



**ROYAL GLOBAL UNIVERSITY**  
— GUWAHATI —

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

**DEPARTMENT OF GEOGRAPHY**

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

**FOR**

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

**W.E.F**

**AY - 2025- 26**

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

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

**YEAR- 2**

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

**YEAR- 3**

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

**YEAR- 4**

<b>Semester 7</b>				
<b>Sl. No</b>	<b>Subject Code</b>	<b>Names of subjects</b>	<b>Level of courses</b>	<b>Credit</b>
<b>Major Course</b>				
1	GEO162 M701	Geography of Rural Development	400	4
2	GEO162 M702	Urban Geography	400	4
3	GEO162 M703	Geography of North East India and Assam	400	4
4	GEO162 M704	Field Techniques in Geography	400	4
<b>Minor</b>				
5	GEO162N701	Geography of North East India	400	4
<b>TOTAL</b>				<b>20</b>
<b>Semester 8</b>				
<b>Sl. No</b>	<b>Subject Code</b>	<b>Names of subjects</b>		<b>Credit</b>
<b>Major Courses</b>				
1	GEO162M801	Statistical Geography	400	4
2	GEO162M822	Dissertation/Research Project	400	12
<b>Minor</b>				
3	GEO162N801	Research Methodology	400	4
400 level advance core course		In lieu of Dissertation /Research Project		
	GEO162M804	Global Climate Change	400	4
	GEO162M805	Environment and Sustainable Development	400	4
	GEO162M806	Geography of Health	400	4

# **Semester 1**

**Semester 1  
Major course**

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

**Course Outcomes:**

After successful completion of the course, the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
CO1	<b>Define</b> the various parameters and components of the sub-branch.	BT1
CO2	<b>Interpret</b> the development of a humanistic view of geography.	BT2
CO3	<b>Identify</b> the various aspects of human geography.	BT3
CO4	<b>Discover</b> the humanistic perspective and its dimensions in Geography in relation to the physical and cultural surrounding.	BT4

**Detailed Syllabus:**

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

Notional Credit Hours for the course: 30X3= 90

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

**Text Books:**

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

**Reference books:**

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

<b>Paper II Core Course</b>	<b>GEOMORPHOLOGY</b> L-T-P-C: 3-0-0-3      Scheme of Evaluation: (T)      Course Level : 100	<b>Subject Code: GEO162M102</b>
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**Course Objectives:** *The pivotal point of this course is to make students familiar with the fundamental concepts of geomorphology which incorporates the topics related to geomorphic structure and processes, earth's interior and composition, evolution of landforms and so on.*

**Course Outcomes:**

After successful completion of the course, the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
C01	<b>Define</b> the functioning of Earth systems in real time.	BT1
C02	<b>Outline</b> the roles of structure, stage and time in shaping the landforms along with <b>interpreting</b> geomorphological maps.	BT2
C03	<b>Apply</b> the knowledge in geographical research.	BT3
C04	<b>Distinguish</b> between the mechanisms that control these processes and also <b>analyse</b> how the natural and anthropogenic operating factors affect the development of landforms.	BT4

**Detailed Syllabus:**

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

Notional Credit Hours for the course: 30X3= 90

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

**Text Books:**

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

**Reference Books:**

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

## Minor

<b>Paper: Minor course</b>	<b>FUNDAMENTALS OF PHYSICAL GEOGRAPHY</b> L-T-P-C: 3-0-0-3    Scheme of Evaluation: (T)    Course Level : 100	<b>Subject Code:</b> GEO162N101
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**Course Objectives:** *The course aims to make students aware about physical surroundings (landforms, climate, ecosystems and oceanic landforms) their processes and patterns on the earth's surface and acquire knowledge on Ecological balance, Global climatic changes and consequences.*

**Course Outcomes:**

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

CO	Course Outcome	Blooms Taxonomy Level
CO1	<b>Define</b> the basic terms and terminologies related to physical earth.	BT1
CO2	<b>Compare</b> different global climatic patterns, climate change and its related consequences.	BT2
CO3	<b>Identify</b> physical processes and the resultant environment and its impact which shapes our life on planet earth.	BT3
CO4	<b>Examine</b> ecological, climatic and atmospheric phenomena of the earth.	BT4

**Detailed Syllabus:**

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

Notional Credit Hours for the course: 30X3= 90

Total credit in the paper	Lecture/Tutorial	Experiential Learning
3	60 hours	30 hours

**Text Books:**

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

**Reference Books:**

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

Semester - I		
<b>Paper I/Subject Name: Introduction to Indian Knowledge System - I</b>		
<b>Subject Code: IKS992K101</b>	<b>L-T-P-C - 2-1-0-3</b>	
<b>Credit Units: 3</b>	<b>Course Level: 100</b>	
<b>Scheme of Evaluation: Summative Assessment - 70% + Formative Assessment -30%</b>		
Credit Distribution (NCH)		
<b>Lecture/Tutorial (Hours)</b>	<b>Practical (Hours)</b>	<b>Experiential Learning (Hours)</b>
60	0	30

### Course objectives:

This Foundation course is designed to present an overall introduction to all the streams of IKS relevant to the UG program. It would enable students to explore the most fundamental ideas that have shaped Indian Knowledge Traditions over the centuries.

