

COURSE STRUCTURE AND SYLLABUS
of
Five Year Integrated Post Graduate Programme (FYIPGP),
NEP 2020, GEOGRAPHY

**(Recommended by B.O.S in Department of Geography, Dibrugarh University in its
meeting held on 28/04/2026)**



Member

Member

Signature of the Chairperson (BOS)

PREAMBLE

Geography as an academic discipline integrates the study of the earth's physical environment with human activities and spatial interactions. The Five Year Integrated Post Graduate Programme (FYIPGP) in Geography aims to provide a comprehensive and interdisciplinary understanding of geographical phenomena. The programme emphasizes both theoretical and practical aspects of geography, enabling students to understand the dynamic interactions between nature and society. Through a structured progression from foundational undergraduate courses to advanced postgraduate studies and research, the programme equips learners with analytical, technical, and research competencies required for addressing contemporary environmental and developmental challenges.

INTRODUCTION

The Five Year Integrated Post Graduate Programme (FYIPGP) in Geography is structured to provide a continuous academic pathway from undergraduate to postgraduate level within a single programme framework. The programme is organized into ten semesters, offering multiple exit options in accordance with the National Education Policy (NEP) and UGC guidelines. Students may exit after the first year with a **certificate**, after the second year with a **diploma**, after the third year with a **bachelor's degree**, after the fourth year with a **bachelor's degree with research**, and after completion of the fifth year with a **postgraduate degree** in Geography.

The curriculum integrates core courses, minor courses, generic electives, skill enhancement courses, value-added courses, internships, community engagement activities, and research components. The programme emphasizes fieldwork, spatial analysis, cartographic and geospatial techniques, environmental studies, and regional planning. It also introduces interdisciplinary themes such as sustainable development, disaster management, GIS and remote sensing, environmental management, and regional development, thereby preparing students for research, policy planning, and professional careers in geography and related fields.

AIMS OF THE FYIPGP IN GEOGRAPHY

The programme aims to:

1. Provide a comprehensive understanding of physical, human, and environmental aspects of geography.
2. Develop analytical and critical thinking skills for interpreting spatial patterns and geographical processes.
3. Equip students with cartographic, statistical, and geospatial techniques including GIS and remote sensing.
4. Foster awareness of environmental sustainability, resource management, and regional development.
5. Encourage field-based learning, community engagement, and applied geographical research.
6. Prepare students for advanced academic research, professional careers, and policy planning in geography and allied disciplines.

GRADUATE ATTRIBUTES OF THE FYIPGP IN GEOGRAPHY

Graduates of the FYIPGP in Geography are expected to develop the following attributes:

1. Disciplinary Knowledge

A comprehensive understanding of physical, human, environmental, and regional geography and their interrelationships.

2. Analytical and Critical Thinking

Ability to interpret spatial patterns, analyze environmental and socio-economic processes, and critically evaluate geographical theories and models.

3. Research and Methodological Skills

Competence in research design, fieldwork, data collection, statistical analysis, GIS, and spatial modelling.

4. Environmental Awareness and Sustainability

Understanding of environmental processes, ecological balance, climate change, and sustainable resource management.

5. Technical and Geospatial Skills

Proficiency in cartography, GIS, remote sensing, spatial analysis, and the use of digital technologies in geographical research.

6. Communication and Collaboration

Ability to communicate geographical knowledge effectively through reports, maps, presentations, and collaborative work.

7. Ethical and Social Responsibility

Commitment to ethical practices, social justice, and sustainable development in addressing environmental and societal challenges.

8. Lifelong Learning and Professional Competence

Capacity to pursue advanced academic research and professional careers in academia, government, planning, environmental management, and development sectors.

LEARNING OUTCOMES OF THE FYIPGP IN GEOGRAPHY

Upon successful completion of the programme, students will be able to:

1. Demonstrate a comprehensive understanding of physical, human, and environmental geography and their interrelationships.
2. Analyze spatial patterns and geographical processes at local, regional, national, and global scales.
3. Apply quantitative and qualitative methods in geographical analysis, including statistical techniques and spatial modelling.
4. Utilize geospatial technologies such as GIS, remote sensing, and cartographic techniques for data analysis and mapping.

5. Conduct field-based investigations and research projects addressing geographical and environmental issues.
6. Evaluate the impact of human activities on environmental systems and propose sustainable management strategies.
7. Interpret regional development patterns, resource utilization, and socio-economic dynamics.
8. Communicate geographical knowledge effectively through research reports, maps, presentations, and academic writing.
9. Integrate interdisciplinary perspectives to address complex environmental and developmental challenges.
10. Demonstrate professional and ethical responsibility in research, policy formulation, and community engagement.

TEACHING LEARNING PROCESS

The programme allows to use varied pedagogical methods and techniques both within classroom and beyond.

1. Lecture
2. Tutorial
3. PowerPoint presentation
4. Documentary film on related topic
5. Project Work/Dissertation
6. Group Discussion and debate
7. Seminars/workshops/conferences
8. Field visits and Report/Excursions
9. Mentor/Mentee

TEACHING LEARNING TOOLS

1. Projector
2. Smart Television for Documentary related topic
3. LCD Monitor
4. WLAN
5. White/Green/Black Board
6. Fieldwork

ASSESSMENT

1. Home assignment

2. Project Report
3. Class Presentation: Oral/Poster/PowerPoint
4. Group Discussions
5. In Semester examinations
6. End Semester examinations
7. Fieldwork

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FYIPGP Structure as per UGC Credit Framework of December, 2022

Table 1: Credit Distribution matrix of FYUGP/FYIPGP (Single Major)										
Year	Semester	Core	Minor	GEC	AEC	SEC	Internship/ Community Engagement / Project	VAC	Research/ Dissertation/ /	Total
1	I	4	4	3	4	3		2		20
	II	4	4	3	4	3		2		20
UG Certificate										40
2	III	4+4	4	3		3		2		20
	IV	4+4+4+4	4							20
UG Diploma		32	16	09	08	09		06		80
3	V	4+4+4	4				2+2 (I+ CE) OR 4 (I) / 4 (CE)			20
	VI	4+4+4+4	4							20
UG Degree		60	24	-	-	-	04	-	-	120
4	VII	4+4+4	4						4 (RM)	20
	VIII	4+4	4						8 (D)/4+4 (DSE)	20
Honours Degree		80	32	-	-	-	-	-	12	160
5	IX	4+4+4	4						4(P)/ 4 (DSE)	20
	X	4+4	4						8/4+4 (DSE)	20
PG Degree		100	40	-	-	-	-	-	24	200

Year	Semester	Course	Title of the Course	Total Credit	
Year 01	1 st Semester	C - 1	Geomorphology	4	
		Minor 1	Geomorphology and Oceanography	4	
		GEC - 1	(A) Physical Geography (B) Human Geography	3	
		AEC 1	Modern Indian Language	4	
		VAC 1	Understanding India/Health and Wellness	2	
		SEC 1	Disaster Risk Reduction and Management: Skills for Safety and Resilience	3	
		Total			
	2 nd Semester	C - 2	Climatology	4	
		Minor 2	Climatology and Biogeography	4	
		GEC 2	(A) Fundamentals of Geomorphology	3	

			(B) Fundamentals of Economic Geography	
		AEC 2	English Language and Communication Skills	4
		VAC 2	Environmental Science/ Yoga Education	2
		SEC 2	Methods and techniques of field study	3
		Total		20
The students on exit shall be awarded Undergraduate Certificate (in the Field of Study/Discipline) after securing the requisite 40 Credits in Semester 1 and 2 provided they secure 4 credits in work based vocational courses offered during summer term or internship / Apprenticeship in addition to 6 credits from skill-based courses earned during 1st and 2nd Semester				
Year 02	3 rd Semester	C - 3	Environmental Geography	4
		C - 4	Social Geography of India	4
		Minor 3	Human, Social and Cultural Geography	4
		GEC – 3	(A) Climatology (B) Settlement Geography	3
		VAC 3	Digital and Technological Solutions / Digital Fluency	2
		SEC – 3	Application of Remote Sensing and GIS in Geography (Practical)	3
		Total		20
	4 th Semester	C - 5	Population Geography	4
		C - 6	Political Geography	4
		C - 7	Statistical Methods in Geography	4
		C - 8	Biogeography	4
		Minor 4	Geography of Resource and Economic Development	4
Total		20		
Grand Total (Semester I, II, III and IV)				80
The students on exit shall be awarded Undergraduate Diploma (in the Field of Study/Discipline) after securing the requisite 80 Credits on completion of Semester IV provided, they secure additional 4 credit in skill based vocational courses offered during First Year or Second Year summer term				
Year 03	5 th Semester	C – 9	Regional Geography of World	4
		C – 10	Soil Geography	4
		C – 11	Agricultural Geography	4
		Minor 5	Population Geography	4
			Internship/ CE - Community Engagement	4
	Total		20	
Year 03	6 th Semester	C –12	Evolution of Geographic Thought	4
		C –13	Economic Geography	4
		C –14	Hydrology and Oceanography	4
		C –15	Geography of India and North East India	4
		Minor – 6	Environmental Geography and Sustainable Development	4
	Total		20	
Grand Total (Semester I, II, III and IV, V and VI)				120
The students on exit shall be awarded Bachelor of (in the Field of Study/Discipline) Honours (3 years) after securing the requisite 120 Credits on completion of Semester 6				
Year 04	7 th Semester	C –16	Fluvial Geomorphology- I	4
		C –17	Regional Planning- I	4
		C –18	Disaster Management- I	4
		Minor – 7	Political Geography	4
			Research Ethics and Methodology	4
	Total		20	

	8 th Semester	C –19	Any one of the following- (a) Fluvial Geomorphology- II (b) Regional Planning- II (c) Disaster Management- II	4
		C –20	Geography of Tourism	4
		Minor – 8	Geography of Health and Wellbeing	4
			Dissertation (Collection of Data, Analysis and Preparation of Report) / 2 DSE Courses of 4 credits each in lieu of Dissertation DSE Courses (4 Credit each) available for selection- 1. Climate Change: Vulnerability and Adaptation 2. Geography of Gender Studies 3. Environment and Development	8
		Total		
Grand Total (Semester I, II, III and IV, V, VI, VII and VIII)				160
The students on exit shall be awarded Bachelor of (in the Field of Study/Discipline) (Honours with Research) (4 years) after securing the requisite 160 Credits on completion of Semester 8				

The structure of the course set up in the 5th year (9th and 10th semesters) of the FYIPGP will be as given below:

The schedule of the courses of the last two semesters of the FYIPGP shall be as follows:						
Year	Semester	Course	Title of the Course	Total Credit		
Year 05	9th semester	C-21	Any one of the following- (a) Fluvial Geomorphology- III (b) Regional Planning- III (c) Disaster Management- III	4		
		C-22	Methods in Geography	4		
		C-23	GIS & RS in Geography	4		
		Minor- 9	Sustainable Development and Environment	4		
			Dissertation (Writing a Research Proposal and Review of Related Literature) / Academic Writing/ 1 Community project proposal/ Lab Work/Book review of 2 credits in lieu of Dissertation** for those who have already done a dissertation in their 4th year at the UG level of the FYUGP DSE Courses (4 Credit each) available for selection- 4. Medical Geography 5. Resource Geography	4		
		Total			20	
				C-24	Advanced Research Methodology	4
				C-25	Geography of Eastern Himalayas	4

	10 th semester	Minor-10	Geographical Perspectives on Tribes of Assam	4
			Dissertation (Collection of Data, Analysis and Preparation of Report) / 2 DSE Courses of 4 credits each in lieu of Dissertation for those who have already done a dissertation in their 4th year at the UG level of the FYUGP DSE Courses (4 Credit each) available for selection- 6. Urban Geography 7. Geography of Rural Development 8. Surveying Techniques	8
		Total		
Grand Total (Semester I, II, III, IV, V, VI, VII, VIII, IX & X)				200
The students on exit shall be awarded a PG Degree (in the Field of Study/Discipline), or Integrated 5 years PG Degree) after securing the requisite 200 Credits on completion of Semester 10				
EXIT WITH PG DEGREE IN THE CORE DISCIPLINE				

Abbreviations Used:

- C= Core/ Major
- VAC= Value Added Course
- AEC= Ability Enhancement Course
- SEC= Skill Enhancement Course
- GEC=Generic Elective Course
- DSC= Discipline Specific Course (Maximum 04 Courses) - 5th Year
- DSE= Discipline Specific Elective (Minimum 05 Courses) - 5th Year

SEMESTER I

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 1ST SEMESTER

Title of the Course	:	GEOMORPHOLOGY
Course Code	:	GGRC1
Nature of the Course	:	MAJOR
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End Sem: 45T+15P) + 40 (In-Sem)

Course Description:

This course provides an in-depth understanding of the earth's physical form and structure. It explores the fundamental concepts and processes in geomorphology, focusing on both internal (endogenetic) and external (exogenetic) processes that shape the earth's surface. Students will learn to analyse various landforms and their evolution through lectures, tutorials, and practical exercises, equipping them with skills essential for careers in environmental and land-use management.

Course Objectives:

1. To enhance the learner's understanding of the branch of Geomorphology and its fundamental concepts.
2. To acquire knowledge about the interior of the earth and its interior movements.
3. To have an understanding of diverse geomorphic processes acting on the earth and their role on the development of different landform under different geo-climatic conditions.
4. To make the students comprehend the various processes responsible for the development of diverse landforms on the earth's surface.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to Geomorphology	(a) Geomorphology: Meaning, Definition, Nature and Scope. (b) Fundamental Geomorphic Concepts (Uniformitarianism, Catastrophism, Geomorphic evolution) (c) Understanding of Landform in Ancient India: Examination of geomorphic ideas in ancient Indian texts (IKS)	10	5		15
2 (15 marks)	Geomorphic Processes (Endogenetic)	(a) Earth: Interior Structure and Isostasy. (b) Earth Movements: Continental Drift and Plate Tectonics Theory, Types of Folds and Faults, Theories of Mountain Building, Earthquakes and Volcanoes.	10	5		15
3 (15 marks)	Geomorphic Processes (Exogenetic) and Evolution of Landforms	a. Exogenetic Processes-Weathering, Mass Wasting, b. Cycle of Erosion (Davis and Penck). c. Evolution of Landforms (Erosional and Depositional): Fluvial, Karst, Aeolian, Glacial, and Coastal.	10	5		15

4 (15 marks)	Practical	(a) Topographical Map – Interpretation of Topographical map, Profile drawing (serial, superimposed, projected and composite), Transact chart (b) Morphometric Analysis: Drainage ordering, basin area demarcation, drainage density, Bifurcation ratio. (c) Slope Analysis – Wentworth’s and Smith’s Method.			30	30
		Total	30	15	30	75

. Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each **20**
- Practical **10**
- Others (Any one) **10**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): students will be able to:

CO1: Understand key concepts and terminologies in geomorphology.

ILO 1.1: Recall definitions of geomorphological terms.

ILO 1.2: Identify different geomorphic processes.

ILO 1.3: List various landforms created by geomorphic processes.

CO2: Explain the earth’s interior structure and geomorphic processes.

ILO 2.1: Describe the structure of the earth's interior.

ILO 2.2: Explain the concepts of isostasy, plate tectonics.

ILO 2.3: Discuss the processes of weathering and mass wasting.

CO3: Apply geomorphic knowledge to analyse and interpret landscapes and landforms.

ILO 3.1: Use topographical maps to interpret landforms.

ILO 3.2: Perform morphometric and slope analysis on various terrains.

ILO 3.3: Analyse fluvial, karst, aeolian, glacial, and coastal landforms.

CO4: Differentiate between erosional and depositional processes.

ILO 4.1: Compare and contrast different types of erosional landforms.

ILO 4.2: Identify depositional features in various environments.

ILO 4.3: Assess the impact of climatic conditions on geomorphic processes.

CO5: Integrate geomorphic principles to solve complex geomorphological problems.

ILO 5.1: Combine knowledge of endogenetic and exogenetic processes to explain landform evolution.

ILO 5.2: Create models representing different geomorphic processes.

ILO 5.3: Propose solutions to geomorphological issues in environmental management.

CO6: Critically evaluate geomorphic processes and their implications on landform development.

ILO 6.1: Judge the effectiveness of different geomorphic theories.

ILO 6.2: Evaluate the role of geomorphic processes in landscape modification.

ILO 6.3: Appraise the implications of human activities on geomorphic processes.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1					
Conceptual		CO2		CO4	CO6	
Procedural			CO3			C05
Metacognitive					CO6	CO5

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Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO4	PO5	PO6	PO7	PO8
CO1	S	M	M	M	M	M	M	M	M
CO2	S	S	M	M	M	S	M	M	M
CO3	S	S	S	S	S	S	M	M	M
CO4	S	S	S	M	M	S	S	M	S
CO5	S	S	S	M	M	S	S	S	S
CO6	M	M	S	M	M	S	S	S	S

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi.
2. Bridges E. M., 1990: World Geomorphology, Cambridge University Press, Cambridge.
3. Sharma H. S., (1991), Indian Geomorphology (Selected Papers from the 2nd Conference of the Indian Institute of Geomorphologists on Environmental Geomorphology), Concept Publisher
4. Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
5. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
6. Sharma H. S. and Padmaja S., 2020., Land Resources: Processes, Degradation and Evaluation, Concept Publisher.
7. Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.
8. Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
9. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
10. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
11. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.
12. Gautam, A (2010): Bhautik Bhugol, Rastogi Publications, Meerut 11. Tikkaa, R N (1989): BhautikBhugol ka Swaroop, Kedarnath Ram Nath, Meerut
13. Singh, S (2009): Bhautik Bhugol ka Swaroop, Prayag Pustak, Allahabad
14. **Ancient Indian Knowledge System: Archaeological Perspective" by Vasant Shinde Publisher: Vidyanand Prakashan (1 January 2017)**

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 1ST SEMESTER

Title of the Course	:	GEOMORPHOLOGY AND OCEANOGRAPHY
Course Code	:	MINGGR1
Nature of the Course	:	MINOR
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End Sem: 45T+15P) + 40 (In-Sem)

Course Descriptions:

This course provides an overview of geomorphology and oceanography, focusing on the processes shaping the Earth's surface and the dynamics of oceanic systems. It covers fundamental concepts in geomorphology, including landforms, geological processes, and the interaction between land and water bodies. Additionally, it explores key aspects of oceanography, such as ocean currents, waves, tides, and marine ecosystems. Practical sessions offer hands-on experience in interpreting topographic maps, drawing profiles, and analysing bathymetric data.

Course Objectives:

1. The objective of this minor course in Geomorphology and Oceanography is to introduce undergraduate students to the fundamental principles, theories, and applications of the two fields.
2. The course aims to equip students with the knowledge and skills necessary to understand the interactions between the Earth's surface processes and the ocean, and the dynamic nature of coastal and marine environments.
3. To enhance the learner's understanding of the branch of Geomorphology and Oceanography and its fundamental concepts.
4. To acquire knowledge about the interior of the earth and its interior movements.
5. To have an understanding of diverse geomorphic processes acting on the earth and their role on the development of different landform under different geo-climatic conditions.
6. To make the students comprehend the various processes responsible for the development of diverse landforms on the earth's surface.
7. Develop practical skills in fieldwork, laboratory analysis, and data interpretation in both geomorphology and oceanography.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to Geomorphology and Oceanography	(a) Geomorphology: Meaning, Nature and Scope. (b) Fundamental Geomorphic Concepts (Uniformitarianism, catastrophism) (c) Oceanography: Meaning, Nature and Scope (d) Ocean Bottom Relief Features (e) Understanding of Landform in Ancient India: Examination of geomorphic ideas in ancient Indian texts (IKS)	10	5		15

2 (15 marks)	Geomorphic Processes (Endogenetic and Exogenetic)	(a) Earth: Interior Structure and Isostasy. (b) Earth Movements: Folds and Faults, Plate Tectonics and Mountain Building, Earthquakes and Volcanoes. (c) Exogenetic Processes-Weathering, Mass Wasting, (d) Cycle of Erosion (Davis and Penck).	10	5		15
3 (15 marks)	Salinity, Waves, Tides and Currents	(a) Ocean Temperature, Salinity and their distribution (b) Ocean Waves- Formation and Classification. (c) Tides – Causes, Types and Effects (d) Ocean currents –Formation and Classification	10	5		15
4 (15 marks)	Practical	Practicals on Toposheet Interpretation, Profile Drawing (serial, superimposed, projected and composite), Drainage Delineation, Stream Ordering, Hypsometric and Bathymetric Curve.			30	30
		Total	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each
- Practical
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

20

10

10

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): students will be able to:

CO1: Describe the nature and scope of geomorphology and oceanography.

ILO 1.1: Define and differentiate between geomorphology and oceanography.

ILO 1.2: Explain the significance of geomorphic and oceanographic processes in shaping the Earth's surface.

ILO 1.3: Analyse geomorphological and oceanographic concepts to understand real world landscapes and marine environments.

CO2: Analyse the processes and landforms associated with endogenetic and exogenetic forces.

ILO 2.1: Analyse the causes and effects of endogenetic forces such as tectonic movements and exogenetic forces like weathering and erosion.

ILO 2.2: Integrate knowledge of Earth's interior structure and surface processes to explain the formation of specific landforms.

ILO 2.3: Critically evaluate the impact of geological processes on human activities and the environment.

CO3: Evaluate the factors influencing ocean salinity, temperature, waves, tides, and currents.

ILO 3.1: Understand the factors influencing ocean salinity, temperature variations, and oceanic circulation patterns.

ILO 3.2: Apply knowledge of oceanographic processes to interpret regional variations in marine environments.

ILO 3.3: Analyse the relationships between oceanic phenomena such as waves, tides, and currents.

CO4: Apply practical techniques for interpreting topographical maps and geomorphic data.

ILO 4.1: Apply practical skills to interpret topographical maps and analyse geomorphic data.

ILO 4.2: Synthesize information from multiple sources, including topographical maps and field observations, to draw conclusions about landscape evolution.

ILO 4.3: Evaluate the accuracy and reliability of data obtained through practical techniques.

CO5: Critically analyse the interplay between geological processes and environmental dynamics.

ILO 5.1: Analyse the interactions between geological processes and environmental factors such as climate change and land use.

ILO 5.2: Evaluate the sustainability of human activities in geomorphologically and oceanographically sensitive areas.

ILO 5.3: Develop strategies for mitigating the impact of geological hazards on human populations and ecosystems.

CO6: Demonstrate effective communication of geomorphological and oceanographic concepts.

ILO 6.1: Communicate geomorphological and oceanographic concepts effectively through written reports, presentations, and discussions.

ILO 6.2: Present complex geological information in a clear and accessible manner to diverse audiences.

ILO 6.3: Collaborate with peers to develop interdisciplinary solutions to geomorphological and oceanographic challenges.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1					
Conceptual		CO2 CO3		CO3 CO5	CO3 CO5	CO5
Procedural			CO2	CO2	CO2	
Metacognitive			CO4	CO4	CO4	CO6

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	M	M	S	S	S	M
CO2	S	S	S	M	M	S	M	M
CO3	S	S	M	M	M	M	M	M
CO4	S	S	M	S	S	S	S	S
CO5	S	S	S	M	M	M	S	M
CO6	M	M	M	S	M	M	S	S

Mapping of Course Outcomes to Program Outcomes

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi.
2. Bridges E. M., 1990: World Geomorphology, Cambridge University Press, Cambridge.
3. Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
4. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
5. Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.
6. Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
7. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
8. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
9. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.
10. Gautam, A (2010): Bhautik Bhugol, Rastogi Publications, Meerut 11. Tikkaa, R N (1989): Bhautik Bhugol ka Swaroop, Kedarnath Ram Nath, Meerut
11. Singh, S (2009): Bhautik Bhugol ka Swaroop, Prayag Pustak, Allahabad
12. Alan P. Trujillo , Harold V. Thurman (2016): Essentials of Oceanography, 12th Edition, Pearson
13. K. Siddhartha (2018): Oceanography: A Brief Introduction, Kitab Mahal
14. **Ancient Indian Knowledge System: Archaeological Perspective" by Vasant Shinde Publisher: Vidyanand Prakashan (1 January 2017)**

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 1ST SEMESTER**

Title of the Course	:	PHYSICAL GEOGRAPHY
Course Code	:	GECGGR1A
Nature of the Course	:	Generic Elective Course (GEC)
Total Credits	:	3 Credits
Distribution of Marks	:	60 (End Sem) + 40 (In-Sem)

Course Description:

The Physical Geography course introduces students to the fundamental concepts and processes governing the Earth's physical environment. It covers topics such as the Earth's structure, atmosphere, lithosphere, biosphere, and hydrosphere. Through theoretical study and practical applications, students gain an understanding of Earth systems and their interconnectedness.

Course Objectives:

1. To explain the concept, definition and scope of earth systems.
2. To understand the atmospheric composition and structure.
3. To acquire knowledge about the interior of the earth and its interior movements.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (12 marks)	Introduction to Physical Geography	(a) Physical Geography: Definition, Nature and Scope. (b) Earth and its Components- Atmosphere, Hydrosphere, Biosphere, Lithosphere. (c) Seasons and climates in ancient Indian literature (IKS)	5	1		6
2 (16 marks)	Atmosphere	(a) Origin and development of the atmosphere (b) Layered structure and composition of atmosphere (c) Elements and characteristics of weather and climate	12	1		13

3 (16 marks)	Lithosphere and Biosphere	(a) Earth's interior structure- Crust Mantle, Core, (b) Plate tectonics- Plate boundaries (Convergent, Divergent Transform), Continental drift theory. (c) Ecology, Ecosystem and Biome, (d) Soil and Vegetation; Types and Distribution in India	12	1		13
4 (16 marks)	Hydrosphere	(a) Meaning of hydrosphere and Global water distribution- Oceans, freshwater, ice and groundwater. (b) Concept of Hydrological Cycle. (c) Ocean Water Movement- waves, tides and currents. (d) Sea level changes: causes and consequences.	12	1		13
		TOTAL	41	4		45

<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>
MODES OF IN-SEMESTER ASSESSMENT:			(40 Marks)
• Two Internal Examinations of 15 marks each			30 Marks
• Others (Any one)	-		10 Marks
○ Group Discussion			
○ Seminar presentation on any of the relevant topics			
○ Debate			

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): students will be able to:

CO1: Define Physical Geography and its scope.

ILO1.1: Identify and list the key components of Physical Geography.

ILO 1.2: Explain how Physical Geography differs from other branches of geography.

ILO 1.3: Apply the concepts of Physical Geography to analyse real-world phenomena.

CO2: Describe the composition and structure of the atmosphere.

ILO 2.1: Explain the composition of the Earth's atmosphere in terms of gases.

ILO 2.2: Illustrate the vertical structure of the atmosphere.

ILO 2.3: Compare and contrast the characteristics of different atmospheric layers.

CO3: Examine the origin and evolutionary development of the Earth's atmosphere and analyze its structural composition and role in determining weather and climatic characteristics.

ILO 3.1: Explain the processes responsible for the origin and evolutionary development of the Earth's atmosphere.

ILO 3.2: Describe the layered structure and chemical composition of the atmosphere and interpret the functional significance of each atmospheric layer.

ILO 3.3: Identify and explain the major elements of weather and climate and evaluate their characteristics and interactions in shaping atmospheric conditions.

CO4: Identify and differentiate between various types of Earth movements.

ILO 4.1: Explain the fundamental concepts of ecology, ecosystem, and biome, and examine their structural and functional characteristics in relation to environmental processes.

ILO 4.2 Identify and analyze the major types and spatial distribution of soil and natural vegetation in India and interpret their relationship with climatic and physiographic factors.

ILO 4.3: Differentiate between volcanic and seismic activities.

ILO 4.4: Interpret maps and diagrams showing Earth's tectonic activities.

CO5: Explain the concept of the hydrological cycle and its significance.

ILO 5.1: Describe the stages of the hydrological cycle.

ILO 5.2: Discuss the importance of the hydrological cycle in shaping landscapes.

ILO 5.3: Evaluate human impacts on the hydrological cycle and associated ecosystems.

CO6: Analyse the causes and consequences of sea level changes.

ILO 6.1: Identify natural and anthropogenic causes of sea level changes.

ILO 6.2: Evaluate the impact of sea level changes on coastal regions and ecosystems.

ILO 6.3: Propose mitigation strategies to address the effects of sea level rise.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1					
Conceptual		CO1, CO2, CO3, CO4, CO5			CO5	
Procedural				CO6		
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	M	M	S	S	S	M
CO2	S	M	M	M	M	M	M	M
CO3	S	M	M	M	M	M	M	M
CO4	S	M	M	M	M	M	M	M
CO5	S	M	M	M	S	M	S	S
CO6	M	S	M	M	M	S	S	S

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Barry, R.G. and Chorley, R.J. (1998). Atmosphere, Weather and Climate. Routledge, London.
2. Bryant, H. Richard (2001). Physical Geography Made Simple. Rupa and Co., New Delhi.
3. Bunnnett, R.B. (2003). Physical Geography in Diagrams, Fourth GCSE edition, Pearson Education (Singapore) Pvt Ltd.
4. Garrison T (1998). Oceanography. Wordsworth Cp, Bedmont.
5. Lake, P. (1979). Physical Geography (English & Hindi Edition) Cambridge Univ. Press, Cambridge.
6. Monkhouse, FI (1979). Physical Geography, Methuen, London.
7. Singh, S. (2003). Physical Geography (English and Hindi Editions) Prayag Pustak Bhawan, Allahabad.

8. Singh, M.B. (2001) Bhoutik Bhoogol, Tara Book Agency, Varanasi.
9. Strahler, A.N. and Strahler A.M. (1992). Modern Physical Geography, John Wiley and Sons, New York
10. Wooldridge, S.W. and Morgan, R.S. (1959). The Physical Basis of Geography: An Outline of Geomorphology. Longman, London.
11. **Vedic Meteorology by Ravi Prakash Arya, Publisher : Indian Foundation for Vedic Science; Third edition (24 May 2017)**

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 1ST SEMESTER**

Title of the Course	:	HUMAN GEOGRAPHY
Course Code	:	GECGGR1B
Nature of the Course	:	Generic Elective Course (GEC)
Total Credits	:	3 Credits
Distribution of Marks	:	60 (End Sem) + 40 (In-Sem)

Course Description:

This course, Human Geography, delves into the various dimensions of human interaction with the Earth's surface and how it shapes societies and cultures. Through a mix of theoretical frameworks and case studies, students explore topics such as population growth and distribution, theories of population, the relationship between space and society, and the dynamics of tribal life in India.

Course Objectives:

1. To understand various dimensions of Human Geography and its relevance.
2. To analyse population growth and distribution and understand theories of population.
3. To understand the relationship between space and society.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to Human Geography	(a) Human Geography: Definition, Nature and Scope and Significance (b) Concepts of Environmental Determinism, Possibilism, Neo-Determinism. (c) Approaches to the study of Human Geography (Behavioural and Ecological) (d) Cultural landscapes in Indus Valley Civilization (IKS)	11	1		12
2 (15 marks)	Population	(a) Concept and Factors of Population Growth, Distribution and Density. (b) Population Composition (Age-Sex and Literacy). (c) Theories of Population- Demographic Transition Theory, Thomas Robert Malthus.	10	1		11

3 (15 marks)	Settlement and Economic Activities	(a) Settlement- Meaning and Types (Rural and Urban) (b) Patterns of rural settlements based on morphology. (c) Economic activities- primary, secondary and tertiary.	10	1		11
4 (15 marks)	Tribes in India	(a) Definition of Tribe (b) Major Tribes of India (c) Major tribes of North East India	10	1		11
		Total	41	4		45

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 15 marks each
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

30 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): students will be able to:

CO1: Recall and define key concepts in Human Geography, including environmental determinism, demographic transition theory, and cultural regions.

ILO 1.1: Identify and define key terms and concepts in Human Geography.

ILO 1.2: Recall and explain the theories of environmental determinism and demographic transition.

ILO 1.3: Describe the characteristics of different cultural regions.

CO2: Demonstrate an understanding of the factors influencing population growth and distribution, and the relationship between space and society.

ILO 2.1: Explain the factors affecting population growth and distribution.

ILO 2.2: Interpret the relationship between space and society.

ILO 2.3: Summarize the main characteristics of social space and cultural regions.

CO3: Apply theoretical frameworks to analyse real-world examples of population dynamics and cultural landscapes.

ILO 3.1: Apply demographic transition theory to analyse population trends in different regions.

ILO 3.2: Apply concepts of social space and cultural regions to analyse cultural landscapes.

ILO 3.2: Analyse case studies of population distribution using geographical methods and tools.

CO4: Analyse and evaluate the complexities of tribal life in India, including the socio-cultural characteristics of major tribes.

ILO 4.1: Analyse the socio-cultural characteristics of major tribes in India.

ILO 4.2: Evaluate the impact of socio-economic factors on tribal communities.

ILO 4.3: Compare and contrast the lifestyles of different tribes in India.

CO5: Synthesize information from various sources to propose solutions to challenges faced by tribal communities.

ILO 5.1: Synthesize information to propose strategies for sustainable development in tribal areas.

ILO 5.2: Develop recommendations for policies aimed at improving the socio-economic conditions of tribal communities.

ILO 5.3: Create a comprehensive understanding of the complexities of tribal life through interdisciplinary approaches.

CO6: Critically evaluate the relevance and applicability of theories and concepts in understanding contemporary human geographical phenomena.

ILO 6.1: Critically justify the strengths and limitations of demographic transition theory.

ILO 6.2: Assess the relevance of environmental determinism and possibilism in explaining human-environment interactions.

ILO 6.3: Critique the representation of cultural regions and human groups in geographical literature and discourse.

CO 7: Analyze the concept and typology of human settlements, the morphological patterns of rural settlements, and the classification of economic activities in relation to spatial organization and human-environment interaction.

ILO 7.1: Explain the concept of human settlement and distinguish between rural and urban settlements based on their defining characteristics.

ILO 7.2: Identify and interpret the major morphological patterns of rural settlements and examine the geographical factors influencing their formation and distribution.

ILO 7.3: Classify economic activities into primary, secondary, and tertiary sectors and evaluate their role in shaping patterns of livelihood and regional development.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1					
Conceptual		CO1	CO3	CO6 CO7		
Procedural			CO3	CO6		CO5
Metacognitive	CO2		CO4		CO6	

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	M	M	M	M	M	M
CO2	M	S	M	M	M	M	M	M
CO3	S	S	S	M	S	M	M	M
CO4	M	M	S	M	S	S	M	S
CO5	M	M	S	M	S	M	S	S
CO6	S	M	S	M	S	S	S	S
CO7	S	M	M	S	M	M	S	M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Singh, L.R. (2005). *Fundamentals of Human Geography*. Sharda Pustak Bhawan, Allahabad.
2. De Blij, H.J. *Human Geography: Culture, Society and Space*. John Wiley, New York.
3. Haggett, P. (2004). *Geography: A Modern Synthesis*. Harper & Row, New York.
4. Hussain, M. (1994). *Human Geography*. Rawat Publication, Jaipur.
5. Kaushik, S.D. & Sharma, A.K. (1996). *Principles of Human Geography (in Hindi)*, Rastogi Pub. Meerut.
6. Norton W. (1995). *Human Geography*. Oxford University Press, New York.
7. Singh, K.N. & Singh J. (2001). *Manviya Bhoogol*. Gyanodaya Prakashan, Gorakhpur.

8. Chandna, R.C. (2010) Population Geography, Kalyani Publisher.
9. Hassan, M.I. (2005) Population Geography, Rawat Publications, Jaipur
10. Daniel, P.A. and Hopkinson, M.F. (1989) The Geography of Settlement, Oliver & Boyd, London.
11. **Kaushik S.D. & Rawat D.S : GEOGRAPHICAL THOUGHT & METHODOLOGY, RASTOGI PUBLICATIONS**

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 1ST SEMESTER**

Title of the Course	:	DISASTER RISK REDUCTION AND MANAGEMENT: SKILLS FOR SAFETY AND RESILIENCE
Course Code	:	SEC106
Nature of the Course	:	Skill Enhancement Course (SEC)
Total Credits	:	3 Credits (2+1=3)
Distribution of Marks	:	60 (End Sem) (45T+15P) + 40 (In-Sem)

Course Description:

The Disaster Management course under the FYIPGP in Geography program introduces students to the fundamental concepts of hazards, disasters, risk, and vulnerability. It delves into the causes, impacts, and distribution of both natural and manmade disasters, with a focus on those prevalent in India. The course emphasizes response strategies, mitigation techniques, and community-based disaster management approaches. Through theoretical learning and practical fieldwork, students gain insights into disaster preparedness, response protocols, and the role of indigenous knowledge in mitigating disasters.

Course Objectives:

To equip students with the knowledge, skills and competencies to identify, assess, mitigate disasters and design effective disaster management plans and strategies at individual, institutional and community levels, aligning with national and global frameworks.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Understanding Disaster Risk Reduction and Management	(a) Basic concepts and terminology: Hazard, Vulnerability, Capacity, Exposure, Disaster, Risk, Disaster Management & Disaster Risk Reduction. (b) Hazard profile of India: Regional profile. (c) Disaster Management Cycle: Mitigation, preparedness, response, relief, recovery, rehabilitation. (d) Policy and legal frameworks: DM Act 2005, DM Amendment Act 2025, National Policy, State-specific Acts; PM 10 Points agenda.	9	1		10

		<p>(e) International frameworks: Sendai Framework, Paris Agreement, SDGs.</p> <p>(f) Role of Institutions in DRR (overview only): NDMA, NIDM, IMD, CWC, GSI, BIS, ISRO, INCOIS, SDMA, DDMA, NDRF.</p> <p>(g) Case studies of different disasters in India: Lessons learned (minimum 2).</p> <p>(h) Traditional disaster preparedness and adaptation practices in India (IKS)</p>				
2 (15 marks)	Preparedness, Mitigation and Response Planning	<p>(a) Framework for Developing Disaster Management Plans.</p> <p>(b) Hazard, Vulnerability, Capacity and Risk (HVCR) Assessment tools and techniques: Transect Walk, Hazard mapping, Problem tree, Chapatti diagram etc.</p> <p>(c) Mitigation and Preparedness: Evacuation planning, mock drills, tabletop exercises; disaster-specific mitigation, Crowd Management techniques.</p> <p>(d) Basics of Incident Response System (IRS).</p> <p>(e) Role of emergency forces: NDRF, SDRF, police, fire services, armed forces, NCC, NSS.</p> <p>(f) Planning for more vulnerable groups.</p> <p>(g) Emerging technologies: Drones, digital literacy, mobile apps (GIRI tool, SAFAR, Meghdoot, UMANG, Sachet, CWC Flood Alerts, IMD, BIS, IHIP), social media for DRR.</p> <p>(h) Basics of safe construction and structural & nonstructural audit exercise (safety of home/college buildings).</p> <p>(i) Funding mechanisms for disasters in India.</p> <p>(j) Emergency Communication Network.</p>	9	1		10
3 (15 marks)	Life-Saving Skills	<p>(a) First Aid in disasters: Golden hour concept, CPR, wounds, choking, burns, fractures, animal bites (snake/dog/rabid), heat-related illnesses, triaging, stampede.</p> <p>(b) Household and personal preparedness and protection: 72-hour emergency kit, safe food storage, water purification, ORS use, water sanitation and hygiene (WASH) and Infection Prevention Control (IPC) practices, Basic Sign Language.</p> <p>(c) Search and Rescue methods.</p> <p>(d) Fire safety and electrical/gas/LPG safety: Causes, prevention, fire extinguisher demonstration, indigenous methods (Natural first-aid remedies- aloe vera, turmeric, coconut oil, salt solution); traditional risk-reduction practices.</p> <p>(e) Disaster-specific response: Floods, landslides, earthquakes, CBRN emergencies, pandemics,</p>	9	1		10

		drowning, lightning, gas leakage, cyclone, heatwave, coldwave. (f) Psychosocial support in DRR; Steps for implementing psychological first aid and its importance. (g) Public health preparedness: Public health impacts of various disasters, Prevention of post-disaster water-borne and vector-borne diseases.				
4 (15 marks)	Field Exposure and Community Engagement	(a) Field visits: District Emergency Operations Centre, State Disaster Response Force/ National Disaster Response Force units, fire stations, State Emergency Operations Centre, hazard-prone communities, heat-prone areas (flood-prone village, fire-vulnerable urban slum). (b) Practical exposure: Mock drills, demonstrations and simulations (multi-hazard, evacuation, earthquake, flood); interaction with responders and officials (Aapda Mitras, National Cadet Corps/National Service Scheme/Nehru Yuva Kendra Sangathan, Red Cross). (c) Community Engagement projects: Street plays (nukkad natak), awareness campaigns, DRR clubs (institute and community level clubs), Information, Education and Communication material (podcasts, videos, comics, photo essays, posters, Knowledge exchange webinars). (d) Environmental hazards: Youth/community participation (tree plantation, soil conservation). (e) Project/assignment: Preparation of institutional/household DM plan in local language; budget-friendly multi-disaster survival kit prototype; reflective field report, youth-led community engagement projects and creation of IEC/digital communication materials. (f) Multidisciplinary integration: Links with local governments, HEIs, youth/adolescent networks. (g) Activities for mitigating disaster risks: Increasing green cover, plantation and knowledge of human anatomy. (h) Interaction with: State, district, gram panchayat level officials, DRR helpline numbers, and knowledge of physical resources required and available locally; interview /session with disaster survivors.			45	45
		Total	27	3	45	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

- Two Internal Examinations of 10 marks each
- Practical

(40 Marks)

20

10

- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

10

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students will be able to:

CO1: Examine the fundamental concepts, terminology, and frameworks of disasters and disaster risk reduction in order to understand the nature and dynamics of disaster risks.

