and Pacific oceans; Oceanic water Movements: Waves, Currents, Tsunamis and Tides; rainfall frequency analysis, water deficiency and surplus graph, weather chart interpretation,	15

Unit 4	Salinity and Temperature of ocean water: Distribution and Determinants; Coral Reefs , Marine Deposits and Ocean Resources.	15
Total		60

Notional Credit Hours for the course: 30X3= 90

Total credit in the paper	Lecture/Tutorial	Experiential Learning
3	60 hours	30 hours
		Field visit to weather stations for micro-climatic study

Text Books:

1. Critchfield, H. J., 1987: **General Climatology**, Prentice-Hall of India, New Delhi
2. Lal, D.S., 2001, **Climatology**, Chaitanya Publishing House, Allahabad
3. Vatal, M., and Sharma, R.C., 2018: Oceanography for Geographers, Surjeet Publications, India.

Reference Books:

1. Anikouchine W. A. and Sternberg R. W., 1973: The World Oceans: An Introduction to Oceanography, Prentice-Hall.
2. Barry, R. G. and Carleton , A. M., 2001: *Synoptic and Dynamic Climatology*, Routledge, UK.
3. Barry, R. G. and Chorley, R. J., 1998: *Atmosphere, Weather and Climate*, Routledge, New York.
4. Batten L. J., 1979: Fundamentals of Meteorology, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
5. Boucher K., 1975: Global Climates, Halstead Press, New York.
6. Garrison T., 1998: Oceanography, Wordsworth Company, Belmont.
7. Gerald S., 1963: General Oceanography: An Introduction, John Willey & Sons, New York.
8. Kershaw S., 2000: *Oceanography: An Earth Science Perspective*, Stanley Thornes, UK.
9. King C. A. M., 1962: *Oceanography for Geographers*, Edward Arnold.
10. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey.
11. Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.
12. Pinet P. R., 2008: Invitation to Oceanography (Fifth Edition), Jones and Barlett Publishers, USA, UK and Canada.
13. Singh, S. Climatology, 2007, Sharada Pustak Bhawan, Allahabad
14. Strahler, Arthur. N., 1987: *Modern Physical Geography*, John Wiley and Sons, New York,
15. Singapore.
16. Strahler, A., 2018: Introducing *Physical Geography*, John Wiley and Sons, New York, Singapore.
17. Sharma R. C. and Vatal M., 1980: *Oceanography for Geographers*, Chaitanya Publishing House, Allahabad.
18. Trewartha G. T. and Horne L. H., 1980: *An Introduction to Climate*, McGraw-Hill.
19. Thurman H. V., 1996: *Essentials of Oceanography*, Prentice-Hall, New Jersey

Interdisciplinary Course	GEOGRAPHY OF TOURISM L-T-P-C: 3-0-0-3 Scheme of Evaluation: T Course Level : 200	Subject Code: GEO162M-202
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Course Objectives: *The course aims to make the students define the basic theme and concepts of tourism geography and interpret the geographical components of tourism.*

Learning Outcome:

Course Outcomes:

After successful completion of the course, the students will be able to:

Sl. No.	Course Outcome	Blooms Taxonomy Level
C01	Define the geographical aspects that organise economic space.	BT1
C02	Illustrate the geographical aspects of tourism in an area.	BT2
C03	Develop practical field knowledge about tourist places across India.	BT3
C04	Analyse the knowledge gathered through field visits and prepare their respective reports.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Meaning, Scope and contents of Geography of tourism: Importance of geography of tourism; Types of tourism; Motivations of tourism; Components of Tourism;	15
Unit 2	Impacts of tourism: Environmental, Social, Cultural, and Economic impacts of tourism; Definition and principles of sustainable tourism development; Concept of carrying capacity; Concept of Responsible tourism	15
Unit 3	Tourism resources: Destination and resource factors; Mass tourism vs. alternative tourism; Ecotourism; Spatial pattern of Tourism Resources in India-National Parks, Wildlife sanctuaries, Tiger Reserves, Biosphere reserves & wetlands, history and culture	15
Unit 4	Major Tourist attractions in India and abroad, Leiper's tourism model, Current trends of tourism at global scale. Visit to place of sustainable tourism significance. On completion of the tour, the students have to submit a tour report along with an oral presentation.	15
	Total	60

Notional Credit Hours for the course: 30X3= 90

Total credit in the paper	Lecture/Tutorial	Experiential Learning
3	60 hours	30 hours
		Field visit to tourism sites and study of sustainable tourism management

Text Books:

1. Bhatia, A. K., 1996: *Tourism Development: Principles and Practices*, Sterling Publishers, New Delhi.
2. Sharma J. K. (ed.), 2000: *Tourism Planning and Development - A new perspective*, Kanishka Publishers, New Delhi.

Reference Books:

1. Robinson, H., 1996: *A Geography of Tourism*. Macdonald and Evans, London, 1996.
2. Williams Stephen, 1998: *Tourism Geography*, Routledge, Contemporary Human
3. Geography Series, London.
4. Shaw G. and Williams A. M., 1994: *Critical issues in Tourism-A Geographical Perspective*, Oxford: Blackwell

Minor

Paper I Core Course	Fundamentals of Human Geography L-T-P-C: 3-0-0-3 Scheme of Evaluation: T Course Level : 200	Subject Code: GEO162N201
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Course Objectives: *The objective of this course is to make the student look into the chronology of development of human geography through contribution of varied scholars, approaches and schools of human geography, major themes and components of cultural geography.*

Course Outcomes:

After successful completion of the course, the students will be able to:			
Sl. No.	Course Outcome	Blooms Level	Taxonomy
C01	Define the various parameters and components of the sub-branch.	BT1	
C02	Interpret the development of a humanistic view of geography.	BT2	
C03	Identify the various aspects of human geography.	BT3	
C04	Discover the humanistic perspective and its dimensions in Geography in relation to the physical and cultural surrounding.	BT4	

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Meaning, subject matter and Scope of Human Geography, human versus physical geography; branches of Human Geography; Development of Human Geography; Contributions of German and French Geographers. Man-environment relationship, Determinism vs possibilism,	15
Unit 2	World population distribution and growth, components of population growth: fertility, mortality, migration, : Basic concepts of population: under population, optimum population, over population, Concept of population explosion and population pressure,	15
Unit 3	Population composition: age, sex, child women ratio and other related factors, Population policies in developed and developing economies, Population resource relationship, population-resource regions	15
Unit 4	Man and culture, Characteristics of culture, its components and functions; Cultural diffusion and factors associated with it, concept of cultural landscape, Major cultural regions of the World and their characteristics.	15
	Total	60

Notional Credit Hours for the course: 30X3= 90

Total credit in the paper	Lecture/Tutorial	Experiential Learning
3	60 hours	30 hours
		Field work and report making

Text Books:

1. Huntington, E., 1951: *Principles of Human Geography*, John Wiley & Sons, Inc, New York
2. Hussain, M., 1994: *Human Geography*, Rawat Publication, New Delhi.

Reference books:

3. Haggett, P., 1972: *Geography: A Modern Synthesis*, Harper & Row, New York
4. Singh, S., 1991: *Environmental Geography*, Pustak Bhawan, Allahabad
5. Strahler, A.N. & A.H. Strahler, 1976: *Geography and Man's Environment*, John Willey, New York

SEC

SEC	FUNDAMENTALS OF GEOINFORMATICS L-T-P-C: 0-0-6-3 Scheme of Evaluation: P Course Level : 200	Subject Code: GEO162S211
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Course Objectives: *The course aims to make student interpret the data, tools and technology and applications of Geoinformatics - GIS, Remote Sensing and GPS and Construct and Analyse maps using Geospatial Technology (Geoinformatics)*

Course Outcomes:

After successful completion of the course, the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
C01	Define the fundamental terms and terminologies of Geoinformatics.	BT1
C02	Outline the strength and application of Geospatial Technology.	BT2
C03	Build map of the resources, their location and availability.	BT3
C04	Analyse the different remote sensing data sets collected from various platforms.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Geoinformatics- Meaning and scope, The Earth: shape, size, and earth models; Referencing systems; Definition of map, map properties, Geospatial data types and structure and their characteristics; Georeferencing a scanned map, Creation of vector data layers - point, line and polygon and map lay;	15
Unit 2	Vector data editing; Vector Attribute database preparation; Basics of spatial and non-spatial / attribute database, relational database; Attribute mapping / thematic mapping of various attributes of point, line and polygon attributes	15
Unit 3	Basic concept of Remote Sensing; Satellites – geostationary and remote sensing Satellites; Sensors- Types and characteristics; Resolution- Types and importance (spatial, spectral, radiometric and temporal) Global Position System (GPS) and its applications.	15
Unit 4	Applications of Geoinformatics: Urban planning and management, Environmental monitoring and management ,Natural resource management, Disaster management Transportation planning, Agriculture and forestry, Public health. c. Ethical, Legal, and Social Issues in Geoinformatics: Privacy concerns. Data ownership and copyright issues, Security considerations Ethical use of geospatial data	15
	Total	60

Notional Credit Hours for the course: 30X3= 90

Total credit in the paper	Lecture/Tutorial	Experiential Learning	Total credit in the paper
3	60 hours	30 hours	3
		Hands on practice in Lab and assignment preparation	

Text Books:

1. De Mars, M. N., 1999: **Fundamentals of Geographic Information Systems**, John Wiley & Sons Inc., New York.
2. Jensen, J. R., 2011: **Remote Sensing of the Environment – An Earth Resource Perspective**, 3rd Impression, Pearson, New Delhi.

Reference Books:

1. Burrough, P.A. and Mc Donnel, R. A., 1998: **Principles of Geographical Information Systems**, Oxford University Press.
3. Chetry, N., 2019 (Ed): **A Glimpse of Geospatial Technology and Applications**, Eastern Book House, Guwahati
4. Sabins, Floyd F., 1987: **Remote Sensing Principles and Interpretation**, W.H. Freeman and Company, New York.
5. Chang, K. T., 2018: **Introduction to Geographic Information Systems**, McGraw-Hill Education, New York.