### Course Outcomes:

On completion of this course students will be able to :

<b>CO</b>	<b>Contents</b>	<b>BT Level</b>
<b>CO<sub>1</sub></b>	Recall the rich heritage of Indian knowledge systems	BT level 1
<b>CO<sub>2</sub></b>	Describe the contribution of Indian knowledge systems to the world	BT level 2
<b>CO<sub>3</sub></b>	Demonstrate knowledge of sociocultural and ethnolinguistic diversity that constitutes the soul of Bharatvarsha	BT level 2
<b>CO<sub>4</sub></b>	Apply traditional knowledge and techniques in day-to-day life	BT level 3
<b>CO<sub>5</sub></b>	Distinguish knowledge traditions that originated in the Indian subcontinent	BT level 3

<b>Module</b>	<b>Course Contents</b>	<b>Periods</b>

<b>I</b>	<p><b>Introduction to Indian Knowledge Systems (IKS):</b> About Indian Knowledge System; Definition of Indigenous/ Traditional Knowledge; Scope, and Importance of Traditional Knowledge. <b>Ancient India- Bharat Varsha:</b> People of Ancient Bharat Varsha; Our great natural heritage: The great Himalayas and the rivers; The civilizations of the Sindhu-Ganga valley, and the Brahmaputra valley; Our coastal plains; Our Nature: Forests and Minerals; Ancient Indian Traditional Knowledge and Wisdom about nature and climate.</p>	15
<b>Module</b>	<b>Course Contents</b>	<b>Periods</b>
<b>II</b>	<p><b>Indian Heritage of Knowledge:</b> Ancient Indian Knowledge: The <i>Vedas</i> and its components-the <i>Vedangas</i> Ancient Indian books and treaties: The <i>Sastras</i>.; The Great Indian Epics: The Ramayana and The Mahabharata Epics and religious treaties of ancient Assam: Introduction to Madhav Kandali's <i>Ramayan</i> and Srimanta Sankardev's <i>Dasam Skandha Bhagavat</i> of the Puranas; Ancient Traditional Knowledge-The <i>Agamas</i> ; The ancient Buddhist knowledge: <i>Tripitaka: Vinaya, Sutta</i> and <i>Abhidhamma Pitaka</i> <b>Languages and language studies in India:</b> What is linguistics?; Script and Language; Alphabet of the Indian; languages <i>Varnamala</i>: Origin, Evolution, and phonetic features; Languages of India; Important texts of Indian languages: Skills <i>Siksha</i>, Expression/Pronunciation-<i>Nirukta</i>, Grammer-<i>Vyakarana</i>, Poetic rhythm- <i>Chandas</i>;Paninian Grammar: A Brief Introduction <b>Introduction to Fine Arts and Performing Arts of India:</b> Ancient Indian classical music and dance forms: The Science of Dramas <i>Natyasastra</i> and the Science of Music-<i>Gandharva-Veda</i>; Aesthetics in Indian Art and Culture; Folk music and traditional dance forms of the Northeast.</p>	15
<b>III</b>	<p><b>Indian Science &amp; Technology:</b> Ancient India's contribution to Mathematics - Number System. Algebra and Arithmetic, Geometry and Trigonometry; Origin of Decimal system in India; nomenclature of numbers in the Vedas. Zero and Infinity. Sulba-sutras. Contribution of Brahmagupta and Sridhar Acharya to Mathematics. Important texts of Indian mathematics. <b>Indian Astronomy:</b> Planetary System. Motion of the Planets; Velocity of Light; Eclipse. Astronomy. Navagrahas. Important works in Indian Astronomy. Aryabhata and Nilakantha: Contribution to Astronomical Studies</p>	15

	<b>Indian Metal Works:</b> Mining Techniques. Types of Metals. Tools & Techniques for Metal Smelting with examples. Metalworks in premodern India: Special reference to NE India.	
<b>IV</b>	<b>Contribution of Ancient India to Health Sciences:</b> Traditional Indigenous systems of medicines in India: - <i>Ayurveda</i> and <i>Yoga</i> ; Elements of <i>Ayurveda</i> : <i>Gunas</i> and <i>Doshas</i> , <i>Pancha Mahabhuta</i> and <i>Sapta-dhatu</i> ; Concept of disease in <i>Ayurveda</i> ; <i>Ayurvedic</i> lifestyle practices: <i>Dinacharya</i> and <i>Ritucharya</i> ; Important <i>Ayurvedic</i> Texts; Hospitals in Ancient India; <i>Ayurveda</i> : Gift of India to the modern world.	15
<b>Total</b>		<b>60</b>