ILO 1.1 Explain the key concepts of hazard, vulnerability, exposure, capacity, risk, disaster management, and disaster risk reduction.

ILO 1.2 Analyze the hazard profile of India and identify regional patterns of disaster occurrence.

ILO 1.3 Describe the disaster management cycle including mitigation, preparedness, response, recovery, relief, and rehabilitation.

CO2: Analyze the national and international policy frameworks and institutional mechanisms governing disaster management and risk reduction.

ILO 2.1 Explain the major provisions of the Disaster Management Act 2005, DM Amendment Act 2025, and national and state disaster management policies.

ILO 2.2 Assess the objectives and relevance of international frameworks such as the Sendai Framework, Paris Agreement, and Sustainable Development Goals in disaster risk reduction.

ILO 2.3 Evaluate the roles and functions of major disaster management institutions including NDMA, NIDM, IMD, CWC, GSI, ISRO, INCOIS, SDMA, DDMA and NDRF.

CO3: Evaluate the causes, impacts, and spatial distribution of major natural disasters in India and their implications for disaster preparedness and mitigation.

ILO 3.1 Explain the causes and impacts of floods, droughts, landslides, earthquakes, cyclones, and tsunamis in India.

ILO 3.2 Identify the spatial distribution and regional vulnerability patterns of major natural hazards across India.

ILO 3.2 Assess the socio-economic and environmental consequences of natural disasters and their implications for disaster preparedness.

CO4: Apply disaster preparedness strategies, risk assessment techniques, and emerging technologies for effective disaster management planning.

ILO 4.1 Demonstrate the use of Hazard, Vulnerability, Capacity and Risk (HVCR) assessment tools such as hazard mapping, transect walks, problem trees, and chapatti diagrams.

ILO 4.2 Explain disaster preparedness measures including evacuation planning, mock drills, tabletop exercises, and disaster mitigation strategies.

ILO 4.3 Evaluate the role of emerging technologies and digital tools such as drones, mobile applications, and early warning systems in disaster risk reduction.

CO 5: Develop knowledge and practical competencies related to disaster response, life-saving skills, and community-based disaster risk reduction.

ILO 5.1 Explain the principles of community-based disaster management and indigenous knowledge systems in disaster preparedness.

ILO 5.2 Demonstrate basic life-saving skills and first-aid practices including CPR, wound care, burns management, choking response, and triaging.

ILO 5.3 Describe appropriate disaster-specific response measures and psychosocial support mechanisms during and after disasters.

CO6: Conduct field-based disaster risk assessments and develop community-oriented disaster preparedness initiatives.

ILO 6.1 Carry out field investigations in hazard-prone areas and document disaster risks and vulnerabilities through field reports.

ILO 6.2 Design and prepare institutional or household disaster management plans and survival kits for disaster preparedness.

ILO 6.3 Participate in community engagement and awareness activities such as mock drills, IEC campaigns, and interaction with disaster management agencies.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual		CO1				
Conceptual		CO1		CO2, CO3		
Procedural			CO4, CO5			
Metacognitive						CO6

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M	M	
CO3	S	S	M	M		S	M	
CO4	M	M	M	S	S	M	M	
CO5		M	M	S	M	M	S	M
CO6	M	M	S	S	M	M	S	M

Where, **S:** Strong correlation

M: Medium correlation

Suggested Readings:

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. Disaster Management in the Hills
3. Satendra, (2003), Disaster Management in the Hills, Concept Publisher
4. Modh, S. (2010) Managing Natural Disaster: Hydrological, Marine and Geological Disasters, Macmillan, Delhi.
5. Singh, R.B. (2005) Risk Assessment and Vulnerability Analysis, IGNOU, New Delhi. Chapter 1, 2 and 3

6. Singh, R. B. (ed.), (2006) Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
7. Sinha, A. (2001). Disaster Management: Lessons Drawn and Strategies for Future, New United Press, New Delhi.
8. Stoltman, J.P. et al. (2004) International Perspectives on Natural Disasters, Kluwer Academic Publications. Dordrecht.
9. Singh Jagbir (2007) “Disaster Management Future Challenges and Oppurtunities”, 2007.PublisherI.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India (www.ikbooks.com).
10. **Watershed: How We Destroyed India’s Water and How We Can Save It by Mridula Ramesh Publisher: Hachette India (15 March 2023)**

SEMESTER II

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 2nd SEMESTER**

Course Title	: CLIMATOLOGY
Course Code	: GGRC2
Nature of the Course	: MAJOR
Total Credits	: 4 Credits (3+1=4)
Distribution of Marks	: 60 (End-Sem: 45T+15P) + 40 (In-Sem.)

Course Description:

This course focusing on the scientific study of Earth's climate system and the factors influencing climate change. Through a comprehensive examination of atmospheric phenomena and climatic patterns, students delve into topics such as atmospheric temperature, insolation, pressure systems, wind patterns, moisture, weather, and climate classification. Practical components include interpreting weather symbols, analysing weather maps, and representing climatic data graphically.

Course Objective:

1. To scientific understanding of the physical aspects of Earth's climate system and the factors that influence climate change.
2. To explore the global balance of energy and transfer of radiation in the atmosphere through in-depth quantitative analysis and the general circulation of winds.
3. To highlight important atmospheric phenomena and their direct bearing on man. Its emphasis is on understanding the weather phenomena and its impact on day-to-day life.

UNITS	NAME	COURSE CONTENTS	L	T	P	Total Hours
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1 (15 marks)	Atmospheric Temperature and Insolation	(a) Atmosphere: Definition, Composition and structure (b) Temperature: factors, Distribution (c) Insolation, Heat budget, temperature inversion (d) Knowledge about seasons and climates of ancient India (IKS)	10	5		15
2 (15 marks)	Atmospheric pressure and winds	(a) Pressure belts, Planetary Winds, Pressure Gradient, General Circulation, Jet Streams, Monsoon. (b) Concept and Classification of Airmass and Fronts (c) Cyclones (Tropical and Temperate) and Anticyclones, Local winds.	10	5		15
3 (15 marks)	Weather and Climate	(a) Concept, Elements and factors of weather and climate, (b) Hydrological Cycle: Evaporation, Transpiration, Humidity, Condensation, Precipitation- Forms and Types (c) Atmospheric Stability and Instability (d) Climatic classification: Koeppen and Thornthwaite.	10	5		15
4 (15 marks)	Practical	(a) Study of weather symbols and Interpretation of weather map. (b) Representation of climatic data: i. Preparation of Climograph, Hythergraph and Ergograph and their interpretation ii. Preparation of rainfall variability map of Assam			30	30
			Total	30	15	30

<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>
MODES OF IN-SEMESTER ASSESSMENT:			(40 Marks)
• Two Internal Examinations of 10 marks each			20
• Practical			10
• Others (Any one)	-		10
○ Group Discussion			
○ Seminar presentation on any of the relevant topics			
○ Debate			

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students will be able to:

CO1: Understand the fundamental concepts and principles of climatology.

ILO 1.1: Identify the components and structure of the atmosphere.

ILO 1.2: Explain the factors influencing atmospheric temperature distribution.

ILO 1.3: Define insolation and its role in the Earth's heat budget.

CO2: Interpret and explain various atmospheric phenomena and climatic patterns.

ILO 2.1: Interpret weather symbols and analyse weather maps effectively.

ILO 2.2: Describe the characteristics of pressure belts and planetary winds.

ILO 2.3: Explain the concept of airmass, fronts, cyclones, and anticyclones.

CO3: Apply climatological knowledge to analyse and interpret real-world climatic data.

ILO 3.1: Utilize Climograph, hythergraphs, and ergographs to represent climatic data.

ILO 3.2: Analyse rainfall distribution maps to identify regional climatic patterns.

ILO 3.3: Apply climatic classification systems to categorize climates.

CO4: Analyse the relationships between atmospheric variables and their impacts.

ILO 4.1: Analyse the relationship between evaporation, humidity, and condensation processes.

ILO 4.2: Evaluate the influence of atmospheric pressure systems and wind patterns.

ILO 4.3: Assess the role of oceanic and atmospheric circulation patterns in regional climate variations.

CO5: Propose solutions for climate-related challenges.

ILO 5.1: Develop strategies to mitigate the impact of extreme weather events.

ILO 5.2: Propose adaptation measures to address the challenges posed by climate change.

ILO 5.3: Synthesize interdisciplinary perspectives to address complex climate-related issues.

CO6: Critically evaluate climatic data and climate change theories.

ILO 6.1: Critically evaluate the reliability and limitations of climatic data sources.

ILO 6.2: Assess the validity of climate change theories and predictions.

ILO 6.3: Formulate well-reasoned arguments and recommendations for addressing climate change challenges in policy and practice.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1, CO2					
Conceptual		CO1, CO2	CO3, CO5	CO4, CO5		
Procedural	CO3	CO3	CO4, CO6			CO6
Metacognitive			CO4	CO6	CO6	

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	M	M	M	M	M	M
CO2	S	S	M	M	M	M	M	M
CO3	S	M	M	M	S	M	M	M
CO4	S	M	M	M	M	M	S	M
CO5	M	M	S	M	S	S	S	M

CO6	M	M	S	M	S	S	M	M
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Where, S: Strong correlation *M: Medium correlation*

Suggested Readings:

1. Anthes R. A., Panofsky H. A., Cahir J. J. and Rango A., 1978: The Atmosphere, Columbus.
2. Barry R. G. and Carleton A. M., 2001: Synoptic and Dynamic Climatology, Routledge, UK.
3. Barry R. G. and Corley 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. Critchfield H. J., 1987: General Climatology, Prentice-Hall of India, New Delhi
7. Das, P.K., 1968: The Monsoon, National Book Trust, New Delhi.
8. Hobbs, J.E., 1980: Applied Climatology, Butterworth.
9. Lal, D.S., 1998: Climatology, Sharda Pustak Bhawan, Allahabad.
10. Lockwood, J.G., 1976: World Climatology-Environmental Approach, Ed. Arnold Ltd.
11. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey
12. Menon, P.A.,: Our Weather, National Book Trust
13. Miller, A.A., 1953: Climatology, Dutton.
14. Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.
15. Stringer, E.N., 1982: An Introduction to Climate, International Studies.
16. Thompson D. R. and Perry A. (eds.), 1997: Applied Climatology: Principles and Practice, Routledge, USA and Canada.
17. Trewartha G. T. and Horne L. H., 1980: An Introduction to Climate, McGraw-Hill
17. **Kaushik S.D. & Rawat D.S : GEOGRAPHICAL THOUGHT & METHODOLOGY, RASTOGI PUBLICATION**

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 2nd SEMESTER**

Course Title : **CLIMATOLOGY AND BIOGEOGRAPHY**
Course Code : **MINGGR2**
Nature of the Course : **MINOR**
Total Credits : **4 Credits (3+1=4)**
Distribution of Marks : **60 (End-Sem: 45T+15P) + 40 (In-Sem.)**

Course Description:

This course provides a comprehensive understanding of the physical aspects of Earth's climate system and the intricate relationship between climate and geography. It delves into the mechanisms governing atmospheric phenomena, global energy balance, and climatic patterns across the globe. Additionally, it explores the distribution of organisms and ecosystems on Earth's surface and addresses the significance of biodiversity conservation.

Course Objectives:

1. To scientific understanding of the physical aspects of Earth's climate system and the factors that influence climate change.
2. To explore the global balance of energy and transfer of radiation in the atmosphere through in-depth quantitative analysis and the general circulation of winds.
3. To highlight important atmospheric phenomena and their direct bearing on man. Its emphasis is on understanding the weather phenomena and its impact on day-to-day life.

UNIT S	NAME	COURSE CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Climatology and Biogeography	(a) Meaning, Nature and Scope of Climatology (b) Composition and Structure of Atmosphere, (c) Biogeography: Definition, scope and significance (d) Knowledge about seasons and climates of ancient India (IKS)	10	5		15
2 (15 Marks)	Weather, Climate and Processes	(a) Elements of weather and climate (b) Insolation, Heat budget, Temperature Distribution (vertical and horizontal) (c) Concept and Classification of Airmass and Fronts, (d) Hydrological Cycle-Evaporation, Transpiration, Humidity, Condensation, Precipitation	10	5		15
3 (15 Marks)	Biogeographical Regions and Soil	(a) Zoogeographical and Phyto-geographical regions of the world, Biodiversity hotspots. (b) Loss of Biodiversity and its	10	5		15

)		Conservation. (c) Soil forming process, soil horizon and profile. (d) Classification and Distribution of soil in India				
4 (15 Marks)	Practical	(a) Interpretation of various weather symbols depicted on maps. (b) Preparation of rainfall-temperature graphs; Hythergraph, Climograph and Ergograph (c) Mapping of protected areas (National Park, biosphere reserve and wildlife sanctuary) of India. (d) Mapping of zoogeographic regions of the world. (e) Mapping of Biodiversity hotspots of the world and India.			30	30
		Total:	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each
- Practical
- Others (Any one)
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

20

10

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Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students will be able to:

CO1: Analyze the components and dynamics of Earth's climate system.

ILO 1.1: Identify the key elements of Earth's atmosphere and their role in climate regulation.

ILO 1.2: Interpret temperature distribution patterns and the mechanisms driving heat exchange within the atmosphere.

ILO 1.3: Analyze the causes and implications of temperature inversions.

CO2: Evaluate the influence of atmospheric pressure and wind patterns on global climate.

ILO 2.1: Examine the concept of pressure belts and their role in shaping global atmospheric circulation.

ILO 2.2: Evaluate the impact of jet streams and monsoons on regional climate variability.

ILO 2.3: Assess the significance of cyclones, anticyclones, and local wind systems in atmospheric circulation.

CO3: Assess the biogeographical patterns and their significance in biodiversity conservation.

ILO 3.1: Define biogeography and its relevance in understanding the distribution of species.

ILO 3.2: Analyze the major zoogeographical and phyto-geographical regions of the world.

ILO 3.3: Evaluate the causes and consequences of biodiversity loss and conservation.

CO4: Apply quantitative methods to interpret weather data and climatic classifications.

ILO 4.1: Interpret weather symbols depicted on maps to analyze atmospheric conditions.

ILO 4.2: Utilize rainfall-temperature graphs, hythergraphs, and Climograph to represent climatic data.

ILO 4.3: Demonstrate proficiency in mapping protected areas and biodiversity hotspots.

CO5: Analyze the global and regional patterns of biodiversity and soils by examining zoogeographical and phytogeographical regions, biodiversity conservation issues, and the processes and distribution of soils in India.

ILO 5.1: Describe the major zoogeographical and phytogeographical regions of the world and identify important biodiversity hotspots.

ILO5.2: ILO2: Explain the causes and consequences of biodiversity loss and evaluate the major approaches and strategies for biodiversity conservation.

ILO 5.3: Explain the soil-forming processes, characteristics of soil horizons and soil profiles, and analyze the classification and spatial distribution of soils in India.

CO6: Demonstrate proficiency in critical thinking and problem-solving related to climatic and biogeographical issues.

ILO 6.1: Critically analyze debates on climate change and biodiversity conservation.

ILO 6.2: Apply theoretical concepts to real-world scenarios to propose sustainable solutions.

ILO 6.3: Interpret biodiversity mapping and address complex environmental challenges.

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Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1					
Conceptual		CO2, CO3, CO5				
Procedural			CO4			CO6
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	M	M	M	M	M	M
CO2	S	M	M	M	M	M	M	M
CO3	S	S	M	M	M	M	M	M
CO4	M	M	M	S	S	S	S	M
CO5	S	M	S	M	M	S	S	S
CO6	S	S	S	M	S	S	S	S

Where, *S*: Strong correlation

M: Medium correlation

Suggested Readings:

1. Anthes R. A., Panofsky H. A., Cahir J. J. and Rango A., 1978: The Atmosphere, Columbus.
2. Barry R. G. and Carleton A. M., 2001: Synoptic and Dynamic Climatology, Routledge, UK.
3. Barry R. G. and Corley 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. Critchfield H. J., 1987: General Climatology, Prentice-Hall of India, New Delhi
7. Das, P.K., 1968: The Monsoon, National Book Trust, New Delhi.
8. Hobbs, J.E., 1980: Applied Climatology, Butterworth.
9. Lal, D.S., 1998: Climatology, Sharda Pustak Bhawan, Allahabad.
10. Lockwood, J.G., 1976: World Climatology-Environmental Approach, Ed. Arnold Ltd.

10. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey
11. Menon, P.A., : Our Weather, National Book Trust
12. Miller, A.A., 1953: Climatology, Dutton.
13. Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.
14. Stringer, E.N., 1982: An Introduction to Climate, International Studies.
15. Thompson D. R. and Perry A. (eds.), 1997: Applied Climatology: Principles and Practice, Routledge, USA and Canada.
16. Trewartha G. T. and Horne L. H., 1980: An Introduction to Climate, McGraw-Hill.
17. Cox, C. B., R. Ladle, and P. D. Moore. 2016. Biogeography: An Ecological and Evolutionary Approach. John Wiley & Sons.
18. Darwin, C. 1859. The Origin of Species. P. F. Collier & Son.
19. Flannery, T. 2015. The Eternal Frontier: An Ecological History of North America and Its Peoples. Grove/Atlantic, Inc.
20. Gavin, D. G. 2012. Biogeography. Pages 77-89 in J. P. Stoltman, editor. 21st Century Geography: A Reference Handbook. SAGE Publications, Thousand Oaks, CA.
21. Jackson, S. T. 2004. Quaternary biogeography: Linking biotic responses to environmental variability across timescales. Pages 47-65 in M. V. Lomolino and L. R. Heaney, editors. Frontiers of Biogeography: New Directions in the Geography of Nature. Sinauer, Sunderland, MA.
22. **Kaushik S.D. & Rawat D.S : GEOGRAPHICAL THOUGHT & METHODOLOGY, RASTOGI PUBLICATIONS**

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 2nd SEMESTER**

Title of the Course	:	FUNDAMENTALS OF GEOMORPHOLOGY
Course Code	:	GECGGR2A
Nature of the Course	:	Generic Elective Course (GEC)
Total Credits	:	03 Credits
Distribution of Marks	:	60 (End Sem) + 40 (In-Sem)

Course Description:

This course, "Fundamentals of Geomorphology," delves into the foundational principles governing the formation and evolution of Earth's surface features. It encompasses an exploration of the dynamic processes shaping landscapes, including the influence of both endogenetic and exogenetic forces. Through a combination of theoretical insights and practical applications, students will gain a comprehensive understanding of geomorphological phenomena and their significance in shaping the Earth's surface.

COURSE OBJECTIVES:

1. To introduce the meaning, nature, scope and concepts in Geomorphology in adequate manner, many facets of surface relief features.
2. To understand various aspects of their growth and evolution on the Earth.
3. To understand the work of running water, Underground water, moving ice, wind and sea waves, Weathering and Mass Wasting–Concept

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Geomorphology	(a) Meaning, Nature and Scope, (b) Fundamental Geomorphic Concepts (c) Landscape Evolution Theories: (W.M. Davis, W. Penck) (d) Distribution of land and water according to ancient Indian knowledge (IKS)	8	4		12
2 (15 Marks)	Concepts in Geomorphology	(a) System concept in geomorphology (b) Concept of Steady state and Dynamic Equilibrium (c) Geomorphic Thresholds.	8	3		11
3 (15 Marks)	Evolution of Landforms Due to Endogenetic Forces	(a) Earth movements -Sudden and Slow movements and resultant landforms (b) Volcanoes- types and distribution, Earthquakes.	8	3		11

4 (15 Marks)	Evolution of Landforms Due to Exogenetic Forces	(a) Weathering and Mass Wasting–Concept and types. (b) Process and agents of gradation and landforms: Fluvial, Karst, Glacier, Aeolian and Coastal.	8	3		11
		Total	32	13		45
<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>			

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 15 marks each
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

30

10

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students will be able to:

CO1: Describe the Meaning, Nature, and Scope of Geomorphology

ILO 1.1: Define geomorphology and explain its relevance in physical geography.

ILO 1.2: Discuss the historical development and various branches of geomorphology.

ILO 1.3: Identify key terminologies and concepts in the study of geomorphology.

CO2: Analyse Fundamental Concepts in Geomorphology

ILO 2.1: Illustrate fundamental geomorphological concepts such as landform, erosion, and deposition.

ILO 2.2: Compare and contrast different geomorphological processes and their effects.

ILO 2.3: Apply the principles of geomorphology to real-world geographic scenarios.

CO3: Analyze the application of the systems approach in geomorphology and evaluate the concepts of steady state, dynamic equilibrium, and geomorphic thresholds in understanding landscape evolution.

ILO 3.1: Explain the systems concept in geomorphology, including inputs, outputs, feedback mechanisms, and the interaction of geomorphic processes within an open system.

ILO 3.2: Describe the concepts of steady state and dynamic equilibrium and interpret their significance in maintaining balance in geomorphic systems.

ILO 3.3: Examine the concept of geomorphic thresholds and assess their role in triggering sudden landscape changes and geomorphic adjustments.

CO4: Interpret the Nature and Behavior of Seismic Waves and Their Types

ILO 4.1: Differentiate between primary (P) waves, secondary (S) waves, and surface waves.

ILO 4.2: Analyse how seismic waves provide information about the Earth's interior.

ILO 4.3: Utilize seismic wave data to identify and interpret geological features.

CO5: Evaluate the Impact of Endogenetic Forces on Landform Evolution

ILO 5.1: Describe the processes of earth movements, including sudden and slow movements.

ILO 5.2: Explain the formation of folds and faults and their influence on the landscape.

ILO 5.3: Analyse the role of plate tectonics in the formation of mountains and other landforms.

CO6: Assess the Processes and Outcomes of Exogenetic Forces

ILO 6.1: Identify various types of weathering and mass wasting and their effects on landforms.

ILO 6.2: Explain the geomorphic work of running water, underground water, glaciers, and wind.

ILO 6.3: Assess the interaction between exogenetic processes and resulting geomorphic features.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual		CO1				
Conceptual		CO2	CO3	CO4	CO5	
Procedural				CO4		CO6
Metacognitive			CO4	CO6		

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	M	M	M	M	S	M
CO2	S	S	M	M	S	M	M	S
CO3	S	S	M	M	S	M	M	M
CO4	S	S	M	M	M	M	M	M
CO5	S	S	M	M	M	M	M	M
CO6	S	S	M	M	M	M	M	M

Where, S: Strong correlation

M: Medium correlation

SUGGESTED READINGS:

1. Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi.
2. Bridges E. M., 1990: World Geomorphology, Cambridge University Press, Cambridge.
3. Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company
4. Gautam, A (2010): Bhautik Bhugol, Rastogi Publications, Meerut
5. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
6. Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.
7. Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
8. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
9. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to physical Geology, 4th Edition, John Wiley and Sons
10. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.

11. Geography, Peoples And Geodynamics of India In Puranas and Epics by K.S. Valdiya Publisher : Aryan Books International (30 May 2012)

12. Kaushik S.D. & Rawat D.S : GEOGRAPHICAL THOUGHT & METHODOLOGY, RASTOGI PUBLICATIONS

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 2nd SEMESTER**

Title of the Course : FUNDAMENTALS OF ECONOMIC GEOGRAPHY
Course Code : GECGGR2B
Nature of the Course : Generic Elective Course (GEC)
Total Credits : 03 Credits
Distribution of Marks : 60 (End Sem) + 40 (In-Sem)

Course Description:

This course introduces students to the fundamental concepts of economic geography, focusing on the dynamics of economic activities, resource utilization, and the rationale behind the spatial distribution of industries and agricultural activities. Through systematic and spatial approaches, students explore the relationship between human activities and geographical factors shaping economic landscapes.

Course Objectives:

1. To convey an understanding of the fundamental concepts of economic Geography
2. To understand the dynamics of economic activities, man's resources use, population pressure on resource base,
3. To understand the rationale for the location of industries and agricultural activities in its geographical perspectives and human land use by locational theories

UNITS		CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Economic Geography	(a) Meaning, Nature and Scope of Economic Geography, (b) Fundamental Concepts in Economic Geography (c) Approaches to the study: Systematic and Spatial approaches, (d) Traditional resource management in India (IKS)	9	3		12
2 (15 Marks)	Introduction to Resources	(a) Resource: Concept and Classification (b) Functional Theory of Resources	8	3		11
3 (15 Marks)	Economic Activities and Development	(a) Classification of economic activities: Primary, Secondary, Tertiary and Quaternary activities. (b) Characteristics of Economic Growth and Development (c) Economy of Developed and Developing countries.	8	3		11

4 (15 Marks)	Theories of Economic Activities	(a) Agricultural (Von Thunen and Whittlesey) (b) Industrial location Theory (Weber and Losch).	8	3		11
		Total	3	1		45
	<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>		
			3	2		

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 15 marks each
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

30 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students will be able to:

CO1: Demonstrate comprehension of the fundamental concepts of economic geography and its relevance in analysing spatial patterns of economic activities.

ILO 1.1: Define key terms and concepts in economic geography.

ILO1.2: Explain the significance of economic geography in understanding regional development patterns.

ILO 1.3: Interpret spatial data to analyse economic trends and patterns.

CO2: Apply theoretical frameworks to analyse the impact of natural resources on economic activities and assess locational factors influencing industrial and agricultural locations.

ILO 2.1: Utilize theoretical models to analyse resource distribution and its impact on economic development.

ILO 2.2: Evaluate the suitability of locations for different economic activities based on locational theories.

ILO2.3: Apply spatial analysis techniques to understand the spatial distribution of economic activities.

CO3: Analyse the dynamics of economic activities and their relationship with the natural environment, identifying patterns of resource utilization and their implications.

ILO 3.1: Analyse the impact of environmental factors on economic decision-making and resource utilization.

ILO 3.2: Compare and contrast different types of economic activities in terms of their environmental impacts.

ILO 3.3: Evaluate the sustainability of economic activities based on their environmental footprint.

CO4: Evaluate the significance of international trade and examine its role in shaping global economic networks.

ILO 4.1: Assess the role of international trade in influencing regional economic development.

ILO 4.2: Evaluate the impacts of globalization on economic landscapes and spatial patterns.

ILO 4.3: Critically analyse trade policies and their implications for economic geography.

CO5: Synthesize knowledge of locational theories to propose solutions for optimizing industrial and agricultural locations.

ILO 5.1: Design strategies for sustainable industrial and agricultural development.

ILO 5.2: Develop a comparison for spatial models to optimize resource utilization and minimize environmental impacts.

ILO 5.3: Propose policy recommendations for promoting balanced regional development.

CO6: Demonstrate an understanding of the historical development and contemporary theories in economic geography.

ILO 6.1: Trace the historical evolution of locational theories in economic geography.

ILO 6.2: Analyse case studies the application of locational theories in real-world contexts.

ILO 6.3: Evaluate the relevance of traditional and contemporary locational theories.

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Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1					
Conceptual		CO2	CO2, CO3	CO3, CO4	CO4	
Procedural			CO5		CO5	
Metacognitive						CO6

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Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	S	M	M	M	M	M
CO2	S	S	M	M	S	M	M	M
CO3	M	S	S	M	S	M	S	M
CO4	M	M	S	M	M	M	M	M
CO5	S	S	S	M	S	S	M	S
CO6	S	S	M	M	S	S	S	S

Where, S: Strong correlation

M: Medium correlation

SUGGESTED READINGS:

- Alexander J. W., 1963: Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
- Bagchi-Sen S. and Smith H. L., 2006: Economic Geography: Past, Present and Future, Taylor and Francis.
- Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic Geography: A Contemporary Introduction, Wiley-Blackwell.
- Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press9. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: The Oxford6.
- Durand L., 1961: Economic Geography, Crowell
- Gautam A.: Economic Geography:
- Hodder B. W. and Lee Roger, 1974: Economic Geography, Taylor and Francis.
- Wheeler J. O., 1998: Economic Geography, Wiley.
- Willington D. E., 2008: Economic Geography, Husband Press.
- Chatterjee K., 2015: Basics of Economic Geography, Concept Publisher

11. Traditional Knowledge System in India by Amit Jha Publisher : Atlantic (1 April 2024); Atlantic Publishers and Distributors (P) Ltd

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 2nd SEMESTER

Title of the Course : METHODS AND TECHNIQUES OF FIELD STUDY
Course Code : SEC206
Nature of the Course: SKILL ENHANCEMENT COURSES
Total Credits : 03 Credits (2+1=3)
Distribution of Marks: 60 (End Sem) (45T+15P) + 40 (In Sem)

Course Description:

This course, Methods and Techniques of Field Study, equips students with essential skills for conducting geographical field studies. It covers various methods of data collection, including primary and secondary techniques, and emphasizes the preparation and presentation of comprehensive field reports using digital media.

Course Objectives:

The objective of the course is

1. To enhance the learner with the concept of field study, the different types of data collected from the field and its importance in the geographical studies.
2. To make the students understand the different techniques involved in the process collection of primary data, the preparation of questionnaire and schedule and the systematic representation of data through tabulation, processing and analysis.
3. To develop the conceptual and theoretical ideas on how to prepare a field report and the use of different quantitative techniques, diagrams, maps, photograph essential for meaningful research.
4. To develop the practical knowledge and skill of the learners in conducting the field study, collection of data and its preparation.

UNITS		CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Field Study	(a) Meaning and-Significance of Field study in Geography (b) Data- Meaning and Types	5	5		10
2 (15 Marks)	Data Collection and Analysis	(a) Methods of data collection- primary and secondary (b) Preparation of questionnaire and schedule (c) Data tabulation, processing and analysis	5	5		10
3 (15 Marks)	Designing the Field Report	(a) Identification of Problems and background study. (b) Organization of the field study report.	5	5		10
4 (15 marks)	Practical	(a) Field visit and data collection (b) Preparation and presentation of report.			45	45
		Total	15	15	45	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:**(40 Marks)**

- Two Internal Examinations of 10 marks each **20**
- Practical **10**
- Others (Any one) - **10**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): students will be able to:**CO1:** Demonstrate field study concepts and data types through analysis and interpretation.**ILO 1.1:** Identify different types of geographical data.**ILO 1.2:** Explain the significance of field study in geographical research.**ILO 1.3:** Classify techniques for collecting primary and secondary data.**CO2:** Illustrate data collection techniques and processes through practical application.**ILO 2.1:** Apply appropriate techniques for primary data collection.**ILO 2.2:** Analyse data tabulation, processing, and analysis methods.**ILO 2.3:** Interpret the preparation of questionnaires and schedules for field research.**CO3:** Apply theoretical knowledge to design comprehensive field reports.**ILO 3.1:** Design field study reports with clear aims, objectives, and methodology.**ILO 3.2:** Utilize tables, charts, diagrams, maps, and photographs effectively in field reports.**ILO 3.3:** Implement digital media for enhanced presentation and dissemination of findings.**CO4:** Analyse the components and structure of field reports.**ILO 4.1:** Evaluate the structure of field study reports for coherence and clarity.**ILO 4.2:** Critically assess the use of visual aids in data representation.**ILO 4.3:** Compare and contrast different methods of field data interpretation.**CO5:** Create field report by synthesizing theoretical knowledge and practical skills.**ILO 5.1:** Synthesize theoretical concepts with practical fieldwork experience.**ILO 5.2:** Develop innovative approaches to data collection and analysis.**ILO 5.3:** Integrate various media formats for impactful report presentation.**CO6:** Evaluate the effectiveness of field study methodologies and reporting techniques for geographical research.**ILO 6.1:** Critique the strengths and limitations of different data collection methods.**ILO 6.2:** Assess the reliability and validity of field study findings.**ILO 6.3:** Propose improvements to enhance the quality and rigor of field research practices.**Cognitive Map Course Outcomes with Bloom's Taxonomy**

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1					
Conceptual		CO2, CO3	CO3, CO4	CO4		
Procedural			CO5		CO5, CO6	CO6

Metacognitive				CO5	CO5	CO6
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Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	M	M	S	S	S	S
CO2	M	M	M	M	S	S	S	S
CO3	M	M	M	M	S	S	S	S
CO4	M	M	M	M	S	S	S	S
CO5	M	M	M	M	S	S	S	S
CO6	M	M	M	M	S	S	S	S

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Archer, J.E. and Dalton, T.H. (1968). *Fieldwork in Geography*, London.
2. Jones, P.A. (1968). *Fieldwork in Geography*, London.
3. Stoddard, R.H., (1982). *Field Techniques and Research Methods in Geography*, Dubuque.
4. Wheelso, K.S. and Harding, M., (1965). *Geographical Fieldwork*, London.

SEMESTER III

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 3rd SEMESTER

Title of the Course	:	ENVIRONMENTAL GEOGRAPHY
Course Code	:	GGRC3
Nature of the Course	:	MAJOR
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End-Sem: 45T+15P) + 40 (In-Sem.)

Course Description:

This course delves into Environmental Geography, exploring its concepts, principles, and the intricate relationship between humans and their environment. It covers the fundamentals of ecology, ecosystem dynamics, environmental degradation, conservation efforts, and sustainable development practices.

Course Objectives:

1. Understand the concept, nature and scope, concepts and developments of environmental geography;
2. learn concept of ecosystem, its structure and function, ecology, types and components of ecology;
3. understand the Human-Environment relationship in different biomes and human adaptations;
4. learn about environmental degradation and restoration.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Environmental Geography	(a) Concept, nature and scope of environmental geography. (b) Fundamental concepts in environmental geography (c) Meaning of environment (d) Environmental factors (e) Types of environments (f) Indian Knowledge System in environmental management (IKS)	10	5		15
2 (15Marks)	Ecology and Ecosystem	(a) Ecology: Meaning, Types, Principles of ecology (b) Ecosystem: Concept, Types, Structure and Functions, Food chain, Food web, Trophic level (c) Biomes: Concept and Types	10	5		15
3 (15 Marks)	Environment Degradation	(a) Meaning, causes and impact (b) Conservation of water, soil, forest and marine environment. (c) Policies of Environmental protection & conservation; Concept of EIA. (d) Concept of Sustainable Development	10	5		15
4 (15 Marks)	Practical and Field Study	(a) Field Observation and Data Collection: i. Conduct a field trip to a nearby ecosystem (such as a forest, wetland, etc.) and observe the physical features of the environment. ii. Collect data on various environmental parameters like			45	45

		<p>temperature, humidity, wind speed, and soil composition using appropriate instruments.</p> <p>iii. Identify and document different species of plants and animals found in the area.</p> <p>(b) Sustainable Resource Management:</p> <p>i. Divide students into groups and assign each group a specific natural resource (e.g., water, energy, minerals).</p> <p>ii. Students should research the resource's availability, current usage patterns, and potential environmental impacts associated with its extraction or consumption.</p> <p>iii. Each group can propose strategies for sustainable management and conservation of their assigned resource.</p> <p><i>*Either (a) or (b)</i></p>				
	TOTAL		30	15	45	90

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each
- Practical
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

20

10

10

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Demonstrate a comprehensive understanding of environmental geography principles and concepts.

ILO 1.1: Identify key concepts in environmental geography.

ILO 1.2: Define the scope and nature of environmental geography.

ILO 1.3: Recall the developments in the field of environmental geography.

CO2: Interpret the principles of ecology and their application in understanding ecosystems.

ILO 2.1: Explain the principles governing ecological systems.

ILO 2.2: Interpret the structure and function of ecosystems.

ILO 2.3: Discuss the significance of ecological dynamics in environmental studies.

CO3: Apply ecological concepts to analyse the relationships between human activities and the environment.

ILO 3.1: Apply ecological principles to analyse human-environment interactions.

ILO 3.2: Evaluate the impact of human activities on different biomes.

ILO 3.3: Propose adaptive strategies for sustainable human-environment coexistence.

CO4: Analyse environmental degradation processes and evaluate conservation strategies.

ILO 4.1: Analyse the causes and consequences of environmental degradation.

ILO 4.2: Evaluate conservation efforts for water, soil, forests, and marine ecosystems.

ILO 4.3: Critically assess environmental policies and their effectiveness.

CO5: Integrate knowledge from field observations to propose solutions for environmental challenges.

ILO 5.1: Synthesize field observations to identify environmental issues.

ILO 5.2: Generate hypotheses for addressing environmental problems.

ILO 5.3: Develop action plans for environmental conservation based on collected data.

CO6: Evaluate the effectiveness of environmental protection policies and practices.

ILO 6.1: Critique environmental protection policies for their efficacy.

ILO 6.2: Assess the impact of environmental impact assessments (EIA).

ILO 6.3: Formulate recommendations for promoting sustainable development practices.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1					
Conceptual		CO2	CO3			
Procedural			CO3	CO4		CO6
Metacognitive					CO5	CO6

•

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	M	M	M	M	M	M
CO2	S	S	M	M	M	M	M	M
CO3	S	M	S	M	S	M	M	M
CO4	M	S	M	M	M	M	M	S
CO5	M	S	S	M	S	S	S	S
CO6	M	M	S	M	S	S	S	M

Where, *S: Strong correlation*

M: Medium correlation

SUGGESTED READINGS:

1. Chandna, R. C., 2002: Environmental Geography, Kalyani, Ludhiana.
2. Cunningham, W. P. and Cunningham, M. A., 2004: Principals of Environmental Science: Inquiry and Applications, Tata Macgraw Hill, New Delhi.
3. Gautam, A.: Environmental Geography, Sharda pustak bhawan, Allahabad
4. Goudie A., 2001: ature of the Environment, Blackwell, Oxford.

5. Saxena, H, M.: Environmental Geography (third edition), Rawat publications, Jaipur,
6. Saxena, H. M.: Introduction : Environment, Ecology and Geography , Rawat publications.
7. Singh, R.B. (Eds.) (2009) Biogeography and Biodiversity. Rawat Publication, Jaipur
8. Miller G. T., 2004: Environmental Science: Working with the Earth, Thomson BrooksCole, Singapore.
9. MoEF, 2006: National Environmental Policy-2006, Ministry of Environment andForests, Government of India.
10. Singh, R.B. and Hietala, R. (Eds.) (2014) Livelihood security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India. Advances in Geographical and Environmental Studies, Springer
11. **Traditional Knowledge System in India by Amit Jha Publisher : Atlantic (1 April 2024); Atlantic Publishers and Distributors (P) Ltd**

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 3rd SEMESTER

Title of the Course	:	SOCIAL GEOGRAPHY OF INDIA
Course Code	:	GGRC4
Nature of the Course	:	MAJOR
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End-Sem: 45T+15P) + 40 (In-Sem.)

Course Description:

This course delves into the social geography of India, examining the spatial dimensions of its social structures, cultural practices, and demographic patterns. It explores how social and cultural factors shape geographical spaces and how these, in turn, influence social dynamics within the country. The course covers topics such as population distribution, urbanization, migration, ethnic diversity, caste and community structures, and the socio-economic disparities across different regions of India. Through a combination of lectures, case studies, and fieldwork, students will gain a comprehensive understanding of the complex social geography that characterizes India.

Course Objectives:

1. To have a basic introduction of social geography, meaning and scope,
2. To understand concept of caste and tribes of India in geographical prospective,
3. To learn about geography of religion of India,
4. To learn about language and its geographical importance.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Social Geography	a) Meaning, nature and scope of social geography; b) Growth and development of social geography; c) Development of social geography in India. d) Varna system in ancient India (IKS)	10	5		15
2 (15 Marks)	Caste and Tribe in India	a) Origin of the caste system in India b) Social/demographic morphology of settlements: Rural and urban c) Tribes in India; their geographical distribution and their rural-urban composition.	10	5		15
3 (15 Marks)	Religions and Languages in India	a) Religious Diversity and its geographical distribution in India. b) Linguistic Diversity and its geographical distribution in India. c) Social problems and prospects (Religion, caste, gender) in India	10	5		15
4 (15 Marks)	Practical	a) Population Distribution map of India and Assam - caste, tribes and religion (by suitable cartograms like simple and multiple dots, sphere, pie, bar, etc.)			30	30

		b) Population Density map of India and Assam- caste, tribes and religion (choropleth method)				
		c) Age- sex pyramid				
		TOTAL	30	15	30	75

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

- | | |
|--|-------------------|
| MODES OF IN-SEMESTER ASSESSMENT: | (40 Marks) |
| • Two Internal Examinations of 10 marks each | 20 |
| • Practical | 10 |
| • Others (Any one) - | 10 |
| ○ Group Discussion | |
| ○ Seminar presentation on any of the relevant topics | |
| ○ Debate | |

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students will be able to:

CO1: Define the fundamental concepts of social geography and its relevance to the Indian context.

ILO1.1: Explain the basic principles and scope of social geography.

ILO1.2: Discuss the importance of social geography in understanding Indian society.

ILO1.3: Identify key social geographic concepts and their applications to India.

CO2: Analyse the spatial distribution of population and demographic trends in India.

ILO2.1: Interpret demographic data and maps related to population distribution in India.

ILO2.2: Describe the factors influencing population growth and distribution.

ILO2.3: Assess regional variations in demographic patterns and their implications.

CO3: Evaluate the cultural Diversity and its geographical analysis in India.

ILO 3.1: Analyse the patterns and causes of religious and linguistic diversity.

ILO 3.2: Examine the effects Linguistic Diversity and its geographical analysis in India.

ILO3.3: Evaluate policies and strategies addressing challenges in India.

CO4: Examine the spatial dimensions of social inequalities, including caste, class, and gender disparities.

ILO4.1: Describe the spatial patterns of caste and class in India.

ILO4.2: Analyse the geographic distribution of gender inequalities.

ILO4.3: Evaluate the social and economic implications of spatial inequalities.

CO5: Conduct practical and analyse data on social geographic phenomena in India.