NOTE: Software packages: ArcGIS / QGIS /ILWIS, ERDAS Imagine/SAGA/ILWIS. Record of the exercises (duly signed by the teacher concerned within specified date for each exercise) in the form of Practical Note Book to be made by the students is mandatory. Records of all exercises of each unit is compulsory. Maximum 20-25% marks of Semester End Examination may be kept for viva and practical note book with equal weightage on each aspect. Rest of the marks may be more or less / equally distributed to each exercise depending on difficulty level. Semester End Examination will be of 4 (four) hours duration with maximum 2 (two) exercises only from any of the units

Semester 3

MAJOR	ECONOMIC GEOGRAPHY	Subject Code:
	L-T-P-C: 2-0-4-4 Credit Units: 4 Scheme of Evaluation: (T+P)	GE0162 M301

Course Objectives: *It focuses on the basic concepts of economic geography and its associated patterns and processes of the prime economic activities of the world.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
C01	Define concepts and ways on how geographical aspects organise economic space.	BT1
C02	Compare different sectors of economy and arrive at logical conclusion regarding importance of each sector in economic development of the nation.	BT2
C03	Identify the principles and significance of economic geography.	BT3
C04	Discover new insights among students on the relevance of economy and geography and associated problems in contemporary times.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Meaning and scope of Economic Geography; Approaches in Economic Geography; Concept and classification of economic activity; factors influencing economic activities.	10
Unit 2	Primary Activities: Subsistence and Commercial agriculture, forestry, fishing and mining; Secondary Activities: Manufacturing (Cotton Textile, Iron and Steel), Concept of Manufacturing Regions; Special Economic Zones and Technology Parks; Tertiary Activities: Transport, Trade and Services.	14
Unit 3	Theories of Economic Geography: Von Thunen's model of agricultural location, Industrial location theories of Weber, E.M. Hoover, A. Losch, A. Pred and D. M. Smith; Theories of economic development by Myrdal and Rostow.	14
Unit 4	Economic Geography of Resources; Global pattern of distribution and production of selected resources: Food grains, iron ore, coal, petroleum and nuclear power; Global economic scenario.	10
	Total	48

Text Books:

- Alexander J. W., 1963: *Economic Geography*, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
- Coe N. M., Kelly P. F. and Yeung H. W., 2007: *Economic Geography: A Contemporary Introduction*, Wiley-Blackwell.

Reference Books:

- Wheeler J. O., 1998: *Economic Geography*, Wiley..
- Durand L., 1961: *Economic Geography*, Crowell.

3. Bagchi-Sen S. and Smith H. L., 2006: *Economic Geography: Past, Present and Future*, Taylor and Francis.
4. Willington D. E., 2008: *Economic Geography*, Husband Press.
5. Clark, G. L., Feldman, M. P., Gertler, M. S., & Williams, K. (Eds.). (2003). *The Oxford handbook of economic geography*. Oxford University Press

MAJOR	SOIL AND BIOGEOGRAPHY			Subject Code:
	L-T-P-C: 4-1-0-4	Credit Units: 4	Scheme of Evaluation: (T)	GE0162M302

Course Objectives: *The course aims to make students understand the fundamental concept of soil and biogeography under various categories.*

Course Outcomes:

By the end of this course the students will be able to:			
Sl. No.	Course Outcome	Blooms Level	Taxonomy
C01	Define and understand the basic terms and concepts of soil and biogeography.	BT1	
C02	Interpret the important issues pertaining to environment.	BT2	
C03	Construct the basic properties, morphology and other properties associated with soil and biogeography.	BT3	
C04	Analyse independently the various biodiversity conservation and management issues.	BT4	

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Soil geography: meaning and significance; Soil forming factors: Parent material, organic, climatic, topographic, spatio-temporal dimensions; Processes of soil formation and soil development: Physical, biotic and chemical; Soil profile development and soil catena	10
Unit 2	Physical properties of soils: Morphology, texture, structure, water, air, temperature and other properties of soil; chemical properties of soil and soil reaction; pedogenic regimes; podzolization, laterization, calcification and gleization.	12
Unit 3	Forms and functions of ecosystem: Forest, grassland, marine and mountain ecosystem; trophic level, Energy flux in the ecosystem; material Cycles / bio- energy cycles in the terrestrial ecosystem, concept of food chain, food web and ecological pyramid, Environmental ethics and Deep ecology	12
Unit 4	Biogeography: meaning and significance, Approaches in biogeography: evolutionary and ecological, Concept of biodiversity; Conservation of biotic resources; Biodiversity hotspots; State of forest cover changes in India, environment policy of India, National Forest Policy of India, legal framework for biodiversity protection: Brundtland Commission, Kyoto Protocol, Agenda 21, Sustainable Development Goals, Paris Agreement	14
	Total	48

Text Books:

1. Hugget, R. J., 1988: Fundamentals of Biogeography. Routledge, London.
2. Bunting, B. T., 1967: The Geography of Soil, Hutchinson, London.
3. Robinson, H., 1982: Biogeography, E.L.B.S., Mc Donald & Evans, London.

4. Sivaperuman, Chandrakasan et al., (2018): Biodiversity and Climate Change Adaptation in Tropical Islands, Academic Press, London.

Reference Books:

1. Barry, C., 1977: Biogeography - An Ecological and Evolutionary Approach, Cox Blackwell, Oxford.
2. Singh, S. 1991: Environmental Geography, Prayag Publications, Allahabad
3. Tivy, J. 1992: Biogeography: A study of Plants in Ecosphere, 3rd edn. Oliver and Boyd, U.S.A.

Minor	BIOGEOGRAPHY			Subject Code:
	L-T-P-C: 3-0-0-3	Credit Units: 3	Scheme of Evaluation: (T)	GEO162N301

Course Objectives: *The course aims to make students understand the fundamental concept of biogeography under various categories.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
C01	Define and understand the basic terms and concepts of biogeography.	BT1
C02	Interpret the important issues pertaining to environment.	BT2
C03	Construct the basic concepts of biogeography.	BT3
C04	Analyse independently the various biodiversity conservation and management issues.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Nature, scope and subject matter of biogeography, ecology, ecosystem, trophic level, food chain and energy flow in ecosystem, nutrient cycle	6
Unit 2	Biomes, distribution of plants and animal, ecological regions with special reference to India	10
Unit 3	Biodiversity, biodiversity hot spot, conservation of biodiversity and mechanism: national park, marine national park, wildlife sanctuary, reserve forest, bird sanctuary; with special reference to India	10
Unit 4	Conservation of the environment, important environmental days, EIA, UNFCCC, UNCED, environmental policies in India.	10
		36

Text Books:

1. Odum, E.P., 1977: ***Fundamentals of Ecology***
2. Bhattacharya, N.N., 2003, ***Biogeography***, Rajesh Publications, New Delhi.

Reference Books:

1. Lomolino, M. V., Riddle, B. R., Whittaker, R. J. (2017). Biogeography, fifth edition. (5), 730. Sunderland, MA: Oxford University Press.
2. Savindra, S., 2015, Environmental Geography, Pravalika Publications, Allahabad.
3. Anderson: Ecology for Environmental Science.

SEC	INTRODUCTION TO QUANTITATIVE TECHNIQUES		Subject Code: GEO162S311
	L-T-P-C: 0-0-8-4	Credit Units: 4 Evaluation: (P)	Scheme of

Learning Objectives:

- This **practical paper** helps to understand the importance of data in geography.
- It deals with the methods and techniques of data collection, data tabulation, data interpretation and analysis.
- This paper provides an understanding of the pure and applied nature of Geography along with the key elements in the discipline.

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Use of Data in Geography, Significance of Statistical Methods in Geography; Sources of Data, Scales of Measurement (Nominal, Ordinal, Interval, Ratio).	10
Unit 2	Summarization of data: Measures of Central Tendency (Mean, Median and Mode), Dispersion (Standard Deviation, Variance and Coefficient of Variation).	14
Unit 3	Sampling: Purposive, Random, Systematic and Stratified and their utilities in geographical data collection and analysis.	12
Unit 4	Time series analysis techniques: Moving average and Least Squares Methods; Correlation analysis (Spearman's Rank correlation and Karl Pearson's product moment correlation coefficient); Regression analysis in geographic studies (linear and non-linear); regression residual mapping.	12
Total		48

Text Book:

1. Berry B. J. L. and Marble D. F. (eds.): *Spatial Analysis – A Reader in Geography*.
2. Ebdon D., 1977: *Statistics in Geography: A Practical Approach*.
3. Gregory, S. (2014). *Statistical methods and the geographer*. Routledge.
4. Hammond P. and McCullagh P. S., 1978: *Quantitative Techniques in Geography: An Introduction*, Oxford University Press.
5. King L. S., 1969: *Statistical Analysis in Geography*, Prentice-Hall.

References:

1. Mahmood A., 1977: *Statistical Methods in Geographical Studies*, Concept.
2. Monkhouse, F.J. & Wilkinson, H.R., 1989: *Maps and Diagrams*, B.I Publication, New Delhi
3. Pal S. K., 1998: *Statistics for Geoscientists*, Tata McGraw Hill, New Delhi.
4. Sarkar, A. (2013) *Quantitative geography: techniques and presentations*. Orient Black Swan Private Ltd., New Delhi
5. Silk J., 1979: *Statistical Concepts in Geography*, Allen and Unwin, London.
6. Spiegel M. R.: *Statistics, Schaum's Outline Series*.
7. Yeates M., 1974: *An Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, New York.

Learning outcomes:

- Thorough understanding of the statistical methods and quantitative techniques used in Geography ;
- Understanding of data tabulation, sample size and types and the methods of handling data in the field.

Semester 4

Major	SOCIAL AND POLITICAL GEOGRAPHY			Subject Code: GE0162M401
	L-T-P-C: 3-0-0-3	Credit Units: 3	Scheme of Evaluation: (T)	

Course Objectives: *The course aims to make students understand the basic concepts related to social and cultural geography in the geographical framework and provide knowledge on the political system and geopolitics of the world in the spatial context.*

Course Outcomes:

After successful completion of the course, the students will be able to:			
Sl. No.	Course Outcome	Blooms Level	Taxonomy
C01	Define the fundamental concepts of social and political dimensions.	BT1	
C02	Interpret the social, cultural, and political concepts in a broader and analytical manner	BT2	
C03	Build knowledge on structures, formations of countries as well as on various schools of political geography	BT3	
C04	Analyze the socio-cultural and political theme in the geographical dimensions	BT4	

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Definition and field of social geography; Concept of social differentiation, social structure and social stratification as reflected in race, tribe, caste, language, dialect and religion in India; concept of social well-being and its determination, Concept of Space: Types and characteristics of space.	6
Unit 2	Review of five year plans and area plans towards social policy in India; Strategies to improve social well-being in tribal, hill, drought and flood-prone areas; Spatial distribution of social groups in India	10
Unit 3	Nature, scope and subject matter of political geography; Approaches to the study of political geography, The field and school of thoughts in political geography: landscape school, ecology school	10
Unit 4	Concepts in political geography: frontier and boundary (with reference to India), lebensraum, state and nation, core-periphery and capital, buffer zone, federal state, Colonialism, desalinization, theories of Rim-land and Heartland.	10
Total		36

Text Books:

1. Sen, J (2016): *A Textbook of Social and Cultural Geography*, Kalyani Publishers, New Delhi

2. Dwiveda R. L. (2019): *Fundamentals of Political Geography*, Surjeet Publications, Delhi

Reference Books:

1. John R. S., 1982: An introduction to Political Geography, Routledge, London
2. Ahmad, A., 1999: Social Geography, Rawat Publication, Jaipur and New Delhi
3. Ahmad, A. (ed), 1993: Social Structure and Regional Development: A Social Geography perspective, Rawat Publication, Jaipur
4. Pounds N. J. G. (1972): *Political Geography*, McGraw Hill, New York

MAJOR	ENVIRONMENTAL GEOGRAPHY			Subject Code:
	L-T-P-C: 3-1-0-4	Credit Units: 4	Scheme of Evaluation: (T)	GEO1M402

Course Objectives: *The course aims to give the idea of the concept of global environment and its impact on various aspects, along with providing knowledge on adaptation and mitigation of climate impacts and also to know institutional role in it.*

Course Outcomes:

By the end of this course the students will be able to:			
Sl. No.	Course Outcome	Blooms Level	Taxonomy
C01	Relate to basics of science of environmental change and sustainable development.	BT1	
C02	Classify different types of natural resources and its importance.	BT2	
C03	Develop understanding about various impacts of Climate Change on Agriculture and Water, Flora and Fauna, Human Health, ozone layer and other spheres of environment.	BT3	
C04	Inspect upon the issues of adaptation and mitigation from hazards and management of solid wastes.	BT4	
C05	Explain the policies of development and environmental protection in developed and developing countries.	BT5	

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Environmental Geography: Concept, Scope and Significance; Human-Environment Relationships: Historical Progression, Adaptation in different Biomes.	14
Unit 2	Eco-system: Concept, types and components, structure and functions; Ecology – Concept and Principles, Environmental Laws in India: Wild life Act, Forest Acts, Environmental Protection Ac.	14
Unit 3	Major Global Environmental Problems: Pollution, Deforestation, Desertification, Global Warming, Bio-Depletion. Management of Environment and Resources; Importance of Environmental Impact Assessment,	10
Unit 4	Environmental Programmes and Policies – Global, National and Local levels; Stockholm Conference, the Earth Summits, Inter- Governmental Panel for Climate Change (IPCC)	10
	Total	48

Text Book:

1. Chandna R. C., 2002: *Environmental Geography*, Kalyani, Ludhiana.
2. Miller G. T., 2004: *Environmental Science: Working with the Earth*, ThomsonBrooksCole, Singapore.
3. Goudie A., 2001: *The Nature of the Environment*, Blackwell, Oxford.
4. MoEF, 2006: *National Environmental Policy-2006*, Ministry of Environment and Forests, Government of India.

References:

1. Odum, E. P. et al, 2005: *Fundamentals of Ecology*, Cengage Learning India.
2. Singh S., 1997: *Environmental Geography*, PrayagPustakBhawan, Allahabad.

3. Singh, R.B. (Eds.) (2009) *Biogeography and Biodiversity*. Rawat Publication, Jaipur
4. Singh, R.B. (1998) *Ecological Techniques and Approaches to Vulnerable Environment*, New Delhi, Oxford & IBH Pub

MAJOR IKS	Indian Knowledge Systems on Geography			Subject Code:
	L-T-P-C: 4-0-0-4	Credit Units: 4	Scheme of Evaluation: (T)	GEO162M403

Learning objective: The objective of this course is to make the student look into the chronology of development of the subject of geography through contribution of varied scholars, approaches and schools, major themes and components of geography.

Learning Outcomes:

After successful completion of the course the students will be able to:		
SI No.	Course Outcome	Blooms Taxonomy Level
CO 1.	Define the various contributions of scholars in the field of Geography in India.	BT 1
CO 2.	Interpret the significance of geographical consciousness in India.	BT 2
CO 3.	Identify the various Indian traditions associated with earth elements.	BT 3
CO 4.	Discover the physical and humanistic perspective and its dimensions in Geography in relation to the physical and cultural surrounding	BT 4
CO 5.	Explain the significance of Indian culture	BT 5

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Indian Geographical concepts: the earth, eclipses, latitudes and longitudes, cardinal points; weather and climate, the earliest known Indian scholars and their contribution in the field of Geography: Nagarjuna, Aryabhata I, Varahamihir, Brahmagupta, Bhaskara I	14
Unit 2	Concepts of Panchatatva: Prithvi (Earth), Pavan (air), Jal (water), Tej (Solar energy) and Nabh(sky), Importance of Pancha tatva for all life forms, Panchatatva and traditional practises in India; Geographical knowledge in epics like the Ramayana and Mahabharata	10
Unit 3	Traditional practices of environmental conservation in India: Traditional water management practices, Indian Culture and conservation of biodiversity, Concepts of Sacred grooves, and forests; Application of ancient wisdom in modern environmental conservation efforts.	12
Unit 4	Bharat Bhoomi, the land of unity in diversity: Bharat Mahasabhyata, cultural sites and their significance in Indian spirituality; the idea of tirthas and their geographical implications; Sacred mountains, forests, and other natural features in Indian religious narratives.	12
	Total	48

Text Books:

1. Eck, D. L., 2013: India: A Sacred Geography, Harmony.
2. Mahadevan B. and Bhat V. R., 2022: Introduction To Indian Knowledge System: Concepts And Applications, PHI Learning.

3. Adhikari, S., 1992: Geographical Thought, Chaitanya Pub. House, Allahabad.
4. Dikshit, R. D., 1997: Geographical Thoughts: A Contextual History of Ideas, Prentice Hall of India, New Delhi.
5. Hussain, M., 2022: Evolution of Geographical Thought, Rawat Publication, New Delhi.

Reference Books:

1. Singh, R. L., (ed), 1971: India: A Regional Geography, National Geographical Society of India, Varanasi.
2. Pletcher. K., 2010: The Geography of India: Sacred and Historic Places (Understanding India), Britannica Educational Pub

MINOR	ECONOMIC GEOGRAPHY			Subject Code:GEO16 2N401
	L-T-P-C: 2-0-4-4	Credit Units: 4	Scheme of Evaluation: (T+P)	

Course Objectives: *It focuses on the basic concepts of economic geography and its associated patterns and processes of the prime economic activities of the world.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Define concepts and ways on how geographical aspects organise economic space.	BT1
CO2	Compare different sectors of economy and arrive at logical conclusion regarding importance of each sector in economic development of the nation.	BT2
CO3	Identify the principles and significance of economic geography.	BT3
CO4	Discover new insights among students on the relevance of economy and geography and associated problems in contemporary times.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Meaning and scope of Economic Geography; Approaches in Economic Geography; Concept and classification of economic activity; factors influencing economic activities: Land, Labour, Capital; and production	10
Unit 2	Primary Activities: Subsistence and Commercial agriculture, forestry, fishing and mining; Secondary Activities: Manufacturing (Cotton Textile, Iron and Steel), Concept of Manufacturing Regions; Special Economic Zones and Technology Parks; Tertiary Activities: Transport, Trade and Services.	14
Unit 3	Theories of Economic Geography: Von Thunen's model of agricultural location, Industrial location theories of Weber, and concept of economic development by Myrdal and Rostow.	14
Unit 4	Economic Geography of Resources; Global pattern of distribution and production of selected resources: Food grains, iron ore, coal, petroleum and atomic minerals; Global economic scenario.	10
	Total	48

Text Books:

- Alexander J. W., 1963: *Economic Geography*, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
- Coe N. M., Kelly P. F. and Yeung H. W., 2007: *Economic Geography: A Contemporary Introduction*, Wiley-Blackwell.

Reference Books:

- Wheeler J. O., 1998: *Economic Geography*, Wiley..
- Durand L., 1961: *Economic Geography*, Crowell.
- Bagchi-Sen S. and Smith H. L., 2006: *Economic Geography: Past, Present and Future*, Taylor and Francis.
- Willington D. E., 2008: *Economic Geography*, Husband Press.

10. Clark, G. L., Feldman, M. P., Gertler, M. S., & Williams, K. (Eds.). (2003). *The Oxford handbook of economic geography*. Oxford University Press

Minor	GEOGRAPHY OF REGIONAL DEVELOPMENT			Subject Code:
	L-T-P-C: 4-0-0-4	Credit Units: 4	Scheme of Evaluation: (T)	GEO162N402

Course Objectives: *This course intends to make the students understand the concept of a regional development from a Geographic perspective and its ramifications in planning process.*

Course Outcomes:

After successful completion of the course, the students will be able to:			
Sl. No.	Course Outcome	Blooms Level	Taxonomy
C01	Define basic concepts of regional development	BT1	
C02	Explain the strategic importance and applicability of regional development	BT2	
C03	Build plans for development in rural and urban regions	BT3	
C04	Apply this knowledge in real world situations.	BT4	
C05	Interpret various issues related to regional development on national and global perspective	BT5	

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Concept of region, regionalization, regionalism, and regional development; Types of Region; Significance of regional development studies; Approaches to regional development studies	12
Unit 2	Approaches to regional development in India; Role of Panchayati Raj Institutions in Regional Development; Concept of multi-level planning and Development: Micro, Meso and Macro.	12
Unit 3	Identification of resource regions; Concept of Development: Growth versus development; Concept of sustainable development and balanced development, Case studies of successful regional development initiatives in India.	12
Unit 4	Disparity of Regional Development in India; Development indicators; Measuring level of development, Regional Development theories and models: Growth Pole Model of Perroux; Cumulative Causation Theory of Gunnar Myrdal.	12
	Total	48

Text Book:

1. Krishnamurthy, J. (2000). **Rural Development - Problems and Prospects**. Jaipur, India: Rawat Pubs.
2. Singh, R.B. (1985): **Geography of Rural Development**. New Delhi, India: Inter India.
- 3.
4. Alden J. and R. Morgan, 1974: **Regional Planning: A Comprehensive View**, Leonard Hills Books, U.K.

5. Chand, M. and Puri, V. K. 1993: ***Regional Planning in India***, Allied Publishers Limited, B/M Asraf, Ali Road, New Delhi-110002.
6. Chandna, . R. C., 2000: ***Regional Planning: A Comprehensive Text***, Kalyani Publishers, New Delhi

References:

1. Dickinson , R. E: ***City, Region and Regionalism***,
2. Hall, P., 1975: ***Urban and Regional Planning***, David and Charles, London.
3. Hilborst, J. G. M. (1971) : ***Regional Planning: A System Approach***, Notterdam University Press.
4. Mishra, R. P, 1992: ***Regional Planning: Concept, Techniques, Policies and Case Studies***, Concept Publications, New Delhi.