#### **Textbooks Books:**

1. Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavan RN. (2022), *Introduction to Indian Knowledge System: Concepts and Applications*. PHI Learning Private Ltd.
2. Mukul Chandra Bora, *Foundations of Bharatiya Knowledge System*. Khanna Book Publishing

#### **Reference Books:**

1. Baladev Upadhyaya, *Samskrta Śāstrom ka Itihās*, Chowkhambha, Varanasi, 2010.
2. D. M. Bose, S. N. Sen and B. V. Subbarayappa, Eds., *A Concise History of Science in India*, 2nd Ed., Universities Press, Hyderabad, 2010.
3. Astāngahrdaya, Vol. I, *Sūtrasthāna and Śarīrasthāna*, Translated by K. R. Srikantha Murthy, Vol. I, Krishnadas Academy, Varanasi, 1991.
4. Dharampal, *The Beautiful Tree: Indian Indigenous Education in the Eighteenth Century*, Dharampal Classics Series, Rashtrottana Sahitya, Bengaluru, 2021.
5. J. K. Bajaj and M. D. Srinivas, *Indian Economy, and Polity in Eighteenth-century Chengalpattu*, in J. K. Bajaj ed., *Indian Economy and Polity*, Centre for Policy Studies, Chennai, 1995, pp. 63-84.

***The experiential learning sessions may include:***

- **Field Visits:** Organizing visits to historical sites, museums, traditional craft centers, and other places relevant to Indian knowledge systems.
- **Interactive Sessions:** Engaging students in discussions with experts and practitioners in various fields of Indian knowledge systems to gain insights and practical knowledge.
- **Online Lecture Series:** Providing the students with online lectures by distinguished experts in the field of the Indian Knowledge System.
- **Hands-on Activities:** Providing opportunities for students to participate in activities related to traditional arts, crafts, music, dance, agriculture, etc., to understand the practical aspects of Indian knowledge systems.
- **Practical Demonstrations:** Conducting workshops or sessions to demonstrate traditional practices, such as yoga, Ayurveda, Vastu Shastra, etc., for the students.

**Type of Course:** AEC  
**(w.e.f. 2023-24) UG**  
**programmes Semester:**

**1st Course Code:**

CEN982A101

**Course Title:** CEN I: Introduction to Effective

**Communication Total credits:** 1

**Course level:** 100

**L-T-P-C:** 1-0-0-1

**Scheme of Evaluation:** Theory and Practical

**Course Objective:** To understand the four major aspects of communication by closely examining the processes and figuring the most effective ways to communicate with interactive activities.

**Course Outcomes:** On successful completion of the course the students will be able to

<b>SI No</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO 1</b>	<b>Identify</b> the elements and processes that make for successful communication and <b>recognise</b> everyday activities that deserve closer attention in order to improve communication skills	<b>BT 1</b>
<b>CO 2</b>	<b>Contrast</b> situations that create barriers to effective communication and <b>relate</b> them to methods that are consciously devised to overcome such hindrance	<b>BT 2</b>
<b>CO 3</b>	<b>Use</b> language, gestures, and para-language effectively to avoid miscommunication and <b>articulate</b> one's thoughts and build arguments more effectively	<b>BT 3</b>

<b>Detailed Syllabus</b>		
<b>Units</b>	<b>Course Contents</b>	<b>Periods</b>

<b>I</b>	Introduction to Effective Communication <ul style="list-style-type: none"> <li>• Listening Skills             <ul style="list-style-type: none"> <li>○ The Art of Listening</li> <li>○ Factors that affect Listening</li> <li>○ Characteristics of Effective Listening</li> </ul> </li> <li>• Guidelines for improving Listening skills</li> </ul>	<b>5</b>
<b>II</b>	<ul style="list-style-type: none"> <li>• Speaking Skills             <ul style="list-style-type: none"> <li>○ The Art of Speaking</li> <li>○ Styles of Speaking</li> <li>○ Guidelines for improving Speaking skills</li> <li>○ Oral Communication: importance, guidelines, and</li> </ul> </li> </ul>	<b>5</b>

	barriers	
<b>III</b>	<ul style="list-style-type: none"> <li>• Reading Skills             <ul style="list-style-type: none"> <li>○ The Art of Reading</li> <li>○ Styles of Reading: skimming, surveying, scanning</li> </ul> </li> <li>• Guidelines for developing Reading skills</li> </ul>	<b>5</b>
<b>IV</b>	<ul style="list-style-type: none"> <li>• Writing Skills             <ul style="list-style-type: none"> <li>○ The Art of Writing</li> <li>○ Purpose and Clarity in Writing</li> <li>○ Principles of Effective Writing</li> </ul> </li> </ul>	<b>5</b>