ILO5.1: Collect primary data and prepare Population maps based on socio-economic data.

ILO.3: Analyse and interpret to draw conclusions about social geographic issues.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Cognitive Process Dimension					
	Remember	Understand	Apply	Analyse	Evaluate	Create

Cognitive	CO1					
Factual	CO2			CO4	CO3	
Conceptual		CO1 CO2				
Procedural			CO3	CO4	CO5	
Metacognitive						CO5

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	S	M	M	M	S	M
CO2	S	M	M	S	M	M	S	M
CO3	M	S	S	S	S	S	S	M
CO4	S	S	S	S	M	M	M	S
CO5	S	S	M	S	M	S	S	S

Where, S: Strong correlation

M: Medium correlation

SUGGESTED READINGS:

1. Cloke, P., Crang, P., Goodwin, M., (ed) (1999), *Introducing Human Geographies*, London: Oxford University Press.
2. Ahmed, A, (1999) *Social Geography*, Rawat publications, Jaipur.
3. Registrar General of India, (1972), *Economic and Socio-cultural Dimensions of Regionalization of India*, Census Centenary Monograph No 7, New Delhi.
4. Ahmad, A, (1993) (ed) *Social Structure and regional Development: A Social Geography Perspective*, Rawat Publications, Jaipur.
5. Sen, J, (2012) *Social and Cultural Geography*, Kalyani Publishers, New Delhi.
6. Subba Rao B. (1958), 'Personality of India', MS University Press, Baroda.
7. Pain R, M. Barke, D Fuller, J Gough, R MacFarlane, G Mowl, (2001), *Introducing Social Geographies*, Arnold Publishers, London.
8. Dutt NK., (1986), *Origin and Growth of Caste in India*, Firma Kin, Calcutta.
9. Taher, M, (2017), *Social Geography*, Ashok Book Stall, Guwahati.
10. Sopher D. (1980) (ed) 'An Exploration of India: Geographical Perspectives on Society and Culture', Cornell Press, New York.
11. Singh K.S. (1993) *People of India Vol I to XI*, Oxford University Press, New Delhi.
12. Raza M and Ahmad A (1990) *An Atlas of Tribal India*, Concept Publishing Co, Delhi.
13. Kosambi DD (1962) *Myth and Reality: Studies in the Formation of Indian Culture*, Popular Prakashan, Bombay.
14. Khubchandani ML, (1988) *Language in a Plural Society*, Indian Institute of Advanced Study, Shimla.
15. Jones, Emrys and John Eyles, 1977 : *A Introduction to Social Geography*, London
16. Jones, Emrys, 1975 *Readings in Social Geography*. London
17. Srinivas. M.N. *Social Change in Modern India*, Orient Longman, Delhi
18. Singh Yogendra, *Modernisation and Social change*: Orient Longman
19. Census of India, *Economic and Social-Cultural Dimensions of Regionalisation*, Census

20. Centenary Monograph No.7 New Delhi 1974.

21. **Traditional Knowledge System in India** by Amit Jha Publisher : Atlantic (1 April 2024); Atlantic Publishers and Distributors (P) Ltd

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 3rd SEMESTER**

Title of the Course	:	HUMAN, SOCIAL AND CULTURAL GEOGRAPHY
Course Code	:	MINGGR3
Nature of the Course	:	MINOR
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End-Sem: 45T+15P) + 40 (In-Sem.)

Course Description:

This course is designed to explore the diverse and dynamic aspects of human, social, and cultural geography. The course provides an in-depth understanding of the definitions, nature, and scope of human, social, and cultural geography, their major subfields, and contemporary relevance. It delves into various schools of thought like determinism, possibilism, and neo-determinism, examines the Human Development Index across different regions, and addresses social problems such as education, health, gender, housing, and crime, particularly in India. Furthermore, the course involves practical applications of geographical techniques like age–sex pyramids and disparity maps to analyse human development.

Course Objectives:

1. Introduction to Human, Social and Cultural Geography
2. To know different approaches of geographical studies and its importance
3. Understand the spatial distribution, social problems related to the subject components
4. Develop practical skilled to use statistics and graphical techniques in geography

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Human Geography	(a) Definition, Nature, Major Subfields, Contemporary Relevance (b) Schools: Determinism, Possibilism and Neo-Determinism; (c) Human development index: Developed and developing countries, problems and prospects (d) Traditional Indian Ecological Knowledge and Natural Resource Management (forests, wetlands, fisheries) (IKS)	10	5		15
2 (15 Marks)	Social Geography	(a) Definition, Nature and Scope of Social Geography. (b) Growth and development of social geography (c) Concept and types of space in Social Geography. (d) Social problems (Education, Health, Gender, Housing and Crime) and prospects in India.	10	5		15

3 (15 Marks)	Cultural Geography	(a) Definition, nature and scope of Cultural Geography (b) Cultural Regions of the World (c) Cultural diffusion: meaning, factors affecting cultural diffusion	10	5		15
4 (15 Marks)	Practical	(a) Age–Sex Pyramid, sex disparity map (India and North East India) (b) Human development index: developed and developing countries (through histogram and line graph)			30	30
		TOTAL	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each
- Practical
- Others (Any one)
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

20

10

10

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students will be able to:

CO1: Analyse fundamental concepts and contemporary relevance of human geography to recognize its scope and importance in understanding human-environment interactions.

ILO 1.1: Describe key concepts in human geography.

ILO1.2: Identify the relevance of human geography in modern contexts.

ILO 1.3: Students will be able to relate human geography theories to real-world examples.

CO2: Evaluate the principles and theories of determinism, possibilism, and neo-determinism to distinguish their applications and implications in human geography studies.

ILO 2.1: Differentiate between determinism, possibilism, and neo-determinism.

ILO 2.2: Assess the implications of each school of thought on human geography.

ILO 2.3: Apply these principles to case studies.

CO3: Assess the Human Development Index across various regions to understand development disparities and associated challenges.

ILO 3.1: Calculate and interpret the Human Development Index.

ILO 3.2: Compare the development status of different countries.

ILO 3.3: Discuss the problems and prospects related to development in these regions.

CO4: Examine the scope and types of space in social geography to understand the relationships between society, space, and the environment in addressing social issues.

ILO 4.1: Define the concept of space in social geography.

ILO 4.2: Categorize different types of space and their significance.

ILO 4.3: Analyse social issues within the context of space and environment interactions.

CO5: Explore cultural regions and diffusion to understand cultural dynamics and the factors influencing cultural change and diversity.

ILO 5.1: Identify and map cultural regions of the world.

ILO 5.2: Explain the concept and process of cultural diffusion.

ILO 5.3: Analyse factors that affect cultural diffusion and its outcomes.

CO6: Apply practical skills in creating age–sex pyramids and disparity maps to evaluate demographic and social disparities in developed and developing regions.

ILO 6.1: Construct and interpret age–sex pyramids for different regions.

ILO 6.2: Create sex disparity maps with regional focus.

ILO 6.3: Utilize histograms, line graphs, and pie diagrams to represent human development data effectively.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual	CO1, CO2	CO2, CO4, CO5	CO3	CO2, CO4	CO4, CO5	
Procedural		CO6	CO3, CO6	CO3, CO6		CO6
Metacognitive		CO4, CO5			CO3	

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	S	M	M	M	S	M
CO2	S	M	M	M	M	M	S	M
CO3	M	S	S	M	S	S	S	M
CO4	S	S	S	M	M	M	M	M
CO5	S	S	M	M	M	M	M	M
CO6	S	S	M	M	S	S	M	S

Where, S: Strong correlation

M: Medium correlation

SUGGESTED READINGS:

1. Smith, David M. (1977): Human Geography- A Welfare approach, Arnold-Hinmann, London. 11.
2. Hussain, Majid (1994): Human Geography, Rawat Publications, Jaipur.
3. Ahmed, A, (1999) Social Geography, Rawat publications, Jaipur.
4. Registrar General of India, (1972) , Economic and Socio cultural Dimensions of
5. Regionalization of India, Census Centenary Monograph No 7, New Delhi.
6. Ahmad ,A, (1993) (ed) Social Structure and regional Development: A Social Geography
7. Grover N. and Singh K. N., (2004), Cultural Geography: Form & Process (Essays in Honour of Prof. A.B. Mukerji)
8. Perspective, Rawat Publications, Jaipur.
9. Sen, J,(2012) Social and Cultural Geography, Kalyani Publishers, New Delhi.
10. Subba Rao B. (1958), 'Personality of India', MS University Press, Baroda.
11. Pain R, M. Barke, D Fuller, J Gough, R MacFarlane, G Mowl, (2001), Introducing Social
12. Geographies, Arnold Publishers, London.
13. 8. Dutt NK.,(1986), Origin and Growth of Caste in India, Firma Kin, Calcutta.

14. 9. Taher, M,(2017), Social Geography, Ashok Book Stall, Guwahati.
 15. Sopher D. (1980) (ed) 'An Exploration of India: Geographical Perspectives on Society and Culture', Cornell Press, New York.
 16. Five Elements of Ayurveda
 17. **Traditional Knowledge System in India by Amit Jha Publisher : Atlantic (1 April 2024); Atlantic Publishers and Distributors (P) Ltd**

**GEOGRAPHY PROGRAMME (FYIPGP)
 DETAILED SYLLABUS OF 3rd SEMESTER**

Title of the Course : CLIMATOLOGY
Course Code : GECGGR3A
Nature of the Course : GENERIC ELECTIVE COURSE (GEC)
Total Credits : 3 Credits
Distribution of Marks : 60 (End Sem) + 40 (In-Sem)

Course Description:

This course explores the fundamental concepts of the Earth's atmosphere, including its composition, structure, and variations. It examines atmospheric pressure systems, wind patterns, and the dynamics of atmospheric moisture, providing a comprehensive understanding of weather, climate, and their influencing factors. The course delves into the global climate system with a focus on Köeppen’s climate classification and contemporary issues such as climate change, floods, and droughts. It emphasizes the interconnections between atmospheric phenomena and their impact on global and regional climates, aiming to equip students with the skills to analyse climatic processes and their implications.

Course Objectives:

1. To introduce to climatology, atmosphere, weather and climate
2. To understand global atmospheric pressure and wind system
3. To learn the basics of atmospheric moisture and climate change

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Climatology	(a) Meaning, Scope and Significance of Climatology (b) Factors affecting weather and climate (c) Weather observation in ancient India (IKS)	8	3		11
2 (15 Marks)	Atmospheric Pressure and Winds	(a) Factors Affecting Atmospheric Pressure. Vertical and Horizontal Distribution. (b) Pressure Belts and Winds: Planetary, seasonal and local wind. (c) Concept and Classification of Air Mass and Fronts. (d) Cyclones- Tropical and Temperate.	8	4		12
3 (15 Marks)	Atmospheric Moisture	(a) Humidity: Absolute, Relative and Specific. (b) Clouds- formation and classification (c) Precipitation- types and forms.	7	4		11

4 (15 Marks)	Global Climate System	(a) Koeppen's Climatic Classification (b) Climate Change: Causes and consequences, recent issues-floods, drought	7	4		11
		TOTAL	30	15		45

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 15 marks each
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

30 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students will be able to:

CO1: Explain the fundamental principles of climatology and analyze the factors that influence the spatial and temporal variations of weather and climate.

ILO1.1: Describe the meaning, scope, and significance of climatology as a branch of physical geography.

ILO1.2: Identify the major controls of weather and climate such as latitude, altitude, distance from sea, ocean currents, pressure systems, and prevailing winds.

ILO1.3: Analyze how the interaction of different climatic factors influences regional variations in weather and climatic conditions.

CO2: Describe the factors influencing atmospheric pressure and the distribution of pressure belts globally.

ILO 2.1: Identify and explain the factors that affect atmospheric pressure.

ILO 2.2: Discuss the horizontal and vertical distribution of atmospheric pressure.

ILO 2.3: Outline the global pattern of pressure belts and their climatic significance.

CO3: Analyse different types of winds and their causes, including planetary, seasonal, and local winds.

ILO 3.1: Differentiate between planetary, seasonal, and local winds.

ILO 3.2: Explain the causes of various wind patterns, including land and sea breezes.

ILO 3.3: Assess the impact of different wind types on regional climates.

CO4: Evaluate the types and characteristics of air masses and their role in the formation of cyclones.

ILO 4.1: Define and classify different types of air masses.

ILO 4.2: Explain the processes involved in the formation of tropical and temperate cyclones.

ILO 4.3: Assess the global distribution and impacts of different cyclone types.

CO5: Interpret the concepts of atmospheric moisture including humidity, hydrological cycle, and precipitation.

ILO 5.1: Describe absolute, relative, and specific humidity and their measurement.

ILO 5.2: Explain the components and processes of the hydrological cycle.

ILO 5.3: Identify and differentiate between various forms and types of precipitation.

CO6: Assess Köeppen's climate classification and analyse the causes and consequences of climate change

ILO 6.1: Outline Köeppen's climate classification system with a focus on Indian climates.

ILO 6.2: Explain the primary causes and effects of contemporary climate change.

ILO 6.3: Discuss the recent issues related to climate change, including floods and droughts.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2, CO5		CO3, CO6	CO4	
Procedural						
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	M	M	M	M	M	M
CO2	S	S	M	M	M	M	S	M
CO3	S	M	M	M	M	M	S	M
CO4	S	M	M	M	M	M	M	M
CO5	S	S	M	M	M	M	M	M
CO6	S	S	S	M	M	M	S	M

Where, S: Strong correlation

M: Medium correlation

SUGGESTED READINGS:

1. Barry R.G. and Carleton A.M.,2001: *Synoptic and Dynamic Climatology*, Routledge, UK.
 2. BarryR.G.andCorleyR.J.,1998: *Atmosphere, Weather and Climate*, Routledge, New York.
 3. CritchfieldH.J.,1987:*GeneralClimatology*,Prentice-Hallof India, New Delhi
 4. Lutgens F.K., Tarbuck E.J. and TasaD.,2009: *The Atmosphere: An Introduction to Meteorology*, Prentice-Hall, Englewood Cliffs, NewJersey.
 5. OliverJ.E.andHidoreJ.J.,2002: *Climatology: An Atmospheric Science*, Pearson Education, New Delhi.
 6. Trewartha G.T. and Horne L.H., 1980: *An Introduction to Climate*, McGraw-Hill.
 7. Gupta LS (2000): *Jalvayu Vigyan, Hindi Madhyam Karyanvay Nidishalya, Delhi Vishwa Vidhyalaya, Delhi*
 8. Lal,DS(2006):*Jalvayu Vigyan, Prayag Pustak Bhavan, Allahabad*
 9. Vatal,M(1986):*Bhautik Bhugol,Central Book Depot, Allahabad*
 10. Singh,S(2009): *Jalvayu Vigyan, Prayag Pustak Bhawan, Allahabad*
- **Vedic Meteorology by Ravi Prakash Arya Publisher : Indian Foundation for Vedic Science; Third edition (24 May 2017)**

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 3rd SEMESTER**

Title of the Course	: SETTLEMENT GEOGRAPHY
Course Code	: GECGGR3B
Nature of the Course	: GENERIC ELECTIVE COURSE (GEC)
Total Credits	: 3 Credits
Distribution of Marks	: 60 (End-Sem) + 40 (In-Sem)

Course Description:

This course provides an in-depth exploration of settlement geography, encompassing rural and urban settlements, their evolution, characteristics, and associated theories. Through theoretical frameworks and case studies, students will analyse the dynamics of settlement patterns and their implications on socio-economic development.

Course Objectives:

1. To introduce settlement geography, nature, scope and classification
2. To understand concept of rural and urban settlement and development
3. To learn the basics of settlement theory

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Settlement Geography	(a) Definition, nature and scope of settlement Geography. (b) Settlement: Concept and Classification, (c) Urban settlement patterns in ancient India (IKS)	6	3		9
2 (15 Marks)	Rural Settlement	(a) Types and Pattern of Rural Settlement. (b) Morphology of rural settlement, (c) Problems of rural settlements in India.	8	4		12
3 (15 Marks)	Urban Settlement	(a) Types and Pattern of Urban Settlement (b) Morphology of urban settlement, (c) Problems of urban settlements in India.	8	4		12
4 (15 Marks)	Settlement Theories	(a) Central place theory of Christaller. (b) Urban Morphology Theories: Concentric Zone Model, Multiple Nuclei Theory. (c) Rural-Urban dichotomy and continuum,	8	4		12

		TOTAL	30	15		45
	<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>			<i>P: Practicals</i>

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 15 marks each
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

30 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students will be able to:

CO1: Analyse settlement patterns and their impact on land use planning.

ILO 1.1: Identify different types of settlements based on their morphology and distribution.

ILO 1.2: Evaluate the factors influencing the growth and spatial organization of settlements.

ILO 1.3: Interpret settlement dynamics within the context of regional development.

CO2: Demonstrate comprehension of rural settlement dynamics and challenges.

ILO 2.1: Describe the historical evolution of rural settlements and their typologies.

ILO 2.1: Assess the socio-economic factors shaping rural settlement patterns.

ILO 2.3: Propose solutions to mitigate rural settlement problems, particularly in the Indian context.

CO3: Evaluate the characteristics and complexities of urban settlements.

ILO 3.1: Examine the rise and growth of urban settlements.

ILO 3.2: Classify urban settlements based on their functions and hierarchies.

ILO 3.3: Critically analyse urban settlement issues prevalent in India and suggest sustainable urban planning strategies.

CO4: Application of central place theory to understand spatial organization and service provision.

ILO 4.1: Interpret Christaller's central place theory in relation to urban hierarchy.

ILO 4.2: Utilize central place theory to analyse the distribution and accessibility of goods and services.

ILO 4.3: Illustrate the spatial arrangement of central places in various settlement systems.

CO5: Investigate the rural-urban continuum and its implications on settlement dynamics.

ILO 5.1: Describe the interdependencies and interactions between rural and urban areas.

ILO 5.2: Analyse the transitional zones along the rural-urban gradient.

ILO 5.3: Evaluate policies and interventions aimed at managing the rural-urban interface.

CO6: Synthesize theoretical frameworks to propose sustainable settlement planning solutions.

ILO 6.1: Integrate settlement theories with contemporary urban and regional planning approaches.

ILO 6.2: Develop comprehensive strategies for balanced rural and urban development.

ILO 6.3: Advocate for inclusive and environmentally sustainable settlement planning practices.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
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Factual							
Conceptual		CO1, CO2		CO1, CO5	CO3		
Procedural			CO4				CO6
Metacognitive							

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	M	M	M	M	M	M
CO2	S	S	S	M	M	M	M	M
CO3	S	S	S	M	M	M	S	M
CO4	S	S	S	M	S	S	S	M
CO5	S	S	M	M	S	M	M	M
CO6	S	S	S	M	S	S	M	M

Where, S: Strong correlation

M: Medium correlation

SUGGESTED READINGS:

1. Chorley, R.J. and Haggett, P.,1967: Models in Geography, Methuen, London.
2. Gregory,D.,1978:Ideology,ScienceandHumanGeography,Hutchin,Londan
3. Huntington, E,1951 Principles in Human Geography, John Wiley & Sons, Lnc, New York
4. Johnstone, R.J.et. (eds)1981, Dictionary of Human Geography, Basil Blackwell Oxford.
5. Johnston, R.J.1983: Philosophy and Human Geography, Edward Arnold, London.
6. Chandana, R.C. 1986, A Geography of Population,KakaniPublishers,NewDelhi
7. Ahmed, A,et,al (eds) 1997, Demographic Transition, The Third world Scenario, Rawat Publications, Jaipur and New Delhi
8. ClarkeJ.I.1972PopulationGeography,PergamonPress,Oxford
9. Carter.H.1972,TheStoryofUrbanGeography,EdwardArnold,London
10. **The Geography of the Puranas** by S.M. Ali Publisher: People's Publishing; New Delhi; 1966
11. **The Geography of The Ramayana** by R.K. Shukla Publisher. Koshal Book Depot
12. **Kaushik S.D. & Rawat D.S : GEOGRAPHICAL THOUGHT & METHODOLOGY, RASTOGI PUBLICATIONS**

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 3rd SEMESTER**

Title of the Course	:APPLICATION OF REMOTE SENSING AND GIS IN GEOGRAPHY
Course Code	: SEC306
Nature of the Course	: SKILL ENHANCEMENT COURSE
Total Credits	: 3 Credits (2+1=3)
Distribution of Marks	: 60 (End-Sem) (45T+15P) + 40 (In-Sem)

Course Description:

This course introduces students to the principles and applications of remote sensing and Geographic Information Systems (GIS) in Geography. It covers topics such as the fundamentals of remote sensing, image processing techniques, GIS data management, spatial analysis, and practical applications in real-world scenarios.

Course Objectives:

1. Understand the principles of remote sensing, including the properties of electromagnetic radiation, sensors, and platforms.
2. Analyze remote sensing data using image processing techniques such as image enhancement, classification, and interpretation.
3. Understand the principles of GIS, including data management, spatial analysis, and cartography.
4. Use GIS software to create, manage, and analyze spatial data, including data from remote sensing sources.
5. Apply remote sensing and GIS techniques to solve real-world problems in the field of Geography, such as land-use change detection, natural resource management, and urban planning.
6. Critically evaluate remote sensing and GIS research literature, including understanding the strengths and limitations of different approaches and methods.
7. Communicate effectively about remote sensing and GIS research and applications, both in written and oral forms.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Basics of Remote Sensing and GIS	(a) Meaning and definition of Remote Sensing and GIS, Components, Historical Development (b) Types of Remote sensing (Air borne, space	5	5		10

		borne) Platforms and Types of Satellites, Sensors, Orbit (c) Electromagnetic Spectrum, Atmosphere and Surface - radiation interaction (d) Visual Image Interpretation.				
2 (15 Marks)	Geospatial Data	(a) Spatial and Non-spatial Data, (b) Raster and Vector Data Structure (c) Spatial Data: Point, Line, Polygon.	5	5		10
3 (15 Marks)	Digital image Processing	(a) Pre-processing: radiometric and geometric correction (b) Image enhancement: image reduction, contrast enhancement and filtering. (c) Image classification: supervised and unsupervised	5	5		10
4 (15 Marks)	Practical	(a) Introduction to open-source database. (b) Import Raster and Vector data to GIS interface, (c) Layers stacking of images, Mosaic, and clip Area of Interest (d) Processing and creation of buffer on point, line and polygon (e) Morphometric analysis (f) Temporal change: land use and land cover			30	30
		TOTAL	15	15	30	60

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each
- Practical
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

20

10

10

Course Outcomes (COs) and Intended Learning outcomes (ILOs): Students will be able to

CO1: Demonstrate a comprehensive understanding of remote sensing and GIS principles and techniques.

ILO 1.1: Identify different types of remote sensing platforms and sensors.

ILO1.2: Describe the interaction between electromagnetic radiation and the Earth's surface.

ILO 1.3: Explain the difference between raster and vector data structures in GIS.

CO2: Interpret remote sensing data and apply image processing techniques effectively.

ILO 2.1: Interpret visual images acquired through remote sensing.

ILO 2.2: Analyse spatial and non-spatial data in GIS.

ILO 2.3: Demonstrate the process of layer stacking and image mosaic in GIS.

CO3: Apply remote sensing and GIS techniques to solve geographical problems.

ILO 3.1: Utilize GIS software for creating buffers around point, line, and polygon features.

ILO 3.2: Delineate river basins and land cover using remote sensing and GIS.

ILO 3.3: Analyse temporal changes in land use, land cover, and river bank erosion.

CO4: Critically evaluate remote sensing and GIS research literature.

ILO 4.1: Evaluate the strengths and limitations of different remote sensing approaches.

ILO 4.2: Assess the accuracy of GIS-based spatial analyses.

ILO 4.3: Compare and contrast various methods used in remote sensing and GIS research.

CO5: Integrate remote sensing and GIS techniques to address real-world geographical problems.

ILO 5.1: Synthesize remote sensing and GIS data to detect land-use changes.

ILO 5.2: Develop spatial models for natural resource management using GIS.

ILO 5.3: Design urban planning strategies based on remote sensing data analysis.

Cognitive Map Course Outcomes with Bloom’s Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual						
Conceptual	CO1	CO1		CO2		
Procedural			CO2, CO3, CO4	CO3	CO4	CO5
Metacognitive		CO2				CO5

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M	M	M	M	M	M	M
CO2	S	S	M	M	M	S	M	S
CO3	S	S	S	M	S	S	S	S
CO4	S	S	M	M	S	S	M	S
CO5	S	S	S	M	S	S	S	S

Where, S: Strong correlation

M: Medium correlation

SUGGESTED READINGS:

1. Campbell J. B., 2007: *Introduction to Remote Sensing*, Guildford Press.
2. Jensen, J.R., 2004: *Introductory Digital Image Processing: A Remote Sensing Perspective*, Prentice Hall.

3. Nag P and Sengupta S., 2007, Geographical Information System: Concepts and Business Opportunities, Concept Publisher.
4. Joseph, G. 2005: *Fundamentals of Remote Sensing*, United Press India.
5. Lillesand, T.M., Kiefer, R.W. and Chipman J.W., 2004: *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition).
6. Nag, P. and Kudra, M., 1998: *Digital Remote Sensing*, Concept, New Delhi.
7. Rees, W.G., 2001: *Physical Principles of Remote Sensing*, Cambridge University Press.
8. Singh, R.B. and Murai, S., 1998: *Space-informatics for Sustainable Development*, Oxford and IBHPub.
9. Wolf, P.R. and Dewitt, B.A., 2000: *Elements of Photogrammetry: With Applications in GIS*, McGraw-Hill.
10. Sarkar, A. (2015): *Practical geography: A systematic approach*. Orient Black Swan Private Ltd., New Delhi
11. Chauniyal, D.D. (2010) *Sudur Samvedanevam Bhogolik Suchana Pranali*, Sharda Pustak Bhawan, Allahabad

SEMESTER IV

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 4TH SEMESTER**

TITLE OF THE COURSE	:	POPULATION GEOGRAPHY
COURSE CODE	:	GGRC5
NATURE OF THE COURSE	:	MAJOR
TOTAL CREDITS	:	4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	:	60(End-Sem.) (45T+15P) +40 (In-Sem.)

Course Description

Population Geography examines the spatial distribution, structure, and dynamics of human populations and their interaction with resources and the environment. The course introduces demographic concepts, population data sources, theories of population growth, and population policies, while developing practical skills in mapping and analysing population patterns and trends.

Course Objectives

- To introduce the fundamental concepts, scope, and methodological approaches of Population Geography.
- To examine spatial patterns of population distribution, density, and growth at global and regional scales.
- To analyze population composition and the relationship between population and resources.
- To understand population dynamics such as fertility, mortality, migration, and population policies.
- To develop practical skills in the graphical and cartographic representation of population data.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (10 Marks)	Introduction to Population Geography and Population Data	a. Concept, Nature, Scope of Population Geography and its relation with Demography. b. Population Data: Sources of data with reference to India (Census, Vital Statistics, NSS etc.)	7	2		9
2 (12 Marks)	Distribution, Density and Growth of Population	a. Determinants of Population Distribution and Density, Population Density regions of the world. b. Trend of world population growth, determinants of population growth.	12	2		14

		c. Theories of population growth: Malthusian theory; Demographic Transition Theory with reference to India's demographic transition.				
3 (10 Marks)	Population, resource and Contemporary issues	a. Age-Sex Composition, Rural-Urban composition, Literacy. b. Understanding population-resource relationship; Population-Resource Regions of the world. c. Population problems in developed and developing countries-underpopulation, optimum population, overpopulation and ageing of population.	10	1		11
4 (13 Marks)	Population Dynamics and Policies	a. Population Dynamic (Fertility, Mortality, and Migration): Measures, Determinants and Implications. b. Population Policies: Population Policy of China and India.	10	1		11
5 (15 Marks)	Practical	a. Trend of population Growth: India, Assam/N.E. India by line graph b. Distribution of population by using Dot, Multiple Dot and distribution of towns with their population size by using Sphere. c. Choropleth map showing spatial pattern of population density in Assam and India.		2	28	30
		TOTAL	39	8	28	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examination** -
- **Others (Any one)** -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate/Home assignment
- **Practical**

20 Marks

10 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concept, nature, and scope of Population Geography and interpret major sources of population data.

ILO 1.1 Define Population Geography and explain its relationship with demography and other branches of geography.

ILO 1.2 Describe the scope and significance of population studies in geographical research.

ILO 1.3 Identify major sources of population data in India such as Census, Vital Statistics, and NSS.

CO2: Analyze the spatial distribution and density of population and the geographical factors influencing population concentration.

ILO 2.1 Explain the determinants of population distribution and density.

ILO 2.2 Identify major population density regions of the world.

ILO 2.3 Interpret spatial patterns of population concentration using geographical reasoning.

CO3: Examine the trends and determinants of population growth and evaluate major theories explaining population change.

ILO 3.1 Describe the trend of world population growth and its major determinants.

ILO 3.2 Explain the Malthusian theory of population growth.

ILO 3.3 Interpret the Demographic Transition Model with reference to India.

CO4: Evaluate population composition and analyze the relationship between population and resource availability.

ILO 4.1 Describe key components of population structure including age-sex composition, literacy, and rural-urban distribution.

ILO 4.2 Explain the concept of population-resource relationship and population-resource regions.

ILO 4.3 Assess contemporary population issues such as overpopulation, underpopulation, optimum population, and ageing population.

CO5: Analyze the determinants and implications of population dynamics and evaluate population policies in selected countries.

ILO 5.1 Explain the concepts and measures of fertility, mortality, and migration.

ILO 5.2 Analyze the determinants and socio-economic implications of population dynamics.

ILO 5.3 Compare the population policies of China and India and their objectives.

CO6: Apply quantitative and cartographic techniques for the analysis and representation of population data.

ILO 6.1 Construct and interpret line graphs showing trends of population growth.

ILO 6.2 Prepare thematic maps such as dot maps, multiple dot maps, sphere diagrams, and choropleth maps.

ILO 6.3 Analyze population inequality and concentration using Lorenz Curve and Location Quotient

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1		CO2, CO3	CO4, CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	S	S	M	M		M		
CO4	M	S	M	M		S	M	
CO5	M	S		M		S	M	
CO6	M	M	S	S	S	M		M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Ahmed, A., et. al, 1997: Demographic Transition: The Third World Scenario, Rawat Publications, Jaipur and New Delhi
2. Bhende A. And Kanitkar T., 2000: Principles of Population Studies, Himalaya Publication, New Delhi
3. Chandna, R. C.,2014: Geography of Population: Concepts, Determinants and Patterns, Kalyani Publishers.
4. Clarke, J.I., 1965: Population Geography, Pergamon Press, Oxford.
5. Husain Majid,2021: Human Geography, 6th ed. Rawat Publications. Jaipur, New Delhi, Bengaluru, Guwahati, Kolkata.
6. Jones, H.R.,2000: Population Geography, 3rd ed. Paul Chapman, London.
7. Sundaram, K. V. and Nangia, S.,(eds): Population Geography, Heritage Publishers, New Delhi. Inc., New York.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 4TH SEMESTER**

Title of the Course	:	POLITICAL GEOGRAPHY
Course Code	:	GGRC6
Nature of The Course	:	MAJOR
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End Sem) (45T+15P) + 30 (In-Sem)

Course Description

Political Geography examines the spatial organization of political processes, territorial structures, and geopolitical relations. The course explores the geographical attributes of states, geopolitical theories, electoral geography, and resource conflicts, while developing cartographic and analytical skills to interpret political boundaries, territorial changes, and spatial dimensions of political power.

Course Objectives

- To introduce the conceptual foundations and approaches of Political Geography.
- To examine the geographical attributes and territorial organization of the state and nation.
- To analyze major geopolitical theories and their relevance in global politics.
- To understand electoral geography and spatial dimensions of political behaviour and conflicts.
- To develop practical skills in mapping political boundaries, territorial changes, and geopolitical indices.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Conceptual Basis of Political Geography	a. Concept, Nature, Scope and approaches to Political Geography. b. State: Concept, elements; Geographical attributes of state: size, shape, location. c. Nation: Concept, nation building factors, nation state d. Frontier: Concept and types; Boundary: Concept, functions, types, classification.	13	2	-	15
2 (15 Marks)	Geopolitical Theories	a. Geopolitics: Concept and its evolution. b. Geostrategic Theories of Mahan, Mackinder and Spykman.	13	2	-	15
3 (15 Marks)	Electoral Studies in Geography and Resource Disputes	a. Electoral Geography: Concept and its importance in geography. b. Factors influencing voting behaviour c. Gerrymandering d. Water Sharing Disputes: International (India, Pakistan and Bangladesh)	13	2	-	15
4 (15 Marks)	Practical	a. Map of reorganization of North East India (1951, 1971, 1991) b. Shape Index by Chorley and Haggett method: India (Pre-Independent and Post-		4	26	30

		Independent), Chile and France. c. Map showing the territory of the major Autonomous Councils of Assam.				
		TOTAL	39	10	26	75
	<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>		

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examination** -
- **Others (Any one)** -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate
- **Practical** 10 Marks

20 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the conceptual basis, nature, scope, and approaches of Political Geography and interpret its relevance in geographical studies.

ILO 1.1 Define Political Geography and explain its nature, scope, and major approaches.

ILO 1.2 Examine the relationship between politics, territory, and geographical space.

ILO 1.3 Interpret the significance of Political Geography in understanding spatial political processes.

CO2: Analyze the geographical attributes of the state and the concepts of nation, nation-state, frontiers, and boundaries.

ILO 2.1 Explain the concept and elements of the state and analyze geographical attributes such as size, shape, and location.

ILO 2.2 Describe the concepts of nation, nation-building factors, and nation-state formation.

ILO 2.3 Classify different types of frontiers and political boundaries and explain their functions.

CO3: Evaluate the evolution of geopolitics and the major geostrategic theories that explain global political power relations.

ILO 3.1 Explain the concept and evolution of geopolitics.

ILO 3.2 Describe the major geostrategic theories of Mahan, Mackinder, and Spykman.

ILO 3.3 Assess the relevance of classical geopolitical theories in contemporary global politics.

CO4: Analyze spatial patterns of electoral processes and the geographical determinants of voting behaviour.

ILO 4.1 Explain the concept and significance of electoral geography.

ILO 4.2 Identify the major social, economic, and geographical factors influencing voting behaviour.

ILO 4.3 Interpret the concept and implications of gerrymandering in electoral politics.

CO5: Examine geopolitical dimensions of resource disputes with particular reference to transboundary water conflicts.

ILO 5.1 Explain the geographical basis of resource conflicts and water sharing disputes.

ILO 5.2 Analyze the transboundary water disputes involving India, Pakistan, and Bangladesh.

ILO 5.3 Evaluate the political and geographical implications of shared river resources.

CO6: Apply cartographic and quantitative techniques to analyze political territories, boundary changes, and geopolitical indices.

ILO 6.1 Prepare maps showing the reorganization of North-East India across different periods.

ILO 6.2 Calculate and interpret Shape Index using the Chorley and Haggett method for selected countries.

ILO 6.3 Prepare thematic maps showing the territories of major Autonomous Councils of Assam.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO4	CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	S	S	M	M		M		
CO4	M	S	M	M		S	M	
CO5	M	S		M		S	M	
CO6	M	M	S	S	S	M		M

Where, S: Strong correlation

M: Medium correlation

Suggested Reading:

1. Adhikari, Sudipta: Political Geography, Rawat Publication, New Delhi.
2. Adhikari, Sudipta: Political Geography of India, Sarda Pushtak Bhawan,
3. Cox, K.,2002: Political Geography, Wiley Blackwell
4. Dikshit, R.D. (1999): Political Geography, A Contemporary Perspectives, Tata McGrow, Hill, New Delhi.
5. Hazarika, Joysankar, (1996) Geopolitics of North East India- A Strategical Study. Gyan Publishing House, New Delhi.
6. Muir, R. (1976): Modern Political Geography, MacMillan, London.
7. Taylor, Peter (1985): Political Geography

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 4TH SEMESTER**

TITLE OF THE COURSE	: STATISTICAL METHODS IN GEOGRAPHY
COURSE CODE	: GGRC7
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS (3+1)
DISTRIBUTION OF MARKS	: 60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description

Statistical Methods in Geography introduces quantitative techniques used for the analysis and interpretation of geographical data. The course covers statistical concepts, data measurement scales, measures of central tendency and dispersion, sampling techniques, correlation and regression analysis, and develops practical skills in graphical representation and statistical mapping of geographical data.

Course Objectives

- To introduce the significance and application of statistical methods in geographical analysis.
- To familiarize students with the nature, sources, and measurement scales of geographical data.
- To develop understanding of statistical techniques such as measures of central tendency, dispersion, correlation, and regression.
- To train students in sampling techniques and statistical interpretation of geographical phenomena.
- To develop practical skills in statistical computation, graphical representation, and spatial visualization of data.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Statistical Methods	d) Statistical methods in Geography-its significance and limitations. e) Geographical Data: Nature, types and sources. f) Scale of measurement- Nominal, Ordinal, Interval and Ratio.	10	3	-	13
2 (15 Marks)	Measures of Central Tendency and Dispersion	a. Central tendency: Mean, median (partitioned values) and mode. b. Dispersion: Range, quartile deviation, mean deviation, standard deviation and coefficient of variation- their application in geographical data analysis. c. Introduction to skewness and kurtosis	13	3	-	16
3 (15 Marks)	Data collection techniques and analysis	a. Sampling and its types: Purposive, random, systematic and stratified. b. Correlation:(Spearman's and Pearson's correlation.) c. Regression analysis: Simple regression and Residuals from regression.	13	3	-	16

4 (15 Marks)	Practical on statistical methods	a. Tabulation/Grouping of data for preparing frequency distribution table, preparation of Histogram, Frequency Polygon and Frequency Curve. b. Computation of mean, median and mode (grouped and ungrouped data) and their graphical representation. c. Preparation of scatter diagram and fitting the line of linear regression of Y on X for a set of bi-variate data; residual map. d. Variability map using co-efficient of variation.	2	28	30			
TOTAL			36	11	28	75		
<i>Where,</i>			<i>L: Lectures</i>		<i>T: Tutorials</i>		<i>P: Practicals</i>	

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examination - 20 Marks**
- **Others (Any one) - 10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate
- **Practical 10 Marks**

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the significance, nature, and application of statistical methods and measurement scales in geographical data analysis.

ILO 1.1 Explain the importance and limitations of statistical methods in geography.

ILO 1.2 Identify the nature, types, and sources of geographical data.

ILO 1.3 Distinguish between nominal, ordinal, interval, and ratio scales of measurement.

CO2: Analyze geographical data using appropriate measures of central tendency.

ILO 2.1 Explain the concepts of mean, median, and mode in statistical analysis.

ILO 2.2 Compute measures of central tendency for grouped and ungrouped geographical data.

ILO 2.3 Interpret the significance of these measures in summarizing spatial data patterns.

CO3: Evaluate variability and distribution patterns in geographical data using statistical measures of dispersion.

ILO 3.1 Explain statistical measures of range, quartile deviation, mean deviation, standard deviation, and coefficient of variation.

ILO 3.2 Analyze the degree of variability in geographical datasets using dispersion measures.

ILO 3.3 Interpret skewness and kurtosis to understand data distribution patterns.

CO4: Apply sampling techniques for efficient data collection and representation in geographical studies.

ILO 4.1 Explain the concept and importance of sampling in geographical research.

ILO 4.2 Differentiate between purposive, random, systematic, and stratified sampling methods.

ILO 4.3 Select appropriate sampling techniques for geographical field investigations.

CO5: Analyze relationships between geographical variables using correlation and regression techniques.

ILO 5.1 Explain the concept of correlation and coefficient of correlation.

ILO 5.2 Compute Spearman's rank correlation and Pearson's product moment correlation.

ILO 5.3 Interpret simple regression analysis and residuals in geographical data analysis.

CO6: Apply statistical and graphical techniques to organize, analyze, and represent geographical data.

ILO 6.1 Prepare frequency distribution tables, histograms, frequency polygons, and frequency curves.

ILO 6.2 Construct scatter diagrams and regression lines for bivariate data analysis.

ILO 6.3 Prepare variability and residual maps using statistical measures.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1		CO2, CO3	CO4, CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M	M			
CO2	S	S		M	M			
CO3	S	S		M	M			
CO4	M	S	S	M	M			
CO5	M	S	M	S	S			
CO6	M	M	S	S	S			M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Mahmood A.,1999, Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
2. Berry B.J.L. and Marble D.F. (eds): Spatial Analysis-A Reader in Geography.

3. Hammond P. and McCullagh P.S., 1978: Quantitative Techniques in Geography: An Introduction, Oxford University Press.
4. Sarkar, A., (2013) Quantitative Geography. Techniques and Presentations. Orient Black Swan Private Ltd., New Delhi.
5. Elhance, D.N., 1972: Fundamentals of Statistics, Kitab Mahal, Allahabad.
6. King L, S., 1969: Statistical Analysis in Geography, Prentice Hall.
7. Yeates M.,1974: An Introduction to Quantitative Analysis in Human Geography, McGraw Hills, New York.
8. Gregory, S., 1963: Statistical Methods and Geographers, Longman, London.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 4TH SEMESTER**

Title of the Course	:	BIOGEOGRAPHY
Course Code	:	GGRC8
Nature of The Course	:	MAJOR
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End Sem) (45T+15P) + 40 (In-Sem)

Course Description

Biogeography examines the spatial distribution of plants and animals and the ecological and environmental factors influencing their patterns. The course explores ecological principles, biogeographical realms, biodiversity hotspots, and conservation strategies while developing practical skills in mapping biodiversity patterns and protected areas to understand sustainable management of biological resources.