Semester 5

B.A./B. Sc. (Honours) Course in Geography: Semester-V

Paper I	REGIONAL PLANNING AND DEVELOPMENT			Subject Code:
Major	L-T-P-C: 3-1-0-4	Credit Units: 4	Scheme of Evaluation: (T)	GEO162M501

Course Objectives: *This course intends to make the students understand the concept of a region from a Geographic perspective and its ramifications in planning.*

Course Outcomes:

After successful completion of the course, the students will be able to:			
Sl. No.	Course Outcome	Blooms Level	Taxonomy
C01	Define basic concepts of regional planning	BT1	
C02	Explain the strategic importance and applicability of planning in multi-level aspects	BT2	
C03	Build plans for development in rural and urban regions	BT3	
C04	Apply this knowledge in real world situations.	BT4	
C05	Interpret various issues related to regional planning on national and global perspective	BT5	

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Concept of region, regionalization, regionalism and regional development; Types of Regions; Meaning and purpose of regional planning; Approaches to regional planning	12
Unit 2	Identification of resource regions; Concept of Development: Growth versus development; Concept of sustainable development and balanced development, Case studies of regional planning exercises: National Capital Region and River basin planning- a case study from India	12
Unit 3	Decentralization and Multi-level planning - features of decentralised planning, decentralised planning in India, concept and procedures in multilevel planning; stages in the evolution of multi-level planning process, multi-level planning in India, Regional planning strategy under Five Year Plans, Regional Planning in India: Macro, meso and micro level	12

	planning; Local level planning and Panchayati Raj (GPDP); Participatory approach in planning; NITI Aayog	
Unit 4	Disparity of Regional Development in India: Development indicators; Measuring level of development, Regional Development theories and models: Concept and basic ideas of Growth Pole Model of Perroux, Theory of Prebisch, Cumulative Causation Theory of Gunnar Myrdal, Stages of Economic Growth model of Rostow	12
	Total	48

Text Book:

7. Alden J. and R. Morgan, 1974: ***Regional Planning: A Comprehensive View***, Leonard Hills Books, U.K.
8. Bhat, L. S., 1976: ***Micro-Level Planning: A Case Study of Karnal Area, Haryana***, Concept Publishing Co., New Delhi.
9. Chand, M. and Puri, V. K. 1993: ***Regional Planning in India***, Allied Publishers Limited, B/M Asraf, Ali Road, New Delhi-110002.
10. Chandna, . R. C., 2000: ***Regional Planning: A Comprehensive Text***, Kalyani Publishers, New Delhi .

References:

5. Dickinson , R. E: ***City, Region and Regionalism***,
6. Hall, P., 1975: ***Urban and Regional Planning***, David and Charles, London.
7. Hilborst,J. G. M. (1971) : ***Regional Planning: A System Approach***, Notterdam University Press.
8. Mishra, R. P, 1992: ***Regional Planning: Concept, Techniques, Policies and Case Studies***, Concept Publications, New Delhi.

Major Paper II	POPULATION AND SETTLEMENT GEOGRAPHY L-T-P-C: 3-1-0-4 Credit Units: 4 Scheme of Evaluation: (T)	Subject Code: GE0162M 502
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Course Objectives: *The course aims to make students understand different concept related to population and their characteristics.*

Course Outcomes:

By the end of this course the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
C01	Tell about the basic definitions and concepts related to population geography and human settlements.	BT1
C02	Outline the population parameters of India.	BT2
C03	Apply and analyse the resultant impact of contemporary issues related to population on society and environment.	BT3
C04	Analyse contemporary issues related to population dynamics and environment.	BT4
C05	Determine clear exposition of spatial and structural characteristics of human settlements	BT5

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Field of Population Geography, its emergence as a branch of Geography, significance and relation with demography; Key concepts of Population pressure: under population, optimum population, over population; Components of population change: fertility, mortality and migration; and associated factors	12
Unit 2	Population Growth and Distribution: World and India, factors influencing population distribution; Measures of population density and distribution; Demographic transition model and theory of population growth by Malthus; concept of population resource relationship and population resource regions	12

Unit 3	Defining the field and scope of Settlement Geography; origin of settlements; rural and urban settlements: types of rural settlement, classification of urban settlement , functional classification of towns, law of primate city and rank size rule.	12
Unit 4	Concept of urbanization, rural-urban fringe, city region, settlement hierarchy with respect to central place theory (Christaller and Losch)	12
	Total	48

Text Books Suggested:

1. Singh R.Y. (Rep. 2010) - Geography of Settlements, Sharda Pustak Bhawan, Allahabad
2. Chandna R. C. (Rep.2010) – *A Geography of Population, Concepts, Determinants and Patterns*, Kalyani Publishers, New Delhi.
3. Maurya S.D (Rep. 2018): *Settlement Geography*, Sharda Pustak Bhawan, Allahabad
4. Sandram, K. V. and Nangia, S., (eds): *Population Geography*, Heritage Publishers, New Delhi. Inc., New York.

Reference books:

1. Clarke, J. I., 1972: *Population Geography*, Pergamon Press, Oxford.
2. Peters, G. L. and Larkin, R. P., 1979: *Population Geography: Problems, Concepts and Prospects*, Kendall/ Hunt Iowa.
3. Trewartha, G. T., 1969: *A Geography of Population: World Pattern*, John Wiley & Sons.
4. Woods, R., 1979: *Population Analysis in Geography*, Longman, London.
5. Robinson, H., 1981: *Population and Resources*, Macmillan Press, London

Paper III MAJOR	DISASTER MANAGEMENT L-T-P-C: 4-0-0-4 Credit Units: 4 Scheme of Evaluation: (T)	Subject Code: GEO162M50 3
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Course Objectives: *The objective of this course is to make the student understand about the hazards, disasters, its associated causes and impacts, its distribution and mitigation with special reference to India.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
SI No.	Course Outcome	Blooms Taxonomy Level
CO1.	Define the concepts of hazard and disaster and its related terminologies.	BT 1
CO2.	Demonstrate the distribution and mapping of disasters that is prevalent in India.	BT 2
CO3.	Explain the mitigation process and response to disasters across Indian territory.	BT 2
CO4.	Distinguish between causes and effect of varied disasters, as well as their implications in present day India.	BT 4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Disasters: Definition and Concepts: Hazards, Disasters; Risk and Vulnerability; Classification	12
Unit 2	Disasters in India: Flood-Causes, Impact, Distribution and Mapping; Landslide-Causes, Impact, Distribution and Mapping; Drought- Causes, Impact, Distribution and Spatial Pattern	12
Unit 3	Disasters in India: Earthquake and Tsunami- Causes, Impact, Distribution and Mapping; Cyclone- Causes, Impact, Distribution and Spatial Pattern; Manmade disasters- Causes, Impact, Distribution and Spatial Pattern	12
Unit 4	Response and Mitigation to Disasters: Mitigation and Preparedness, NDMA and NIDM; Indigenous Knowledge and Community-Based Disaster Management; Do's and Don'ts During and Post Disasters	12
	Total	48

Text Book:

1. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
2. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.

References:

1. Government of India. (1997) Vulnerability Atlas of India. New Delhi, Building Materials & Technology Promotion Council, Ministry of Urban Development, Government of India.
2. Kapur, A. (2010) Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
3. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
4. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi.
5. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.
6. Singh Jagbir (2007) "Disaster Management Future Challenges and Opportunities", 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema

Minor	GEOGRAPHY OF POPULATION		Subject Code:
	L-T-P-C: 3-1-0-4 Credit Units: 4	Scheme of Evaluation: (T)	GEO162N501

Course Objectives: *The course aims to make students understand different concept related to population and their characteristics.*

Course Outcomes:

By the end of this course the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Tell about the basic definitions and concepts related to population geography and human settlements.	BT1
CO2	Outline the population parameters of India.	BT2
CO3	Apply and analyse the resultant impact of contemporary issues related to population on society and environment.	BT3
CO4	Analyse contemporary issues related to population dynamics and environment.	BT4
CO5	Determine clear exposition of spatial and structural characteristics of human settlements	BT5

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Significance of Population and relation with demography; Key concepts of Population pressure: under population, optimum population, over population; Components of population change: fertility, mortality and migration; and associated factors	12
Unit 2	Population Growth and Distribution: World and India, factors influencing population distribution; Measures of population density and distribution; Demographic transition model and theory of population growth by Malthus; concept of population resource relationship and population resource regions	12
Unit 3	Defining the field and scope of Settlement Geography; origin of settlements; rural and urban settlements: types of rural settlement, classification of urban settlement , functional classification of towns.	12
Unit 4	Concept of urbanization, rural-urban fringe, city region.	12
	Total	48

Text Books Suggested:

5. Singh R.Y. (Rep. 2010) - Geography of Settlements, Sharda Pustak Bhawan, Allahabad
6. Chandna R. C. (Rep.2010) – ***A Geography of Population, Concepts, Determinants and Patterns***, Kalyani Publishers, New Delhi.
7. Maurya S.D (Rep. 2018): ***Settlement Geography***, Sharda Pustak Bhawan, Allahabad
8. Sandram, K. V. and Nangia, S., (eds): ***Population Geography***, Heritage Publishers, New Delhi. Inc., New York.

Reference books:

6. Clarke, J. I., 1972: ***Population Geography***, Pergamon Press, Oxford.
7. Peters, G. L. and Larkin, R. P., 1979: ***Population Geography: Problems, Concepts and Prospects***, Kendall/ Hunt Iowa.
8. Trewartha, G. T., 1969: ***A Geography of Population: World Pattern***, John Wiley & Sons.
9. Woods, R., 1979: ***Population Analysis in Geography***, Longman, London.
10. Robinson, H., 1981: ***Population and Resources***, Macmillan Press, London

	Internship	GE0162M5 24
	L-T-P-C: 0-0-2-6 Credit Units: 4 Scheme of Evaluation: (P)	

Course Objectives: *This paper provides an understanding the basics of research project preparation.*

Course Outcomes:

After the completion of course, the students will have ability to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Relate real world issues for carrying out research on a specific field	BT1
CO2	Infer ideas of research through literature review.	BT2
CO3	Develop hypotheses and research questions.	BT3
CO4	Identify appropriate sampling techniques.	BT4
CO5	Interpret the various types of data along with critical evaluation .	BT5
CO6	Design and develop a detailed project report	BT6

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Internship in institutes, organizations, and firms / industry of repute in Northeast India.	24
Unit 2	Preparation of internship report in prescribed format during 6th - 8th week of the commencement of course of 5th semester. Submission of the report after a week of the announcement of routine for 5 th End Semester Examination duly signed by the appropriate person in	24

	the institute concerned.	
	Total	48

Note: Students will work as an intern during the semester break for 4 weeks after 4th semester. Students not being able to obtain any internship will be assigned project work from the department.

Text Books:

As per the list of given in syllabus based on topic selected

Reference Books:

As per the list of given in syllabus based on topic selected

Learning Outcomes:

After the completion of course, the students will have ability to:

- Prepare and execute major project by collecting primary and/or secondary data,
- Improve the skill of organizing the study based on project / research objectives
- Process, analyse the data and write scientific project report

Semester 6

SEMESTER 6

Paper I	GEOGRAPHY OF INDIA	Subject Code:
Core Course	L-T-P-C: 4-0-0-4 Credit Units: 4 Scheme of Evaluation: (T)	GEO162M601

Course Objectives: *The course aims to define the regional basis of India and evaluate the basic ideas of the different aspects of India.*

Course Outcomes:

By the end of this course the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Define the concepts involved in explaining India as a regional unit.	BT1
CO2	Compare and interpret the disparity that prevails among the different states of India.	BT2
CO3	Build knowledge on population structure, industrial aspects, transport and communication of the region.	BT3
CO4	Analyse various prospects of India.	BT4
CO5	Examine the position of India in global context.	BT5

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	India as a geographical entity, Location and situation; India in the context of neighbouring countries, Physical background of regional development: relief, drainage system, climate, soil and natural vegetation; Indian monsoon: mechanism and characteristics.	10
Unit 2	Population and development issues: population growth and its socio-economic implications, age-sex composition, literacy, urbanization, occupation and social composition (tribes, caste and religion).	14
Unit 3	Green Revolution, Cropping pattern, Agro-climatic regions, Mineral and power resources distribution and development (iron ore, coal, petroleum and hydro- electric power and solar energy); Industrial regions of India.	12
Unit 4	Regional disparities in economic development: Agriculture, industry and transport and communication, India's geo-economic position in Asia and the world; its economic development policies and international relations.	12
	Total	48

Text Books:

3. Singh, R. L., (ed), 1971: India: A Regional Geography, National Geographical Society of
4. India, Varanasi.
5. Bhatt, L. S., 1973: Regional Planning in India, Statistical Publishing Society, Calcutta.
6. Tirtha R. & Gopal Krishna, 1996: Emerging India Reprinted by Rawat Publications, Jaipur.

Reference Books:

1. Dreze, Jean & Amartya Sen (ed.), 1996: India Economic Development and Social opportunity, Oxford University Press, New Delhi.
2. Kundu A. Raza Moonis, 1982: Indian Economy: the Regional Dimension. Spectrum
3. Publishers, New Delhi.

Paper I	GEOGRAPHICAL THOUGHT			Subject Code:
Core Course	L-T-P-C: 4-0-0-4	Credit Units: 4	Scheme of Evaluation: (T)	GEO162M602

Course objective: The objective of this course is to make the student look into the chronology of development of the subject of geography through contribution of varied scholars, approaches and schools, major themes and components of geography.

Course Outcomes:

By the end of this course the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Define the various parameters and components of Geography.	BT1
CO2	Interpret the chronological development of the subject of geography.	BT2
CO3	Identify the contributions made by the schools of geography.	BT3
CO4	Discover the physical and humanistic perspective and its dimensions in Geography in relation to the physical and cultural surrounding	BT4
CO5	Explain the various issues of real world with a geographical perspective	BT5

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Place of geography in the classification of knowledge: Defining the field of geography, relation of geography with other natural and social sciences; Defining the field of human geography; nomothetic and ideographic approaches	12
Unit 2	Geography through the ages; general character of geographic knowledge during the ancient and mediaeval period; impact of discoveries and European renaissance on the emergence of modern geography, Foundations of modern geography: Contribution of German (Humboldt, Ritter, Ratzel), French (Paul Vidal de la Blache), British and American geographers.	12
Unit 3	Evolution of geographic thought (Determinism with special reference to Darwinism, Neo-Determinism, Possibilism, Geography as Human Ecology, Geography as the study of areal differentiation, Morphology of Landscape.)	10
Unit 4	Positivism and quantitative revolution, spatial organization, locational analysis, behaviouralism, humanism, radicalism; gender geography and post modernism geography	14
	Total	48

Text Books:

6. Adhikari, S., 1992: Geographical Thought, Chaitanya Pub. House, Allahabad.
7. Berry, B. J. L., 1973: 'A Paradigm for Modern Geography', in R. J. Chorley (ed), Directions in Geography, London Methuen.
8. Bunge, W., 1962: Theoretical Geography, Lund Studies in Geography, Lund, C.W.K. Gleerup.
9. Buttimar, A., 1978: 'On People, Paradigms and Progress in Geography', in D.R. Stoddart (ed),
10. Geography, Ideology and Social Concern, Oxford, Blackwell.
11. Dickinson, R. E., 1969: Makers of Modern Geography, Routledge and Kegan Paul, London.

Reference Books:

1. Dikshit, R. D., 1997: Geographical Thoughts: A Contextual History of Ideas, Prentice Hall of India, New Delhi.
2. Gold, J. R., 1980: An Introduction to Behavioural Geography, Oxford University Press.
3. Hartshorne, R., 1939: The Nature of Geography, Association of American Geographers, Lancaster, Penn.
4. Hartshorne, R., 1959: Perspective on the Nature of Geography, Rand Mckully, Chicago.
5. Harvey, D., 1969: Explanation in Geography, St. Martin's Press, New York.

Paper DSE - 3	AGRICULTURAL GEOGRAPHY L-T-P-C: 4-0-0-4 Credit Units: 4 Scheme of Evaluation: (T)	Subject Code: GEO162M603
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Course Objectives: *The course tries to make the students understand the basic concepts of agricultural geography and its associated patterns and processes of the prime economic activities of the world.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
SI No.	Course Outcome	Blooms Taxonomy Level
C01.	Define concepts of agricultural geography.	BT 1
C02.	Compare different sectors of economy and arrive at logical conclusion regarding importance of agriculture sector in economic development of the nation.	BT 2
C03.	Identify the principles and significance of agricultural geography.	BT 3
C04.	Discover new insights on the relevance of agricultural geography and associated problems in contemporary times.	BT 4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Trends in the study of agricultural geography, Approaches to the study of agricultural geography: commodity, systematic, regional, inductive and deductive, Determinants of agriculture: physical, economic, social, institutional and technological, concept of Land holding and land tenure systems; Land reforms, land use policy and planning	12
Unit 2	Factors of agricultural production: land, labour, capital, organization and govt. policy, Concept of large-scale and small-scale agriculture , Concept of agricultural region, agricultural types and agricultural systems , Methods in agricultural geography: Von Thunen's model of agricultural location and Franklin's type of farming model	12
Unit 3	Methods of agricultural regionalization: crop-combination, crop concentration and diversification, crop intensity, degree of commercialisation , crop rotation and agricultural efficiency, Agricultural productivity: concept and measurement, factors influencing crop productivity, Cropping pattern, factors influencing cropping pattern, shifting in cropping pattern, crop and cropping hazards, crop and crop land management	14
Unit 4	Agricultural classification: according to Whittlesey, Richard Thoman and Peter Corbin, Land use and land capability classification, Agricultural development experiences of USA and Israel.	10
	Total	48

Text Books:

1. Anderson, J.R., 1970: A Geography of Agriculture, Iowa: WMC Brown Co. Clark, Colin and Haswell, Margaret, 1964: The Economy of Subsistence Agriculture, St. Martin's, London.
2. Chorley, R. J. and Haggett, P., 1971: Socio-Economic Models in Geography, Methuen and Co. Ltd., London.
3. Dunn, E. S., 1954: The Location of Agricultural Production, University of Florida Press, Gainesville.

Reference Books:

1. Hussain, M., 2001: Systematic Agricultural Geography, Rawat Publication, Jaipur and New Delhi.
2. Morgan, W.B. and Munton, R.J.C., 1971: Agricultural Geography, Methuen, London.
3. Singh, J., 1974: Agricultural Atlas of India: A Geographical Analysis, Vishal Publishers, Kurukhsetra.
4. Singh, J., 1976: Agricultural Geography, Tata McGraw Hill Pub. Co., New Delhi.
5. Symons, L., 1967: Agricultural Geography, G. Bells and Sons, London.

Learning Outcomes:

By the end of this course the students will be able to

- Understand the principles of agricultural geography
- Understand various concepts related to agricultural geography
- Understand the strategic importance and applicability of agricultural geography in national and global aspect

Paper II Core Course	<p style="text-align: center;">PRACTICAL IN GEOGRAPHY</p> <p style="text-align: center;">L-T-P-C: 0-0-4-2 Credit Units: 4 Scheme of Evaluation: (P)</p>	Subject Code: GEO162M604
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Course Objectives: *The course aims at increasing the practical knowledge of the students.*

Course Outcomes:

By the end of this course the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Define the principles and concepts involved in Practical Geography.	BT1
CO2	Classify the nature, characteristics and sources of map projection.	BT2
CO3	Develop the skills and technical capabilities of the students.	BT3
CO4	Simplify the application of the concepts related to Geomorphology, Climatology and Population Geography.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Drainage basin delimitation , Ordering of streams, calculation of bifurcation ratio, length ratio, drainage frequency and density, calculation of area by planimeter; Preparation of rainfall variability map (Assam and Rajasthan), drawing of hythergraph, climograph and ergograph	10
Unit 2	Map Projection: Basic concepts, classification, basic Principles of construction of zenithal, conical and cylindrical groups of map projections Construction of graticules and drawing of maps thereon including properties and uses of: Zenithal Gnomonic Projection (Equatorial case) Sinusoidal Projection Conical Projection with one-standard parallels Lambert's Conical Equal Area Projection Mercator's Projection	10

Unit 3	Geodetic and plane table surveying; Principles and techniques of surveying by Plane Table, Prismatic Compass	10
Unit 4	Field techniques: levelling by Dumpy Level and Transit Theodolite (Base accessible and inaccessible method)	18
	Total	24

Reference Books:

1. Weiesner, C. J.: *Hydrometeorology*, Chapman & Hall Ltd.
2. Gregory, K, J. and Walling, D.E., 1973: Drainage Basin- Form and Process, Edward Arnold, London
3. Goudie, Andrew, et. Al. (eds), 1981: Geomorphological Techniques, George Allen & Unwin, London.
4. Woods, R., 1979: *Population Analysis in Geography*, Longman, London.