Course Objectives

- To introduce the basic concepts, nature, and scope of biogeography and its interdisciplinary linkages.
- To understand ecological principles and environmental factors influencing the distribution of flora and fauna.
- To examine global and regional biogeographical realms and biodiversity hotspots.
- To analyze the causes and consequences of biodiversity loss and species extinction.
- To develop practical skills in mapping biogeographical regions, protected areas, and biodiversity hotspots.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to biogeography	a. Definition, Nature, and Scope of Biogeography b. Approaches to Biogeography: Ecological and Historical c. Relationship of Biogeography with Other Disciplines d. Factors Influencing the Distribution of Plants and Animals	10	5		15
2 (15 marks)	Physical and Ecological Foundations	a. Ecological Principles: Food Chain, Food Web, and Ecological Pyramids b. Concepts of Habitat, Ecological Niche, and Biomes c. Role of Climate and Soil in Biogeographic Patterns	10	5		15
3 (15 marks)	Biogeographical Realms and Conservation and Sustainable Development	a. Major Biogeographical Realms and Regions of the World b. Zoogeographical and Phytogeographical Regions of India c. Endemism and Biodiversity Hotspots d. Strategies for Biodiversity Conservation and Sustainable Development	10	5		15

4 (15 marks)	Practical	a. Mapping of protected areas (National Park, biosphere reserve and wildlife sanctuary) of India. b. Mapping of zoogeographic regions of the world. c. Mapping of Biodiversity hotspots of the world and India.			30	30
		Total	30	15	30	75

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

Internal Examination -(2 Exam)

(40 Marks)

(30Marks)

Internal Assessment (Assignments, Seminars, Presentation)

(10 Marks)

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the conceptual framework, nature, and scope of biogeography and analyze the factors influencing the distribution of plants and animals.

ILO 1.1 Define biogeography and explain its nature, scope, and significance in geographical studies.

ILO 1.2 Distinguish between ecological and historical approaches to biogeography.

ILO 1.3 Analyze the environmental and geographical factors influencing the distribution of flora and fauna.

CO2: Examine ecological processes and environmental factors that shape the spatial patterns of ecosystems and biomes.

ILO 2.1 Explain ecological concepts such as food chain, food web, and ecological pyramids.

ILO 2.2 Describe the concepts of habitat, ecological niche, and biomes.

ILO 2.3 Analyze the role of climate and soil in determining biogeographical patterns.

CO3: Analyze global and regional patterns of plant and animal distribution through the study of major biogeographical realms and regions.

ILO 3.1 Identify the major biogeographical realms and regions of the world.

ILO 3.2 Explain the zoogeographical and phytogeographical regions of India.

ILO 3.3 Interpret spatial patterns of biodiversity across different biogeographical regions.

CO4: Evaluate the significance of biodiversity, endemism, and conservation strategies for sustainable environmental management.

ILO 4.1 Explain the concepts of endemism and biodiversity hotspots.

ILO 4.2 Assess the importance of biodiversity conservation for ecological balance.

ILO 4.3 Evaluate strategies for biodiversity conservation and sustainable development.

CO5: Analyze the causes and consequences of species extinction and the impact of human activities on biodiversity.

ILO 5.1 Explain the causes and consequences of species extinction.

ILO 5.2 Analyze the effects of deforestation, habitat destruction, and urbanization on biodiversity.

ILO 5.3 Evaluate the impact of climate change on biological diversity.

CO6: Apply cartographic techniques to represent biogeographical regions, biodiversity hotspots, and protected areas.

ILO 6.1 Prepare maps showing the protected areas of India including national parks, biosphere reserves, and wildlife sanctuaries.

ILO 6.2 Map the zoogeographical regions of the world.

ILO 6.3 Map and interpret biodiversity hotspots of the world and India.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3	CO4, CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		S		
CO2	S	S		M		S		
CO3	S	S		M		S		
CO4	M	S		M		S	S	
CO5	M	S		S		S	S	
CO6	M	M	S	S	M			M

Where, S: Strong correlation

M: Medium correlation

Suggestive Readings:

1. Clarke, G. L. (1967). *Elements of ecology*. New York, USA: John Wiley Pub.
2. Haden-Guest, S., Wright, J. K. and Teclaff, E. M. (1956). *World Geography of Forest Resources*. New York, USA: Ronald Press Co.
3. Mathur, H.S. (1998). *Essentials of Biogeography*. Jaipur, India: Anuj Printers.
4. Singh, Savindra. (2015). *Paryawaran Bhoogol (Hindi)*. Allahabad, India: Prayag Pushtak Bhawan.
5. Sivaperuman, Chandrakasan et al. (2018). *Biodiversity and Climate Change Adaptation in Tropical Islands*. London, UK: Academic Press.

GEOGRAPHY PROGRAMME (FYIPGP)

DETAILED SYLLABUS OF 4TH SEMESTER

TITLE OF THE COURSE :GEOGRAPHY OF RESOURCES AND ECONOMIC DEVELOPMENT

COURSE CODE : MINGGR4

NATURE OF THE COURSE :MINOR

TOTAL CREDITS :4 CREDITS (3+1)

DISTRIBUTION OF MARKS :60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description

This course examines the geographical dimensions of natural resources and their role in economic development. It explores the classification and distribution of resources, resource–development relationships, global energy and mineral resources, technological influences on resource use, and regional disparities in development, while developing practical skills in mapping and analyzing development indicators.

Course Objectives

- To introduce the concept, classification, and functional significance of resources in economic development.
- To examine the spatial distribution and utilization of major natural resources in the world.
- To analyze the relationship between resource availability, technological development, and economic growth.
- To understand global patterns of development and regional disparities between developed and developing countries.
- To develop practical skills in analyzing development indicators and preparing thematic maps related to resources.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Geography of Resources and Economic Development	a: Concept of resource; Relationship between resource- base and Economic development b: Classification and characteristics of resources. c. Functional theory of resource.	12	2	-	14
2 (15 Marks)	Natural Resources	a. Global distribution of mineral and power Resources. (iron, copper, aluminum, gold, coal, oil, natural gas, wind power and hydro power) b. Role of Technology in Resource utilization. c. Conservation of Natural Resources	14	2	-	16
3 (15 Marks)	Economic Development	a. Characteristics of Economic Growth and Development b. Economy of Developed and Developing countries. c. Regional Disparities in terms of Development- causes and Remedies.	12	3	-	15

4 (15 Marks)	Practical	a. Determination of levels of development in India/North-East India/Assam based on few development indicators using simple/mean ranking method. c. Preparation of thematic map of Assam/North East India (e.g. Wildlife sanctuaries/national parks, mineral and power resources,)		2	28	30
TOTAL			38	9	28	75
<i>Where,</i>		<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>		

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examination - 20 Marks**
- **Others (Any one) - 10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate
- **Practical 10 Marks**

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concept, classification, and functional significance of resources and analyze their relationship with economic development.

ILO 1.1 Define the concept of resource and explain its significance in geographical studies.

ILO 1.2 Classify resources and describe their characteristics and types.

ILO 1.3 Explain the functional theory of resources and the relationship between resource base and economic development.

CO2: Analyze the global distribution and economic significance of major natural resources.

ILO 2.1 Describe the global distribution of land, water, forests, and mineral resources.

ILO 2.2 Analyze the spatial distribution of major mineral and power resources such as iron, copper, coal, oil, natural gas, wind, and hydropower.

ILO 2.3 Evaluate the contribution of natural resources to economic development.

CO3: Evaluate the role of technology, environmental assessment, and conservation strategies in the sustainable utilization of natural resources.

ILO 3.1 Explain the role of technology in resource utilization and management.

ILO 3.2 Describe the concept of development and rational use of resources including Environmental Impact Assessment (EIA).

ILO 3.3 Assess strategies for the appraisal and conservation of natural resources.

CO4: Examine the geographical patterns of economic development and the characteristics of developed and developing economies.

ILO 4.1 Explain the characteristics of economic growth and development.

ILO 4.2 Compare the economic structure of developed and developing countries.

ILO 4.3 Identify major patterns of global economic development.

CO5: Analyze contemporary issues related to resource use, energy crises, and regional disparities in development.

ILO 5.1 Explain the causes and implications of the global energy crisis.

ILO 5.2 Evaluate strategies for energy mitigation and management.

ILO 5.3 Analyze the causes and remedies of regional disparities in development.

CO6: Apply quantitative and cartographic techniques to analyze spatial patterns of development and resource distribution.

ILO 6.1 Determine levels of development using simple or mean ranking methods based on development indicators.

ILO 6.2 Prepare maps showing spatial variation of forest cover categories in Assam/North-East India.

ILO 6.3 Prepare thematic maps showing distribution of wildlife sanctuaries, national parks, and mineral or power resources.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO4	CO3, CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	S		
CO4	M	S		M		M		
CO5	M	S		M		S	M	
CO6	M	M	S	S	S			M

Where, S: Strong correlation

M: Medium correlation

Suggested Reading:

1. Cutter S. N., Renwick H. L. and Renwick W., 1991: *Exploitation, Conservation and Preservation: A Geographical Perspective on Natural Resources Use*, John Wiley and Sons, New York.
2. Gadgil M. and Guha R., 2005: *The Use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity*, Oxford University Press. USA.
3. Holechek J. L. C., Richard A., Fisher J. T. and Valdez R., 2003: *Natural Resources: Ecology, Economics and Policy*, Prentice Hall, New Jersey.
4. Jones G. and Hollier G., 1997: *Resources, Society and Environmental Management*, Paul Chapman, London.
5. Klee G., 1991: *Conservation of Natural Resources*, Prentice Hall, Englewood.
6. Mather A. S. and Chapman K., 1995: *Environmental Resources*, John Wiley and Sons, New York.
7. Mitchell B., 1997: *Resource and Environmental Management*, Longman Harlow, England.
8. Owen S. and Owen P. L., 1991: *Environment, Resources and Conservation*, Cambridge University Press, New York.
9. Rees J., 1990: *Natural Resources: Allocation, Economics and Policy*, Routledge. London.
10. Gilg A. W., 1985: *An Introduction to Rural Geography*, Edwin Arnold, London.
11. Krishnamurthy, J. 2000: *Rural Development - Problems and Prospects*, Rawat Publish., Jaipur
12. Lee D. A. and Chaudhri D. P. (eds.), 1983: *Rural Development and State*, Methuen, London.
13. Misra R. P. and Sundaram, K. V. (eds.), 1979: *Rural Area Development: Perspectives and Approaches*, Sterling, New Delhi.
14. 7. Ramachandran H. and Guimaraes J.P.C., 1991: *Integrated Rural Development in Asia – Learning from Recent Experience*, Concept Publishing, New Delhi.
15. Robb P. (ed.), 1983: *Rural South Asia: Linkages, Change and Development*, Curzon Press.
16. Agyeman, Julian, Robert D. Bullard and Bob Evans (Eds.) (2003) *Just Sustainability's: Development in an Unequal World*. London: Earthscan. (Introduction and conclusion.).
17. Ayers, Jessica and David Dodman (2010) "Climate change adaptation and development I: the state of the debate". *Progress in Development Studies* 10 (2): 161-168.

SEMESTER V

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 5TH SEMESTER**

TITLE OF THE COURSE	:	REGIONAL GEOGRAPHY OF WORLD
COURSE CODE	:	GGRC9
NATURE OF THE COURSE	:	MAJOR
TOTAL CREDITS	:	4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	:	60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description:

Regional Geography of the World examines the spatial characteristics of major world regions through the study of their physical environment, resources, population, and economic activities. The course introduces the concept of regions and regional classification while analysing continental physiography, climate, and resource-based industries with practical training in thematic mapping.

Course Objectives:

- To introduce the concept, scope, and approaches of regional geography.
- To understand the physical and environmental characteristics of major world regions.
- To examine the relationship between resource distribution and regional economic activities.
- To analyze regional variations in population and development across the world.
- To develop practical skills in thematic mapping and regional analysis.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction	a. Meaning and scope of Regional Geography-Concept of Region, Realms, b. Bases of classifying geographic regions of the world- Formal & Functional.	13	2		15
2 (15 marks)	Asia, Africa, and Europe	a. Physiography: Relief and Drainage b. Soil and Climate c. Natural Vegetation d. Agriculture and Industry	13	2		15
3 (15 marks)	North and South America and Australia	a. Physiography: Relief and Drainage b. Soil and Climate c. Natural Vegetation d. Agriculture and Industry	13	2		15
2 (15 marks)	Practical	a. Thematic mapping (World and India): Soil, climate, vegetation, agriculture and industry.		2	28	30
TOTAL			39	8	28	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examination** - **30 Marks**
- **Others (Any one)** - **10 Marks**
 - Group Discussion

- Seminar presentation on any of the relevant topics
- Debate
- Home Assignment

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concept, scope, and classification of regions in regional geography.

ILO 1.1 Define the concept of **region and regional geography** and explain its significance in geographical studies.

ILO 1.2 Describe the **concept of realms and the United Nations geo-scheme** for regional classification.

ILO 1.3 Distinguish between **formal and functional regions** and their bases of classification.

CO2: Analyze the physiographic and climatic characteristics of major continents of the world.

ILO 2.1 Describe the **relief and drainage patterns** of major continents.

ILO 2.2 Explain the **soil and climatic characteristics** of different world regions.

ILO 2.3 Analyze the distribution of **natural vegetation** in relation to physical conditions.

CO3: Examine the regional patterns of agriculture and industrial development across major continents.

ILO 3.1 Describe the major **agricultural practices and land-use patterns** of different regions.

ILO 3.2 Analyze the spatial distribution of **industrial activities across world regions**.

ILO 3.3 Explain the relationship between **physical environment and economic activities**.

CO4: Evaluate the global distribution of mineral resources and their role in industrial development.

ILO 4.1 Identify the global distribution of major **mineral resources such as coal, petroleum, and natural gas**.

ILO 4.2 Analyze the spatial patterns of major industries such as **iron and steel, textile, and engineering industries**.

ILO 4.3 Explain the emergence of **knowledge and technology-based industries** including information technology and telecommunications.

CO5: Analyze global patterns of population distribution and regional socio-economic issues.

ILO 5.1 Explain the **distribution of world population** and major population concentration areas.

ILO 5.2 Compare the **population growth patterns in developed and developing countries**.

ILO 5.3 Analyze regional characteristics of selected regions such as **the Middle East, Southeast Asia, and the Mediterranean**.

CO6: Apply cartographic techniques to represent spatial patterns of population, resources, and economic activities.

ILO 6.1 Prepare thematic maps showing **global distribution of soil, climate, vegetation, agriculture, and industries**.

ILO 6.2 Map the **distribution of world population** and interpret regional patterns.

ILO 6.3 Prepare regional thematic maps for **selected regions and their resource bases**.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO5	CO4	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M				

CO2	S	S		M		M		
CO3	S	S		M		M		
CO4	M	S		M		M		
CO5	M	S		M		M	M	
CO6	M	M	S	S	S			M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Manku, D.S.: A Regional Geography of World, Kalyani Publishers
2. Gautam, A: World Geography, Sarda Pushtak Bhawan, Allahabad
3. Bradshaw, M: World Regional Geography
4. Gourou, P. (1980): The Tropical World, Longman, London

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 5TH SEMESTER**

TITLE OF THE COURSE	:	SOIL GEOGRAPHY
COURSE CODE	:	GGRC10
NATURE OF THE COURSE	:	MAJOR
TOTAL CREDITS	:	4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	:	60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description:

Soil Geography examines the formation, characteristics, classification, and spatial distribution of soils and their role in environmental processes and land use. The course explores soil-forming factors, physical, chemical and biological properties of soils, soil degradation processes, and practical techniques for soil analysis, mapping, and soil survey methods.

Course Objectives:

- To introduce the concept, scope, and significance of Soil Geography in geographical studies.
- To understand soil-forming factors, processes of soil development, and soil profile characteristics.
- To examine the physical, chemical, and biological properties of soils.
- To analyze the classification and spatial distribution of soils at global and national levels.
- To develop practical skills in soil survey, soil testing, erosion estimation, and soil mapping.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to Soil Geography	a) Nature and scope of soil geography. b) Soil formation factors (parent material, flora and fauna, climatic and topographic) and processes of soil formation and soil development (physical, biotic and chemical). c) Soil profile and its characteristics (zonal, azonal and intra zonal soils).	10	5		15
2 (15 marks)	Soil Properties	a) Physical properties of soils: morphology, (texture, structure, colour, porosity and permeability), water, air and temperature. b) Chemical properties of soils: soils reaction and controlling factors, soil clays, organic matter and humus. c) Biological properties of soils (soil organisms).	10	5		15
3 (15 marks)	Soil Classification	a) Soil classification: genetic, taxonomic and 7th Approximation and ICAR, their characteristics and world patterns. b) Soil erosion and degradation processes	10	5		15
4 (15 marks)	Practical	a) Soil survey using Grid survey/Free survey/Physiographic survey methods. b) pH and moisture testing of soil (multiple sites) c) Prepare soil map of India/Assam		2	28	30
		TOTAL	30	17	28	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examination** - **30 Marks**
- **Others (Any one)** - **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concept, nature, and scope of soil geography and analyze the factors and processes involved in soil formation.

ILO 1.1 Define Soil Geography and explain its nature and scope in geographical studies.

ILO 1.2 Explain the factors influencing soil formation including parent material, climate, flora and fauna, and topography.

ILO 1.3 Describe the processes of soil formation and development including physical, biotic, and chemical processes.

CO2: Analyze soil profiles and major soil-forming processes influencing soil development under different environmental conditions.

ILO 2.1 Describe the soil profile and its horizons and explain their characteristics.

ILO 2.2 Analyze the development of soil profiles under different environmental conditions.

ILO 2.3 Explain the major soil-forming processes influencing soil development.

CO3: Examine the physical, chemical, and biological properties of soils and their influence on soil behaviour and fertility.

ILO 3.1 Describe the physical properties of soils such as texture, structure, colour, porosity, and permeability.

ILO 3.2 Explain the chemical properties of soils including soil reaction (pH), organic matter, clay minerals, and humus.

ILO 3.3 Examine the biological properties of soils, particularly the role of soil organisms.

CO4: Analyze different concepts and methods of soil classification and their spatial distribution.

ILO 4.1 Explain the concepts and methods of soil classification.

ILO 4.2 Describe the major soil types and their global distribution patterns.

ILO 4.3 Analyze the distribution of major soil groups in India.

CO5: Evaluate soil degradation processes and their implications for environmental sustainability.

ILO 5.1 Explain the processes of soil erosion and soil degradation.

ILO 5.2 Assess the causes and environmental consequences of soil degradation.

ILO 5.3 Evaluate strategies for soil conservation and sustainable soil management.

CO6: Apply practical techniques for soil analysis, soil survey, and soil mapping.

ILO 6.1 Estimate soil erosion using USLE and RUSLE methods.

ILO 6.2 Conduct soil surveys using grid, free, and physiographic survey methods.

ILO 6.3 Perform soil pH and moisture testing and prepare soil maps of India or Assam.

Cognitive Map of Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO4	CO5	
Procedural			CO6			

Metacognitive							
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Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	S	S		M		M		
CO4	S	S		M		M		
CO5	M	S		M		S	M	
CO6	M	M	S	S	M			M

Where, S = Strong correlation M = Medium correlation

Suggestive Readings

1. Backman, H.O and Brady, N.C. 1960: The Nature and Properties of Soils, Mc Millan New York,
2. Bennet, Hugh H.: Soil Conservation, McGraw Hill, New York .
3. Bunting, B.T. 1973: The Geography of Soils, Hutchinson, London,
4. Clarke G.R. 1957: Study of the Soil in the Field, Oxford University Press, Oxford,
5. Foth H.D. and Turk, L.M 1972.: Fundamentals of Soil science, John Wiley, New York,
6. Govinda Rajan, S.V. and Gopala Rao, H.G. 1978: Studies on Soils of India Vikas, New Delhi,
7. Mc. Bride, M.B. 1999: Environmental Chemistry of Soils, Oxford University Press, New York.
8. Nye, P.H. and Greene, D.J. 1960: The Soil under Shifting Cultivation Commonwealth Bureau of Soil Science, Technical Communication, No. 51; Harpenden, England,
9. Raychoudhuri, S.P. 1958: Soils of India, ICAR, New Delhi,
10. Russell, Sir Edward J. 1961: Soil Conditions and Plant Growth, Wiley, New York

GEOGRAPHY PROGRAMME
DETAILED SYLLABUS OF 5TH SEMESTER

TITLE OF THE COURSE	:	AGRICULTURAL GEOGRAPHY
COURSE CODE	:	GGRC11
NATURE OF THE COURSE	:	MAJOR
TOTAL CREDITS	:	4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	:	60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description:

Agricultural Geography examines the spatial patterns, determinants, and development of agricultural systems across the world. The course explores the origin and dispersal of agriculture, agricultural models and regional systems, food security issues, and sustainable agricultural development, while developing practical skills in analysing agricultural data and mapping food security indicators.

Course Objectives:

- To introduce the nature, scope, and theoretical foundations of Agricultural Geography.
- To understand the origin, diffusion, and regional patterns of agricultural practices.
- To analyze the physical, socio-economic, and technological determinants of agriculture.
- To examine agricultural development, food security issues, and sustainable agriculture.
- To develop practical skills in agricultural analysis, ergograph construction, and thematic mapping.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction	a) Nature, scope, significance and Development of Agricultural Geography b) Origin and Dispersal of Agriculture c) Approaches: Empirical (Inductive) and Normative (Deductive), Commodity, Systematic, Regional, Deterministic d) Von Thunnen's and Whittlesey's Theories. e) Agricultural practices in ancient India.	13	2		15
2 (15 marks)	Factors Affecting Agriculture	a) Factors affecting Agriculture: Physical: Topography, climate and soil, Economic factors, Institutional, Socio-cultural and Technological factors b) Agricultural Regions of India: Agro-climatic, Agro-ecological & Crop Combination Regions.	13	2		15
3 (15 marks)	Agricultural Development and Food Security	a) Concept and relevance of Sustainable Agriculture b) Agricultural Revolutions in India: Green, White, Blue, Pink c) Food Security: Concept and dimensions, d) Food security in India: Challenges, Programmes and Policy	13	2		15

4 (15 marks)	Practical	a) Construction of Ergograph b) Measurement of food security using different methods: Household Food Insecurity Access Scale (HFIAS)/Household Food Security Survey Module (HFSSM)/Dietary Diversity and Consumption Scores. c) Thematic mapping based on Global Hunger Index.		2	28	30
		TOTAL	39	8	28	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examination** - **30 Marks**
- **Others (Any one)** - **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the conceptual foundations and historical development of Agricultural Geography.

ILO 1.1 Define Agricultural Geography and explain its nature, scope, and significance.

ILO 1.2 Describe the origin and dispersal of agriculture and agricultural practices in ancient India.

ILO 1.3 Explain the major approaches in agricultural geography, including empirical, normative, commodity, systematic, regional, and deterministic approaches.

CO2: Analyze major agricultural theories and models explaining spatial patterns of agriculture.

ILO 2.1 Explain Von Thünen's theory of agricultural land use.

ILO 2.2 Describe Whittlesey's classification of agricultural systems.

ILO 2.3 Explain Jonasson's locational model and its significance in agricultural geography.

CO3: Examine the determinants influencing agricultural distribution and regional agricultural systems.

ILO 3.1 Analyze the physical factors affecting agriculture including climate, soil, and topography.

ILO 3.2 Explain the role of socio-economic, institutional, technological, and socio-cultural factors in agricultural development.

ILO 3.3 Describe the agricultural regions of India including agro-climatic, agro-ecological, and crop combination regions.

CO4: Evaluate agricultural development, land carrying capacity, and sustainable agricultural practices.

ILO 4.1 Explain the concept of land carrying capacity and agricultural combinations.

ILO 4.2 Assess the concept and relevance of sustainable agriculture in modern agricultural systems.

ILO 4.3 Evaluate the significance of agricultural revolutions in India including Green, White, Blue, and Pink revolutions.

CO5: Analyze the concept, dimensions, and challenges of food security with reference to India.

ILO 5.1 Explain the concept and dimensions of food security.

ILO 5.2 Analyze the major challenges affecting food security in India.

ILO 5.3 Evaluate government programmes and policies related to food security and agricultural development.

CO6: Apply quantitative and cartographic techniques for analyzing agricultural production and food security.

ILO 6.1 Construct ergographs to represent agricultural production patterns.

ILO 6.2 Measure food security using tools such as HFIAS, HFSSM, and dietary diversity scores.

ILO 6.3 Prepare thematic maps based on indicators such as the Global Hunger Index.

Cognitive Map of Course Outcomes With Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3	CO4, CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	S	S		M		M		
CO4	M	S		M		S	M	
CO5	M	S		M		S	M	
CO6	M	M	S	S	M			M

Where, S = Strong correlation M = Medium correlation

Suggestive Reading:

1. Basu, D.N., and Guha, G.S., 1996: Agro-Climatic Regional Planning in India, Vol.I& II, Concept Publication, New Delhi.
2. Bryant, C.R., Johnston, T.R, 1992: Agriculture in the City Countryside, Belhaven Press, London.
3. Burger, A., 1994: Agriculture of the World, Aldershot, Avebury.
4. Grigg, D.B., 1984: Introduction to Agricultural Geography, Hutchinson, London.
5. Ilbery B. W., 1985: Agricultural Geography: A Social and Economic Analysis, Oxford University Press.
6. Mohammad, N., 1992: New Dimension in Agriculture Geography, Vol. I to VIII, Concept Pub., New Delhi.
7. Roling, N.G., and Wageruters, M.A.E.,(ed.) 1998: Facilitating Sustainable Agriculture, Cambridge University Press, Cambridge.
8. Shafi, M., 2006: Agricultural Geography, Doring Kindersley India Pvt. Ltd., New Delhi
9. Singh, J., and Dhillon, S.S., 1984: Agricultural Geography, Tata McGraw Hill, New Delhi.
10. Tarrant J. R., 1973: Agricultural Geography, David and Charles, Devon.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 5TH SEMESTER**

TITLE OF THE COURSE	: POPULATION GEOGRAPHY
COURSE CODE	: MINGGRC5
NATURE OF COURSE	: MINOR
TOTAL CREDITS	: 4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	:60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description:

Population Geography examines the spatial distribution, structure, and dynamics of human populations and their socio-economic implications. The course introduces demographic concepts, theories of population growth, migration patterns, and population composition, while developing practical skills in graphical and cartographic representation of population data and demographic patterns.

Course Objectives:

- To introduce the concept, scope, and significance of Population Geography.
- To understand sources of population data and methods of demographic analysis.
- To analyze population dynamics including growth, migration, and population composition.
- To examine major population theories and demographic transition processes.
- To develop practical skills in graphical and cartographic representation of population patterns.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to Population Geography	a. Definition, nature and scope b. Significance and relevance of Population Geography c. Global Pattern of Population Distribution	10	5		15
2. (15 marks)	Population Dynamics	a) Determinants of population growth b) Migration of population (types, causes and consequences) c) Composition of population (Age-Sex and Economic composition)	10	5		15
3. (15 marks)	Concepts and Theories	a) Concepts of over population, under population and optimum population b) Demographic Transition Theory c) Theories of population: Malthus, Ricardo and Marx	10	5		15
4. (15 marks)	Practical	a) Preparation of population growth curves/map of Assam and India b) Preparation of population			30	30

		distribution and density maps of Assam and India c) Age Sex Pyramid for developed and developing countries.				
		TOTAL	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examination - 30 Marks**
- **Others (Any one) - 10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the fundamental concepts, scope, and significance of Population Geography and sources of population data.

ILO 1.1 Define Population Geography and explain its nature and scope.

ILO 1.2 Describe the sources of population data with special reference to the Indian Census.

ILO 1.3 Explain the global pattern of population distribution and its geographical significance.

CO2: Analyze the dynamics of population growth, migration, and population composition.

ILO 2.1 Explain the determinants of population growth.

ILO 2.2 Describe the types, causes, and consequences of migration.

ILO 2.3 Analyze the age-sex and economic composition of population.

CO3: Evaluate major concepts related to population pressure and population-resource relationships.

ILO 3.1 Explain the concepts of overpopulation, underpopulation, and optimum population.

ILO 3.2 Analyze the implications of population-resource relationships.

ILO 3.3 Assess the relevance of these concepts in understanding population problems in different regions.

CO4: Examine the major theories explaining population growth and demographic change.

ILO 4.1 Explain the Demographic Transition Theory.

ILO 4.2 Describe the Malthusian theory of population growth.

ILO 4.3 Compare the population theories proposed by Ricardo and Marx.

CO5: Analyze the determinants and patterns of population distribution at global and national scales.

ILO 5.1 Explain the determinants of population distribution.

ILO 5.2 Analyze the world pattern of population distribution.

ILO 5.3 Examine the patterns and determinants of population distribution in India.

CO6: Apply graphical and cartographic techniques to represent population patterns and demographic structures.

ILO 6.1 Prepare population growth curves for Assam and India.

ILO 6.2 Prepare population distribution and density maps for Assam and India.

ILO 6.3 Construct age-sex pyramids for developed and developing countries.

Cognitive Map of Course Outcomes based on Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
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Factual		CO1				
Conceptual		CO1, CO3		CO2, CO5	CO4	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M		M		
CO4	M	S		M		M		
CO5	S	S		M		M		
CO6	M	M	S	S	M			M

Where, S = Strong correlation M = Medium correlation

Suggested Readings:

1. Barrett H. R., 1995: Population Geography, Oliver and Boyd.
2. Bhende, Asha. A. and Kanitkar, T. (1997): Principles of population studies, Hindustan Publishing House, Mumbai.
3. Chandna R. C. and Sidhu M. S., 1980: An Introduction to Population Geography, Kalyani Publishers.
4. Chandna, R C (2006), JansankhyaBhugol, Kalyani Publishers, Delhi
5. Chandna, R.C. (2013): Geography of Population, Kalyani publishers, New Delhi.
6. Clarke J. I., 1965: Population Geography, Pergamon Press, Oxford.
7. Daniel, P.A. & Hopkinson, M, F.: The Geography of Settlement, Oliver & Boyd, London
8. Hassan, M.I.: Population Geography, Rawat Publications, Jaipur
9. Johnstone, R.J.: Dictionary of Human Geography, Basil Blackwell, Oxford
10. Jones, H. R., 2000: Population Geography, 3rd ed. Paul Chapman, London.
11. Lutz W., Warren C. S. and Scherbov S., 2004: The End of the World Population Growth in the 21st Century, Earthscan
12. Mitra, A. (2004): India's Population, Abhinav Publisher, Nagpur.
13. Newbold K. B., 2009: Population Geography: Tools and Issues, Rowman and Littlefield Publishers.
14. Pacione M., 1986: Population Geography: Progress and Prospect, Taylor and Francis.
15. Shrivastava, O.S. (1996): Demography and Population studies, Vikash Publishing House Ltd, Bhopal.
16. Wilson M. G. A., 1968: Population Geography, Nelson.
17. Yadav, J.P. (2004): Population Geography, Anmol Publication Pvt. Ltd., New Delhi.

SEMESTER VI

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 6TH SEMESTER**

Title of the Course	:	EVOLUTION OF GEOGRAPHIC THOUGHT
Course Code	:	GGRC12
Nature of the Course	:	MAJOR
Total Credits	:	4 Credits
Distribution of Marks	:	60 (End Sem) + 40 (In-Sem)

Course Description:

Evolution of Geographic Thought examines the historical development of geographical ideas, paradigms, and methodological approaches. The course traces the progression of geographical thinking from classical and medieval traditions to modern and postmodern perspectives, highlighting major theories, philosophical debates, and methodological transformations that shaped geography as a scientific discipline.

Course Objectives:

- To introduce the historical development and paradigmatic shifts in geographical thought.
- To examine the contributions of classical, medieval, and modern geographers to the evolution of geography.
- To understand major philosophical debates and dualisms in geographical thought.
- To analyze modern methodological approaches and scientific explanations in geography.
- To explore postmodern developments and emerging trends in contemporary geography.

Units	Name	Contents	L	T	P	Total Hours
1 (15 marks)	Evolution of Geographical Thought	(a) Classical Period: Contributions of Greek, Roman and Indian Geographers. (b) Medieval Period: Arab Geographical Contributions. (c) Modern periods: Evolution of Geography in Germany, France, Britain, United States of America.	16	2		18
2 (15 marks)	Shifting Paradigms	(a) Environmental determinism, Possibilism, Neo-Determinism. (b) Probabilism and Cultural or Social Determinism (c) Areal Differentiation and Spatial/Locational Analysis.	17	2		19
3 (15 marks)	Explanations in Geography	(a) Routes to scientific explanation inductive and deductive. (b) Types of explanations: cognitive description, cause-effect analysis and temporal analysis. (c) System Approaches in Geography.	17	2		19
4 (15 marks)	Contemporary Geographical Thought	(a) Positivism, Behaviouralism and Humanism. (b) Radical Geography, Marxism and Marxist Geography. (c) Postmodernism and Postmodern	17	2		19

		Geographies.				
		Total	67	8	0	75
<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>			

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

30 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the historical evolution of geographical thought and major paradigms in geography.

ILO 1.1 Describe the concept of paradigms in geography and their significance in the evolution of geographical thought.

ILO 1.2 Explain the early origins of geographical thinking during the pre-modern period, including classical and medieval philosophical traditions.

ILO 1.3 Examine the contributions of Greek, Roman, and Indian geographers to the development of geographical knowledge.

CO2: Analyze the development of geographical thought during the medieval and modern periods.

ILO 2.1 Describe the Arab contributions to geographical knowledge during the medieval period.

ILO 2.2 Explain the development of modern geographical thought in Germany, France, Britain, and the United States.

ILO 2.3 Analyze the influence of major geographical traditions on the institutionalization of geography as an academic discipline.

CO3: Examine the major dichotomies and philosophical debates that shaped geographical thought.

ILO 3.1 Explain the concepts of environmental determinism, possibilism, and neo-determinism.

ILO 3.2 Distinguish between major dualisms such as systematic vs. regional, idiographic vs. nomothetic, qualitative vs. quantitative, and physical vs. human geography.

ILO 3.3 Analyze the concepts of probabilism, cultural determinism, areal differentiation, and spatial organization.

CO4: Evaluate modern methodological approaches and scientific explanations in geography.

ILO 4.1 Explain the systems approach and quantitative revolution in geography.

ILO 4.2 Describe the influence of positivism and behavioural approaches on geographical research.

ILO 4.3 Analyze the inductive and deductive routes to scientific explanation and different types of geographical explanations.

CO5: Examine critical and alternative approaches in contemporary geographical thought.

ILO 5.1 Explain the principles of radical geography and Marxist geography.

ILO 5.2 Describe the development of feminist perspectives in geography.

ILO 5.3 Analyze the significance of humanistic and behavioural approaches in understanding spatial behaviour.

CO6: Evaluate postmodern developments and emerging trends in contemporary geography.

ILO 6.1 Explain the development of postmodernism in geography.

ILO 6.2 Analyze the changing concept of space in contemporary geographical thought.

ILO 6.3 Evaluate recent trends and the future directions of geographical research.

Cognitive Map of Course Outcomes based on Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3	CO4, CO5, CO6	
Procedural						
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M				
CO2	S	S		M				
CO3	M	S		M				
CO4	M	S	M	M				
CO5	M	S		M			M	
CO6	M	S		M			M	

Where, S = Strong correlation M = Medium correlation

Suggested Readings:

1. Soja, E.W., (1997), Post Modern geographies, Rawat, New Delhi.
2. Cloke, P., Crang, P., Goodwin, M., (ed) (1999), Introducing Human Geographies, London: Oxford University Press.
3. Harvey, D (1969) Explanation in Geography. London: Arnold.
4. Peet, R., (1998), Modern Geographical Thought, UK: Blackwell Publishers.
5. Peet, R. and Thrift, N., (2002), New Models in Geography-Volumes I & II, London, Unwin Hyman.
6. Hartshorne, R., (2012), The Nature of Geography, Rawat, New Delhi.
7. Rubenstein, James M. (2012) Contemporary Human Geography, Pearson Education, U.S.A.
8. Gregory, D., 1978: Ideology, Science and Human Geography, Hutchin, London. 10. Huntington, E., 1951 Principles in Human Geography, John Wiley & Sons, Lnc, New York
9. Hohnstone R.J. (1988) The Future of Geography, Merhen, London
10. Minshul, R (1970) The Changing Nature of Geography, Hutchinson University Library London.

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 6TH SEMESTER

Title of the Course	:	ECONOMIC GEOGRAPHY
Course Code	:	GGRC13
Nature of the Course	:	MAJOR
Total Credits	:	4Credits (3+1=4)
Distribution of Marks	:	60 (End Sem: 45T+15P) + 40 (In-Sem)

Course Description:

Economic Geography examines the spatial organization of economic activities and their relationship with natural resources and regional development. The course explores economic sectors, agricultural and industrial location theories, resource utilization, and the role of transportation and communication, while developing practical skills in thematic mapping of agricultural, industrial, and transport networks.

Course Objectives:

- To introduce the nature, scope, and approaches of Economic Geography.
- To understand the spatial distribution and determinants of primary, secondary, and tertiary economic activities.
- To examine the relationship between resources and economic development.
- To analyze theories explaining agricultural and industrial location.
- To develop skills in thematic mapping of economic activities and transport networks.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to Economic Geography	(a) Meaning, nature and scope of Economic Geography. (b) Approaches to Economic Geography (c) Recent trends of Economic Geography. (d) Economic sectors - primary, secondary and tertiary; (e) Types of economies.	10	5		15
2 (15 marks)	Resource: Concept and Classification	(a) Concept of resource; Relationship between resource- base and Economic development (b) Classification and characteristics of resources. (c) Functional theory of resource.	10	5		15
3 (15 marks)	Locational Theories	(a) Theories of Agricultural Location: Von Thunnen, Whittlesey. (b) Classification of Industries. Theories of Industrial Location: Weber, Losch, (c) Modes of transportation. Role of transport and communication in resource utilization.	10	5		15
4 (15 marks)	Practical	Thematic Mapping: India/Assam (a) Agricultural production and distribution (Cotton, Paddy, Wheat. Tea and Coffee) (b) Industrial production and distribution (Coal, Iron, Hydropower, Nuclear plants)			30	30

		(c) Transport: National Highway, Corridors and River and ocean routes.				
		Total	30	15	30	75
	<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>		

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each **20**
- Practical **10**
- Others (Any one) **10**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the conceptual foundations, scope, and emerging trends of Economic Geography.

ILO 1.1 Define Economic Geography and explain its nature, scope, and significance.

ILO 1.2 Describe the major approaches and recent trends in Economic Geography.

ILO 1.3 Explain the classification of economic sectors and types of economies.

CO2: Analyze the concept and classification of resources and their relationship with economic development.

ILO 2.1 Define the concept of resource and explain its nature and types.

ILO 2.2 Explain the classification and characteristics of resources.

ILO 2.3 Analyze the relationship between resource base and economic development.

CO3: Examine the geographical patterns and determinants of agricultural activities.

ILO 3.1 Describe the types of agricultural systems and practices.

ILO 3.2 Analyze the physical and socio-economic factors influencing agricultural activities.

ILO 3.3 Explain Von Thünen's agricultural land-use model and its relevance.

CO4: Analyze the spatial distribution and location factors of industrial activities.

ILO 4.1 Explain the types and classification of industries.

ILO 4.2 Analyze the factors influencing industrial location and development.

ILO 4.3 Evaluate the industrial location theories of Weber and Lösch.

CO5: Evaluate the role of tertiary activities and transport systems in economic development.

ILO 5.1 Explain the role of knowledge and technology-based industries and service sectors.

ILO 5.2 Describe different modes of transportation and communication.

ILO 5.3 Analyze the importance of transport and communication in resource mobilization, utilization, and distribution.

CO6: Apply cartographic techniques to represent spatial patterns of economic activities.

ILO 6.1 Prepare thematic maps showing agricultural production and distribution (cotton, paddy, wheat, tea, coffee).

ILO 6.2 Map the distribution of major industrial resources such as coal, iron, hydropower, and nuclear plants.

ILO 6.3 Prepare maps showing transport networks including national highways, corridors, and river or ocean routes.

Cognitive Map of Course Outcomes based on Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO4	CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M				
CO2	S	S		M		M		
CO3	S	S		M		M		
CO4	S	S		M		M		
CO5	M	S		M		M	M	
CO6	M	M	S	S	M			M

Where, S = Strong correlation M = Medium correlation

Suggested Readings:

15. Alexander J. W., 1963: Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
16. Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic Geography: A Contemporary Introduction, Wiley-Blackwell.
17. Hodder B. W. and Lee Roger, 1974: Economic Geography, Taylor and Francis.
18. Combes P., Mayer T. and Thisse J. F., 2008: Economic Geography: The Integration of Regions and Nations, Princeton University Press.
19. Wheeler J. O., 1998: Economic Geography, Wiley..
20. Durand L., 1961: Economic Geography, Crowell.
21. Bagchi-Sen S. and Smith H. L., 2006: Economic Geography: Past, Present and Future, Taylor and Francis.
22. Willington D. E., 2008: Economic Geography, Husband Press.
23. Clark, Gordon L.; Feldman, M.P. and Gertler, M.S., eds. 2000: The Oxford

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 6TH SEMESTER**

Title of the Course	:	HYDROLOGY AND OCEANOGRAPHY
Course Code	:	GGRC14
Nature of the Course	:	MAJOR
Total Credits	:	4Credits (3+1=4)
Distribution of Marks	:	60 (End Sem: 45T+15P) + 40 (In-Sem)

Course Description:

Hydrology and Oceanography examine the distribution, movement, and management of water on Earth and the physical characteristics of the oceans. The course explores hydrological processes, runoff and hydrograph analysis, water resource management, and oceanographic phenomena such as salinity, tides, waves, and currents, supported by practical hydrological and oceanographic mapping techniques.