Minor	<p align="center">GEOGRAPHY OF DEVELOPMENT OF INDIA</p> <p>L-T-P-C: 4-0-0-4 Credit Units: 4 Scheme of Evaluation: (T)</p>	<p>Subject Code:</p> <p>GEO162N601</p>
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Course Objectives: *The course aims to define the regional basis of India and evaluate the basic ideas of the different aspects of India.*

Course Outcomes:

By the end of this course, the students will be able to:		
SI No.	Course Outcome	Blooms Taxonomy Level
CO1.	Define the concepts involved in explaining India as a regional unit.	BT 1
CO2.	Compare and interpret the disparity that prevails among the different states of India.	BT 2
CO3.	Build knowledge on population structure, industrial aspects, transport and communication of the region.	BT 3
CO4.	Analyse various prospects of India.	BT 4
CO5.	Examine the position of India in global context.	BT 4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	India as a geographical entity, Location and situation; India in the context of neighbouring countries, Physical background of regional development: relief, drainage system, climate, soil and natural vegetation, major crops, Indian monsoon: mechanism and characteristics, natural disaster in India (earthquake, drought, flood, cyclone, tsunami, Himalayan highland hazards)	10
Unit 2	Population and development issues: population growth and its socio-economic implications, literacy, urbanization, occupation and social structure and development inequalities, tribes and religion	14

Unit 3	Mineral and power resources and development: iron ore, coal, petroleum and hydro- electric power potential, agro-climatic and physiographic divisions of India, agro climatic regions, industrial regions of India	12
Unit 4	Regional disparities in economic development: Agriculture, industry and transport and communication, India's geo-economic position in Asia and the world; its economic development policies and international relations.	12
	Total	48

Text Books:

7. Singh, R. L., (ed), 1971: India: A Regional Geography, National Geographical Society of
8. India, Varanasi.
9. Bhatt, L. S., 1973: Regional Planning in India, Statistical Publishing Society, Calcutta.
10. Tirtha R. & Gopal Krishna, 1996: Emerging India Reprinted by Rawat Publications, Jaipur.

Reference Books:

4. Dreze, Jean & Amartya Sen (ed.), 1996: India Economic Development and Social opportunity, Oxford University Press, New Delhi.
5. Kundu A. Raza Moonis, 1982: Indian Economy: the Regional Dimension. Spectrum Publishers, New Delhi.
7. Robinson, Francis, 1989 : The Cambridge Encyclopaedia of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan & Maldives. Cambridge University Press, London.

Semester 7

major I	GEOGRAPHY OF RURAL DEVELOPMENT		Subject Code:
	L-T-P-C: 3-1-0-4 Credit Units: 4	Scheme of Evaluation: (T)	GEO162M701

Course Objectives: *The course aims to make students aware of the concepts, approaches and planning process related to rural development in India, along with understanding the rural economic base, rural development process and provision of services in rural areas.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Define the need and approaches to rural development.	BT1
CO2	Interpret in detail about the rural economic base especially about the significance of development of non-farm sector in rural areas.	BT2
CO3	Develop in-depth knowledge of pre and post-independence period of rural development.	BT3
CO4	Analyze the relevance of access to services like health, education in rural areas	BT4
CO5	Interpret the various types of data along with critical evaluation .	BT5
CO6	Design and develop a detail project report	BT6

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Rural Development: meaning and dimensions; Need for Rural Development studies in geography; Rural Poverty; Rural development in India: Role of Zilla Parishad and Panchayats in Rural Development, Rural Finances – Banks, NABARD etc.	10
Unit 2	Concept of Village, Rural Settlement pattern, Rural Economic Base: Panchayati raj System, Agriculture and Allied Sectors, Seasonality and Need for Expanding Non-Farm Activities, Co-operatives	14
Unit 3	The Problem of Housing, housing types, low cost houses, the housing schemes in rural area, Dimensions of Rural unemployment and under employment; Rural – Urban migration issues.	10
Unit 4	Sustainable Rural Development programmes in India: Drought Prone Area Programmes, Hill Area Development Programme, PMGSY, DDU-GKY, MGNREGA, Jan Dhan Yojana, DAY-NRLM, NHM, Samagra Sikhsa Abhiyan	14
	Total	48

Text Book:

1. Gilg A. W., 1985: An Introduction to Rural Geography, Edwin Arnold, London.
2. Krishnamurthy, J. 2000: Rural Development - Problems and Prospects, Rawat Publs., Jaipur
3. Lee D. A. and Chaudhri D. P. (eds.), 1983: Rural Development and State, Methuen, London.
4. Misra R. P. and Sundaram, K. V. (eds.), 1979: Rural Area Development: Perspectives and Approaches, Sterling, New Delhi.

References:

1. Robb P. (ed.), 1983: Rural South Asia: Linkages, Change and Development, Curzon Press.
2. UNAPDI 1986: Local Level Planning and Rural Development: Alternative Strategies. (United Nations Asian & Pacific Development Institute, Bangkok), Concept Publs. Co., New Delhi.
3. Wanmali S., 1992: Rural Infrastructure Settlement Systems and Development of the Regional Economy in South India, International Food Policy Research Institute, Washington, D.C.
4. Yugandhar, B. N. and Mukherjee, Neela (eds.) 1991: Studies in Village India: Issues in Rural Development, Concept Publs. Co., New Delhi.
5. Misra, R. P. (ed.), 1985: Rural Development: Capitalist and Socialist Paths, Vol. 1, Concept, New Delh

MAJOR II	Urban Geography			Subject Code: GEO162M702
	L-T-P-C: 4-0-0-4	Credit Units: 4	Scheme of Evaluation: (T)	

Course Objectives: *The course aims to give the idea of the concept of urban geography and its major aspects as well as it seeks to develop new insights among the students on the relevance of urban geography and its associated problems in a rapidly urbanizing world.*

Course outcomes:

After successful completion of the course, the students will be able to:		
SI No.	Course Outcome	BT Level
CO 1	Define concepts related to urban geography and its approaches.	BT 1
CO 2	Explain different geographical factors which organise urban spaces and develop ideas in its relation.	BT 2
CO 3	Identify the new insights on the relevance of urban geography.	BT 3
CO 4	Discover and develop skills seeking advanced studies on urban planning and development.	BT 4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Urban Geography: Meaning, subject matter and scope; approaches and trends in urban geography; Towns: Types, characteristics, origin and growth in global and national contexts; Functional classification of towns; Schemes of city classification	10
Unit 2	Patterns of Urbanization in developed and developing countries; Components of urbanization and urban population growth; Urban morphology and land use structure; Theories on the internal structure of town: concentric zone theory of Burgess and the Sector Theory of Hoyt	14
Unit 3	Concept of city-region, urban agglomeration, urban sprawl, Umland and periphery, rural-urban dichotomy and continuum, urban fringe, satellite town, new town, smart city; Urban Systems: Concept of urban system and hierarchy; Christaller's Central Place Theory; the rank-size distribution of cities; concept of primate city.	14

Unit 4	Urban issues and problems: Housing, slums, civic amenities (transportation and drinking water), traffic congestion, pollution (air, noise, water), and crime. Urbanization and urban development planning in India: Trend and regional patterns of urbanization; national urban development policies and programmes; emerging urban issues of selected cities (Delhi NCR, Mumbai, Guwahati).	10
	Total	48

Text Book:

1. Bansal, S.C. (2010): Urban Geography, Meenakshi Prakashan, Meerut.
2. Hall T., 2006: Urban Geography, Taylor and Francis.
3. Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: Urban Geography, John Wiley.
4. Knox P. L. and McCarthy L., 2005: Urbanization: An Introduction to Urban Geography, Pearson Prentice Hall New York.
5. Pacione M., 2009: Urban Geography: A Global Perspective, Taylor and Francis.

References:

1. Bala, R. (1986): Urbanisation in India, Rawat, Jaipur.
2. Fyfe N. R. and Kenny J. T., 2005: The Urban Geography Reader, Routledge.
3. Graham S. and Marvin S., 2001: Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition, Routledge

MAJOR III	GEOGRAPHY OF NORTHEAST INDIA AND ASSAM			Subject Code: GEO162M70 3
	L-T-P-C: 4-0-0-4	Credit Units: 4	Scheme of Evaluation: (T)	

Course Objectives: *The course aims to define the regional basis of Northeast India and Assam and evaluate the basic ideas of the position of Northeast India and Assam in the Indian context.*

Course Outcomes:

By the end of this course the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Define the concepts involved in explaining North-East India as a regional unit.	BT1
CO2	Compare and interpret the disparity that prevails among the different states of northeast.	BT2
CO3	Build knowledge on population structure, industrial aspects, transport and communication of the region.	BT3
CO4	Analyse various prospects of northeast India and Assam.	BT4
CO5	Examine the basic idea of position of Northeast India and Assam in Indian context.	BT5

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	North East India: location and strategic significance; Physical characteristics and their relation to development: Relief, drainage, climate, soil and vegetation and bio-diversity, Position of North-East India in relation to India and its neighbours, Socio-economic and trade relation with ASEAN countries	12
Unit 2	Population and Development: Population growth, composition and distribution, migration, population characteristics, social structure: race, caste, religious and linguistic composition.	12
Unit 3	Natural resources, their utilization and development: Coal, petroleum, natural gas, water and forests in North East India; Agriculture and Development: Agricultural modernization and strategies for future development; constraints of Industrial development; problems and prospects of tourism.	12

Unit 4	Locational significance of Assam; Position of Assam in relation to rest of India, its physical characteristics and their relation to development: Relief, drainage, climate, soil and vegetation, Population growth, composition and distribution in North-East India and Assam; Characteristics and status of agriculture, industry and tourism in Assam	12
	Total	48

Text Books:

1. Dutta Ray, B., et. al (eds), 2000: Population, Poverty and Environment in North East India, Concept Publishing Co., New Delhi.
2. Taher M. and Ahmed, P, 2000: Geography of North East India, Mani-Manik Prakash, Guwahati.
3. Bhagabati, A. K. et al, 2001: Geography of Assam, Rajesh Publications, New Delhi.

Reference Books:

1. Barua, P. C., 1990: Development Planning of North East India, Mittal Publications, New Delhi.
- North East India Geographical Society: North Eastern Geographer, Department of Geography, Gauhati University.