Course Objectives:

- To introduce the concept, scope, and applications of hydrology and oceanography.
- To understand the hydrological cycle, runoff processes, and hydrograph analysis.
- To examine the physical characteristics and processes of the oceans.
- To analyze the significance of water resource management and marine environmental issues.
- To develop practical skills in hydrological estimation, rainfall analysis, hydrograph preparation, and oceanographic mapping.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to Hydrology and Oceanography	a. Meaning, Scope and Application of Hydrology. b. The Global Water Budget, India's Water Budget c. Meaning, Scope and Significance of Oceanography. d. Ocean bottom relief features.	10	5		15
2 (15 marks)	Hydrological Cycle, Runoff and Hydrograph	a. Hydrological Cycle b. Meaning and Concept, Types of Run-off, Factors affecting Runoff, Estimation of Run-off. c. Meaning and Concept of Hydrograph, Types of Hydrographs, Factors affecting Hydrographs. d. Water management: Techniques and approaches. Rainwater harvesting.	10	5		15
3 (15 marks)	Salinity, Waves, Tides and Currents	(a) Ocean Temperature, Salinity and their distribution (b) Ocean Waves- Formation and Classification. (c) Tides – Causes, Types and Effects (d) Ocean currents –Formation and Classification	10	5		15

4 (15 marks)	Practical	a. Determining average rainfall over a catchment using Arithmetic Average/Thiessen Polygon/Isohyetal methods. b. Preparation of Hydrograph c. Physiographic map of ocean floor: d. Map showing Ocean currents:			30	30
		TOTAL	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

- Two Internal Examinations of 10 marks each
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate
 - Practical

(40 Marks)

20 Marks

10 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concept, scope, and significance of hydrology and oceanography and their applications in geographical studies.

ILO 1.1 Define hydrology and explain its meaning, scope, and relevance in environmental studies.

ILO 1.2 Describe the hydrologic cycle and global and national water budgets.

ILO 1.3 Explain the concept, scope, and significance of oceanography and major ocean floor relief features.

CO2: Analyze hydrological processes including runoff generation, hydrograph characteristics, and water resource management.

ILO 2.1 Explain the hydrological cycle and processes of runoff generation.

ILO 2.2 Describe the concept, types, and factors influencing runoff and hydrographs.

ILO 2.3 Evaluate techniques of water management including rainwater harvesting.

CO3: Examine the physical and environmental characteristics of oceans and marine ecosystems.

ILO 3.1 Explain the formation of marine deposits and coral reefs.

ILO 3.2 Analyze the impact of human activities on the marine environment.

ILO 3.3 Describe the distribution of ocean temperature and salinity.

CO4: Analyze major oceanographic processes including waves, tides, and ocean currents.

ILO 4.1 Explain the formation and classification of ocean waves.

ILO 4.2 Describe the causes, types, and effects of tides.

ILO 4.3 Analyze the formation, classification, and global distribution of ocean currents.

CO5: Evaluate the significance of hydrological and oceanographic processes in environmental management and resource utilization.

ILO 5.1 Explain the importance of hydrological processes in water resource planning.

ILO 5.2 Assess the role of oceans in regulating global climate and environmental systems.

ILO 5.3 Evaluate the significance of sustainable management of water and marine resources.

CO6: Apply quantitative and cartographic techniques to analyze hydrological and oceanographic data.

ILO 6.1 Estimate water volume of wells, ponds, or fisheries and prepare profiles.

ILO 6.2 Determine average rainfall over a catchment using Arithmetic Mean, Thiessen Polygon, and Isohyetal methods.

ILO 6.3 Prepare hydrographs and thematic maps showing ocean floor features and ocean currents.

Cognitive Map of Course Outcomes based on Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO4	CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		S		
CO3	S	S		M		S		
CO4	S	S		M		S		
CO5	M	S		M		S	M	
CO6	M	M	S	S	M			M

Where, S = Strong correlation M = Medium correlation

Suggested Readings:

1. Andrew. D. ward and Stanley, Trimble (2004): Environmental Hydrology, 2nd edition, Lewis Publishers, CRC Press.
2. Karanth, K.R., 1988 : Ground Water: Exploration, Assessment and Development, TataMcGraw Hill, New Delhi.
3. Ramaswamy, C. (1985): Review of floods in India during the past 75 years: A Perspective. Indian National Science Academy, New Delhi.
4. Rao, K.L., 1982 : India's Water Wealth 2nd edition, Orient Longman, Delhi,.
5. Singh, Vijay P. (1995): Environmental Hydrology. Kluwar Academic Publications, The Netherlands.
6. Anikouchine W. A. and Sternberg R. W., 1973: The World Oceans: An Introduction to Oceanography, Prentice-Hall.
7. Garrison T., 1998: Oceanography, Wordsworth Company, Belmont. 8. Kershaw S., 2000: Oceanography: An Earth Science Perspective, Stanley Thornes, UK

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 6TH SEMESTER

Title of the Course	: GEOGRAPHY OF INDIA AND NORTH EAST INDIA
Course Code	: GGRC15
Nature of the Course	: MAJOR
Total Credits	: 4Credits (3+1=4)
Distribution of Marks	: 60 (End Sem: 45T+15P) + 40 (In-Sem)

Course Description:

This course examines the physical, cultural, and economic geography of India with special emphasis on North East India. It explores physiography, climate, soils, vegetation, population characteristics, and resource distribution, while developing practical skills in mapping demographic and resource patterns at national and regional scales.

Course Objectives:

- To understand the physical geographical framework and environmental characteristics of India.
- To examine the cultural and demographic composition of India and related population issues.
- To analyze the distribution of natural resources and major economic regions of India.
- To study the physiographic and socio-cultural characteristics of North East India.
- To develop practical skills in thematic mapping of demographic and resource patterns.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction	a. India: Physiography, drainage system, climate, soil and vegetation b. India: Population distribution, density and growth.	10	5		15
2 (15 marks)	Population and Resource Basis of the Country	a. Population: problems and policies. b. Mineral and power resources. c. Agricultural regions of India. d. Industrial regions of India	10	5		15
3 (15 marks)	North East India	a. North East India: Physiography, soil, climate and vegetation. b. North East India: Population distribution, density and growth, language and religion.	10	5		15
4 (15 marks)	Practical	a. Population distribution and growth of India/North East India b. Sex Ratio and literacy of India/North East India c. Mineral distribution of India/North East India			30	30
		Total	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each **20 Marks**
- Others (Any one) - **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate
 - Practical **10 Marks**

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the physical geographical framework and environmental characteristics of India.

ILO 1.1 Describe the origin and geological evolution of the Indian subcontinent.

ILO 1.2 Explain the physiographic divisions and drainage system of India.

ILO 1.3 Analyze the distribution of climate, soils, and natural vegetation in India.

CO2: Analyze the cultural composition and demographic characteristics of India.

ILO 2.1 Describe the ethnic, linguistic, and religious composition of India.

ILO 2.2 Analyze the major population problems and policies in India.

ILO 2.3 Examine the relationship between population distribution and socio-economic development.

CO3: Examine the distribution and significance of natural resources and economic regions of India.

ILO 3.1 Describe the distribution of mineral and power resources in India.

ILO 3.2 Explain the major agricultural regions of India.

ILO 3.3 Analyze the major industrial regions and their development.

CO4: Analyze the physical geographical characteristics of North East India.

ILO 4.1 Describe the physiographic features of North East India.

ILO 4.2 Explain the climate, soil, and vegetation characteristics of the region.

ILO 4.3 Analyze the influence of physical environment on regional development in North East India.

CO5: Examine the socio-cultural characteristics and diversity of North East India.

ILO 5.1 Describe the linguistic diversity of North East India.

ILO 5.2 Explain the religious and cultural composition of the region.

ILO 5.3 Analyze the cultural diversity and its geographical significance in North East India.

CO6: Apply cartographic techniques to represent demographic and resource distribution patterns.

ILO 6.1 Prepare thematic maps showing population distribution and population growth of India and North East India.

ILO 6.2 Map and interpret sex ratio and literacy patterns of India and North East India.

ILO 6.3 Prepare maps showing mineral resource distribution in India and North East India.

Cognitive Map of Course Outcomes based on Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO4, CO5		
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
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CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	S	S		M		M		
CO4	S	S		M		M		
CO5	M	S		M		M	M	
CO6	M	M	S	S	M			M

Where, S = Strong correlation M = Medium correlation

Suggested Readings:

12. Deshpande C.D India: a Regional Interpretation ICSSR & Northern Book Centre.1992.
13. Dreze, Jean & Amartya Sen (ed.) India Economic Development and Social opportunity: Oxford University Press, New Delhi, 1996.
14. Kundu A. Raza Moonis: Indian Economy: the Regional Dimension. Spectrum Publishers, New Delhi, 1982.
15. Robinson, Francis : The Cambridge Encyclopaedia of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan & Maldives. Cambridge University Press, London, 1989.
16. Bhagabati, A.K. et al. (2001): Geography of Assam, Rajesh Publications, New Delhi
17. Das, H.P (1972): Geography of Assam
18. Singh, R.L. (ed) (1972): India: A Regional Geography, Varanasi.
19. Taher, M. and Amhed, P. (2001): Geography of North – East India: Mani Manik Prakash, Guwahati

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 6TH SEMESTER**

Title of the Course	:	ENVIRONMENTAL GEOGRAPHY AND SUSTAINABLE DEVELOPMENT
Course Code	:	MINGGR6
Nature of the Course	:	MINOR
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End-Sem: 45T+15P) + 40 (In-Sem.)

Course Description:

Environmental Geography and Sustainable Development examine the interaction between humans and the natural environment and the principles of sustainable resource use. The course explores ecological systems, environmental hazards, and environmental management, while introducing the concept of sustainable development and practical techniques for mapping biodiversity and ecological regions.

Course Objectives

- To understand the conceptual foundations and scope of Environmental Geography.
- To examine the historical and theoretical perspectives of human–environment relationships.
- To study ecological principles, ecosystems, and environmental hazards.
- To analyze the concept and objectives of sustainable development and environmental management.
- To develop practical skills in mapping ecological regions and documenting biodiversity.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Conceptual Basis	(a) Emergence of Environmental Geography as a branch of Geography and its scope and significance. (b) Approaches to the study of man-environment relationship: Deterministic Approach, Teleological Approach, Possibilistic Approach, Economic Deterministic Approach, Ecological Approach	10	5		15
2 (15 marks)	Ecosystem, Ecology and Hazards	(a) Ecosystem and Ecology: Meaning and Concept (b) Type of ecosystem; functioning of and energy flow in eco-system (c) Meaning and types of biomes. (d) Environmental hazards: Meaning and types (e) Climatic hazards of the world and India.	10	5		15
3 (15 marks)	Concept of Sustainable Development	(a) Genesis and evolution of the concept of Sustainable development (b) Sustainable Development Goals (SDGs) (c) Meaning and principles of environmental management	10	5		15

4 (15 marks)	Practical	(a) Mapping Biosphere reserve of India/Assam (b) Distribution of major types of biomes in the world/India. (c) Identification of 10 local plant species with documentation (may use smart phone and AI tools)			30	30
		Total	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each
- Practical
- Others (Any one)
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

20

10

10

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the conceptual foundations of Environmental Geography and the historical perspectives of human–environment relationships.

ILO 1.1 Define Environmental Geography and explain its emergence, scope, and significance.

ILO 1.2 Describe the historical evolution of human–environment relationships and the impact of population growth on the environment.

ILO 1.3 Distinguish between major approaches to the study of human–environment interaction, including deterministic, teleological, possibilistic, economic deterministic, and ecological approaches.

CO2: Analyze ecological principles and environmental hazards affecting ecosystems.

ILO 2.1 Explain the concepts of ecosystem and ecology and the functioning of ecosystems.

ILO 2.2 Describe types of ecosystems, energy flow, and the concept of biomes.

ILO 2.3 Analyze the types of environmental hazards with special reference to climatic hazards in the world and India.

CO3: Examine the origin and evolution of the concept of sustainable development.

ILO 3.1 Explain the genesis and evolution of the concept of sustainable development.

ILO 3.2 Describe the Sustainable Development Goals (SDGs), their meaning, objectives, and global significance.

ILO 3.3 Analyze the relationship between sustainable development and environmental conservation.

CO4: Evaluate the concept and principles of environmental management for sustainable resource use.

ILO 4.1 Define environmental management and explain its necessity in contemporary environmental issues.

ILO 4.2 Describe the principles and approaches of environmental management.

ILO 4.3 Assess the role of environmental management in achieving sustainable development goals.

CO5: Analyze biodiversity distribution and ecological regions at national and global scales.

- ILO 5.1 Explain the distribution of major biomes of the world and India.
 ILO 5.2 Describe the distribution of flora and fauna in India and Assam.
 ILO 5.3 Analyze the significance of biosphere reserves in biodiversity conservation.

CO6: Apply field-based and cartographic techniques for environmental analysis and biodiversity documentation.

- ILO 6.1 Prepare maps showing biosphere reserves of India or Assam.
 ILO 6.2 Map the distribution of flora, fauna, and major biomes.
 ILO 6.3 Identify and document local plant species using field observation and digital tools such as smartphones and AI applications.

Cognitive Map of Course Outcomes based on Bloom’s Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO5	CO4	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		S		
CO2	S	S		M		S		
CO3	M	S		M		S	M	
CO4	M	S		M		S	M	
CO5	M	S		M		S	M	
CO6	M	M	S	S	M			M

Where, S = Strong correlation M = Medium correlation

Suggested Readings:

13. Cantledge, B (ed), 1992 : Monitoring the Environment, Oxford University Press, Oxford 2.
14. Lodha, M.R.,(ed) 1996 : Academic’s Dictionary of Environment.
15. Park, C.,1997 : The Environment, Routledge, London.
16. Santra, S.C.,2011 : Environmental Science .
17. Singh, S.,1991 : Environment Geography, PrayagPustakBhawan, Allahabad.
18. Strahler, A.N.& A.H. Strahler, 1976 : Geography and Man’s Environment, John Willey, New York.
19. Bass, S., & Dalal-Clayton, B. (2012). Sustainable development strategies: a resource book. Routledge
20. Roorda, N. (2017). Fundamentals of sustainable development. Routledge.

21. Rogers, P. P., Jalal, K. F., & Boyd, J. A. (2012). *An introduction to sustainable development*. Routledge.
- Elliott, J. (2012). *An introduction to sustainable development*. Routledge.
22. Brebbia, C. A. (2013). *Sustainable Development and Planning VI* (Vol. 173). Wit Press
23. Petts, J. (Ed.). (2009). *Handbook of Environmental Impact Assessment: Volume 2: Impact and Limitations* (Vol. 2). John Wiley & Sons.

SEMESTER VII

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 7TH SEMESTER**

TITLE OF THE COURSE	: FLUVIAL GEOMORPHOLOGY- I
COURSE CODE	: GGRC16
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	: 60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description

Fluvial Geomorphology–I introduces river systems, drainage basin processes, and channel dynamics. The course integrates geomorphology with hydrology to understand sediment transport, runoff processes, and hydraulic geometry. Practical training using GIS and hydrograph analysis enables students to analyze basin characteristics and river discharge patterns.

Course Objectives

- Understand the concepts, evolution, and scope of fluvial geomorphology and its linkage with hydrology.
- Examine drainage basins as geomorphic systems with inputs, outputs, and runoff processes.
- Analyze channel processes including velocity distribution, hydraulic forces, and equilibrium conditions.
- Develop skills in sedimentological and geomorphological analytical techniques.
- Apply GIS and hydrological tools for basin delineation and hydrograph analysis.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Fluvial Geomorphology.	a) Meaning and evolution of fluvial geomorphology; relation between fluvial geomorphology and hydrology. b) Modern methods and techniques in fluvial geomorphological studies. c) Sedimentological techniques.	10	5		15
2 (15 Marks)	Drainage basin as a fluvial system	a) Inputs and outputs in the basin, drainage basin as a fundamental geomorphic unit. b) Runoff estimation in the basin, factors controlling runoff and types of runoffs.	10	5		15
3 (15 Marks)	Channel pattern & processes	a) Concept of grade, attainment of grade, channel equilibrium. b) Forces acting in channel, velocity distribution, flow types c) Channel Geometry, Hydraulic geometry analysis: at-a-station case and downstream case, relationship of water discharge with velocity, depth	10	5		15

		and width metamorphosis.				
4 (15 Marks)	Practical	a) Basin area and drainage line delineation using GIS b) Basin area and Stream discharge graph. c) Stage-discharge hydrographs d) Unit hydrograph			30	30
		TOTAL	30	15	30	75

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

- | | | | |
|----------|--|---|-----------------|
| • | Two Internal Examinations | - | 40 Marks |
| • | Practical | | 20 Marks |
| • | Others (Any two): | - | 10 Marks |
| | ○ Group Discussion | | |
| | ○ Seminar presentation on any of the relevant topics | | |
| | ○ Debate | | |

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain the concept, scope, and development of fluvial geomorphology.

ILO1.1 Describe the meaning and evolution of fluvial geomorphology.

ILO1.2 Explain the relationship between hydrology and fluvial geomorphology.

ILO1.3 Identify major approaches in river system studies.

CO2: Evaluate modern methods and sedimentological techniques used in fluvial geomorphology.

ILO2.1 Describe modern geomorphological research techniques.

ILO2.2 Explain sedimentological sampling and analysis methods.

ILO2.3 Interpret sediment characteristics in river systems.

CO3: Analyze the drainage basin as a fluvial geomorphic system.

ILO3.1 Explain drainage basin components and boundaries.

ILO3.2 Analyze basin inputs and outputs.

ILO3.3 Evaluate the role of drainage basins as fundamental geomorphic units.

CO4: Assess runoff processes and factors controlling runoff in a drainage basin.

ILO4.1 Describe different types of runoff.

ILO4.2 Analyze factors influencing runoff generation.

ILO4.3 Estimate runoff in a drainage basin context.

CO5: Examine channel processes and hydraulic characteristics of river flow.

ILO5.1 Explain the concept of grade and channel equilibrium.

ILO5.2 Describe forces acting in river channels and velocity distribution.

ILO5.3 Interpret hydraulic geometry relationships of discharge, velocity, depth, and width.

CO6: Apply GIS and hydrological techniques to analyze basin characteristics and discharge patterns.

ILO6.1 Delineate basin area and drainage lines using GIS tools.

ILO6.2 Construct basin area–stream discharge relationships.

ILO6.3 Develop and interpret stage-discharge and unit hydrographs.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO3		CO2, CO5	CO4	
Procedural			CO6			
Metacognitive					CO4	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				M		
CO2	S	S	M		M			
CO3	S	S	M			M		
CO4	M	S	M			S		S
CO5	S	S		M		M		M
CO6		M	S	S	S		M	S

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

- Bhagabati, A.K., Bora, A.K. and Kar, B.K. (ed), 2001: Geography of Assam, Rajesh Publications, New Delhi.
- Chorley, Wolman and Millerm, 1969: Fluvial Processes in Geomorphology, W.H. Freeman And Company, San Francisco.
- Chorley, R.J. (ed), 1969: Water, Earth and Man, Methuen, London.
- Chouhan, T.S., 1995: Remote Sensing: Principles and Interpretation, H.W. Freeman and Company, San Francisco.
- Chow, V.T., 1964: Handbook of Applied Hydrology, McGraw Hill Book company, New York

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 7TH SEMESTER**

TITLE OF THE COURSE	: REGIONAL PLANNING- I
COURSE CODE	: GGRC17
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	: 60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description

Regional Planning–I introduces the concept of regions, regionalization methods, and planning frameworks used to address spatial inequalities. The course explores the evolution, principles, and techniques of regional planning, integrating geographical analysis with socio-economic planning tools and quantitative methods for regionalization and population forecasting.

Course Objectives

- Understand the concept, evolution, and classification of regions in geographical studies.
- Examine the principles, objectives, and historical development of regional planning.
- Analyze methods of regionalization and spatial hierarchy in planning regions.
- Develop analytical and procedural techniques used in regional planning.
- Apply quantitative techniques for socio-economic regionalization and population forecasting.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Regional Concept in Geography	a) Concept, evolution and types of regions. b) Regionalization: Methods of formal and functional regionalization. c) Hierarchy of region.	10	5		15
2 (15 Marks)	Concept of Regional Planning	a) Concept and types of planning b) Historical Development of Regional Planning, principle, objectives and need of regional planning c) Geography and Regional Planning.	10	5		15
3 (15 Marks)	Methods and Techniques of Regional Planning	a) Methodology of Regional Planning. b) Analytical Techniques of Regional Planning. c) Procedural Techniques of Regional Planning.	10	5		15
4 (15 Marks)	Practical	a) Socio-economic regionalization using simple ranking, mean ranking and Z score standardization b) Population forecasting using arithmetic and geometric progression methods c) Regionalization of Functional Region			30	30

		using Thiessen polygon method				
		TOTAL	30	15	30	75
	<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>		

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examinations** - **20 Marks**
- **Practical** **10 Marks**
- **Others (Any two):** - **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain the concept, evolution, and classification of regions in geography.

- ILO1.1 Describe the concept and evolution of regions.
- ILO1.2 Identify different types of regions.
- ILO1.3 Explain the hierarchical organization of regions.

CO2: Analyze methods of regionalization used in geographical studies.

- ILO2.1 Explain formal regionalization methods.
- ILO2.2 Explain functional regionalization techniques.
- ILO2.3 Interpret spatial regional hierarchy.

CO3: Understand the concept and development of regional planning.

- ILO3.1 Explain the concept and types of planning.
- ILO3.2 Describe the historical development of regional planning.
- ILO3.3 Explain the relationship between geography and regional planning.

CO4: Evaluate the principles, objectives, and importance of regional planning.

- ILO4.1 Explain the principles of regional planning.
- ILO4.2 Analyze the objectives of regional planning.
- ILO4.3 Assess the need for regional planning in development.

CO5: Analyze methodologies and techniques used in regional planning.

- ILO5.1 Explain methodological approaches to regional planning.
- ILO5.2 Analyze analytical techniques used in regional planning.
- ILO5.3 Explain procedural techniques used in regional planning.

CO6: Apply quantitative techniques for regional analysis and planning.

- ILO6.1 Perform socio-economic regionalization using ranking and Z-score methods.
- ILO6.2 Estimate population growth using arithmetic and geometric progression.
- ILO6.3 Delineate functional regions using the Thiessen polygon method.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO2, CO3		CO5	CO4	
Procedural			CO6			
Metacognitive				CO5	CO4	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				M		
CO2	S	S				M		
CO3	S	M				S		
CO4	M	S	M			S		
CO5	S	S	M		M			M
CO6		M	S	S	S		M	S

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Bhat,L.S(1973) Regional Planning in India,Statistical Publishing Society ,Calcutta
2. Bhat, L.S. et al (1976) Micro-Level Planning,A Case Study of Karana 1 Area,HaryanaK.B.Publction,New Delhi
3. Chorley,H.andHagget P. (1976) Models in Geography,Metun.London
4. Misra,R.P. et al (1974)Regional Development in India-A Strategy,Mysore.
5. Mitra.A. (1965)Levels of Regional Development,Census of India,Voll,pt I &II New Delhi
6. Raza,M (1988)Regionaldevelopment,Heritage Publisher ,Delhi
7. Misra R.P. et al (1980) Multi Level Planning ,Heritage.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 7TH SEMESTER**

TITLE OF THE COURSE	: DISASTER MANAGEMENT- I
COURSE CODE	: GGRC18
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	: 60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description

Disaster Management–I introduces the concepts of natural and human-induced disasters, their causes, impacts, and risk dimensions. The course emphasizes vulnerability assessment, risk reduction strategies, and practical disaster case studies to develop analytical and planning skills for disaster preparedness and mitigation.

Course Objectives

- Understand the basic concepts and classification of natural disasters and hazards.
- Examine the causes and impacts of natural and man-made disasters.
- Analyze risk, vulnerability, and disaster reduction strategies.
- Explore the role of planning and strategic development in reducing disaster vulnerability.
- Develop skills in disaster data collection and case study analysis.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction on Disaster	a) Basic concepts of Natural Disaster b) Types of Natural Hazards and Disaster c) Causes and effects of disasters with examples.	10	5		15
2 (15 Marks)	Introduction to Man-made Disasters	a) Man-made Disasters - Causes and effects; Fire, Industrial Pollution, Nuclear Disaster, Biological Disasters, b) Accidents (Air, Sea, Rail & Road), Structural failures (Building and Bridge), c) War & Terrorism etc.	10	5		15
3 (15 Marks)	Risk and Vulnerability	a) Concept of Risk and Vulnerability b) Risk and Vulnerability Analysis c) Risk Reduction d) Strategic Development for Vulnerability Reduction	10	5		15
4 (15 Marks)	Practical	1. Data collection on flood /Landslide/bank erosion/ man-made disaster. 2. Prepare a Case Study report on any			30	30

		one of the mentioned disasters of your locality/Vulnerability analysis				
		TOTAL	30	15	30	75
	<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>		

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examinations** -
- **Practical**
- **Others (Any two):** -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

20 Marks

10 Marks

10 Marks

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain the fundamental concepts and classification of natural disasters.

ILO1.1 Describe the concept of natural hazards and disasters.

ILO1.2 Identify different types of natural hazards.

ILO1.3 Explain the causes and impacts of natural disasters with examples.

CO2: Examine the nature and impacts of man-made disasters.

ILO2.1 Describe different types of man-made disasters such as fire, industrial pollution, and nuclear disasters.

ILO2.2 Explain accidents related to air, sea, rail, and road transport.

ILO2.3 Discuss structural failures and disasters caused by war and terrorism.

CO3: Analyze the concept of disaster risk and its assessment.

ILO3.1 Explain the concept of disaster risk.

ILO3.2 Identify factors influencing disaster risk.

ILO3.3 Analyze risk conditions in disaster-prone areas.

CO4: Evaluate vulnerability and strategies for disaster risk reduction.

ILO4.1 Explain the concept of vulnerability.

ILO4.2 Analyze vulnerability in different socio-economic contexts.

ILO4.3 Assess strategies for vulnerability reduction.

CO5: Assess disaster risk reduction and management strategies.

ILO5.1 Describe disaster risk reduction approaches.

ILO5.2 Evaluate mitigation and preparedness strategies.

ILO5.3 Interpret strategic development approaches for reducing disaster risk.

CO6: Apply field-based techniques for disaster data collection and case study preparation.

ILO6.1 Collect disaster-related data from field or secondary sources.

ILO6.2 Analyze disaster impacts in a local context.

ILO6.3 Prepare a structured case study report on a selected disaster.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO2, CO3		CO4	CO5	
Procedural			CO6			
Metacognitive				CO4	CO5	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				S		
CO2	S	S				S		
CO3	M	S	M			S		
CO4		S	M			S		
CO5		M	M			S	M	
CO6		M	S	S	M		M	M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

- Alexander David, 2000. Introduction in 'Confronting Catastrophe', Oxford University Press.
- Berke PR, et al. Recovery after a disaster: Achieving sustainable development, mitigation, and equity. *Disasters* 1993; 17 (2): 93-109.
- Building Resilience: Social Capital in Post-Disaster Recovery. *Contemporary Sociology* 2015; 44 (1): 30-31.
- Coppola P Damon, 2007. Introduction to International Disaster Management, Carter, Nick 1991. Disaster Management: A Disaster Manager's Handbook. Asian Development Bank, Manil
- Disaster Management Guidelines. GOI-UNDP Disaster Risk Reduction Programme (2009-2012).
- Guerisse P. 2005 Basic Principles of Disaster Medical Management. *Act Anaesth. Belg*;56:395-401
- Ingram JC, et al. Post-disaster recovery dilemmas: challenges in balancing short-term and long-term needs for vulnerability reduction. *Environmental Science & Policy* 2006; 9 (7-8): 607-13.
- Prewitt Diaz, J.O (2004). The cycle of disasters: from Disaster Mental Health to Psychosocial Care. Disaster Mental Health in India, Eds: Prewitt Diaz, Murthy, Lakshmi Narayanan, Indian Red Cross Society Publication.
- Phillips BD. *Disaster Recovery*. 2nd Edition. Taylor & Francis group, 2015.
- Passerini E. Disasters as agents of social change in recovery and reconstruction. *Natural Hazards Review* 2000; 1 (2).

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 7TH SEMESTER**

TITLE OF THE COURSE	: POLITICAL GEOGRAPHY
COURSE CODE	: MINGGRC7
NATURE OF THE COURSE	: MINOR
TOTAL CREDITS	: 4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	: 60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description

Political Geography examines the spatial organization of political processes, state structures, and geopolitical strategies. The course explores the evolution of political geography, theories of the state, electoral geography, and global political regions, with practical analysis of geopolitical changes and territorial organization, particularly in India and North-East India.

Course Objectives

- Understand the evolution, scope, and approaches of political geography.
- Examine the elements that constitute a political system including territory, population, and governance.
- Analyze theories of the state and geopolitical strategies.
- Explore spatial patterns of electoral behavior and global political regions.
- Develop skills in geopolitical mapping and spatial analysis of political territories.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Fundamental concept of political geography	a. Emergence and development of political geography; b. Basic elements of political geography-territorial base, population, system of governments, economic base, transport and communication c. Approaches to study political geography-functional, world system and landscape	10	5		15
2 (15 Marks)	Concepts and Theories	a. Concept of state; location, size, shape and core areas; b. Concept of organic state-Ratzel, Spencer and Schaffle; frontiers and boundaries; marine jurisdiction c. Theory of heartland, rimland, and sea power geo-strategy	10	5		15
3 (15 Marks)	Geography of Political Choice and World Politics	a. Place of electoral studies in political geography; b. Spatial organization of electoral areas and geography of representation; c. World political regions; geopolitics	10	5		15

		since World War II.				
4 (15 Marks)	Practical	a. Map of reorganization of North East India (1951, 1971, 1991) b. Shape Index by Chorley and Haggett method: India (Pre-Independent and Post-Independent), Chile and France. c. Map showing the territory of the major Autonomous Councils of Assam.			30	30
		TOTAL	30	15	30	75
	<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>		<i>P: Practicals</i>	

MODES OF IN-SEMESTER ASSESSMENT:

- | | | |
|--|---|-----------------|
| • Two Internal Examinations | - | 40 Marks |
| • Others (Any two): | - | 30 Marks |
| ○ Group Discussion | | 10 Marks |
| ○ Seminar presentation on any of the relevant topics | | |
| ○ Debate | | |

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain the evolution and fundamental concepts of political geography.

ILO1.1 Describe the emergence and development of political geography.

ILO1.2 Identify the basic elements of political geography.

ILO1.3 Explain major approaches to the study of political geography.

CO2: Analyze the concept of the state and its territorial characteristics.

ILO2.1 Explain the concept of state in political geography.

ILO2.2 Analyze the influence of location, size, shape, and core areas on states.

ILO2.3 Interpret the significance of boundaries and frontiers.

CO3: Evaluate classical geopolitical theories and their spatial implications.

ILO3.1 Explain the concept of the organic state proposed by Ratzel, Spencer, and Schaffle.

ILO3.2 Analyze the theories of Heartland, Rimland, and Sea Power.

ILO3.3 Assess the geopolitical relevance of these theories in modern politics.

CO4: Examine the spatial dimensions of electoral geography and world politics.

ILO4.1 Explain the role of electoral studies in political geography.

ILO4.2 Analyze the spatial organization of electoral areas and representation.

ILO4.3 Interpret the structure of world political regions and post-World War II geopolitics.

CO5: Evaluate geopolitical perspectives in India and regional political structures.

ILO5.1 Describe the geopolitical reorganization of North-East India.

ILO5.2 Analyze territorial changes and political administrative structures.

ILO5.3 Assess the role of autonomous councils in regional governance.

CO6: Apply spatial analytical methods in political geography mapping and analysis.

ILO6.1 Prepare maps showing territorial reorganization of North-East India.

ILO6.2 Calculate and interpret shape index using the Chorley and Haggett method.

ILO6.3 Map and analyze the territories of Autonomous Councils in Assam.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO2		CO3, CO4	CO5	
Procedural			CO6			
Metacognitive				CO4	CO5	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				M		
CO2	S	S				M		
CO3	S	S	M					
CO4	M	S	M			S		
CO5	M	S	M			S	M	
CO6		M	S	S	M		M	M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

Adhikari, S. : Political Geography, Rawat Publ., Jaipur, 1997.

Agnew, J. (ed) : Political Geography: A Reader, Arnold, London, 1997.

Blij, Harm de: Political Geography, London, 1970.

Bergman, E.P. : Modern Political Geography, W.M.C. Brown Co., Publ, Dubuque, 1975.

Busteed, M.A. (ed): Development in Political Geography, Academic Press, London, 1983.

Dikshit, R.D. : Political Geography: A Contemporary Perspective, Tata McGraw, Delhi, 1996.

Dikshit, R.D. : Political Geography-A Century of Progress, Sage Publ., Delhi, 1999.

Fisher, C.A. et al : Changing Map of Asia, Methuen, London, 1968.

Gopalakrishnan, R. : Geography of India, Jawahar, Delhi, 2001.

Hartshorne, R. "The Functional Approach in Political Geography" Annals of Association of American Geographers, 40: 95-131.

House, J and Taylor, P.J. : Political Geography: Recent Rend and Future Direction, London, 1991.

Kasperson, R. and Minghi, J.V. (eds) : The Structure of Political Geography, Aldine Publ., Co., Chicago, 1969.

Mackinder, H.J. : "The Geographical Pivot of History " Geographical Journal, 23.

Mellor, R. : Nation, State and Territory: A Political Geography, Routledge, London

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 7TH SEMESTER**

TITLE OF THE COURSE : **RESEARCH ETHICS AND METHODOLOGY**
COURSE CODE :
NATURE OF THE COURSE :
TOTAL CREDITS : **4 CREDITS**
DISTRIBUTION OF MARKS : **60 (End Sem) + 40 (In-Sem)**

Course Description:

This course aims to provide students with a comprehensive understanding of the ethical principles and methodological approaches essential to conducting high-quality research. The course covers the fundamental concepts of research design, data collection, data analysis, and ethical considerations in research. Through theoretical lessons and practical exercises, students will learn to navigate the complexities of ethical dilemmas and develop robust research methodologies.

Courses Objectives:

1. General understanding of the concept of research and identification of overall process of designing a research work.
2. To have a deeper understanding of complete designing of research from statement of research problem to final thesis writing.
3. Critical assessment of research methods pertinent to technology innovation research in the field of earth science.
4. To introduce the basics of philosophy of science and ethics.
5. To inculcate research integrity.
6. To introduce various plagiarism tools.
7. Develop skills to design and conduct research studies.
8. Learn various methodologies for data collection and analysis.
9. Enhance critical thinking and problem-solving skills in research contexts.
10. Understand the ethical implications of research practices and how to address them.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Research	a. Meaning, objectives and types of research. b. Research problem c. Literature Review- Objectives, Types and Ethical Use of AI tools. d. Citation, Reference, Bibliography and Ethical Use of AI Tools.	10	5		15

2 (15 Marks)	Data Collection and Analysis	a. Sources and type of data. b. Methods of collecting primary and secondary data. c. Measures of Central Tendency, and Measures of Dispersion (ANOVA, Range, Standard Deviation, Coefficient of Variation);	10	5		15
3 (15 Marks)	Hypothesis Testing	a. Concept and characteristics of Hypothesis b. Methods of Hypothesis Testing with examples- t- test, f- test and chi square test.	10	5		15
4 (15 Marks)	Ethics and Scientific Conduct	a. Introduction to Philosophy: definition, nature and scope, concept and branches b. Ethics: Definition, moral philosophy, nature of moral judgments and reactions. c. Scientific Conduct: 1. Ethics with respect to science and research 2. Intellectual honesty and research integrity 3. Scientific misconducts: Falsification, Fabrication and Plagiarism (FFP) • Redundant publications: duplicate and overlapping publications, salami slicing • Selective reporting and misrepresentation of data	10	5		15
TOTAL			40	20		60

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examinations**

30 Marks

- **Others (Any one)**

10 Marks

- Group Discussion
- Seminar presentation on any of the relevant topics
- Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students should be able to:

CO1: Demonstrate knowledge of research processes

ILO1.1: Define principles in research.

ILO1.2: Identify common issues and challenges in research.

ILO1.3: Explain the importance of informed consent and confidentiality in research.

CO2: Learn various methodologies for data collection and analysis

ILO 2.1: Differentiate between qualitative and quantitative research methods.

ILO2.2: Apply various data collection techniques such as surveys, interviews etc.

ILO 2.3: Utilize statistical tools and software for data analysis

CO3: Develop skills to design and conduct research studies

ILO3.1: Formulate research questions and hypotheses.

ILO3.2: Design a research study including the selection of appropriate methodologies.

ILO3.3: Develop a research proposal outlining the objectives, methods, and possible outcomes.

CO4: Enhance critical thinking and problem-solving skills in research contexts

ILO 4.1: Critically analyse and interpret research findings.

ILO 4.2: Identify potential biases and limitations in research studies.

ILO 4.3: Develop strategies to address and mitigate research challenges.

CO5: Interpret the ethical implications of research practices and how to address them

ILO 5.1: Discuss case studies of ethical dilemmas in research and propose solutions.

ILO 5.2: Implement ethical guidelines and protocols in research practice.

ILO 5.3: Assess the ethical considerations related to publishing and disseminating research findings.

Cognitive Map of Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Cognitive Process Dimension					
	Remember	Understand	Apply	Analyse	Evaluate	Create
Factual	CO2			CO4		
Conceptual	CO1	CO1, CO2				
Procedural			CO3		CO5	
Metacognitive		CO5				CO5

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	M	S	M	M	M	M
CO2	S	S	S	S	M	S	M	M
CO3	M	S	S	S	S	M	M	M
CO4	S	S	S	S	S	S	M	S
CO5	S	S	S	S	S	M	S	S

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Gosal, G.S. (1999) Survey of Research in Geography, Manak Publication, New Delhi.
2. Kothari, C.R. (199) Research methodology. Wishaw Publisher, New Delhi
3. Kumar, Ranjit (2011) Research Methodology: A step by step guide, Sage Publication
4. Misra. H.N. & Singh, V.P. (1988) Research Methodology in Geography, Rawat Publication
5. Murthy. K.N.L. (1999) Geographical Research, Concept Publisher
6. Pal, S.K. (1995): Computing Mathematical Techniques in Geography, B.R. Publisher
7. Bird, A. (2006). *Philosophy of Science*. Routledge.
8. MacIntyre, Alasdair (1967) *A Short History of Ethics*. London.

SEMESTER VIII

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 8TH SEMESTER**

TITLE OF THE COURSE	: FLUVIAL GEOMORPHOLOGY-II
COURSE CODE	: GGRC19A
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	: 60 (End-Sem.) (45T+15P) +40 (In-Sem.)

Course Description

Fluvial Geomorphology–II examines flood processes, human impacts on river systems, and fluvio-geomorphic hazards. The course focuses on channel dynamics, bank erosion, and environmental changes in river basins, with practical applications using GIS and statistical techniques for flood frequency analysis and runoff estimation.

Course Objectives

- Understand flood processes and their geomorphic significance in river systems.
- Examine the impact of human activities on river basins and catchment ecosystems.
- Analyze fluvial hazards such as channel changes, erosion, and landslides.
- Explore geomorphic dynamics of major rivers with special reference to North-East India.
- Develop practical skills in GIS-based river analysis and flood frequency estimation.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Flood Geomorphology	a) Flood as a geomorphic agent, flood frequency analysis, formation of floodplains. b) Analysis of paleo-flood & its relationship with paleo-climate	10	5		15
2 (15 Marks)	Human impact on river basins and fluvial systems	a) Effects of basin changes and dam construction on catchment ecosystem. b) Human impact on the river. c) Water balance study in India.	10	5		15
3 (15 Marks)	Fluvio-geomorphic hazards	a) Channel changes in time and space. b) Misfit rivers and channel metamorphosis. c) Flood and bank erosion, Bank line migration of the river Brahmaputra. d) Landslides and soil erosion with special reference to North-East	10	5		15

		India.				
4 (15 Marks)	Practical	a) Bank line migration of the river Brahmaputra using GIS b) Plotting position method c) Log Pearson Type III distribution d) Gumble's Extreme value distribution Method e) Runoff estimation using Rational Method			30	30
		TOTAL	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examinations**

20 Marks

- **Others (Any one)** -

10 Marks

- Group Discussion

- Seminar presentation on any of the relevant topics

- Debate

- **Practical**

10 marks

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain flood geomorphology and floodplain formation processes.

ILO1.1 Describe floods as geomorphic agents.

ILO1.2 Explain flood frequency analysis and its significance.

ILO1.3 Analyze the formation and evolution of floodplains.

CO2: Evaluate the relationship between paleo-floods and paleo-climate.

ILO2.1 Explain the concept of paleo-flood analysis.

ILO2.2 Interpret paleo-climatic indicators derived from flood records.

ILO2.3 Assess the significance of paleo-flood studies in understanding climatic variability.

CO3: Analyze human impacts on river basins and fluvial systems.

ILO3.1 Explain the effects of basin changes and dam construction.

ILO3.2 Evaluate human interventions in river systems.

ILO3.3 Analyze the water balance of India in a fluvial context.

CO4: Examine fluvio-geomorphic hazards and river channel dynamics.

ILO4.1 Analyze channel changes in time and space.

ILO4.2 Explain misfit rivers and channel metamorphosis.

ILO4.3 Assess hazards such as floods, bank erosion, and landslides in North-East India.

CO5: Evaluate river bank erosion and channel migration with reference to the Brahmaputra River.

ILO5.1 Explain the causes of bank erosion in large rivers.

ILO5.2 Analyze bank line migration processes of the Brahmaputra River.

ILO5.3 Assess geomorphic and socio-economic impacts of riverbank changes.

CO6: Apply quantitative and GIS-based techniques in fluvial geomorphological analysis.

ILO6.1 Map bank line migration using GIS tools.

ILO6.2 Perform flood frequency analysis using statistical methods (Log Pearson Type III and Gumbel distribution).

ILO6.3 Estimate runoff using the Rational Method.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO2, CO3		CO4	CO5	
Procedural			CO6			
Metacognitive				CO4	CO5	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				S		
CO2	M	S	M			S		
CO3	S	S	M			S		
CO4	M	S	M			S		
CO5	M	S	M			S	M	
CO6		M	S	S	S		M	M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Bhagabati, A.K., Bora, A.K. and Kar, B.K. (ed), 2001: Geography of Assam, Rajesh Publications, New Delhi.
2. Chorley, Wolman and Millerm, 1969: Fluvial Processes in Geomorphology, W.H. Freeman and Company, San Francisco.
3. Chorley, R.J. (ed), 1969: Water, Earth and Man, Methuen, London.
4. Chouhan, T.S., 1995: Remote Sensing: Principles and Interpretation, H.W. Freeman and Company, San Francisco.
5. Chow, V.T., 1964: Handbook of Applied Hydrology, McGraw Hill Book company, New York.
6. Folk, R.L., 1980: Petrology of Sedimentary Rocks, Hemphill Publishing Co. Austin, Tx.
7. Garde, R.J. and Ranga Raju, K.G.: Mechanism of Sediment Transportation.
8. Gregory, K.J. and Walling, D.E., 1973: Drainage basin Form and Processes, Arnold, London.
9. Kanidhton, D., 1984: Fluvial Forms and Processes, Edward Arnold, London.
10. Leopold, Wolman and Miller, 1964: Fluvial Processes in Geomorphology, W H. Freeman and Company, San Francisco.
11. Morisawa, M., 1968: Streams: Their Dynamics and Morphology, McGraw Hill Book Company, New York.
12. Mutreja, K.N., 1986: Applied Hydrology, McGraw Hill Book Company, New York.
13. Pettijohn, F. J., 1975: Sedimentary Rocks, Harper and Raw Publishers, New York.
14. Petts, G.E., and Foster, I., 1985: Rivers and Landscape, Edward Arnold, London.
15. Rao, K.L., 1975: India's Water Wealth, Orient Longman, New Delhi.
16. Sabnis, Floyd. F., 1978: Remote Sensing: Principles and Interpretation, H.W. Freeman and Company, San Francisco.

15. Schumm, S.A., 1977: The Fluvial System, Wiley Inter science, New York
 16. Schumm, S.A. (ed), 1977: Drainage Basin Morphology.
 17. Smith, D.I. and Stopp, P., 1978: The River Basin: An Introduction to the Study of Hydrology, Cambridge.

**GEOGRAPHY PROGRAMME (FYIPGP)
 DETAILED SYLLABUS OF 8TH SEMESTER**

TITLE OF THE COURSE : REGIONAL PLANNING- II
COURSE CODE : GGRC19B
NATURE OF THE COURSE : MAJOR
TOTAL CREDITS : 4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS :60 (End-Sem.) (45T+15P) +40 (In-Sem.)

Course Description

Regional Planning–II examines planning regions, special purpose regions, and problem regions within the framework of spatial planning. The course emphasizes regional development strategies, town and country planning in India, and quantitative techniques for analyzing socio-economic inequalities and spatial concentration.

Course Objectives

- Understand the concept and evolution of planning regions and their characteristics.
- Examine regional planning frameworks in India including proposals by the Town and Country Planning Organization (TCPO).
- Analyze special purpose regions such as river valley and metropolitan regions.
- Identify problem regions and strategies for their regional development.
- Develop skills in mapping socio-economic indicators and measuring regional inequalities.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Regions for Planning	a) Region and its evolution; Planning regions and its characteristics b) Planning regions of India proposed by TCPO c) Evolution, nature and scope of town planning with special reference to India, and Fundamentals of Town and Country planning.	10	5		15
2 (15 Marks)	Special purpose region	a) Physical, Socio-economic regions of India. b) Special purpose region: river valley and metropolitan region, c) Need of Planning for special purpose region.	10	5		15
3 (15 Marks)	Problem Regions	a) Identification of Problem regions-basic approaches.	10	5		15

Marks)		b) Problem regions-hilly region, tribal region and regions of drought and floods; c) Strategy for Development of Problem regions.				
4 (15 Marks)	Practical	a) Mapping of Socioeconomic Indicators: Population density, literacy, employment distribution. b) Measurement of inequality using Lorenz Curve and Gini coefficient. c) Measurement of concentration of population using location quotient.			30	30
		TOTAL	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examinations**

20 Marks

- **Others (Any one)** -

10 Marks

- Group Discussion

- Seminar presentation on any of the relevant topics

- Debate

- **Practical**

10 marks

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain the concept and characteristics of planning regions.

ILO1.1 Describe the evolution of regions in planning.

ILO1.2 Identify characteristics of planning regions.

ILO1.3 Explain the planning regions of India proposed by TCPO.

CO2: Examine the evolution and scope of town and country planning in India.

ILO2.1 Explain the development of town planning in India.

ILO2.2 Describe the nature and scope of town and country planning.

ILO2.3 Identify fundamental principles of urban and regional planning.

CO3: Analyze special purpose regions and their planning requirements.

ILO3.1 Identify physical and socio-economic regions of India.

ILO3.2 Explain special purpose regions such as river valley and metropolitan regions.

ILO3.3 Assess the need for planning in special purpose regions.

CO4: Evaluate the characteristics and challenges of problem regions.

ILO4.1 Identify different types of problem regions.

ILO4.2 Analyze issues in hilly, tribal, drought, and flood-prone regions.

ILO4.3 Assess strategies for development of problem regions.

CO5: Analyze spatial inequalities and regional disparities.

ILO5.1 Explain socio-economic indicators used in regional analysis.

ILO5.2 Interpret regional inequalities using statistical measures.

ILO5.3 Assess spatial concentration of population and resources.

CO6: Apply quantitative and mapping techniques for regional planning analysis.

ILO6.1 Map socio-economic indicators such as population density and literacy.

ILO6.2 Calculate inequality using Lorenz Curve and Gini coefficient.

ILO6.3 Measure population concentration using Location Quotient.

Cognitive Map Course Outcomes with Bloom’s Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO2, CO3		CO5	CO4	
Procedural			CO6			
Metacognitive				CO5	CO4	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				M		
CO2	S	S				M		
CO3	M	S	M			S		
CO4		S	M			S	M	
CO5		S	M			S		
CO6		M	S	S	S		M	M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Bhat, L.S (1973) Regional Planning in India, Statistical Publishing Society, Calcutta
2. Bhat, L.S. et al (1976) Micro-Level Planning, A Case Study of Karanal Area, Haryana K.B. Publication, New Delhi
3. Chorley, H. and Hagget P. (1976) Models in Geography, Metun. London
4. Misra, R.P. et al (1974) Regional Development in India-A Strategy, Mysore.
5. Mitra. A. (1965) Levels of Regional Development, Census of India, Voll, pt I &II New Delhi.
6. Raza, M (1988). Regional Development, Heritage Publisher, Delhi
7. Misra R.P. et al (1980) Multi Level Planning, Heritage.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 8TH SEMESTER**

TITLE OF THE COURSE	: DISASTER MANAGEMENT- II
COURSE CODE	: GGRC19C
NATURE OF THE COURSE	: MAJOR
TOTAL CREDITS	: 4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	: 60 (End-Sem.) (45T+15P) +40 (In-Sem.)

Course Description

Disaster Management–II focuses on disaster preparedness, response mechanisms, and post-disaster rehabilitation strategies. The course emphasizes early warning systems, emergency response planning, and the use of GIS and remote sensing for hazard zonation, aiming to strengthen community-based disaster resilience and sustainable recovery.

Course Objectives

- Understand disaster preparedness strategies and planning frameworks.
- Examine disaster response mechanisms including communication, rescue, and evacuation.
- Analyze post-disaster rehabilitation, reconstruction, and recovery processes.
- Evaluate the role of institutions, ICT, and community participation in disaster management.
- Develop practical skills in hazard zonation using GIS and remote sensing techniques.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Disaster Preparedness	Preparedness for Hazards and Disaster a) Disaster Preparedness: Concept, Nature and Plan; education awareness and research b) Prediction: Early Warnings and Safety Measures of Disaster. (FLEWS) c) Role of Institutions: Education, Government, International Bodies and NGO d) Role of ICT in Disaster Preparedness	10	5		15
2 (15 Marks)	Response to Disaster	a) Introduction to disaster response & Plan b) Communication, Participation, and Activation of Emergency Preparedness Plan c) Search, Rescue, Evacuation and Logistics d) Psychological Response and Management (Trauma, Stress, Rumour and Panic) e) Relief and Recovery	10	5		15
3 (15)	Rehabilitation, Reconstruction and Recovery	a) Damage Assessment, Reconstruction and Rehabilitation as a Means of Development.	10	5		15

Marks)		b) Post Disaster effects and Remedial Measures. c) Long-term Counter Disaster Planning; Community Based Disaster Management.				
4 (15 Marks)	Practical	a) Application of Remote Sensing and GIS in Hazard Zoning: Flood, Erosion, Landslide and earthquake.			30	30
		TOTAL	30	15	30	75

Where, L-Lecture, T-Tutorial, P-Practical

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examinations**

20 Marks

- **Others (Any one)** -

10 Marks

- Group Discussion
- Seminar presentation on any of the relevant topics
- Debate

- **Practical**

10 Marks

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain the concept and importance of disaster preparedness.

ILO1.1 Describe the concept and nature of disaster preparedness.

ILO1.2 Explain disaster preparedness planning and strategies.

ILO1.3 Identify safety measures and preparedness frameworks for hazards.

CO2: Analyze disaster prediction and early warning systems.

ILO2.1 Explain disaster prediction techniques.

ILO2.2 Interpret the role of early warning systems such as Flood Early Warning Systems (FLEWS).

ILO2.3 Evaluate the role of ICT in disaster preparedness.

CO3: Evaluate the role of institutions in disaster preparedness and management.

ILO3.1 Explain the role of higher education institutions in disaster awareness.

ILO3.2 Assess the role of government, international organizations, and NGOs.

ILO3.3 Analyze collaborative approaches to disaster management.

CO4: Examine disaster response mechanisms and emergency management strategies.

ILO4.1 Explain disaster response plans and emergency activation procedures.

ILO4.2 Analyze communication, participation, and logistics in disaster response.

ILO4.3 Evaluate search, rescue, and evacuation operations.

CO5: Evaluate post-disaster rehabilitation and recovery processes.

ILO5.1 Analyze damage assessment and reconstruction strategies.

ILO5.2 Assess post-disaster impacts and remedial measures.

ILO5.3 Evaluate long-term disaster planning and community-based disaster management.

CO6: Apply geospatial techniques for disaster hazard analysis and zonation.

ILO6.1 Use GIS and remote sensing for hazard mapping.

ILO6.2 Analyze hazard zones such as flood, erosion, landslide, and earthquake-prone areas.

ILO6.3 Prepare hazard zonation maps for disaster planning.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO2, CO3		CO4	CO5	
Procedural			CO6			
Metacognitive				CO4	CO5	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				S		
CO2	M	S	M		S	S		
CO3	M	S	M			S	M	
CO4		S	M	M		S	M	
CO5		M	M			S	M	
CO6		M	S	S	S		M	M

Where, *S*: Strong correlation

M: Medium correlation

Suggested Readings

- Alexander David, 2000. Introduction in 'Confronting Catastrophe', Oxford University Press.
- Berke PR, et al. Recovery after a disaster: Achieving sustainable development, mitigation, and equity. Disasters 1993; 17 (2): 93-109.
- Building Resilience: Social Capital in Post-Disaster Recovery. Contemporary Sociology 2015;44 (1): 30-31.
- Coppola P Damon, 2007. Introduction to International Disaster Management, Carter, Nick 1991. Disaster Management: A Disaster Manager's Handbook. Asian Development Bank, Manil.
- Disaster Management Guidelines. GOI-UNDP Disaster Risk Reduction Programme (2009-2012).
- Guerisse P. 2005 Basic Principles of Disaster Medical Management. Act Anaesth. Belg;56:395-401
- Ingram JC, et al. Post-disaster recovery dilemmas: challenges in balancing short-term and long-term needs for vulnerability reduction. Environmental Science & Policy 2006; 9 (7-8): 607-13.
- Prewitt Diaz, J.O (2004). The cycle of disasters: from Disaster Mental Health to Psychosocial Care. Disaster Mental Health in India, Eds: Prewitt Diaz, Murthy, Lakshmi Narayanan, Indian Red Cross Society Publication.
- Phillips BD. Disaster Recovery. 2nd Edition. Taylor & Francis group, 2015.

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 8TH SEMESTER

TITLE OF THE COURSE	:	GEOGRAPHY OF TOURISM
COURSE CODE	:	GGRC20
NATURE OF THE COURSE	:	MAJOR
TOTAL CREDITS	:	4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	:	60(End-Sem.) (45T+15P) +40 (In-Sem.)

Course Description

Geography of Tourism examines the spatial distribution, resources, and development of tourism activities. The course explores tourism types, infrastructure, and regional trends with special reference to India and North-East India, while assessing economic, environmental, and socio-cultural impacts along with tourism policies and planning.

Course Objectives

- Understand the meaning, nature, and geographical foundations of tourism.
- Examine different types and forms of tourism activities.
- Analyze tourism resources, infrastructure, and recent tourism trends.
- Evaluate economic, environmental, and socio-cultural impacts of tourism.
- Develop practical skills in tourism mapping, data analysis, and tourism documentation.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (11 Marks)	Introduction to Geography of Tourism	a. Meaning, nature and scope. b. Tourism: Relationship with geography. c. Geographical parameters of tourism (Robinson)	10	2	-	12
2 (12 Marks)	Types and Forms of Tourism	a.Types: Nature tourism, cultural tourism, adventure tourism, medical tourism, pilgrimage, MICE tourism. b. Forms: Domestic, inbound and outbound.	10	2	-	12
3 (11 Marks)	Resource and Trends of Tourism	a. Infrastructure and services. b. Recent trends of tourism: international and regional (special reference to India and NE India). c. Tourism infrastructure: case studies of Himalayas, Deserts, Coastal and NE India.	10	2	-	12
4 (11 Marks)	Impact and Policies of Tourism	a. Impact of tourism on Economy, Environment and Society. b. National tourism policy. c. Tourism policy of NE India.	8	1		9
5 (15 marks)	Practical	a. Trends of growth of tourists in India/ Assam using suitable diagram. b. Trend of income earned from tourism in India by using moving average method. c. Preparation of a map of Assam to show important tourist destinations along with		2	28	30

		their road, railway and air connectivity. d. Preparation of a tourist map of N.E. India showing the inflow of tourists to major national parks and wildlife sanctuaries. e. Prepare a tourism album of Assam showing important places, monuments and cultures.				
		TOTAL	38	9	28	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examination** - **20 Marks**
- **Others (Any one)** - **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate/Home assignment
- **Practical** **10 Marks**

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain the concept, nature, and scope of tourism geography.

ILO1.1 Describe the meaning and scope of tourism geography.

ILO1.2 Explain the relationship between tourism and geography.

ILO1.3 Interpret geographical parameters of tourism.

CO2: Identify and classify different types and forms of tourism.

ILO2.1 Describe major types of tourism such as nature, cultural, adventure, and medical tourism.

ILO2.2 Explain pilgrimage and MICE tourism.

ILO2.3 Distinguish between domestic, inbound, and outbound tourism.

CO3: Analyze tourism resources and infrastructure.

ILO3.1 Explain tourism infrastructure and services.

ILO3.2 Analyze tourism resource distribution in different regions.

ILO3.3 Evaluate tourism infrastructure in the Himalayas, deserts, coastal areas, and North-East India.

CO4: Evaluate tourism trends and development patterns.

ILO4.1 Analyze recent international tourism trends.

ILO4.2 Assess regional tourism trends in India and North-East India.

ILO4.3 Interpret factors influencing tourism growth.

CO5: Assess the impacts of tourism and tourism policies.

ILO5.1 Evaluate economic, environmental, and socio-cultural impacts of tourism.

ILO5.2 Explain the national tourism policy of India.

ILO5.3 Assess tourism development policies in North-East India.

CO6: Apply practical and analytical techniques for tourism data and mapping.

ILO6.1 Analyze tourist growth trends using diagrams and statistical methods.

ILO6.2 Calculate tourism income trends using moving average methods.

ILO6.3 Prepare tourism maps and tourism albums for Assam and North-East India.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO2, CO3		CO4	CO5	
Procedural			CO6			
Metacognitive				CO4	CO5	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				M		
CO2	S	M				M		
CO3	M	S	M			S		
CO4		S	M			S		
CO5		M	M			S	M	
CO6		M	S	S	S		M	M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Dhar, P.N., (2006). International Tourism; Emerging Challenges and Future Prospects. Kanishka, New Delhi.
2. Bhattacharya, P. (2011) Tourism in Assam: Trends and Potentialities, Banimandir, Guwahati.
3. Hall, M. and Stephen, P. (2006) Geography of Tourism and Recreation- Environment, Place and Space, Routledge, London.
4. Karma, K.K. and Chand, M. (2007) Basics of Tourism: Theory, Operation and Practice, Kanishka Publishers, Pune.
5. Page, S.J. (2011) Tourism Management: An Introduction, Butterworth- Heinemann- USA. Chapter 2.
6. Raj, R. and Nigel, D. (2007) Morpeth Religious Tourism and Pilgrimage, Festival Management: An International Perspective by, CABI, Cambridge, USA, www.cabi.org.
7. Tourism Recreation and Research Journal Centre for Tourism Research and Development, Lucknow.
8. Singh, Jagbir (2014), "Eco-Tourism" Published by- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi (www.ikbooks.com).

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 8TH SEMESTER**

TITLE OF THE COURSE	: GEOGRAPHY OF HEALTH AND WELLBEING
COURSE CODE	: MINGGRC8
NATURE OF THE COURSE	: MINOR
TOTAL CREDITS	:4 CREDITS
DISTRIBUTION OF MARKS	:60 (End-Sem.) + 40 (In-Sem.)

Course Description

Geography of Health and Wellbeing examines spatial patterns of health, disease, and environmental influences on human wellbeing. The course explores environmental degradation, health risks, pandemics, and vulnerability mapping, emphasizing the role of geospatial technologies in understanding health disparities and improving environmental and public health planning.

Course Objectives

- Understand the concept, nature, and scope of health geography and wellbeing.
- Examine environmental factors influencing human health and disease patterns.
- Analyze the geographical and social dimensions of diseases and pandemics.
- Evaluate health risks, vulnerability, and environmental health challenges.
- Develop understanding of GIS and remote sensing applications in health studies.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Geography of Health and Wellbeing	a. Concept, Nature and scope Geography of Health and Wellbeing b. Concept of health, determinants of health, health services. c. Concept of wellbeing, health and wellbeing. d. Measures of health and wellbeing	15	4		19
2 (15 Marks)	Health, Environment and Development	a. Health, ecology and environment. b. Place, culture and disease c. Environmental pollution and health hazards d. Health and occupation e. Health and income	15	4		19
3 (15 Marks)	Disease Distribution, Transmission and Control	a. Definition and types of disease b. Geographical distribution of diseases c. Transmission and diffusion of diseases d. Disease prevention and control	15	4		19
4 (15 Marks)	Public Health Policies, Programmes and Disease Case Studies	a. Public health: Meaning and significance b. Public health policies: maternal and child healthcare, healthcare for aging population, national health initiatives and programmes, international healthcare agencies. c. Case Studies: Malaria, Coronavirus and	15	3		18

		COVID-19				
			60	15		75
	<i>Where,</i>	<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>		

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examinations** - **30 Marks**
- **Others (Any two):** - **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the conceptual foundations and scope of Geography of Health and Wellbeing and its relevance in geographical studies.

ILO 1.1 Define the concept, nature, and scope of Geography of Health and Wellbeing.

ILO 1.2 Explain the concept of health, determinants of health, and health services.

ILO 1.3 Describe the concept of wellbeing and the measures used to assess health and wellbeing.

CO2: Analyze the relationship between environmental conditions and human health.

ILO 2.1 Explain the role of urbanization and environmental change in influencing health trends.

ILO 2.2 Analyze the impact of air and water pollution on human health.

ILO 2.3 Examine the effects of waste disposal, sanitation, and solid waste management on public health.

CO3: Evaluate the interaction between environment, culture, occupation, and socio-economic conditions in shaping health outcomes.

ILO 3.1 Explain the relationship between health, ecology, and environment.

ILO 3.2 Analyze the influence of place, culture, and occupation on health and disease patterns.

ILO 3.3 Examine the role of income and socio-economic conditions in determining health status.

CO4: Examine the geographical dimensions and distribution of diseases.

ILO 4.1 Describe the types and geographical distribution of diseases.

ILO 4.2 Analyze the transmission and diffusion processes of diseases.

ILO 4.3 Evaluate the social and spatial dimensions of pandemics and emerging diseases.

CO5: Assess strategies for disease prevention, control, and public health interventions.

ILO 5.1 Explain the methods of disease prevention and control.

ILO 5.2 Examine national initiatives and programmes addressing public health challenges.

ILO 5.3 Evaluate case studies of major diseases such as malaria and COVID-19.

CO6: Analyze health risks, vulnerabilities, and the role of geospatial technologies in public health management.

ILO 6.1 Explain the concept of health risk, exposure, and vulnerability in the context of public health.

ILO 6.2 Analyze risk and vulnerability mapping for health using spatial approaches.

ILO 6.3 Evaluate the role of remote sensing and GIS in understanding environmental quality and health outcomes.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
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Factual		CO1				
Conceptual		CO1, CO2		CO3, CO4	CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		S		
CO3	M	S		M		S	M	
CO4	M	S		M		S	M	
CO5	M	S		M		S	S	
CO6	M	M	S	S	S	M		M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. A. K. Bora and M.J. Nath (2023), Introduction to Geography of Health. EBH Publishers, Ghy (India)
2. Anonymous (2017) Nations within a nation: variations in epidemiological transition across the states of India, 1990–2016 in the Global Burden of Disease Study. Lancet 390: 2437–60
3. Anthamatten P. and Hazen H. (2011) An introduction to the geography of health. Routledge New York ISBN: 978-0-203-87746-3
4. Askari Hasan Md and Gupta K. (2016) Conceptualising Medical Geography. Trans.Inst.Indian Geographers 38(1):127-135
5. Bircher J. (2005) Towards a dynamic definition of health and disease. Medicine, Health Care and Philosophy 8(3):335-341
6. Brown T., McLafferty S., Moon G. (2010) (eds) A companion to health and medical geography. Willey Blackwell UK.
7. Clemow, F.A. (2011) The Geography of Disease, Cambridge Geographical Series.
8. Cliff, A.D. and Peter, H. (1988) Atlas of Disease Distributions, Blackwell Publishers.
9. DeAngulo J.M. and Losada L.S. (2015) Health paradigm shifts in the 20th century. Christian Journal for Global Health 2(1): 49-58
10. Gatrell, A. (2002). Geographies of Health: An Introduction Oxford: Blackwells.
11. Gatrell, A. and Loytonen, (1998) GIS and Health, Taylor and Francis Ltd.
12. Gatzweiler F.W., Zhu Y-G., Diez Roux A.V., Capon A., Donnelly C., Salem G., Ayad H.M., Speizer I., Nath I., Boufford J.I., Hanaki K., Rietveld L.C., Ritchie P., Jayasinghe S., Parnell S., Zhang Y. (2017) Advancing health and wellbeing in the changing urban environment - Implementing a systems approach. Springer China ISBN 978-981-10-3363-6
13. Grover, A. and Singh, R.B. (2020) Urban health and wellbeing: Indian case studies, Springer.
14. Hancock, T. (1985). The mandala of health: a model of the human ecosystem. Family and communityhealth, 8(3), 1-10.
15. Hazen, H and Anthamatten, P.(2020) An Introduction to the Geography of Health, Routledge Publishing
16. Kearns R. and Moon G. (2002) From medical to health geography: Novelty, place and theory after a decade of change. Progress in Human Geography 25(5):605–625
17. McCartney, G., Popham, F., McMaster, R., and Cumbers, A. (2019). Defining health and healthinequalities. Public health, 172, 22-30.
18. Meade, M.S. and Emch, M. (2010) Medical Geography, third edition, Guilford Publications
19. Mishra, R.P. (2007) Geography of Health: A Treatise on Geography of Life and Death in India, Concept Publication.
20. Murray C. and A. Lopez (1996) The Global Burden of Disease, Harvard University Press.

21. NITI Aayog (2021) Best Practices Compendium: Urban Transformation Sector. Development Monitoring and Evaluation Office (DMEO), Government of India

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 8TH SEMESTER

TITLE OF THE COURSE	: CLIMATE CHANGE: VULNERABILITY AND ADAPTATION
COURSE CODE	: DSE 1
NATURE OF THE COURSE	: DISCIPLINE SPECIFIC ELECTIVE
TOTAL CREDITS	: 4 CREDITS (3+1)
DISTRIBUTION OF MARKS	: 60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description

This course examines the science of climate change, its drivers, indicators, and impacts on ecosystems and societies. It focuses on vulnerability assessment, adaptation strategies, and policy frameworks, integrating climate data analysis and geospatial tools to evaluate climate risks and develop sustainable adaptation measures.

Course Objectives

- Understand the fundamentals of climate systems and causes of climate change.
- Examine climate change indicators and future climate projections.
- Analyze ecological and socio-economic vulnerability to climate change.
- Evaluate adaptation strategies and global climate policy frameworks.
- Develop skills in climate data analysis, vulnerability mapping, and climate risk assessment.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Fundamentals of Climate Change	d. Climate System: Components and Functioning e. Climate Change: Natural and Anthropogenic Causes f. Climate Change Indicators: Temperature Trends, Precipitation Variability, Extreme Weather Events g. Climate Change Projections: Global and Regional Scenarios (IPCC Reports)	10	5		15
2 (15 Marks)	Vulnerability to Climate Change	a. Concept of Vulnerability: Exposure, Sensitivity, and Adaptive Capacity b. Vulnerability of Ecosystems: Forests, Wetlands, Coastal Areas, and Biodiversity Loss c. Socio-economic Vulnerability: Impacts on Agriculture, Water Resources, Human Health, and Livelihoods	10	5		15
3 (15 Marks)	Adaptation and Policy Frameworks	a. Adaptation vs. Mitigation: Strategies and Approaches b. Community-Based Adaptation (CBA) and Ecosystem-Based Adaptation (EBA) c. International and National Climate Policies: UNFCCC, Kyoto Protocol, Paris Agreement, National Adaptation Plans d. Role of Indigenous Knowledge and Local Governance in Adaptation	10	5		15

4 (15 Marks)	Practical	a. Climate Data Collection and Analysis (Temperature, Precipitation, Extreme Events). b. Vulnerability Mapping using GIS and Remote Sensing. c. Climate Risk Assessment: Case Studies and Scenario Planning		2	28	30
		TOTAL	30	17	28	75

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examinations** -
- **Others (Any two):** -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

20 Marks

10 Marks

- **Practical**

10 Marks

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain the fundamentals of the climate system and causes of climate change.

ILO1.1 Describe the components and functioning of the climate system.

ILO1.2 Explain natural and anthropogenic causes of climate change.

ILO1.3 Interpret indicators of climate change such as temperature trends and precipitation variability.

CO2: Analyze climate change projections and regional climate scenarios.

ILO2.1 Explain global climate change projections.

ILO2.2 Interpret regional climate scenarios based on scientific reports.

ILO2.3 Assess implications of climate variability and extreme weather events.

CO3: Evaluate ecological and socio-economic vulnerability to climate change.

ILO3.1 Explain the concept of vulnerability including exposure, sensitivity, and adaptive capacity.

ILO3.2 Analyze vulnerability of ecosystems such as forests, wetlands, and coastal areas.

ILO3.3 Assess socio-economic impacts on agriculture, water resources, health, and livelihoods.

CO4: Examine climate change adaptation strategies and approaches.

ILO4.1 Distinguish between adaptation and mitigation strategies.

ILO4.2 Analyze community-based and ecosystem-based adaptation approaches.

ILO4.3 Evaluate adaptation strategies for climate resilience.

CO5: Assess climate governance and policy frameworks.

ILO5.1 Explain international climate agreements and policy frameworks.

ILO5.2 Analyze national adaptation strategies and policies.

ILO5.3 Evaluate the role of indigenous knowledge and local governance in climate adaptation.

CO6: Apply geospatial and analytical tools for climate risk assessment.

ILO6.1 Collect and analyze climate data such as temperature and precipitation.

ILO6.2 Prepare vulnerability maps using GIS and remote sensing techniques.

ILO6.3 Conduct climate risk assessments using case studies and scenario planning.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO2, CO3		CO4	CO5	
Procedural			CO6			
Metacognitive				CO4	CO5	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				S		
CO2	M	S	M			S		
CO3	M	S	M			S		
CO4		S	M			S	M	
CO5		M	M			S	M	
CO6		M	S	S	S		M	M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Miller, R. W. and Donahue, R. L. (1992): Soils: An Introduction to Soils and Plant Growth, Prentice-Hall of India, New Delhi
2. Brady, N. C., and Weil, R. R. (2008): The Nature and Properties of Soils, Prentice Hall, New Jersey
3. Pitty, A. F. (1978): Geography and Soil Properties, Methuen and Co., London
4. Govinda Rajan, S.V. and Gopala Rao, H.G.: Studies on soils of India, Vikas, New Delhi, 1978.
5. Raychoudhuri, S.P.: Soils of India, ICAR, New Delhi, 1958.
6. Bunting, B.T.: The Geography of Soils, McGraw Hill, New York.
7. Bridges, E. M. and Davidson, D. A. (1982): Principles and Applications of Soil Geography, Longman Group, London
8. Mc. Bride, M. B. (1999): Environmental Chemistry of Soils, Oxford University Press, New York.
9. Mohammad, N., 1992: New Dimension in Agriculture Geography, Vol. I to VIII, Concept Publications, New Delhi.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 8TH SEMESTER**

TITLE OF THE COURSE	:	GEOGRAPHY OF GENDER STUDIES
COURSE CODE	:	DSE 2
NATURE OF THE COURSE	:	DISCIPLINE SPECIFIC ELECTIVE
TOTAL CREDITS	:	4 CREDITS (3+1)
DISTRIBUTION OF MARKS	:	60 (End-Sem. 45T+15P) + 40 (In-Sem.)

Course Description

Geography of Gender Studies explores spatial dimensions of gender relations, inequalities, and power structures in society. The course examines gender roles, labour participation, education disparities, and economic participation, while emphasizing feminist research approaches and statistical analysis of gender-based indicators.

Course Objectives

- Understand the conceptual foundations and evolution of gender geography.
- Examine gender roles, stereotypes, and social structures influencing gender relations.
- Analyze gender inequalities in education, labour markets, and social institutions.
- Evaluate gender perspectives in economic development and globalization.
- Develop skills in analyzing gender-based statistical data and spatial representation.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Gender Geography	a. History and development of gender geography, women's studies to gender studies: A Paradigm Shift. b. Sex and gender, types of gender, gender stereotyping and gender discrimination. c. Definition and understanding of masculinities, politics of masculinity and power. d. Gender roles biological vs. cultural determinism, private vs. public dichotomy.	12	3		15
2 (15 Marks)	Gender and Society	a. Gender and family: Gender division of labour and asymmetric role structure. Gender role socialization and formation of identity. b. Segmented labour market and labour force participation, occupational segregation, and wage discrimination. c. Gender disparity in education, gender bias in school curriculum knowledge, education goals from gender perspective. d. Patriarchy and gender-power, capitalism, and gender.	12	3		15

3 (15 Marks)	Gender and Economy	a. Women and work: Women in primary, secondary, and tertiary sectors, invisibility of women's work, problems in measurement. b. Gendered jobs and Social Inequality, sex segregation at workplace. c. Women's participation in organized sector, gender discrimination, marginalization, and glass ceiling. d. Globalization and its impact on gender.	12	3		15
4 (15 Marks)	Practical	a. Analyze gender-based statistics from Census of India/World Bank. b. Categorize data on literacy/employment/land ownership/migration. Represent data using graphs/charts/mapping. c. Prepare gender distribution maps of India/Assam			30	30
		TOTAL	36	9	30	75

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examinations** -

20 Marks

- **Others (Any two):** -

10 Marks

- Group Discussion
- Seminar presentation on any of the relevant topics
- Debate
- Practical

10 Marks

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain the concepts and evolution of gender geography.

ILO1.1 Describe the historical development from women's studies to gender studies.

ILO1.2 Distinguish between sex and gender and identify different types of gender.

ILO1.3 Explain gender stereotyping, discrimination, and the concept of masculinities.

CO2: Analyze gender roles and social structures in society.

ILO2.1 Explain biological and cultural determinants of gender roles.

ILO2.2 Analyze the public-private dichotomy in gender roles.

ILO2.3 Evaluate gender role socialization and identity formation.

CO3: Examine gender inequalities in labour markets and education.

ILO3.1 Analyze labour force participation and segmented labour markets.

ILO3.2 Evaluate occupational segregation and wage discrimination.

ILO3.3 Assess gender disparities in education and curriculum bias.

CO4: Evaluate gender relations in economic systems and social institutions.

ILO4.1 Explain patriarchy and gender-power relations.

ILO4.2 Assess gender roles within capitalist economic systems.

ILO4.3 Evaluate the impact of globalization on gender relations.

CO5: Analyze gendered patterns of work and economic participation.

ILO5.1 Examine women's participation in primary, secondary, and tertiary sectors.

ILO5.2 Evaluate invisibility of women's work and measurement challenges.

ILO5.3 Analyze gender inequality in workplaces including discrimination and glass ceiling effects.

CO6: Apply gender-based statistical analysis and representation techniques.

ILO6.1 Analyze gender-based data from sources such as Census of India and World Bank.

ILO6.2 Categorize gender indicators such as literacy, employment, land ownership, and migration.

ILO6.3 Represent gender disparities using graphs, charts, and maps.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO2, CO3		CO5	CO4	
Procedural			CO6			
Metacognitive				CO5	CO4	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				M		
CO2	M	S				S		
CO3	M	S	M			S		
CO4		S	M			S	M	
CO5		S	M			S	M	
CO6		M	S	S	S		M	M

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Massey, Doreen (1994) Space, Place and Gender, University of Minnesota Press, Minneapolis.
2. Hasan, Zoya, (1994), (ed), Forging Identities: Gender, Communities and The State In India, New Delhi: Kali for Women.
3. McDowell, L. and Sharp, J., eds. 1999. A Feminist Glossary of Human Geography. London:Arnold.
4. McDowell, L. and Sharp, J, eds. 1997 Space/Gender/Knowledge: Feminist Readings. London: Arnold.
5. Cloke,P., Crang,P.,Goodwin,M.,(ed) (1999), Introducing Human Geographies, London: Oxford University Press.
6. Lund R,1993, Gender and Place : Towards a Geography Sensitive to Gender, Place and Social Change-Vols I and II, Department of Geography, University of Trondheim, Norway.
7. Chakravarti, Uma (2003), Gendering Caste Through a Feminist Lens. Kolkata: Stree Publications.
8. Peet,R, (1998), Modern Geographical Thought, UK: Blackwell Publishers.
9. Hubbard, Phil et.al (2005) Key Thinkers on Space and Place, Sage Publications, London, Thousand Oaks, New Delhi.
10. Mackenzie S. (1989) 'Women in the City' in Peet R. and N.Thrift (eds) New Models in Geography, volume II, Unwin, London.
11. Narrain Arvind and Gupta Alok, (2011), Law Like Love: Queer Perspective on the Law in India, New Delhi: Yoda Press.
12. Mc Dowell L, 1999, Gender, Identity and Place: Understanding Feminist Geographies, Blackwell Publishers, Oxford.
13. Nelson and Seager. (2005) A Companion to Feminist Geography, Blackwell Publishing Ltd, Oxford.
14. Mazumdar V and N Krishnaji (eds) (2001) 'Enduring Conundrum: India's Sex Ratio', Centre for Women's Development Studies, Rainbow Publishers, Delhi.
15. Dube L. (2001) 'Anthropological Explorations in Gender: Intersecting Fields', Sage Publications, New Delhi.
16. Lefebvre, H. 1991 the Production of Space (trans by D. Nicholson-Smith) Oxford:Blackwell.

17. Boserup E.(1970) 'Women's Role in Economic Development', George Allen and Unwin, London.
18. Krishnaraj M, R Sudarshan and A Shariff(1998) Gender, Population and Development, Oxford University Press New Delhi.

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 8TH SEMESTER

TITLE OF THE COURSE	: ENVIRONMENT AND DEVELOPMENT
COURSE CODE	: DSE3
NATURE OF THE COURSE	: DISCIPLINE SPECIFIC ELECTIVE
TOTAL CREDITS	: 4 CREDITS (3+1)
DISTRIBUTION OF MARKS	:60 (End-Sem. 45T+15P) + 40 (In-Sem.)

Course Description

Environment and Development explores the relationship between environmental resources and socio-economic development. The course examines development theories, environmental challenges, sustainability principles, and policy frameworks while emphasizing practical analysis of environmental data and sustainable resource management strategies.

Course Objectives

- Understand the concepts of environment, development, and sustainable development.
- Examine relationships between environmental resources, economic growth, and society.
- Analyze major environmental challenges affecting sustainable development.
- Evaluate environmental governance, policies, and global agreements.
- Develop practical skills in environmental data analysis and sustainable resource planning.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction	a. Concept of Environment, Development, Growth and sustainable development b. Interrelationship between Environment, Economy, and Society c. Theories of Development: Rostow's Stages of Growth, Dependency Theory, World System Theory d. Sustainable Development: Concept, Principles, and Goals (SDGs)	12	3		15
2 (15 Marks)	Environmental Issues and Challenges	a. Climate Change and Global Warming b. Deforestation and Biodiversity Loss c. Pollution: Air, Water, Soil, and Noise d. Urbanization and its Environmental Impacts	12	3		15
3 (15 Marks)	Environmental Policies and Governance	a. Global Environmental Policies: Stockholm Conference (1972), Rio Summit (1992), Kyoto Protocol, Paris Agreement b. National Environmental Policies: Environmental Protection Act, National Action Plan on Climate Change (NAPCC), EIA	12	3		15

		<p>c. Role of International Organizations: UNEP, UNFCCC, IPCC, World Bank</p> <p>d. Role of Traditional Knowledge in Environmental Conservation, Indigenous people, Competing visions of development along the Narmada, Dams, development, and resistance: case studies</p>				
4 (15 Marks)	Practical	<p>a. Collection of temperature/rainfall/air quality/water quality data from IMD/other sources, analyze and representation of climate trends using graphs/charts/maps.</p> <p>b. Collection of soil samples and analysis of pH</p>	3	2	25	30
			39	11	25	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

- **Two Internal Examinations** -

40 Marks

- **Others (Any two):** -

20 Marks

10 Marks

- Group Discussion
- Seminar presentation on any of the relevant topics
- Debate
- Practical Note Book

10 Marks

Course Outcomes (CO) with Intended Learning Outcomes (ILOs)

CO1: Explain the concepts and interrelationships between environment and development.

ILO1.1 Describe the concepts of environment, development, growth, and sustainability.

ILO1.2 Explain the interrelationship between environment, economy, and society.

ILO1.3 Interpret the principles and goals of sustainable development.

CO2: Analyze major theories and frameworks of development.

ILO2.1 Explain development theories such as Rostow's Stages of Growth.

ILO2.2 Analyze Dependency Theory and World System Theory.

ILO2.3 Evaluate the relevance of development theories in contemporary development debates.

CO3: Examine major environmental issues and global challenges.

ILO3.1 Analyze climate change and global warming impacts.

ILO3.2 Evaluate issues of deforestation and biodiversity loss.

ILO3.3 Assess environmental impacts of pollution and urbanization.

CO4: Evaluate environmental policies and governance mechanisms.

ILO4.1 Explain global environmental agreements and policy frameworks.

ILO4.2 Analyze national environmental policies and legal frameworks.

ILO4.3 Assess the role of international organizations in environmental governance.

CO5: Assess the role of indigenous knowledge and environmental movements.

ILO5.1 Explain the role of traditional ecological knowledge in conservation.

ILO5.2 Analyze conflicts between development and environmental protection.

ILO5.3 Evaluate case studies such as Narmada dam debates and environmental resistance movements.

CO6: Apply environmental data collection and analysis techniques.

ILO6.1 Collect and analyze environmental data such as temperature, rainfall, and air or water quality.

ILO6.2 Interpret environmental trends using graphs, charts, and maps.