MAJOR IV	FIELD TECHNIQUES IN GEOGRAPHY		Subject Code:
	L-T-P-C: 0-0-8-4 Credit Units: 4	Scheme of Evaluation: (P)	GEO162M704

Course Objectives: *It aims to give the idea of the importance of various surveying techniques in geographical study, and understand the field ethics and different tools of field study.*

Course Outcomes:

After successful completion of the course, the students will be able to:			
Sl. No.	Course Outcome	Blooms Level	Taxonomy
CO1	How to scientifically design a research and write a field report.	BT1	
CO2	Interpret the various dimensions of field work and its role in geographical studies.	BT2	
CO3	Identify the principles and techniques of surveying.	BT3	
CO4	Analyze with the help of different surveying techniques for representation of various spatial objects/Phenomena.	BT4	

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Geographic Research: Definition and types, Research methodology in geography; Defining a research problem; Statement of the problem; Objectives, and hypothesis/ research questions, Database and methodology, significance, review of research works and bibliography and references, Research design: Meaning, need and features of a good design	10
Unit 2	Field Work in Geographical Studies – Role, Value, Data and Ethics of Field-Work; Defining the Field and Identifying the Case Study – Rural / Urban / Physical / Human / Environmental; Designing the Field Report – Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report	14
Unit 3	Field Tools and Techniques – Merits, Demerits and Selection of the Appropriate Technique; Observation (Participant / Non Participant), Questionnaires (Open/ Closed / Structured / Non-Structured) Interview with Special Focus on Focused Group Discussions; Space Survey (Transects and Quadrants, Constructing a Sketch), Surveying: Plane and Geodetic Surveying; Concept of ground surveying	14
Unit 4	Research ethics: Plagiarism- classification and prevention; Intellectual property rights; Research report: Structural components and presentation.	10
		48

Text Books:

1. Creswell J., 1994: **Research Design: Qualitative and Quantitative Approaches**, Sage Publications.

2. Steers, J. A., 1965: *An Introduction to the Study of Map Projection*, University of London, London

Reference Books:

1. Robinson A., 1998: *"Thinking Straight and Writing That Way"*, in *Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences*, eds.by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles. Special Issue on "Doing Fieldwork" The Geographical Review 91:1-2 (2001).
2. Stoddard R. H., 1982: *Field Techniques and Research Methods in Geography*, Kendall/Hunt.

Wolcott, H. 1995. *The Art of Fieldwork*. Alta Mira Press, Walnut Creek, CA

Minor	GEOGRAPHY OF NORTHEAST INDIA			Subject Code:
	L-T-P-C: 4-0-0-4	Credit Units: 4	Scheme of Evaluation: (T)	GEO164N70 1

Course Objectives: *The course aims to define the regional basis of Northeast India and Assam and evaluate the basic ideas of the position of Northeast India and Assam in the Indian context.*

Course Outcomes:

By the end of this course the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Define the concepts involved in explaining North-East India as a regional unit.	BT1
CO2	Compare and interpret the disparity that prevails among the different states of northeast.	BT2
CO3	Build knowledge on population structure, industrial aspects, transport and communication of the region.	BT3
CO4	Analyse various prospects of northeast India and Assam.	BT4
CO5	Examine the basic idea of position of Northeast India and Assam in Indian context.	BT5

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	North East India: location and strategic significance; Physical characteristics and their relation to development: Relief, drainage, climate, soil and vegetation and bio-diversity, Position of North-East India in relation to India and its neighbours, Socio-economic and trade relation with ASEAN countries	12
Unit 2	Population and Development: Population growth, composition and distribution, migration, population characteristics, social structure: race, caste, religious and linguistic composition.	12
Unit 3	Natural resources, their utilization and development: Coal, petroleum, natural gas, water and forests in North East India; Agriculture and Development: Agricultural modernization and strategies for future development; constraints of Industrial development; problems and prospects of tourism.	12

Unit 4	Locational significance of Assam; Position of Assam in relation to rest of India, its physical characteristics and their relation to development: Relief, drainage, climate, soil and vegetation, Population growth, composition and distribution in North-East India and Assam; Characteristics and status of agriculture, industry and tourism in Assam	12
	Total	48

Text Books:

5. Dutta Ray, B., et. al (eds), 2000: Population, Poverty and Environment in North East India,
6. Concept Publishing Co., New Delhi.
7. Taher M. and Ahmed, P., 2000: Geography of North East India, Mani-Manik Prakash, Guwahati.
8. Bhagabati, A. K. et al, 2001: Geography of Assam, Rajesh Publications, New Delhi.

Reference Books:

2. Barua, P. C., 1990: Development Planning of North East India, Mittal Publications, New Delhi.
- North East India Geographical Society: North Eastern Geographer, Department of Geography, Gauhati University.

Semester 8

3.

Major I	QUANTITATIVE TECHNIQUES IN GEOGRAPHY		Subject Code:
	L-T-P-C: 3-1-0-4 Credit Units: 4	Scheme of Evaluation: (T)	GEO162M801

Course Objectives: *This paper provides an understanding of the pure and applied nature of Geography along with the key elements in the discipline.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Define the statistical methods and quantitative techniques used in Geography.	BT1
CO2	Interpret various methods and techniques of data collection, data tabulation, data interpretation and analysis.	BT2
CO3	Identify the importance of data in geography.	BT3
CO4	Analyse data through tabulation, sample size and other methods by handling data in the field.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Significance and limitations of quantitative techniques; Descriptive and inferential statistics; Levels of measurement; Data sources and acquisition techniques; Significance and limitations of quantitative techniques; Descriptive and inferential statistics;	10
Unit 2	Measures of central tendencies (Mean, Median and Mode); Measures of dispersion (Range, Quartile Deviation, Mean Deviation, Standard Deviation; Coefficient of variation); Concept of spatial mean and median centres	12
Unit 3	Sampling: Purposive, Random, Systematic and Stratified and their utilities in geographical data collection and analysis.	12
Unit 4	Time series analysis techniques: Moving average and Least Squares Methods; Correlation analysis (Spearman's Rank correlation and Karl Pearson's product moment correlation coefficient); Regression analysis in geographic studies (linear and non-linear); regression residual mapping. (Exercises-4)	14
	Total	48

Text Books:

1. Mahmood A., 1977: ***Statistical Methods in Geographical Studies***, Concept.
2. Hammond P. and McCullagh P. S., 1978: ***Quantitative Techniques in Geography: An Introduction***, Oxford University Press.

Reference Books:

8. Berry B. J. L. and Marble D. F. (eds.): *Spatial Analysis – A Reader in Geography*. Monkhouse, F.J. & Wilkinson, H.R., 1989: Maps and Diagrams, B.I Publication, New Delhi
9. Pal S. K., 1998: *Statistics for Geoscientists*, Tata McGraw Hill, New Delhi.
10. Sarkar, A. (2013) *Quantitative geography: techniques and presentations*. Orient Black Swan Private Ltd., New Delhi
11. Silk J., 1979: *Statistical Concepts in Geography*, Allen and Unwin, London.
12. Spiegel M. R.: *Statistics, Schaum's Outline Series*.
13. Yeates M., 1974: *An Introduction to Quantitative Analysis in Human Geography*, McGraw Hill, New York.

MAJOR II	RESEARCH METHODOLOGY		Subject Code:
	L-T-P-C: 4-0-0-4 Credit Units: 4	Scheme of Evaluation: (T)	GEO162M802

Course Objectives: *The course aims to make the students understand the basics of qualitative and quantitative research, literature review, data collection, identification of research problem, formulate research objectives and research questions, formulation of hypothesis and testing, framing of questionnaires, techniques of collection of both qualitative and quantitative data and their analysis.*

Course Outcomes:

After the completion of course, the students will have ability to:		
SI No.	Course Outcome	Blooms Taxonomy Level
C01.	Define the concepts and tools of research.	BT 1
C02.	Infer ideas that can be taken up for research work through literature review.	BT 2
C03.	Develop hypothesis and research questions.	BT 3
C04.	Identify appropriate data collection and sampling techniques.	BT 3
C05.	Interpret the various types of data along with critical evaluation .	BT 5
C06.	Design and develop a scientific research report	BT 6

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Research: Definition, types, significance and important features; Research methodology in geography; Defining a research problem; Statement of the problem; Objectives, and hypothesis/ research questions, Database and methodology, significance, review of research works and bibliography and references.	12
Unit 2	Research design: Meaning, need and features of a good design, Inductive and deductive approaches in geographic research, Hypothesis, theories and models in Geography; concept of model building and hypothesis testing.	12
Unit 3	Field techniques in Geography: Types, role and significance; Questionnaire design (Open, Closed, Structured, Non-structured), data collection, Post field processes: construction of data matrix, data processing and analysis; Introduction to qualitative techniques in Geography-observation, focus group discussion, case study, narratives, content analysis, oral history.	12

Unit 4	Sources of geographic data (Conventional and Geospatial technology based), their representation, interpretation and analysis; Research ethics: Plagiarism- classification and prevention; Intellectual property rights; Research report: Structural components and presentation.	12
	Total	48

Note: Computer / calculator based compulsory home assignments may be given for various units. Scientific calculator may be permitted in the examination hall for this paper.

Text Books:

1. Harvey, D, 1969: Explanation in Geography, Scientific Publisher, Jodhpur.
2. Lenon, B., Cleves, P. 2015. Geography Fieldwork and Skills, Harper-Collins.
3. Montello , D.R, Sutton, P. 2012. An Introduction to Scientific Research Methods in Geography and Environmental Studies, 2nd ed, Sage.
4. Murthy , K.L.N. 2004. Research Methodology in Geography: A Text Book, Concept Publishing Co.

Reference Books:

1. Evans, M., (1988): "Participant Observation: The Researcher as Research Tool" in Qualitative Methods in Human Geography, eds. J. Eyles and D. Smith, Polity.
2. Special Issue on "Doing Fieldwork" The Geographical Review 91:1-2 (2001).
3. Stoddard, R. H., (1982): Field Techniques and Research Methods in Geography, Kendall/Hunt.
4. Wolcott, H., (1995): The Art of Fieldwork, Alta Mira Press, Walnut Creek, CA.
5. Northey, N., Draper, D., Knight, D.B. 2015. Making Sense in Geography and Environmental Sciences: A Student's Guide to Research and Writing, 6th ed, Oxford University Press.
6. Parsons, T., Knight, P.G. 2015. How To Do Your Dissertation in Geography and Related Disciplines, 3rd ed, Routledge.

MAJOR III	DISSERTATION/RESEARCH PROJECT L-T-P-C: 4-0-0-4 Credit Units: 4 Scheme of Evaluation: (P)	Subject Code: GE0162M823
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Learning Objectives: *The course aims to make the students understand how to approach a research problem and to formulate research objectives and research questions in proper perspective, formulation of hypothesis and testing, framing of questionnaires, techniques of collection of both qualitative and quantitative data and their analysis.*

Learning Outcomes:

After the completion of course, the students will have ability to:		
SI No.	Course Outcome	Blooms Taxonomy Level
C01.	Choose appropriate research methods for carrying out research on a specific field.	BT 1
C02.	Infer ideas and classify the issues that needs attention for formulation of hypothesis.	BT 2
C03.	Develop hypothesis and research questions.	BT 3
C04.	Identify appropriate sampling techniques.	BT 3
C05.	Interpret the various types of data along with critical evaluation .	BT 5
C06.	Design and develop a detail project report	BT 6

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	<p>Identification of research problem / topic on any one of the following aspects (preferably of local area / Gram Panchayat / Revenue circle / District / State) during the 3rd semester while working with a minor project by the individual student:-</p> <p>Any kind of geographical studies on socio-economic / cultural issues / demographic problems and characteristics</p> <ol style="list-style-type: none"> Agriculture, Industry, Mining related issues Environmental problems of the locality including disasters and hazards Natural resources assessments, planning and management Ecological crisis, Climate change and consequences Rural / Urban Ecosystems; Terrain / basin / watershed characterization and evaluation including integrated development studies <p><i>(This list is indicative only, the student may consult the assigned teacher as project supervisor / guide. Project supervisor / guide to each student will be allocated).</i></p>	12

	<p>The topic selection / modification may be done just before the 3rd Semester End Examination so that the data collection can be done during semester break.</p> <p>A fresh project proposal / modified project proposal of minor project done in 3rd semester is to be submitted by each student (within 2nd week of the commencement of 4th semester classes) by mentioning the following:-</p> <ol style="list-style-type: none"> Project title Introduction to the problem Aims / objectives Research questions Database and Methodology Study of relevant literature Organization of study <p><i>Marks for internal evaluation = 14</i></p>	
Unit 2	<p>Project proposal presentation by each student using PowerPoint during 3rd week of the commencement of the course of 4th semester.</p> <p><i>Marks for internal evaluation = 14</i></p>	12
Unit 3	<p>Reporting of data collection, tabulation, processing, mapping/charting and analysis by each student using PowerPoint during 5th week of the commencement of the course of 4th semester.</p> <p><i>Marks for internal evaluation = 14</i></p>	12
Unit 4	<p>Preparation of project report in prescribed format during 6th - 8th week of the commencement of course of 4th semester.</p> <p>Submission of the report after a week of the announcement of routine for 4th End Semester Examination.</p> <p>Final project presentation by each student using PowerPoint during on the scheduled date of viva-voce examination of this paper.</p> <p><i>Marks for external evaluation = Viva-voce 8 + Presentation 20 = 28</i></p>	12
	Total	48

Note: Submission of project report in prescribed format and on specified date is mandatory. Equal weightages of marks for each stage of the work (upto 3rd stage) for internal evaluation of the project by the supervisor (60% of end semester examination). 40% of the total marks of end semester examination is for viva-voce and final presentation to be evaluated by an external examiner.

Text Books:

As per the list of given in syllabus based on topic selected

Reference Books:

As per the list of given in syllabus based on topic selected

MAJOR	<p style="text-align: center;">GLOBAL CLIMATE CHANGE</p> <p style="text-align: center;">L-T-P-C: 4-0-0-4 Credit Units: 4 Scheme of Evaluation: (T)</p>	<p style="text-align: center;">Subject Code:</p> <p style="text-align: center;">GEO162M801</p>
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Course Objectives: *The course aims to give the idea of the concept of climate change and its impact on various aspects in global context, along with providing knowledge on adaptation and mitigation of climate impacts and also to know institutional role in it.*

Course Outcomes:

After successful completion of the course, the students will be able to:		
SI No.	Course Outcome	Blooms Taxonomy Level
CO1.	Relate to basics of Science of Climate Change.	BT 1
CO2.	Classify different types of vulnerability.	BT 2
CO3.	Develop understanding about various Impacts of Climate Change on Agriculture and Water; Flora and Fauna; Human Health.	BT 3
CO4.	Inspect upon the issues of adaptation and mitigation.	BT 4
CO5.	Recommend suitable measure for mitigation of issues related to climate change.	BT 5

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Causes of global warming and climate change - natural and anthropogenic (industrial and vehicular emissions of Green House Gases, Radiation patterns); Global precipitation and temperature distribution patterns; Extreme climatic events and processes; Urban heat island formation, concept of micro-climate in urban context El Nino and La Nina effects; Consequences of climate change in various geographical regions, concept of urban green space	12
Unit 2	Impact of climate change on agriculture and food security, human health, migration and socio-economic issues; Geographical theories of climatic changes involving displacement of continents, change in the composition of atmosphere, solar radiation.	12
Unit 3	Global climatic assessment by Inter-governmental Panel on Climate Change (IPCC); Sources of climatic data and Statistical analysis of climatic data; Climate and biodiversity: Ecological succession of plants and animal life; Biogeographical shifts of bio-resources.	10

Unit 4	Global and national initiatives on adaptation and mitigation measures on climate change; National Action Plan on Climate Change; Role of Non-governmental Organizations, Local Institutions -Urban Local Bodies and Panchayats	14
	Total	48

Text Books:

1. Chritchfield, H. J., 1992: General Climatology, Prentice-Hall of India Pvt. Ltd, New Delhi
2. Lal, D. S., 1997: Climatology, Sharada Pustak Bhawn, Allahabad-02
3. Lal, D. S., 2016: Climatology and Oceanography, Sharada Pustak Bhawn, Allahabad-02
4. Strahler, Alan., 2018: Introducing Physical Geography, 6th Edition, Wiley India Pvt Ltd. New Delhi

Reference Books:

1. IPCC, 2014: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
2. IPCC, 2007: Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.
3. OECD, 2008: Climate Change Mitigation: "What do we do?" (Organisation and Economic Co-operation and Development).
4. UNEP, 2007: Global Environment Outlook: GEO4: Environment for Development, United Nations Environment Programme.
5. Sen, Roy, S., and Singh, R.B., (2002): Climate Variability, Extreme Events and Agricultural Productivity in Mountain Regions, Oxford & IBH Pub., New Delhi.
6. Singh, R.B., Mal, Suraj, and Huggel, Christian (2018): Climate Change, Extreme Events and Disaster Risk Reduction, Springer, Switzerland.

MAJOR	ENVIRONMENT AND SUSTAINABLE DEVELOPMENT L-T-P-C: 4-0-0-4 Credit Units: 4 Scheme of Evaluation: (T)	Subject Code: GEO162M805
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Course Objectives: *The course aims to give the idea of the concept of global environment and its impact on various aspects, along with providing knowledge on adaptation and mitigation of climate impacts and also to know institutional role in it.*

Course Outcomes:

By the end of this course the students will be able to:		
SI No.	Course Outcome	Blooms Taxonomy Level
C01.	Relate to basics of science of environmental change and sustainable development.	BT 1
C02.	Classify different types of natural resources and its importance.	BT 2
C03.	Develop understanding about various impacts of Climate Change on Agriculture and Water, Flora and Fauna, Human Health, ozone layer and other spheres of environment.	BT 3
C04.	Inspect upon the issues of adaptation and mitigation from hazards and management of solid wastes.	BT 4
C05.	Explain the policies of development and environmental protection in developed and developing countries.	BT 5

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Introduction to Environment: definition and concept, types, Environmental factors, The Global Environment and its segments and development, Natural resources: renewable and non-renewable, land resources, water resource, forest resource and energy resource	12
Unit 2	Man- environment relationship: Historical perspectives on man's interaction with environment; population growth and environment; Man and atmosphere: Man as a factor of climatic change; Global environmental problems: Types and extent of environmental problems, area-specific major environmental issues and problems.	12
Unit 3	Concept of sustainability, concept of sustainable development, history, : relation among environment, economy and society, Pillars and principles of Sustainable development, Environmental Pollution- causes and effects, Nuclear Hazard and Human Health, Solid Waste Management, Climate Change and Global warming, ozone layer depletion and its impacts	12

Unit 4	Environmental protection movements: Chipko Movement, Silent Valley, Narmada Bachhao Andolan; Environmental Legislation Programme in India: Wildlife Protection Act, Water Act, Forest Act, Air Act, Environmental Protection Act, International Agreement-Earth Summit, UNFCC, Montreal and Kyoto Protocol, Environmental Communication and Awareness	12
	Total	48

Text Books:

1. Goudie, A., (1984): The Nature of Environment, Basil Blackwell, London.
2. Singh, S., 1991: Environmental Geography, Prayag Pustak Bhawan, Allahabad

Reference Books:

1. Park, C., (1997): The Environment, Routledge, London.
2. Pickering, K. T. & L. A. Owne, (1994): An Introduction to Global Environmental Issues, Routledge, London.
3. .
4. Strahler, A. N. and A. H. Strahler, 1976: Geography and Man's Environment, John Willey, New York.

MAJOR	GEOGRAPHY OF HEALTH			Subject Code: GEO162M806
	L-T-P-C: 3-1-0-4	Credit Units: 4	Scheme of Evaluation: (T)	

Course Objectives: *The course aims to develop understanding about the concepts of health, factors determining human health, its diffusion under various environments and overall health related issues that comes up.*

Course Outcomes:

By the end of this course the students will be able to:		
Sl. No.	Course Outcome	Blooms Taxonomy Level
CO1	Recall the different disease classifications and the approaches to study about health.	BT1
CO2	Outline the concept of human health and healthcare from the perspective of geography.	BT2
CO3	Develop knowledge about factors influencing human health and occurrence of diseases in varying ecological settings.	BT3
CO4	Analyse the impact of environmental degradation on human health and occurrence of various diseases in different ecological settings.	BT4

Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	Geography of Health: Definition and significance; approaches of study: ecological, social, and spatial; dualism between medical geography and geography of health. Classification of diseases: genetic, zoonotic, communicable, non-communicable, occupational, deficiency diseases and malnutrition.	10
Unit 2	Disease ecology: ecology and human health; geographical factors affecting human health; factors influencing disease transmission (pathological, physical, environmental, social, cultural, and economic); Diffusion of diseases and their causes in varied biotic, physical, and cultural environments.	14
Unit 3	Disease occurrence: emergence, re-emergence, and persistence; modes of transmission of major diseases (Malaria, Japanese encephalitis, tuberculosis, hepatitis, AIDS, and COVID-19) and their broad global distribution. Healthcare systems: Meaning and components; Universal government-funded health system; Role of WHO and UNICEF in global health care; SDG3 for good health and Well-being.	14

Unit 4	Environment, human habit, and health: Basic concept and ideas relating to food habit and health, occupation and health, environmental degradation and health, lifestyle, and human health.	10
	Total	48

Text Book:

1. Akhtar Rais (Ed.), 1990: Environment and Health Themes in Medical Geography, Ashish Publishing House, New Delhi
2. Anthamatten P, (2011), Introduction to the Geography of Health, Rawat Publications, Jaipur

References:

1. Cliff, A.D. and Peter, H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford
2. Hardham T. and Tannav M., (eds): Urban Health in Developing Countries; Progress, Projects, Earthgoan, London
3. Murray C. and A. Lopez, 1996: The Global Burden of Disease, Harvard University Press.
4. National Health Portal India <https://www.nhp.gov.in/healthprogramme/national-health-programmes>
5. Shaw, M., Dorling, D. and Mitchell, R, (2002) Health, Place and Society, Pearson, London Brown, T., McLafferty, S., Moon, G. (2010): A Companion to Health and Medical Geography, Wiley Blackwell, UK
6. Mishra, R.P. (1970): Medical Geography of India, National Book Trust of India