ILO6.3 Conduct soil sample collection and analyze soil pH.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analysis	Evaluate	Create
Factual	CO1	CO1				
Conceptual		CO2		CO3	CO4, CO5	
Procedural			CO6			
Metacognitive				CO3	CO4, CO5	CO6

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M				S		
CO2	S	S				M		
CO3	M	S	M			S		
CO4		S	M			S	M	
CO5		M	M			S	M	
CO6		M	S	S	S		M	M

Where, **S:** Strong correlation

M: Medium correlation

Suggested Readings:

1. Arnold, David and Guha, Ramchandra, (eds.), 1997. *Nature, Culture and Imperialism*, New Delhi: Oxford University Press.
2. Baviskar, Amita. 1997. *In the Belly of the River: Tribal Conflicts over Development in the Narmada Valley*, OUP, Delhi.
3. Barnhill, David Landis & Roger S. Gottlieb. (eds.) 2001. *Deep Ecology and World Religions: New Essays on Sacred Grounds*. State Univ. of New York Press, Albany.
4. Bicker, Alan, Paul Sillitoe and Johan Pottier. 2004. *Development and Local Knowledge: New Approaches to Issues in Natural Resources Management, Conservation and Agriculture*. Routledge, London & New York.
5. Esteva, G. 1997. 'Development' in W. Sachs, ed., *The Development Dictionary*, Orient Longman, pp. 8-34.
6. Gadgil, Madhav and Guha, Ramchandra. 1995. *Ecology and Equity: The use and Abuse of Nature in Contemporary India*, New Delhi: Oxford University.
7. Gottlieb, Roger S. 2004. *This Sacred Earth: Religion, Nature, Environment*. Routledge, New York and London.
8. Merchant, Carolyn. 1994. *Ecology: Key Concepts in Critical Theory*, Humanities Press, New Jersey.
9. Ramakrishnan, P.S. 1992. *Shifting Agriculture and Sustainable Development: An Interdisciplinary Study from North-Eastern India*, *Man and the Biosphere Series*, Volume 10, UNESCO.
10. Shiva, Vandana. 1988. *Staying Alive: Women, Ecology and Survival in India*, Zed Press, New Delhi.

SEMESTER IX

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 9th SEMESTER**

Course Title	:	FLUVIAL GEOMORPHOLOGY-III
Course Code	:	GGRC21-A
Nature of the Course	:	MAJOR
Total Credits	:	4 Credits (3+1)
Distribution of Marks	:	60 (End-Sem: 45T+15P) + 40 (In-Sem.)

Course Description

This course focuses on advanced concepts of fluvial geomorphology with special reference to basin hydrology, sediment dynamics, and floodplain development. It examines erosion and weathering processes in major river systems such as the Brahmaputra River and its tributaries. The course introduces methods for analysing sediment load, flood susceptibility, and watershed management. Students will also learn modern analytical and mapping techniques including sediment output modelling using Universal Soil Loss Equation and Revised Universal Soil Loss Equation, sediment rating curves, and grain-size analysis of alluvial sediments for interpreting fluvio-geomorphic processes.

Course Objectives: The course aims to:

1. Develop understanding of basin hydrology, sediment transport, and geological controls on river systems.
2. Examine erosion, weathering, and sediment production processes in the Brahmaputra River basin.
3. Explain floodplain evolution, paleohydrological evidence, and sedimentological characteristics of river systems.
4. Introduce methods for measuring sediment load and water discharge in streams.
5. Train students in flood susceptibility assessment and watershed management strategies.
6. Develop practical skills in sediment analysis, erosion modelling, and fluvial geomorphic interpretation

UNITS	NAME	COURSE CONTENTS	L	T	P	Total Hours
1 (15 marks)	Basin Study	(a) Basin Hydrology and Geology: Discharge and sediment (b) Erosion and weathering in the Brahmaputra River System (c) Headwater and sediment load	10	5		15
2 (15 marks)	Flood Plain study	(a) Genetic classification of floodplains (b) Paleohydrology: evidences and importance (c) Sedimentology: types, distribution	10	5		15
3 (15 marks)	Basin and stream management	(a) Measures of sediment load in stream: factors, design (b) Measures for flood and erosion: factors design (c) Integrated Watershed Management: components for flood management	10	5		15

4 (15 marks)	Practical	(a) Flood Susceptibility Mapping			30	30
		(b) Sediment output analysis using RUSLE and USLE				
		(c) Water discharge and sediment load (sediment rating curves) taking examples from the Brahmaputra and its Tributaries				
		(d) Grain-size analysis of alluvial sediments and fluvio-geomorphic interpretation of the results				
Total			30	15	30	75

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations **20 Marks**
- Practical Notebook **10 Marks**
- **Others (Any two):** - **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain basin hydrology, geological controls, discharge characteristics, and sediment dynamics in river basins with reference to the Brahmaputra River.

ILO 1.1 Define basin hydrology and explain the relationship between discharge, sediment transport, and geological structure.

ILO 1.2 Describe the role of geological formations and drainage characteristics in controlling river flow and sediment yield.

ILO 1.3 Explain the relationship between discharge and sediment load in river systems.

CO2: Analyze erosion, weathering processes, and sediment generation in the Brahmaputra River basin and its headwater regions.

ILO 2.1 Explain processes of fluvial erosion and weathering in mountainous river systems.

ILO 2.2 Describe the role of headwater regions in sediment generation and transport.

ILO 2.3 Analyze sediment load dynamics and their implications for river morphology.

CO3: Evaluate floodplain development, paleohydrological evidence, and sedimentological characteristics of fluvial environments.

ILO 3.1 Explain the genetic classification and formation of different types of floodplains.

ILO 3.2 Identify paleohydrological indicators and explain their significance in reconstructing past river regimes.

ILO 3.3 Describe sediment types and their spatial distribution in fluvial environments.

CO4: Examine techniques and factors involved in measuring sediment load and water discharge in streams.

ILO 4.1 Explain methods for measuring sediment load and discharge in river systems.

ILO 4.2 Describe the factors affecting sediment transport and monitoring design in streams.

ILO 4.3 Interpret sediment rating curves and discharge relationships in river studies.

CO5: Analyze flood hazards, riverbank erosion, and integrated watershed management strategies for sustainable river basin management.

ILO 5.1 Explain factors responsible for floods and riverbank erosion in large river systems.

ILO 5.2 Evaluate structural and non-structural measures for flood and erosion control.

ILO 5.3 Analyze the components of integrated watershed management for flood mitigation.

CO6: Apply geospatial and analytical techniques to assess flood susceptibility, sediment output, and fluvial sediment characteristics.

ILO 6.1 Prepare flood susceptibility maps using spatial data and geomorphological indicators.

ILO 6.2 Analyze sediment output using erosion models such as Universal Soil Loss Equation and Revised Universal Soil Loss Equation.

ILO 6.3 Conduct grain-size analysis of alluvial sediments and interpret fluvio-geomorphic processes.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO4	CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	S		
CO4	M	S		M		M		
CO5	M	S		M		S	M	
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

1. Boulding, J. R., & Ginn, J. S. (2016). Practical handbook of soil, vadose zone, and ground-water contamination: assessment, prevention, and remediation. CRC Press.
2. Florinsky, I. (2016). Digital terrain analysis in soil science and geology. Academic Press.
3. Goudie, A. (2003). Geomorphological techniques. Routledge.
4. Gregory, K. (1980). Updating geomorphology: Practical Fieldwork in Hydrology If It Moves, Measure It!. Teaching Geography, 5(4), 170-174.
5. Handbook of Applied Hydrology: McGraw-Hill, New York, 4-39.
6. Lindsay, J. B. (2005). The terrain analysis system: A tool for hydro-geomorphic applications. Hydrological Processes: An International Journal, 19(5), 1123-1130.
7. Nag, P., & Saha, G.N. (1996). Geomorphological Mapping: Perspectives & dimensions (Vol 13).
8. National Atlas and Thematic Mapping Organisation, Department of Science and Technology, Govt. of India.
9. Prasad, Har (1992). Research Methods and Techniques in Geography, Rawat Publishers, Jaipur.
10. Smith, M. J., Paron, P., & Griffiths, J. S. (2011). Geomorphological mapping: methods and applications (Vol. 15). Elsevier.
11. Strahler, A. N. (1964). Part II. Quantitative geomorphology of drainage basins and channel networks.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 9th SEMESTER**

Course Title	:	REGIONAL PLANNING- III
Course Code	:	GGRC21-B
Nature of the Course	:	MAJOR
Total Credits	:	4 CREDITS (3+1)
Distribution of Marks	:	60 (End-Sem: 45T+15P) + 40 (In-Sem.)

Course Description

This course introduces the principles, theories, and practices of regional planning with emphasis on multi-level planning frameworks and regional development strategies in India. It examines integrated planning approaches at local, regional, and national scales and discusses decentralized planning through institutions such as Panchayati Raj Institutions. The course also analyzes regional development models, planning strategies under the Five Year Plans of India, and issues of regional inequalities. Practical components focus on spatial analysis and urban planning using GIS techniques including land-use mapping, urban sprawl analysis, and delineation of city regions.

Course Objectives: The course aims to:

1. Introduce the theoretical and conceptual foundations of regional and integrated planning.
2. Explain multi-level planning processes in India at state, district, and block levels.
3. Examine regional development strategies for tribal, agricultural, industrial, and metropolitan regions.
4. Analyze indicators of development and spatial disparities in the Indian context.
5. Understand regional development models and their relevance to planning.
6. Develop practical skills in GIS-based urban and regional planning analysis.

UNITS	NAME	COURSE CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Dimensions of Planning	(a) Sectoral, temporal and spatial dimensions of planning. (b) Urban policy and urban planning in India. (c) Indicators of development and their data sources, measuring levels of development and disparities-India context	12	3		15
2 (15 Marks)	Multilevel Planning	a) Concept and utility in the national context-stages in the evolution of multi-level planning process. b) Features and Pattern of decentralization planning in India-Panchayati raj institution and administrative structure (village, block and district) c) Regional planning strategy under Five Year Plans; Policies and programme for Village level Planning.	12	3		15
3 (15 Marks)	Theories and Models of Regional Development	a. Hirschman's model, Perroux's Growth Pole, Rostow's Model, Gunnar Myrdal Model, Core-Periphery Model (John Friedman)	13	2		15

4 (15 Marks)	Practical	b. Application of GIS in urban mapping: population density, population growth, road network c. Land use land cover and urban sprawl.		2	28	30
			Total:			37

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- | | |
|--|----|
| • Two Internal Examinations | 20 |
| • Practical Notebook | 10 |
| • Others (Any two): | 10 |
| ○ Group Discussion | |
| ○ Seminar presentation on any of the relevant topics | |
| ○ Debate | |

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concepts, approaches, and dimensions of integrated regional planning at different spatial levels.

ILO 1.1 Define regional planning and explain its objectives and significance in spatial development.

ILO 1.2 Describe approaches to integrated planning at local, regional, and national levels.

ILO 1.3 Explain the sectoral, spatial, and temporal dimensions of regional planning.

CO2: Analyze the structure and functioning of multi-level and decentralized planning systems in India.

ILO 2.1 Explain the concept and evolution of multi-level planning in India.

ILO 2.2 Describe planning processes at state, district, and block levels.

ILO 2.3 Examine the role of Panchayati Raj Institutions in decentralized planning.

CO3: Evaluate regional planning strategies and development programmes implemented in India.

ILO 3.1 Explain regional planning strategies implemented under the Five Year Plans of India.

ILO 3.2 Describe development programmes for backward, drought-prone, hill, desert, and tribal regions.

ILO 3.3 Assess the role of watershed management, decentralized planning, and regional economic complexes in regional development.

CO4: Analyze regional economic disparities and development indicators in the Indian context.

ILO 4.1 Explain indicators used to measure levels of development and regional disparities.

ILO 4.2 Identify data sources used for development indicators in India.

ILO 4.3 Analyze regional economic imbalances and spatial inequalities in India.

CO5: Examine major regional development theories and their relevance to planning processes.

ILO 5.1 Explain the regional development models proposed by Albert O. Hirschman, François Perroux, and Walt W. Rostow.

ILO 5.2 Describe cumulative causation theory of Gunnar Myrdal and the core-periphery concept of John Friedmann.

ILO 5.3 Evaluate the applicability of these models in regional development planning.

CO6: Apply geospatial techniques and GIS tools in urban and regional planning analysis.

ILO 6.1 Prepare urban maps showing population density, growth, and road network patterns.

ILO 6.2 Analyze land-use/land-cover changes and urban sprawl patterns using GIS.

ILO 6.3 Delineate city regions (Umland) and identify axial growth corridors through spatial analysis.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO4	CO3, CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	S		
CO4	M	S		M		S		
CO5	S	S		M		M	M	
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

1. Bhat,L.S(1973) Regional Planning in India,Statistical Publishing Society ,Calcutta
2. Bhat,L.S. et al (1976) Micro-Level Planning,A Case Study of Karana l Area,HaryanaK.B.Publication,New Delhi
3. Chorley,H.andHagget P. (1976) Models in Geography,Metun.London

4. Misra,R.P. et al (1974)Regional Development in India-A Strategy,Mysore.
5. Mitra.A. (1965)Levels of Regional Development,Census of India,Voll,pt I &II New Delhi
6. Raza,M (1988)Regionaldevelopment,Heritage Publisher ,Delhi
7. Misra R.P. et al (1980) Multi Level Planning ,Heritage.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 9TH SEMESTER**

Title of the Course	:	DISASTER MANAGEMENT- III
Course Code	:	GGRC21-C
Nature of the Course	:	MAJOR
Total Credits	:	4 Credits (3+1)
Distribution of Marks	:	60 (End-Sem: 45T+15P) + 40 (In-Sem.)

Course Description

This course introduces advanced geospatial techniques used in disaster risk assessment and management. It focuses on the application of Geographic Information Systems, Remote Sensing, and Global Positioning System for spatial data acquisition, analysis, and visualization. The course also covers geomorphological and geological foundations relevant to disaster studies, including the stratigraphy of India and morphometric analysis using geospatial tools. Students learn spatial interpolation methods, database design, and terrain–climate–socioeconomic linkages for vulnerability assessment. Practical applications include flood hazard zonation, landslide vulnerability assessment, and early warning systems for disaster mitigation.

Course Objectives The course aims to:

1. Introduce the concepts, development, and components of Geographic Information Systems for disaster analysis.
2. Provide knowledge of geomorphological and geological foundations relevant to hazard assessment, including the stratigraphy of India.
3. Develop skills in spatial data acquisition, processing, and database design using Global Positioning System and GIS tools.
4. Train students in spatial analysis techniques such as interpolation, visualization, and morphometric analysis using Remote Sensing.
5. Apply geospatial techniques to assess disaster vulnerability and hazard zonation.
6. Enable students to evaluate geospatial approaches for disaster preparedness and management.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction	a) Geographical Information Systems - definition, development, data sources, data structures, raster and vector, data capturing, pre-processing, b) Introduction to Geomorphology and Geology, Study the stratigraphy of India, c)Morphometric analysis with the help of remote sensing & gis techniques	10	5		15
2 (15 Marks)	Data base management systems in GIS	a) Concept and scope, data manipulations and product generation- Environmental GIS, b) Data acquisition system using GPS	10	5		15
3 (15 Marks)	Geographical Information System	a) Spatial data; sources of error and data quality; database design, convention, mapping concepts and Coordinate systems. b) Methods of spatial interpolations in Geographical Information Systems; visualizations in Geographical Information Systems, Linking terrain, climate and socio economical parameters to target the vulnerability due to natural disasters using GIS and Remote Sensing	10	5		15
4 (15 Marks)	Flood/ landslide mapping using GIS	(a) Flood Hazard Zonation (b) Landslide Vulnerability (c) FLEWS <u>Practical note book and viva voce*</u>			30	30

		Total	30	15	30	75

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- | | |
|--|-----------|
| • Two Internal Examinations | 20 |
| • Practical Notebook | 10 |
| • Others (Any two): - | 10 |
| ○ Group Discussion | |
| ○ Seminar presentation on any of the relevant topics | |
| ○ Debate | |

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concepts, components, and development of Geographic Information Systems and their relevance in disaster management.

ILO 1.1 Define GIS and describe its development and applications in geographical studies.

ILO 1.2 Explain different GIS data structures including raster and vector formats.

ILO 1.3 Describe data capturing methods and pre-processing techniques used in GIS.

CO2: Analyze geomorphological and geological characteristics relevant to disaster studies, including the stratigraphy of India and morphometric analysis.

ILO 2.1 Explain the basic concepts of geomorphology and geology related to natural hazards.

ILO 2.2 Describe the major stratigraphic divisions of India and their geological significance.

ILO 2.3 Analyze drainage morphometry using geospatial techniques for hazard assessment.

CO3: Evaluate spatial data acquisition, database design, and data quality issues in geospatial analysis.

ILO 3.1 Explain spatial data sources, types, and potential errors in GIS datasets.

ILO 3.2 Describe database design principles and coordinate systems used in GIS mapping.

ILO 3.3 Assess the role of data quality and standards in reliable spatial analysis.

CO4: Examine spatial interpolation, visualization, and environmental GIS techniques for disaster vulnerability assessment.

ILO 4.1 Explain different spatial interpolation techniques used in GIS analysis.

ILO 4.2 Describe visualization methods for representing spatial data in GIS.

ILO 4.3 Analyze relationships between terrain, climate, and socio-economic parameters to assess disaster vulnerability.

CO5: Assess the role of geospatial technologies in disaster hazard mapping and early warning systems.

ILO 5.1 Explain the concept and methodology of flood hazard zonation.

ILO 5.2 Evaluate landslide vulnerability assessment techniques using GIS and remote sensing.

ILO 5.3 Describe the role of flood early warning systems (FLEWS) in disaster preparedness.

CO6: Apply geospatial techniques for spatial data acquisition, disaster risk analysis, and hazard mapping.

ILO 6.1 Collect spatial data using Global Positioning System for GIS analysis.

ILO 6.2 Prepare hazard and vulnerability maps using GIS and Remote Sensing techniques.

ILO 6.3 Interpret spatial datasets for disaster risk assessment and management

Cognitive Map Course Outcomes with Bloom’s Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO4	CO3, CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	S		
CO4	M	S		M		S		
CO5	M	S		M		M	M	
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

1. Amdahl, Gary. 2001. Disaster Response: GIS for Public Safety, Redlands, CA: ESRI Press,
2. Burke, Robert. 2003. Getting to Know Arc Objects: Programming ArcGIS with VBA, Redlands, CA: ESRI Press,
3. Clark, Isobel and William V. Harper. 2000. Practical Geostatistics 2000, Columbus, Ohio: Ecosse North America, LLC,

4. Clarke, Keith C., Bradley O. Parks, and Michael P. Crane. 2002. *Geographic Information Systems and Environmental Modeling*, Upper Saddle River, NJ: Prentice Hall,
5. Collett, David 2003. *Modeling Binary Data (Second Ed.)*, Boca Raton, FL: Chapman &Hall,.
6. Cromley, Ellen K. and Sara L. McLafferty 2002. *GIS and Public Health*, New York: The Guilford Press
ESRI Map Book: Volume 20, Redlands, CA: ESRI Press, 2005.
7. Forta, Ben. *SQL in 10 Minutes*, Indianapolis, IN: SAMS, 2004.
8. Gatrell, Anthony and Markku Loytonen, eds. 1998 *GIS and Health*, Philadelphia: Taylor and Francis, Inc.
9. *GIS in State Government: Volume 1*, Redlands, CA: ESRI Press, 2005
10. Greene 2002, R. W. *Confronting Catastrophe: A GIS Handbook*, Redlands, CA: ESRI Press.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 9TH SEMESTER**

Title of the Course	:	METHODS IN GEOGRAPHY
Course Code	:	GGRC22
Nature of the Course	:	MAJOR
Total Credits	:	4CREDITS (3+1=4)
Distribution of Marks	:	60 (End Sem: 45T+15P) + 40 (In-Sem)

Course Description

This course introduces students to the methodological foundations of geographical research and analysis. It focuses on the development of quantitative and qualitative approaches in geography and the significance of statistical and spatial techniques in geographical studies. The course also familiarizes students with the structure and types of geographic data, levels of measurement, and techniques for data acquisition. Emphasis is given to cartographic methods, thematic mapping principles, and map projection systems used in spatial analysis. Through practical exercises, students learn to represent physical and socio-economic data using different mapping techniques and to construct projections such as UTM, polyconic, zenithal, gnomonic, and simple cylindrical projections.

Course Objectives The course aims to:

1. Introduce the evolution of quantitative and qualitative methodologies in geographical research.
2. Develop understanding of geographic data structures, sources, and measurement levels.
3. Explain the role of cartography and thematic mapping in spatial analysis and geographical interpretation.
4. Familiarize students with principles and construction of map projections.
5. Develop practical skills in representing physical and socio-economic data using thematic mapping techniques.
6. Enable students to apply cartographic techniques and projections in geographic analysis.

UNITS		CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Quantitative Methods in Geography	a) Methodological developments in geography: quantitative and qualitative b) Significance of quantification in geographical analysis c) Limitations of quantitative techniques	10	5		15
2 (15 Marks)	Data in Geography	a) Geographic data matrix b) Nature and types of geographic data, levels of measurement, data source and acquisition techniques.	10	5		15

3 (15 Marks)	Cartographic Methods in Geography	(a) Significance of cartography in geography; traditional and digital cartography. (b) Thematic mapping: meaning and type; principles of thematic mapping; (c) Concept of Map projection and development	10	5		15
4 (15 Marks)	Mapping in Geography (Practical)	(a) Exercise on isopleth, choropleth and choro-chromatic mapping. (b) Techniques of physical and socio-economic data representation and mapping (c) Construction of map projection: UTM/Polyconic.			30	30
		Total	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate
 - Practical

20 Marks

10 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain methodological developments in geography and evaluate the role of quantitative and qualitative approaches in geographical research.

ILO 1.1 Define quantitative and qualitative approaches in geographical research.

ILO 1.2 Explain the significance of quantification in geographical analysis.

ILO 1.3 Evaluate the advantages and limitations of quantitative techniques in geography.

CO2: Analyze the structure, nature, and types of geographic data used in spatial analysis.

ILO 2.1 Describe the concept of geographic data matrix and its components.

ILO 2.2 Explain different types of geographic data and levels of measurement.

ILO 2.3 Identify major data sources and techniques for geographic data acquisition.

CO3: Evaluate the significance of cartography and thematic mapping in geographical analysis.

ILO 3.1 Explain the importance of cartography in geographical research and spatial communication.

ILO 3.2 Describe the meaning, types, and principles of thematic mapping.

ILO 3.3 Assess the role of traditional and digital cartography in spatial analysis.

CO4: Explain the concept and development of map projections and their importance in geographical representation.

ILO 4.1 Define map projection and explain its need in representing the earth's surface.

ILO 4.2 Describe the principles involved in the development of map projections.

ILO 4.3 Identify the characteristics and uses of different projection systems.

CO5: Analyze techniques used in representing physical and socio-economic data through thematic maps.

ILO 5.1 Explain techniques for representing physical and socio-economic data.

ILO 5.2 Interpret spatial patterns using different thematic mapping methods.

ILO 5.3 Evaluate the suitability of different mapping techniques for geographical data representation.

CO6: Apply cartographic techniques and projection methods in geographic data visualization and analysis.

ILO 6.1 Prepare thematic maps using techniques such as isopleth, choropleth, and choro-chromatic mapping.

ILO 6.2 Construct map projections such as UTM and polyconic projection systems.

ILO 6.3 Apply projections such as zenithal, gnomonic, and simple cylindrical projections for spatial representation.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO5	CO4	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	S		
CO4	M	S		M		M		
CO5	M	S		M		S	M	
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

- Berry, B.J.L. and Marble, D.F., 1968: Spatial Analysis: A Reader in Statistical Geography, Prentice-Hall Inc., Englewood Cliff, J.N.
- Chorley, R.J. and Haggett, P. (eds), 1967: Models in Geography, Methuen, London.

3. Cole, J.P. and King, C.A.M., 1968: Quantitative Methods in Geography, Willey and Sons, New York.
4. Davis, P., 1988: Data Description and Presentation (Science in Geography series), Oxford University Press, Oxford.
5. Elhance, D.N., 1972: Fundamental of Statistics, Kitab Mahal, Allahabad.
6. Eyles, J. and Smith, D.M.(eds),1988: Quantitative Methods in Human Geography, Polity Press, Oxford.
7. Gregory, S.,1963: Statistical Methods and the Geographers, Longman, London.
8. Hagget, P. and McCullagh, P., 1965: Locational Analysis in Human Geography, Arnold, London.
9. Hammond, R. and McCullagh, P., 1965: Quantitative Techniques in Geography, Clarendon Press, Oxford.
10. Misra, R.P. and Ramesh, A.,1995: Fundamentals of Cartography, Concept Publishing Company, New Delhi.
11. Monkhouse, F.J. and Wilkinson, H.R.,1989: Maps and Diagrams, B.I. Publications, New Delhi.
12. Nag, P., 1992: Thematic Cartography and Remote Sensing, Concept publishing Co., New Delhi.
13. Raisz, E.: Principles of Cartography, McGraw Hill Co., London.
14. Robinson, A.H., et al: Elements of Cartography, John Wiley & Sons, New York.
15. Singh, R.L.: Elements of Practical Geography, Kalyani Publishers, New Delhi.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 9TH SEMESTER**

Title of the Course	:	GIS & RS IN GEOGRAPHY
Course Code	:	GGRC23
Nature of the Course	:	MAJOR
Total Credits	:	4Credits (3+1=4)
Distribution of Marks	:	60 (End Sem: 45T+15P) + 40 (In-Sem)

Course Description

This course introduces the fundamental principles and applications of Geographic Information Systems (GIS) and Remote Sensing in geographical analysis. It focuses on the concepts of electromagnetic radiation, sensor systems, satellite platforms, and spatial data structures. The course also familiarizes students with spatial data handling, raster and vector data models, and the practical use of geospatial techniques for mapping and analysis. Through practical exercises, students will learn to prepare thematic maps, create vector layers, and analyze terrain characteristics using Digital Elevation Models (DEM) and land use–land cover (LULC) mapping.

Course Objectives: The course aims to:

1. Introduce the concepts, scope, and principles of remote sensing in geographical studies.
2. Explain the characteristics of electromagnetic radiation and its interaction with the atmosphere and earth's surface.
3. Familiarize students with sensor systems, satellite platforms, and orbital characteristics.
4. Develop understanding of the components, data structures, and applications of GIS.
5. Provide practical skills in spatial data handling, vector layer creation, and map composition.
6. Train students in the application of GIS for terrain analysis, LULC mapping, and spatial interpretation.

UNITS		CONTENTS	L	T	P	Total Hours
1 (15 marks)	Fundamentals of Remote Sensing	(a) Concepts and scope of remote; Definitions, Process and Advantages and limitations (b) Concept of Electromagnetic Radiation (EMR); Atmospheric windows, (c) Interaction of EMR with Atmosphere and earth surface, Spectral signatures.	10	5		15
2 (15 marks)	Platforms and Sensors	(a) Introduction: Sensor materials, Sensor System - Framing and Scanning System, (b) Types and Characteristics of Sensor: Imaging and non-imaging sensors, Active and passive sensors, (c) Remote Sensor Platforms and Satellite Orbits: Ground, Airborne and Spaceborne Platforms, Geostationary, sun synchronous	10	5		15
3 (15 marks)	Fundamentals of Geographic Information System	(a) Basic Concepts: definition of GIS, Components of GIS, Areas of GIS application, Advantage and Limitation of GIS (b) GIS Data: Spatial and Attribute Data, Analog vs. Digital data	10	5		15

		(c) Data Structures: Raster and Vector data structures, advantages and disadvantages				
4 (15 marks)	Practical	(a) Preparation of location map by using GIS (topographical sheet and Satellite images) (b) Creation of vector layer and map composition. (c) Preparation of LULC, Slope map.			30	30
		Total	30	15	30	75
<i>Where,</i>		<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>		

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each **20 Marks**
- Practical **10 Marks**
- Others (Any one) **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concepts, scope, and principles of remote sensing and its significance in geographical studies.

ILO 1.1 Define remote sensing and explain its process, scope, advantages, and limitations.

ILO 1.2 Describe the concept of electromagnetic radiation and atmospheric windows.

ILO 1.3 Explain the interaction of electromagnetic radiation with the atmosphere and earth's surface and identify spectral signatures.

CO2: Analyze the types, characteristics, and functioning of remote sensing sensors and satellite platforms.

ILO 2.1 Describe the concept and materials used in remote sensing sensors and sensor systems.

ILO 2.2 Classify sensors into imaging and non-imaging, active and passive sensors, and explain their characteristics.

ILO 2.3 Explain different remote sensing platforms and satellite orbits including geostationary and sun-synchronous systems.

CO3: Explain the basic concepts, components, and applications of Geographic Information Systems in spatial analysis.

ILO 3.1 Define GIS and explain its major components and areas of application.

ILO 3.2 Describe the advantages and limitations of GIS in geographical research.

ILO 3.3 Explain the role of GIS in spatial data management and decision-making.

CO4: Examine spatial data structures and information organization used in GIS.

ILO 4.1 Distinguish between spatial data and attribute data.

ILO 4.2 Compare analog and digital spatial data formats.

ILO 4.3 Explain raster and vector data structures and evaluate their advantages and disadvantages.

CO5: Apply GIS techniques to create spatial databases and prepare thematic maps.

ILO 5.1 Prepare location maps using GIS based on topographical sheets and satellite imagery.

ILO 5.2 Create vector layers and perform map composition for spatial representation.

ILO 5.3 Apply GIS techniques for terrain analysis and thematic mapping.

CO6: Analyze spatial data using GIS tools for environmental and geographical interpretation.

ILO 6.1 Generate Digital Elevation Models (DEM) for terrain analysis.

ILO 6.2 Prepare Land Use and Land Cover (LULC) maps using GIS techniques.

ILO 6.3 Create slope maps and interpret spatial patterns for geographical analysis.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2, CO3		CO4		
Procedural			CO5, CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	S	M		M		M		
CO4	M	S		M	M			
CO5	M	M	S	S	S			M
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

5. Archer, J.E. and Dalton, T.H. (1968). *Fieldwork in Geography*, London.
6. Jones, P.A. (1968). *Fieldwork in Geography*, London.
7. Stoddard, R.H., (1982). *Field Techniques and Research Methods in Geography*, Dubuque.
8. Wheelso, K.S. and Harding, M., (1965). *Geographical Fieldwork*, London.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 9TH SEMESTER**

Title of the Course	:	SUSTAINABLE DEVELOPMENT AND ENVIRONMENT
Course Code	:	MINGGRC9
Nature of the Course	:	MINOR
Total Credits	:	4Credits (3+1=4)
Distribution of Marks	:	60 (End Sem: 45T+15P) + 40 (In-Sem)

Course Description

This course introduces the concepts, evolution, and strategies of sustainable development in relation to environmental management. It examines the relationship between population growth, economic development, and environmental degradation. The course also discusses global initiatives such as the United Nations frameworks including the Millennium Development Goals and Sustainable Development Goals. Students will learn the principles and methods of environmental impact assessment and explore key issues such as food security, poverty, and social security. Practical components include case studies of environmental impact assessment and measurement of development indicators related to sustainability.

Course Objectives: The course aims to:

1. Introduce the concept and evolution of sustainable development in relation to environmental and economic processes.
2. Explain the relationship between population growth, economic development, and environmental sustainability.
3. Examine global development initiatives such as the Millennium Development Goals and Sustainable Development Goals.
4. Provide knowledge of Environmental Impact Assessment (EIA) methods and principles.
5. Develop analytical skills to evaluate issues such as food security, poverty, and biodiversity conservation.
6. Train students in practical techniques for measuring sustainability indicators and conducting EIA case studies.

UNITS		CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to Sustainable Development	(a) Concept of Sustainable Development (b) History of Sustainable Development: Brundtland, Rio summit, Paris declaration (c) Global Strategies for Sustainable Development	10	5		15
2 (15 marks)	Development Goals	(a) Millennium Development Goals (b) Sustainable Development Goals (c) Major Issues: Food security, Poverty, Social security.	10	5		15
3 (15 marks)	Environmental Impact Assessment	(a) Screening, Scoping, Baseline Studies Meaning and concept of EIA (b) Index Approach (c) Multi Attribute Theory (d) Ecological Principles	10	5		15

4 (15 marks)	Practical	(a) Case study EIA: Dam/flood management/drought management (b) Measurement of Food security/social security/Poverty			30	30
		Total	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each
- Practical
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

20 Marks

10 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concept, evolution, and principles of sustainable development and its relationship with population growth, economic development, and environmental change.

ILO 1.1 Define the concept of sustainable development and explain its importance in environmental management.

ILO 1.2 Describe the relationship between population growth, economic development, and environmental sustainability.

ILO 1.3 Explain the historical development of the concept including global initiatives such as the Brundtland Commission and the Earth Summit.

CO2: Analyze global development initiatives and goals related to sustainability and human development.

ILO 2.1 Describe the objectives and indicators of the Millennium Development Goals.

ILO 2.2 Explain the targets and global significance of the Sustainable Development Goals.

ILO 2.3 Analyze major issues of sustainable development including agriculture, food security, poverty, and social security.

CO3: Evaluate methods and principles of Environmental Impact Assessment for sustainable planning and environmental management.

ILO 3.1 Explain the meaning and importance of Environmental Impact Assessment in development planning.

ILO 3.2 Describe the stages of EIA including screening, scoping, and baseline studies.

ILO 3.3 Evaluate approaches used in EIA such as the index approach and multi-attribute theory.

CO4: Assess environmental management strategies based on sound ecological principles for sustainable development.

ILO 4.1 Explain the concept of ecological principles in environmental management.

ILO 4.2 Evaluate the importance of ecological balance in development planning.

ILO 4.3 Analyze strategies for integrating ecological principles into development policies.

CO5: Analyze contemporary environmental and socio-economic issues affecting sustainable development.

ILO 5.1 Explain challenges related to food security, poverty, and social inequality.

ILO 5.2 Evaluate the role of environmental policies and sustainable practices in addressing these issues.

ILO 5.3 Analyze the relationship between environmental sustainability and socio-economic development.

CO6: Apply practical methods and indicators to assess sustainability and environmental impacts through case studies and field-based analysis.

ILO 6.1 Conduct case studies of Environmental Impact Assessment related to dams, floods, droughts, or pollution.

ILO 6.2 Measure development indicators such as food security, social security, poverty, biodiversity, or other local sustainability indicators.

ILO 6.3 Interpret results of sustainability assessments for planning and policy recommendations.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO5	CO4	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	S		
CO4	M	S		M		S	M	
CO5	M	S		M		S	M	
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

1. Bass, S., & Dalal-Clayton, B. (2012). Sustainable development strategies: a resource book.
2. Routledge Roorda, N. (2017). Fundamentals of sustainable development. Routledge.
3. Rogers, P. P., Jalal, K. F., & Boyd, J. A. (2012). An introduction to sustainable development. Routledge.
4. Elliott, J. (2012). An introduction to sustainable development. Routledge.
5. Brebbia, C. A. (2013). Sustainable Development and Planning VI (Vol. 173). Wit Press
6. Petts, J. (Ed.). (2009). Handbook of Environmental Impact Assessment: Volume 2: Impact and Limitations (Vol. 2). John Wiley & Sons.
7. Carroll, B., Fothergill, J., Murphy, J., & Turpin, T. (2019). Environmental impact assessment handbook: A practical guide for planners, developers and communities. ICE Publishing.
8. Pradhan, P., Costa, L., Rybski, D., Lucht, W., & Kropp, J. P. (2017). A systematic study of Sustainable Development Goal (SDG) interactions. Earth's Future, 5(11), 1169-1179.
9. McGillivray, M. (Ed.). (2008). Achieving the millennium development goals. Springer. Assembly, G. (2015). sustainable Development goals. SDGs), Transforming our world: the, 2030

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 9TH SEMESTER**

TITLE OF THE COURSE	:	MEDICAL GEOGRAPHY
COURSE CODE	:	DSE-04
NATURE OF THE COURSE	:	DSE (Discipline Specific Elective)
TOTAL CREDITS	:	4 CREDITS (3+1=4)
DISTRIBUTION OF MARKS	:	60 (End-Sem.) (45T+15P) + 40 (In-Sem.)

Course Description

This course introduces the interdisciplinary field of Medical Geography, which examines the spatial patterns of health, diseases, and healthcare systems. It explores the relationship between environment, society, and human health, including epidemiological and demographic transitions. The course also analyzes the distribution of major diseases in India and evaluates healthcare infrastructure, policies, and financing systems. Practical components emphasize mapping disease patterns, analyzing healthcare services across different environments, and applying statistical techniques for health-related geographical analysis.

Course Objectives: The course aims to:

1. Introduce the nature, scope, and evolution of Medical Geography and its connection with Epidemiology.
2. Develop understanding of environmental, ecological, and social determinants of human health.
3. Examine demographic and epidemiological transitions and their relationship with disease patterns.
4. Analyze healthcare infrastructure, policies, and financing systems in India.
5. Study the spatial distribution of major diseases such as Malaria, Cholera, Tuberculosis, and HIV/AIDS.
6. Develop practical skills in disease mapping, healthcare analysis, and statistical testing for geographical health studies.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction to Medical Geography,	a. Nature, Scope and Significance b. History and development of Medical Geography. c. Contemporary Concepts in Medical Geography. d. Medical Geography and Epidemiology.	13	2		15
2 (15 Marks)	Environments and Health Care Studies	a. Concept of health, its measurement and data source. b. Environmental, ecological and social approaches in study of human health c. Demographic change and diseases: epidemiological and demographic transition. d. Communicable and non-communicable diseases, e. Climate change and human health	13	2		15
3 (15 Marks)	Distribution Patterns of Disease	a. Healthcare infrastructure in India. b. Health policies in India. c. Health financing in India. d. Geographical Patterns of Major diseases with special reference to India; Malaria, Cholera, Tuberculosis, AIDS.	13	2		15

4 (15 Marks)	Practical	a. Mapping of spatial distribution of major diseases (Malaria/Cholera/Tuberculosis/AIDS) in India/Assam. b. Distribution of health services in India/Assam: Rural/Urban			30	30
TOTAL			39	6	30	75
<i>Where,</i>		<i>L: Lectures</i>	<i>T: Tutorials</i>	<i>P: Practicals</i>		

MODES OF IN-SEMESTER ASSESSMENT:

- | | | |
|--|---|-----------------|
| • Two Internal Examinations | - | 40 Marks |
| • Practical | | 20 Marks |
| • Others (Any two): | - | 10 Marks |
| ○ Group Discussion | | |
| ○ Seminar presentation on any of the relevant topics | | |
| ○ Debate | | |

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the nature, scope, historical development, and contemporary concepts of Medical Geography and its relationship with Epidemiology.

ILO 1.1 Define the concept and scope of Medical Geography and explain its significance in geographical studies.

ILO 1.2 Describe the historical development and major approaches in Medical Geography.

ILO 1.3 Explain the relationship between Medical Geography and Epidemiology in studying disease patterns.

CO2: Analyze environmental, ecological, and social determinants of human health and their influence on disease patterns.

ILO 2.1 Explain the concept of health, its measurement, and major data sources used in health studies.

ILO 2.2 Describe environmental, ecological, and social approaches to understanding human health.

ILO 2.3 Analyze demographic and epidemiological transitions and their impact on disease patterns.

CO3: Evaluate the geographical distribution of diseases and the role of healthcare systems in disease prevention and control.

ILO 3.1 Describe the healthcare infrastructure and service systems in India.

ILO 3.2 Explain health policies and financing mechanisms in India.

ILO 3.3 Analyze spatial patterns of major diseases such as Malaria, Cholera, Tuberculosis, and HIV/AIDS.

CO4: Examine the influence of environmental conditions and settlement types on health services and disease distribution.

ILO 4.1 Explain how geographical environments such as cities, mountains, and floodplains influence health conditions.

ILO 4.2 Analyze the spatial distribution of health services in rural and urban areas.

ILO 4.3 Assess accessibility and availability of healthcare facilities in different regions.

CO5: Apply spatial analysis and mapping techniques to assess epidemic patterns and disease distribution.

ILO 5.1 Assess epidemic patterns and geographical distribution of diseases using spatial analysis.

ILO 5.2 Prepare maps showing spatial distribution of diseases in India or Assam.

ILO 5.3 Interpret spatial patterns of disease occurrence and their environmental determinants.

CO6: Apply statistical and quantitative techniques to analyze health data and test hypotheses related to the health sector.

ILO 6.1 Apply statistical methods such as T-test and Z-test in health sector analysis.

ILO 6.2 Analyze health service data to understand spatial inequalities in healthcare access.

ILO 6.3 Interpret statistical results to evaluate patterns and trends in health geography.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO4	CO5	
Procedural			CO5, CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	M		
CO4	M	S		M		S		
CO5	M	S	S	S	S	S		
CO6	M	M	S	S	M			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

- Akhtar, R. and Learmonth, A.T. (1986) : Geographical Aspects of Health and Disease in India, Concept Publishers, New Delhi.
- Mc-Glashan, N.D.(1972) : Medical Geography, Techniques and Field Studies, Methuen, London.
- Pacione, M. (1986) : Medical Geography : Progress and Prospects ; Edited, Croam, Helm London.
- Pyle, G.P.(1971) : Applied Medical Geography, Washington, D.C.V.H. Winnston and Sons.
- Akhtar, R.(1982) : The Geography of Health: An Essay and Bibliography, Marwah, New Delhi.
- Shannon, G.W. and Dever, G.E.A.(1973) : Health Care Delivery, Special Perspectives, New York

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 9TH SEMESTER**

Title of the Course	:	RESOURCE GEOGRAPHY
Course Code	:	DSE-05
Nature of the Course	:	DSE (Discipline Specific Elective)
Total Credits	:	4Credits (3+1=4)
Distribution of Marks	:	60 (End Sem: 45T+15P) + 40 (In-Sem)

Course Description

This course introduces the concept, classification, and ecological basis of natural resources and their role in human development. It examines the spatial distribution, utilization, and management of land, water, forest, and energy resources. The course also discusses major environmental cycles such as the hydrological, carbon, and nitrogen cycles that regulate resource systems. Special emphasis is given to problems associated with resource utilization and the need for conservation strategies. Students will also learn practical skills in preparing thematic maps, change detection mapping, and resource conservation planning. The course highlights important environmental legislations in India such as the Wild Life (Protection) Act, 1972, National Forest Policy, 1988, and Wetlands (Conservation and Management) Rules, 2010.

Course Objectives The course aims to:

1. Introduce the concept, definition, and classification of natural resources and their ecological relationships.
2. Explain the role of environmental cycles in maintaining resource systems.
3. Examine factors influencing resource utilization and the problems related to resource exploitation.
4. Analyze management strategies for land, water, forest, and energy resources.
5. Develop understanding of conservation principles, policies, and environmental legislations in India.
6. Train students in practical techniques such as thematic mapping, change detection mapping, and resource conservation planning.

UNITS		CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to Resource	(a) Natural Resource: Meaning, Definition, Concepts and misconception. (b) Classification of resources. (c) Resource ecology: hydrological cycle, oxygen cycle, carbon cycle, nitrogen cycle, phosphorus cycle, sulphur cycle.	10	5		15
2 (15 marks)	Problems and Management of Resources	(a) Problems and Management of Land Resources and Water Resources (b) Problems and Management of Forests and Energy Resources	10	5		15

3 (15 marks)	Conservation	(a) Conservation: Concept, aim and planning for conservation of Natural Resources (b) Measures for conservation of resources: Soil, water, forest. (c) Conservation Legislations in India: National Forest Policy 1988, Wild Life (Protection) Act 1972, Wetland (Conservation and Management) Rules 2010	10	5		15
4 (15 marks)	Practical	(a) Thematic maps (India/Assam): forest/wetland/minerals. (b) Change Detection Mapping: forest/wetland			30	30
		Total	30	15	30	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations of 10 marks each **20**
- Practical **10**
- Others (Any one) **10**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concept, classification, ecological basis, and spatial distribution of natural resources.

ILO 1.1 Define the concept of natural resources and explain their significance in geographical studies.

ILO 1.2 Classify natural resources based on origin, renewability, ownership, and distribution.

ILO 1.3 Explain the ecological basis of resources through major biogeochemical cycles such as hydrological, carbon, and nitrogen cycles.

CO2: Analyze the distribution, utilization, and ecological interactions of major natural resources.

ILO 2.1 Describe the spatial distribution and utilization of major natural resources.

ILO 2.2 Explain the role of ecological cycles in regulating resource systems.

ILO 2.3 Analyze the relationship between natural resources and environmental sustainability.

CO3: Evaluate factors affecting resource utilization and problems related to land, water, forest, and energy resources.

ILO 3.1 Identify factors influencing resource utilization such as technological, economic, and environmental factors.

ILO 3.2 Explain major problems related to land and water resource management.

ILO 3.3 Analyze issues associated with forest and energy resource exploitation.

CO4: Examine strategies and policies for resource management and sustainable utilization.

ILO 4.1 Describe the concept and objectives of natural resource conservation.

ILO 4.2 Explain measures for conservation of soil, water, and forest resources.

ILO 4.3 Evaluate the role of environmental legislations in India including the Wild Life (Protection) Act, 1972, National Forest Policy, 1988, and Wetlands (Conservation and Management) Rules, 2010.

CO5: Assess conservation models and planning approaches for sustainable resource management.

ILO 5.1 Explain different models and approaches used in resource conservation.

ILO 5.2 Analyze the importance of conservation planning for sustainable development.

ILO 5.3 Evaluate strategies for integrated management of natural resources.

CO6: Apply cartographic and geospatial techniques to analyze spatial distribution and changes in natural resources.

ILO 6.1 Prepare thematic maps showing distribution of forests, wetlands, and minerals in India or Assam.

ILO 6.2 Perform change detection mapping for resources such as forests and wetlands.

ILO 6.3 Develop a proposal or model for conservation of natural resources addressing a local environmental issue.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3	CO4, CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	S		
CO4	M	S		M		S		M
CO5	M	S		M		S		M
CO6	M	M	S	S	S			

S- Strong correlation

M-Medium correlation

Suggested Readings:

1. Cutter S. N., Renwick H. L. and Renwick W., 1991: Exploitation, Conservation, Preservation: A Geographical Perspective on Natural Resources Use, John Wiley and Sons, New York.
2. Gadgil M. and Guha R., 2005: The Use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity, Oxford University Press. USA.
3. Holechek J. L. C., Richard A., Fisher J. T. and Valdez R., 2003: Natural Resources: Ecology, Economics and Policy, Prentice Hall, New Jersey.
4. Jones G. and Hollier G., 1997: Resources, Society and Environmental Management, Paul Chapman, London.
5. Klee G., 1991: Conservation of Natural Resources, Prentice Hall, Englewood.

6. Mather A. S. and Chapman K., 1995: Environmental Resources, John Wiley and Sons, New York.
7. Mitchell B., 1997: Resource and Environmental Management, Longman Harlow, England.
8. Owen S. and Owen P. L., 1991: Environment, Resources and Conservation, Cambridge University Press, New York.
9. Rees J., 1990: Natural Resources: Allocation, Economics and Policy, Routledge.London

SEMESTER X

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 10th SEMESTER**

Title of the Course	:	ADVANCED RESEARCH METHODOLOGY
Course Code	:	GGRC24
Nature of The Course	:	MAJOR
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End Sem) (45T+15P) + 40 (In-Sem)

Course Description

This course introduces advanced concepts and techniques used in scientific research with special emphasis on geographical studies. It covers the nature and application of research, formulation of research problems, and preparation of research proposals. The course also focuses on research design, sampling techniques, and methods of data collection. Quantitative tools such as correlation, regression, descriptive statistics, and hypothesis testing are introduced to analyze spatial and socio-economic data. Practical components include data presentation, statistical analysis, pilot surveys, and preparation of research proposals, enabling students to conduct systematic and scientific research.

Course Objectives: The course aims to:

1. Introduce the concept, characteristics, and applications of scientific research.
2. Develop skills for identifying and formulating research problems and preparing research proposals.
3. Provide knowledge of research design and different types of research approaches.
4. Familiarize students with data collection methods, sampling techniques, and survey methods.
5. Train students in statistical tools and techniques for data analysis.
6. Develop practical skills in preparing research proposals and conducting pilot surveys.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Application of Research	a) The concept and characteristics of good research, Application of Research b) Research Proposal- Meaning and Format	12	2		14
2 (15 marks)	Research Design	a) Research Design: Significance, types of research design – Exploratory, Descriptive, Casual research Design, b) Components of research design, and Features of good Research design.	13	2		15
3 (15 marks)	Sampling and Analysis	a) Census and Sample Survey. Meaning and types of Sample Design. b) Correlation: Spearman and Pearson, c) Regression: Simple Linear Regression, Multiple Linear Regression	14	2		16
4 (15 marks)	Practical	a) Preparation of A Research Proposal b) Conducting pilot survey and preparation of report		2	28	30

		Total	39	8	28	75
	<i>Where,</i>	<i>L: Lectures</i>		<i>T: Tutorials</i>		<i>P: Practicals</i>

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- One Internal Examination - **20 Marks**
- Practical **10 Marks**
- Others (Any one) - **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concept, characteristics, and applications of scientific research and formulate research problems in geographical studies.

ILO 1.1 Define the concept of research and describe the characteristics of good research.

ILO 1.2 Explain the research process and the application of research in geographical studies.

ILO 1.3 Identify and formulate a research problem and describe the format of a research proposal.

CO2: Analyze different types of research and evaluate the significance and components of research design.

ILO 2.1 Describe the types of research including pure, applied, qualitative, and quantitative research.

ILO 2.2 Explain the significance and types of research design such as exploratory, descriptive, and causal designs.

ILO 2.3 Evaluate the components and features of a good research design.

CO3: Examine data sources, sampling techniques, and tools used for data collection in research.

ILO 3.1 Distinguish between primary and secondary sources of data.

ILO 3.2 Explain census and sample survey methods and types of sampling design.

ILO 3.3 Describe tools and techniques of data collection including questionnaire, schedule, interview, observation, case study, and survey methods.

CO4: Apply statistical methods to analyze research data using correlation, regression, and descriptive statistics.

ILO 4.1 Explain descriptive statistical methods such as mean, median, mode, and measures of dispersion.

ILO 4.2 Apply correlation techniques such as Pearson's and Spearman's correlation.

ILO 4.3 Apply regression analysis including simple and multiple linear regression to analyze relationships between variables.

CO5: Evaluate statistical techniques used for hypothesis testing and interpretation of data.

ILO 5.1 Explain diagrammatic and graphical representation of data.

ILO 5.2 Analyze time series data and statistical measures such as Lorenz Curve and Gini Ratio.

ILO 5.3 Evaluate hypothesis testing techniques including parametric and non-parametric tests for large and small samples.

CO6: Apply research methods in practical field situations including proposal preparation and pilot survey.

ILO 6.1 Prepare a research proposal following standard academic format.

ILO 6.2 Conduct a pilot survey for collecting preliminary data.

ILO 6.3 Prepare a structured research report based on survey findings.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3	CO5	
Procedural			CO4, CO6			
Metacognitive					CO5	CO6

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M			
CO4	M	M	S	S	S			
CO5	M	S	M	M	S		M	
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

15. ALVESSON (M) and SKOLDBERG (K). Reflexive methodology: new vistas in qualitative research. Ed. 2 Rev. 2009. Sage Publication, London.
16. Creswell, J.W. and Creswell, J.D., 2017. Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.
17. GOODE (W J) and HATT (PK). Methods in social research. 1982. McGraw-Hill, New York
18. Kothari C. R Research Methodology

19. Michael V. P Research Methodology.
20. Ranjit Kumar (2009) Research Methodology, 2nd edition, Pearson Education
21. SINGH (S P). Research methods in social sciences: a manual for designing questionnaires. 2002. Kanishka, New Delhi.
22. YOUNG (P V). Scientific social survey and research. Rev. Ed. 4. 1984. Prentice Hall, New Delhi.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 10th SEMESTER**

Title of the Course	:	GEOGRAPHY OF EASTERN HIMALAYAS
Course Code	:	GGRC25
Nature of The Course	:	MAJOR
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End Sem) (45T+15P) + 40 (In-Sem).

Course Description

This course examines the physical, ecological, and socio-economic characteristics of the Eastern Himalayas as a distinct geographical region. It introduces the geological evolution, tectonic processes, physiography, climate, and drainage systems of the region. The course also explores the rich biodiversity, forest ecosystems, and environmental challenges such as climate change and glacial retreat. Further, it analyses population composition, ethnic diversity, agriculture, urbanization, and economic development in the region. The course also highlights environmental issues, natural hazards, and sustainable development practices including community-led conservation, ecotourism, and geospatial mapping techniques.

Course Objectives: The course aims to:

1. Develop an understanding of the physical geography and regional delineation of the Eastern Himalayas.
2. Explain geological evolution, tectonic processes, and environmental hazards in the Himalayan region.
3. Examine biodiversity, forest ecosystems, and climate change impacts in the Eastern Himalayan ecosystem.
4. Analyze the demographic, cultural, and socio-economic characteristics of the region.
5. Evaluate development challenges, natural hazards, and sustainable development strategies.
6. Develop practical skills in preparing thematic maps and interpreting geospatial indices.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction	a) Eastern Himalaya as a region b) Geological Evolution and Tectonics c) Physiography; Climate; Drainage	12	2		14
2 (15 marks)	Ecosystem and Biodiversity	a) Natural resources of the Eastern Himalayas: flora and fauna b) Forest Ecosystems and Conservation c) Climate Change and Its Impacts	13	2		15
3 (15 marks)	Population, Economy and Urbanization	a) Population distribution, density, age-sex ratio b) Tribes, language and religion c) Agriculture methods (Shifting, Terrace, Horticulture, Plantation agriculture) d) Industries: Food, Forest and Agro-Industries e) Settlement types and patterns,	14	2		16

		Urbanization				
4 (15 marks)	Practical	a) Preparation of Drainage, Soil, Geology and Population map b) LULC, NDVI, NDWI, NDBI		2	28	30
		Total	39	8	28	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- One Internal Examination -
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

30 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the regional characteristics, geological evolution, physiography, climate, and drainage systems of the Eastern Himalayas.

ILO 1.1 Define the geographical extent and delineation of the Eastern Himalayan region.

ILO 1.2 Explain the geological evolution and tectonic processes including mountain building and seismic activity.

ILO 1.3 Describe physiographic features, climatic characteristics, and drainage patterns of the region.

CO2: Analyze ecological characteristics, natural resources, biodiversity, and environmental changes in the Eastern Himalayas.

ILO 2.1 Describe the distribution of flora, fauna, and natural resources in the region.

ILO 2.2 Explain the structure and ecological importance of forest ecosystems and conservation strategies.

ILO 2.3 Analyze the impacts of climate change including glacial retreat and shifting vegetation zones.

CO3: Examine the demographic, cultural, and socio-economic characteristics of the peoples of the Eastern Himalayas.

ILO 3.1 Describe the ethnic composition including tribes, communities, languages, and religions.

ILO 3.2 Analyze population distribution, density, migration, and demographic characteristics.

ILO 3.3 Explain agricultural systems such as shifting cultivation, terrace farming, horticulture, and plantation agriculture.

CO4: Evaluate economic development patterns, urbanization, and industrial activities in the Eastern Himalayas.

ILO 4.1 Explain patterns of urbanization and settlement distribution.

ILO 4.2 Analyze the development of agro-based, forest-based, and food industries.

ILO 4.3 Evaluate the role of state policies and interventions in regional development.

CO5: Analyze environmental issues, natural hazards, and sustainable development challenges in the Eastern Himalayas.

ILO 5.1 Explain major environmental problems such as deforestation, bio-resource degradation, and climate change.

ILO 5.2 Analyze natural hazards including landslides, earthquakes, and floods and their management strategies.

ILO 5.3 Evaluate sustainable development practices including traditional ecological knowledge, ecotourism, and community-led conservation.

CO6: Apply cartographic and geospatial techniques to analyze physical and socio-economic characteristics of the Eastern Himalayas.

ILO 6.1 Prepare thematic maps showing drainage, soil, geology, and population distribution.

ILO 6.2 Interpret land use and land cover patterns using indices such as Normalized Difference Vegetation Index and Normalized Difference Water Index.

ILO 6.3 Analyze urban growth and land transformation using Normalized Difference Built-up Index.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3,CO4	CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M			
CO4	M	S		M		S		
CO5	M	S		M		S	M	
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

1. Aris, M. (1980), The Early History of a Himalayan Kingdom. Vikas, New Delhi.
2. Basnet L.B. (1984), Sikkim: A Short Political History. S. Chand, New Delhi.
3. Bose, M. L. (1987), History of Arunachal Pradesh. Concept, New Delhi.
4. Dhamala R.R. (1993), Problems and Strategies of Development in Eastern Himalays. Gian, NewDelhi.
5. Goodman. M. H. (1986), The Last Dalai Lama: A Biography. Sedgwick and Jackson.
6. Ives, Jack and Messerly B. (1989) The Himalayan Dilemma. UNU, Routledge, London
7. Jha, Rajkumar, (1986), The Himalayan Kingdoms in Indian Foreign Policy. Maitreyee

8. Publications.

9. Kohli, Manorama, (1993), From Dependency to Interdependency: A Study of Indo-Bhutan Relations. Vikas, New Delhi.
10. Majumdar, A. B. (1984), Britain and the Himalayan Kingdom of Bhutan. Bharati Bhawan.
11. Rahul, Ram, (1970), Himalayan Boderland, Vikas Publications, New Delhi.
12. Rose, L. (1977), The Politics of Bhutan. Cornell University Press.
13. Shakabpa, T. W. D. (1888), Tibet: A Political History. Yale University Press.
14. Sharma, S.K. and Sharma Usha (1997), History and Geography of Tibet. Anmol, New Delhi.
15. Singh, Nagendra, (1988), Bhutan: A Kingdom in the Himalayas. S. Chand and Co.
16. Singh, R. (1971), India: A Regional Geography. BHU, Varanasi.
17. Subba, T. B. and Datta, K. (1991), Religion and Society in the Himalayas. Gian.
18. Tshering, Sakya, (1988), The Dragon in the Land of Snow. Pimlico.
19. Van Walt Van Praag, M. C. (1987), The History of Tibet: History, Rights and Prospects in International Laws. Wisdom Publications.
20. Zurick and Karan, P. P. (1999), Himalaya: Life on the Edge of the World. The Johns Hopkins University Press, Baltimore, London.

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 10th SEMESTER**

Title of the Course: : **GEOGRAPHICAL PERSPECTIVES ON TRIBES OF ASSAM**

Course Code : **MINGGRC10**

Nature of The Course : **MINOR**

Total Credits : **4 Credits (3+1=4)**

Distribution of Marks : **60 (End Sem) (45T+15P) + 40 (In-Sem)**

Course Description

This course examines tribal communities from a geographical perspective with special reference to Assam and the wider North-East India. It introduces the concept, characteristics, and classification of tribes and highlights the importance of tribal studies in geography. The course explores spatial distribution, demography, socio-economic organization, and cultural dimensions of tribal communities in the Brahmaputra Valley. It also discusses tribal ecological knowledge, constitutional provisions, development issues, and mapping of tribal population and autonomous administrative regions. Students will gain both theoretical understanding and practical skills for analysing tribal distribution, governance structures, and development challenges.

Course Objectives The course aims to:

1. Introduce the concept, characteristics, and classification of tribes from a geographical perspective.
2. Explain the spatial distribution and demographic characteristics of tribal communities in North-East India and Assam.
3. Examine socio-economic organization, cultural traditions, and ecological knowledge of tribal societies.
4. Understand theoretical perspectives on tribes, ethnicity, and constitutional provisions in India.
5. Analyze the impact of modernization, development policies, and governance on tribal communities.
6. Develop skills in mapping tribal population distribution and autonomous administrative regions.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction	a) The Need of Tribal Studies in Geography. b) The Concept of Tribe. c) Characteristics of Tribes. d) Classification of Tribes e) Tribal ecological knowledge	12	2		14
2 (15 marks)	Tribes, Constitution and theories	a) Tribes and the Constitution of India. b) Tribe and Ethnicity. c) Theories of Tribe: Isolation Theory, Assimilation Theory, Integration Theory and the Contemporary Theory.	13	2		15
3 (15 marks)	Distribution and Demography	a) Distribution of Tribes in Assam b) Demography of Tribal communities in Assam	14	2		16

4 (15 marks)	Practical	a) Mapping Tribal Autonomy and Sixth Schedule Areas: Bodoland Territorial Region (BTR), Mising Autonomous Council (MAC), Karbi Anglong Autonomous Council (KAAC), Dima Hasao Autonomous Council (DHAC). b) Mapping of tribal population distribution and density in Assam.	2	28	30
		Total	39	8	28 75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- Two Internal Examinations -
- Practical
- Others (Any one) -
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate

20 Marks

10 Marks

10 Marks

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concept, characteristics, and classification of tribes and analyze the significance of tribal studies in geography.

ILO 1.1 Define the concept of tribe and explain its importance in geographical studies.

ILO 1.2 Describe the major characteristics and classification of tribal communities.

ILO 1.3 Explain the concept of tribal ecological knowledge and its relevance in environmental adaptation.

CO2: Analyze the spatial distribution, origin, and demographic characteristics of tribal communities in North-East India and the Brahmaputra Valley.

ILO 2.1 Describe the distribution and classification of tribes in North-East India.

ILO 2.2 Explain the origin and demographic characteristics of tribal communities in the Brahmaputra Valley.

ILO 2.3 Identify major tribes of the region and analyze their spatial distribution patterns.

CO3: Evaluate theoretical perspectives, constitutional provisions, and ethnic identity related to tribal communities in India.

ILO 3.1 Explain the relationship between tribe, ethnicity, and identity.

ILO 3.2 Describe constitutional provisions related to tribal communities in India.

ILO 3.3 Analyze major theories of tribe such as Isolation, Assimilation, Integration, and contemporary perspectives.

CO4: Examine socio-economic structures, cultural traditions, and worldviews of tribal communities in Assam.

ILO 4.1 Explain the structure of tribal society, economy, and cultural practices.

ILO 4.2 Describe the tribal worldview and relationships among humans, nature, and the supernatural.

ILO 4.3 Analyze customary laws, social sanctions, and cultural institutions in tribal communities.

CO5: Analyze development issues, modernization impacts, and policy interventions affecting tribal communities.

ILO 5.1 Explain the relationship between tribal communities, culture, and sustainable development.

ILO 5.2 Evaluate the impact of modernization and state policies on tribal societies.

ILO 5.3 Assess tribal rights, welfare policies, and development initiatives in the Brahmaputra Valley.

CO6: Apply cartographic and spatial analysis techniques to map tribal population distribution and autonomous administrative regions.

ILO 6.1 Prepare maps showing tribal population distribution and density in Assam.

ILO 6.2 Identify and map Sixth Schedule autonomous areas including the Bodoland Territorial Region, Karbi Anglong Autonomous Council, and Dima Hasao Autonomous Council.

ILO 6.3 Interpret spatial patterns of tribal distribution and governance structures.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3,CO4	CO5	
Procedural			CO6			
Metacognitive						CO6

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	S		
CO4	M	S		M		M		
CO5	M	S		M		S	M	
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

1. Andre Beteille (1986) The Concept of Tribe with Special Reference to India, European Journal of Sociology, Volume 27.
2. Mann, R.S. (1993), Culture and Integration of Indian Tribes, New Delhi: MD Publication Pvt Ltd.
3. Midgley, James (2006), "Developmental Social Policy: Theory and Practice"
4. Prakash Chandra Mehta (2006) Development of Indian Tribes, New Delhi: Discovery Publishing House.
5. Rath Gobind Chandra (2006) Nehru and Elwin on Tribal Development: Contrasting Perspective, in Rath Gobind Chandra (ed.): "Tribal Development in India: the Contemporary

6. Sahu, Chaturbhuj (2006), Aspects of Tribal Studies, New Delhi: Swarup & Sons.
7. Vidyarthi, L. P. and B. K. Rai (1985), Tribal Culture of India, Delhi: Concept Publications.

GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 10th SEMESTER

Title of the Course	:	URBAN GEOGRAPHY
Course Code	:	DSE-06
Nature of The Course	:	DSE
Total Credits	:	4 Credits (3+1)
Distribution of Marks	:	60 (End Sem) 45T+15) + 40 (In-Sem)

Course Description

This course introduces the fundamental concepts, theories, and spatial processes of urban geography. It examines the nature and development of urbanization, patterns of urban growth in developed and developing regions, and the morphology and functional structure of cities. The course also explores urban social environments, issues such as housing, slums, infrastructure, and urban environmental problems. Students will study urban hierarchy and planning experiences in India and develop practical skills in spatial analysis of urban patterns using techniques such as mean centre analysis, rank–size rule, urban population mapping, and network analysis.

Course Objectives: The course aims to:

1. Provide an understanding of the nature, scope, and development of urban geography and processes of urbanization.
2. Explain major concepts and theories related to urban morphology, land-use structure, and spatial organization of cities.
3. Examine urban social environments and major urban issues such as housing, poverty, infrastructure, and environmental problems.
4. Analyze urban hierarchy, spatial organization, and planning experiences in India.
5. Develop analytical and cartographic skills to interpret urban spatial patterns and urban growth using quantitative and GIS-based techniques.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Fundamentals of Urban Geography	a) Nature and scope and development of urban geography b) The bases of urbanization- Demographic, economic and social aspects- Origins of the cities- Urbanisation Trends – urban fringe, urban sprawl, and suburbanization c) Patterns of Urbanisation in developed and developing countries	12	2		14
2 (15 marks)	Concepts and Theories	a) Concept and Theories of urban morphology: Concentric Zone Model, Multiple Nuclei Model, Central Place Theory c) Morphology of Indian Cities d) Functional classification of Indian cities.	13	2		15

3 (15 marks)	Urban Hierarchy	a) Meaning of urban hierarchy. b) Difference between hierarchy and rank of urban centres. c) Bases of urban hierarchy. d) Various attempts determining urban hierarchy.	14	2		16
4 (15 marks)	Practical	a. Urban Population Density/distribution/Growth Mapping b. Rank size rule. c. Urban Sprawl and Urban heat Island d. Network Accessibility and Proximity Analysis		2	28	30
		Total	39	8	28	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- One Internal Examination - **20 Marks**
- Others (Any one) - **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate
 - Practical **10 Marks**

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the nature, scope, and development of urban geography and analyze the demographic, economic, and social bases of urbanization.

ILO 1.1 Define urban geography and explain its scope and evolution as a branch of geography.

ILO 1.2 Describe demographic, economic, and social factors responsible for urbanization and the origin of cities.

ILO 1.3 Explain urbanization trends including urban fringe, suburbanization, and urban sprawl.

CO2: Analyze the spatial patterns of urbanization in developed and developing countries and evaluate the processes influencing urban growth.

ILO 2.1 Describe global patterns of urbanization in developed and developing regions.

ILO 2.2 Analyze differences in urban growth patterns and socio-economic structures between developed and developing countries.

ILO 2.3 Evaluate factors influencing rapid urbanization and its spatial implications.

CO3: Explain urban morphology, land-use patterns, and major theoretical models of urban spatial structure.

ILO 3.1 Describe the concept of urban morphology and patterns of land use within cities.

ILO 3.2 Explain classical models of urban structure such as the Concentric Zone Model, Multiple Nuclei Model, and Central Place Theory.

ILO 3.3 Examine the morphology and functional classification of cities in India.

CO4: Evaluate the social environment and major urban issues affecting city life and urban sustainability.

ILO 4.1 Explain social aspects of cities including social stratification, diversity, poverty, and crime.

ILO 4.2 Analyze urban issues such as housing shortages, slums, civic amenities, and the urban heat island effect.

ILO 4.3 Evaluate urban planning experiences and housing policies in India.

CO5: Examine the concept of urban hierarchy and analyze the spatial organization and ranking of urban centres.

ILO 5.1 Define urban hierarchy and distinguish between hierarchy and rank of urban centres.

ILO 5.2 Explain the bases used for determining urban hierarchy.

ILO 5.3 Analyze different methods and attempts used to determine urban hierarchy.

CO6: Apply quantitative and cartographic techniques to analyze spatial patterns of urbanization and urban systems.

ILO 6.1 Conduct mean centre analysis and prepare maps showing urban population distribution or growth.

ILO 6.2 Apply the rank–size rule to analyze the size distribution of cities.

ILO 6.3 Analyze urban sprawl, urban heat island effects, and transport network accessibility using spatial analysis techniques.

Cognitive Map Course Outcomes with Bloom’s Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3, CO5	CO4	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	S		
CO4	M	S		M	S	S		
CO5	M	S		M	S	M	M	
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

1. Carter: The Study of Urban Geography, Edward Arnold Publishers, London, 1972.
2. Chorley, R.J.O., Haggett P. (ed.): Models in Geography, Methuen, London, 1966.
3. D., Martin, R., Smith, G. (eds.) Human Geography. Palgrave, London. https://doi.org/10.1007/978-1-349-23638-1_9
4. Dickinson, R.E.: City and Region, Routledge, London, 1964.
5. Dwyer, D.J. (ed.) The City as a Centre of Change in Asia, University of Hong Kong Press, Hongkong, 1971.

6. Gibbs J.P.: Urban Research Methods D. Van Nostrand Co. Inc. Princeton, New Jersey, 1961.
7. Hauser, Philip M. and Schnore Leo F. (ed.): The Study of Urbanisation, Wiley, 1965.
8. James, P.E. and Jones C.F. (eds.): American Geography, Inventory and Prospect, Syracuse University Press, Syracuse, 1954.
9. Kaplan, David H. (2009): Urban Geography, New Jersey: Wiley and Sons Inc
10. Kundu, A. : Urban Development and Urban Research in India, Khanna Publication, 1992.
11. Latham et al. (2008): Key Concepts in Urban Geography, London: Sage Publications
12. Mayer, Harold M. (1969): "Cities and Urban Geography", Journal of Geography, 68:6-19
13. Meyer, Iain R. and Richard J. Haggett (1981): Settlements, London: Harper & Row, Publishers
14. Meyor, H.M. Kohn C.F. (eds.): Readings in Urban Geography, University of Chicago Press, 1955.
15. Nangia, Sudesh Delhi Metropolitan Region: A study in settlement geography, Rajesh Publication, 1976.
16. Pacione, Michael (2009): Urban Geography: A Global Perspective, London: Routledge
17. Rao V.L.S.P. :Urbanisation in India: Spatial Dimensions. Concept Publishing Co. New Delhi
18. Rao VL.S.P.: The Structure of an Indian Metropolis: A study of Bangalore

**GEOGRAPHY PROGRAMME (FYIPGP)
DETAILED SYLLABUS OF 10th SEMESTER**

Title of the Course	:	GEOGRAPHY OF RURAL DEVELOPMENT
Course Code	:	DSE-7
Nature of The Course	:	DSE
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End Sem) (45T+15P) + 40 (In-Sem)

Course Description

This course introduces the geographical dimensions of rural development with emphasis on rural economy, resources, development theories, and planning approaches. It examines socio-economic indicators of rural development, rural livelihood systems, and challenges faced by rural areas. The course also analyzes major rural development programmes and the role of institutions such as the Panchayati Raj Institutions in India. Practical components focus on the application of computer technology, data analysis, and thematic mapping to understand spatial patterns of rural development.

Course Objectives: The course aims to:

1. Provide a geographical understanding of rural development and rural settlement characteristics.
2. Introduce key theories and concepts related to rural economy and development.
3. Examine rural resources, livelihoods, and socio-economic challenges in rural areas.
4. Analyze major rural development programmes implemented in India.
5. Understand the role of governance and institutions in rural development planning.
6. Develop practical skills in data analysis, mapping, and the use of computer applications in rural development studies.

UNITS	NAME	CONTENTS	L	T	P	Total Hours
1 (15 marks)	Introduction to Rural Development	a) Rural Development: Definition and need. b) Characteristics of Rural Areas and Rural Settlements. c) Approaches to Rural Development: Front Approach, Sectoral Approach, Area Approach, Target Group Approach, Integrated/Holistic Approach	12	2		14
2 (15 marks)	Rural Economy and Resource Base	a) Agriculture and Rural Livelihoods: Agricultural systems in rural areas, Subsistence and commercial agriculture b) Rural Resources: Land, Water, Forest c) Issues and Challenges of Rural Areas: Economic Challenges, Infrastructure & Connectivity, Social & Demographic	13	2		15

		Issues, Environmental.				
3 (15 marks)	Rural Development Planning and Programmes	a) Role of Panchayati Raj Institutions in Rural Development b) Major Rural Development Programmes in India: Integrated Rural Development Programme (IRDP), Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), National Rural Livelihood Mission (NRLM), Pradhan Mantri Gram Sadak Yojana (PMGSY), Jal Jeevan Mission	14	2		16
4 (15 marks)	Practical	(a) Preparation of Thematic Maps: Mapping rural population distribution/density/ (b) Calculation and graphical presentation of literacy rate/sex ratio/work participation rate using census data or any other source		2	28	30
		Total	39	8	28	75

Where,

L: Lectures

T: Tutorials

P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

(40 Marks)

- One Internal Examination - **20 Marks**
- Others (Any one) - **10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate
 - Practical **10 Marks**

Course Outcomes (COs) and Intended Learning Outcomes (ILOs)

CO1: Explain the concept, importance, indicators, and geographical perspectives of rural development.

ILO 1.1 Define rural development and explain its need and significance in geographical studies.

ILO 1.2 Describe the characteristics of rural areas and rural settlements.

ILO 1.3 Identify and explain socio-economic and political indicators used to measure rural development.

CO2: Analyze major theories and conceptual approaches related to rural development and rural economy.

ILO 2.1 Explain the differences between rural and urban sociology and their interactions in migration, education, and health.

ILO 2.2 Describe major development theories such as those proposed by Walt Whitman Rostow, W. Arthur

Lewis, and Karl Marx.

ILO 2.3 Analyze the transformation of traditional agriculture and rural livelihood systems.

CO3: Evaluate rural resources, agricultural systems, and socio-economic challenges affecting rural areas.

ILO 3.1 Describe the importance of land, water, and forest resources in rural development.

ILO 3.2 Explain subsistence and commercial agricultural systems in rural areas.

ILO 3.3 Analyze economic, infrastructural, social, demographic, and environmental challenges faced by rural communities.

CO4: Examine rural development programmes and institutional frameworks implemented in India.

ILO 4.1 Describe major rural development programmes such as Mahatma Gandhi National Rural Employment Guarantee Act, Pradhan Mantri Gram Sadak Yojana, and Swachh Bharat Mission.

ILO 4.2 Explain the objectives and impact of rural development initiatives on livelihoods and infrastructure.

ILO 4.3 Evaluate the role of Panchayati Raj Institutions in planning and implementing rural development programmes.

CO5: Assess planning approaches and strategies for sustainable rural development.

ILO 5.1 Explain various approaches to rural development such as sectoral, area-based, and integrated approaches.

ILO 5.2 Evaluate the role of stakeholders in rural development planning.

ILO 5.3 Analyze strategies for improving rural livelihoods and reducing rural disparities.

CO6: Apply computer applications, statistical methods, and cartographic techniques to analyze rural development data.

ILO 6.1 Use spreadsheet and statistical tools for analyzing rural development data.

ILO 6.2 Prepare graphs and charts representing demographic and socio-economic indicators such as literacy rate, sex ratio, and work participation rate.

ILO 6.3 Prepare thematic maps showing rural population distribution and other development indicators using census or secondary data.

Cognitive Map Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Remember	Understand	Apply	Analyze	Evaluate	Create
Factual		CO1				
Conceptual		CO1, CO2		CO3	CO4, CO5	
Procedural			CO6			
Metacognitive						

Mapping of Course Outcomes to Program Outcomes

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
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CO1	S	M		M		M		
CO2	S	S		M		M		
CO3	M	S		M	M	S		
CO4	M	S		M		S	M	
CO5	M	S		M		S	M	
CO6	M	M	S	S	S			M

S- Strong correlation

M-Medium correlation

Suggested Readings:

1. Anand, Subhash (2013): Dynamics of Rural Development, Research India Press, Delhi.
2. Desai, Vasant (2012): Rural Development in India, Himalaya Publishing House, Mumbai
3. Gilg, A.W. (1985): An Introduction to Rural Geography, Edwin Arnold, London.
4. Hossain, T. Et al. (2018): Fundamental of Rural Development, IK international Publishing House PVT.LTD
5. Krishnamurthy, J., (2000): Rural Development - Problems and Prospects, Rawat Pubs., Jaipur.
6. Lee, D.A..and Chaudhri, D.P., eds.(1983): Rural Development and State, Methuen, London.
7. Misra, R.P., and Sundaram, K.V., eds.(1979): Rural Area Development – Perspectives and Approaches, Sterling, New Delhi.
8. Misra, R.P., ed.(1985): Rural Development – Capitalist and Socialist Paths, Vol. 1 , Concept, New Delhi.
9. Mishra, S.K. and Puri V.K., (2018): Economics of Development and Planning, Himalaya PublishingHouse, Mumbai
10. Pacione, M.(1984): Rural Geography, Harper and Row, London.
11. Ramachandran, H., and Guimaraes, J.P.C. (1991): Integrated Rural Development in AsiaLearning from Recent Experience, Concept Publishing, New Delhi.
12. Robb, P. (1983): Rural South Asia – Linkages, Change and Development, Curzon Press.
13. Singh. K. (2016): Rural Development: Principle, Policies and Management, Sage Publication
14. Singh, R.B. (1985): Geography of Rural Development, Inter India, New Delhi.
15. UNAPDI (1986): Local Level Planning and Rural Development Alternative Strategies, (United Nations Asian & Pacific Development Institute, Bangkok), Concept Publications Co., New Delhi.
16. Wanmali, S. (1992): Rural Infrastructure Settlement Systems and Development of the Regional Economy in South India, International Food Policy Research Institute, Washington, D.C.
17. Yugandhar, B.N. and Mukherjee, Neela eds. (1991): Studies in Village India: Issues in Rural Development, Concept Publications. Co., New Delhi.

GEOGRAPHY PROGRAMME (FYIPGP)

DETAILED SYLLABUS OF 10th SEMESTER

Title of the Course	:	SURVEYING TECHNIQUES
Course Code	:	DSE-8
Nature of The Course	:	DSE
Total Credits	:	4 Credits (3+1=4)
Distribution of Marks	:	60 (End Sem) (45T+15P) + 40 (In-Sem)

Course Description:

This course provides an introduction to the fundamental surveying techniques used in geography. Students will learn the principles and practices of various surveying methods, including fieldwork, data collection, and data analysis. Emphasis is placed on understanding how these techniques are applied in geographic studies and the importance of accuracy and precision in spatial data collection.

Course Objectives:

- To introduce the basic concepts and principles of surveying
- To study the various types of field survey methods, tools and techniques; principles of different types of ground surveying for the preparation of maps/plans for different geographical context.
- To develop skills in conducting field surveys and data collection.
- To train students in processing and analysing survey data.
- To understand the concept of using survey tools to enhance knowledge and skills.
- To understand the application of surveying techniques in mapping.

UNIT	NAME	CONTENTS	L	T	P	Total Hours
1 (15 Marks)	Introduction and principle of Surveying	a. Field Surveying: meaning, types and significance in geography. b. Principles of surveying: plane and geodetic surveying, vertical and horizontal control, principle of triangulation.	12	3		15
2 (15 Marks)	Techniques of Surveying	a. Techniques of surveying by Plane Table, Prismatic compass, Dumpy's Level and Theodolite.	12	3		15
3 (15 Marks)	Methods of Surveying	a. Radiation and intersection. b. Open and closed traverse. c. Contouring. d. Levelling. e. GPS: Basic concept, principles and uses.	12	3		15
4 (15 Marks)	Practical	a. Conduct a plane table survey by intersection/radial method and prepare a map. b. Survey a suitable area by prismatic compass (open and close traverse) and adjust the closing error. c. Draw a contour map by using Dumpy's level. d. Measure the height of an object: base is approachable and not approachable. e. Survey and prepare a map by using hand held GPS.		2	28	30
		TOTAL	36	11	28	75

Where, L: Lectures T: Tutorials P: Practicals

MODES OF IN-SEMESTER ASSESSMENT:

40 Marks

- **Two Internal Examination - 20 Marks**
- **Others (Any one) - 10 Marks**
 - Group Discussion
 - Seminar presentation on any of the relevant topics
 - Debate
- **Practical 10 Marks**

Course Outcomes (COs) and Intended Learning Outcomes (ILOs): Students will be able to:

CO1: State the principles and importance of surveying in geography

ILO 1.1: Explain the fundamental concepts and principles of surveying

ILO 1.2: Describe the significance of surveying in geography.

ILO 1.3: Discuss the role of accuracy and precision in surveying.

CO2: Proficiently use various surveying instruments and tools

ILO 2.1: Identify and describe the function of different surveying instruments.

ILO 2.2: Demonstrate the correct use of surveying instruments in the field.

ILO 2.3: Perform calibration and maintenance of surveying equipment.

CO3: Conduct accurate field surveys and collect spatial data

ILO 3.1: Plan and design a field survey, including site selection and layout.

ILO 3.2: Execute field surveys using appropriate techniques and methodologies.

ILO 3.3: Record and manage spatial data accurately during fieldwork.

CO4: Interpret survey data for geographic applications

ILO 4.1: Process raw survey data using relevant software tools such as GPS.

ILO 4.2: Create maps and other visual representations from survey data.

ILO 4.3: Evaluate the accuracy and reliability of survey data and results.

CO5: Apply surveying techniques to real-world geographic problems and mapping projects

ILO 5.1: Integrate surveying data with modern mapping tools for analysis.

ILO 5.2: Solve geographic problems using survey data and techniques.

ILO 5.3: Develop and present a comprehensive mapping project based on survey data.

Cognitive Map of Course Outcomes with Bloom's Taxonomy

Knowledge Dimension	Cognitive Process Dimension					
	Remember	Understand	Apply	Analyse	Evaluate	Create
Factual				CO4		
Conceptual	CO1	CO1				
Procedural			CO3 CO5		CO5	CO4
Metacognitive	CO2	CO4				CO3

Mapping of Course Outcomes to Program Outcomes

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	S	S	M	M	S	S	M	M
CO2	S	S	S	S	M	M	S	M
CO3	M	S	S	S	S	S	S	M
CO4	S	S	M	M	M	S	S	M
CO5	M	S	S	S	S	S	S	S

Where, S: Strong correlation

M: Medium correlation

Suggested Readings:

1. Kanetkar, T.P. and Kulkarni, S.U.: Surveying and Leveling Part-I and II, Vidyarthi GrithaPrakashan, Pune.
2. Mishra, R.P. and Ramesh,A. 1995: Fundamentals of Cartography, Concept Publishing Company.
3. Campbell, J.,1984: Introductory Cartography, Prentice Hall Inc.
4. Robinson, A.H., et al: Elements of Cartography, John Wiley Sons, New York.
5. Das, A,K. 2021: Pocket Size Handbook on Handling of GPS for Field Studies, GTAD and Aranyak, Guwahati (in PDF Format).