**Keywords:** Communication, Listening, Speaking, Reading, Writing

**Text:**

1. *Business Communication* by Shalini Verma

**References:**

1. *Business Communication* by P.D. Chaturvedi and Mukesh Chaturvedi
2. *Technical Communication* by Meenakshi Raman and Sangeeta Sharma

<b>Credit Distribution</b>		
<b>Lecture/Tutorial</b>	<b>Practicum</b>	<b>Experiential Learning</b>
15 hours	-	10 hours <ul style="list-style-type: none"> <li>- Movie/ Documentary screening</li> <li>- Peer teaching</li> <li>- Seminars</li> <li>- Field Visit</li> </ul>

**Subject Name: Behavioural Sciences -1**  
**Course code: BHS982A102**  
**Credit: 1**

**UG 1<sup>st</sup> semester**

**Course objectives:** To increase one's ability to draw conclusions and develop inferences about attitudes and behaviour, when confronted with different situations that are common in modern organizations.

**Course Outcomes:** On completion of the course the students will be able to :

CO1: Understand self & process of self exploration- BT 1

CO2: Learn about strategies for development of a healthy self-esteem- BT 2 CO3:

Apply the concepts to build emotional competencies-BT 3

**Detailed Syllabus:**

<b>Modules</b>	<b>Course Contents</b>	<b>Periods</b>
<b>I</b>	<b>Introduction to Behavioral Science</b> Definition and need of Behavioral Science, Self: Definition components, Importance of knowing self, Identity Crisis, Gender and Identity, Peer Pressure, Self-image: Self Esteem, Johari Window, Erikson's model.	<b>4</b>
<b>II</b>	<b>Foundations of individual behavior</b> Personality- structure, determinants, types of personalities. Perception: Attribution, Errors in perception. Learning- Theories of learning: Classical, Operant and Social	<b>4</b>
<b>III</b>	<b>Behaviour and communication.</b> Defining Communication, types of communication, barriers to communication, ways to overcome barriers to Communication, Importance of Non-Verbal Communication/Kinesics, Understanding Kinesics, Relation between behaviour and communication.	<b>4</b>
<b>IV</b>	<b>Time and Stress Management</b> Time management: Introduction-the 80:20, sense of time management, Secrets of time management, Effective scheduling. Stress management: effects of stress, kinds of stress-sources of stress, Coping Mechanisms. Relation between Time and Stress.	<b>4</b>
<b>Total</b>		<b>16</b>

**Text books**

- J William Pfeiffer (ed.) Theories and Models in Applied Behavioural Science, Vol 3, Management; Pfeiffer & Company
- Blair J. Kolasa, Introduction to Behavioural Science for Business, John Wiley & Sons Inc
- K.Alex, Soft skills; S.Chand.

**SEC**

<b>Paper SEC Course</b>	<b>Basics of Cartography</b> <b>L-T-P-C: 0-0-6-3</b> <b>Scheme of Evaluation: (P) Course</b> <b>Level : 100</b>	<b>Subject Code:</b> GE0162S111
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**Course Objectives:** *This course primarily focuses on the basic concepts of art and science cartography and map making in geographical study.*

**Course Outcomes:**

After successful completion of the course, the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
CO1	<b>Recall</b> knowledge regarding the classification and elements of maps.	BT1
CO2	<b>Interpret</b> graphs and prepare qualitative and quantitative thematic maps.	BT2
CO3	<b>Apply</b> the maps for the proper utilization in the process of development.	BT3
CO4	<b>Examine</b> the preparation of various thematic maps with the application of various techniques.	BT4

**Detailed Syllabus:**

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

Notional Credit Hours for the course: 30X3= 90

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

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**Text Books:**

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

**Reference books:**

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

# **Semester 2**

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

### Major (Course)

<b>Paper I Core Course</b>	<b>CLIMATOLOGY AND OCEANOGRAPHY</b> L-T-P-C: 3-0-0-3 Scheme of Evaluation: T Course Level : 200	<b>Subject Code: GE0162M- 201</b>
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**Course Objectives:** *The course aims to illustrate the atmospheric elements, processes and resultant weather and climates, the impact of climates on planet earth, the oceanic processes, ocean floor topography and marine resources.*

#### Course Outcomes:

After successful completion of the course, the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
CO1	<b>Define</b> the elements of weather and climate and its impacts at different scales.	BT1
CO2	<b>Demonstrate</b> weather charts, hythergraph and other similar practical exercises.	BT2
CO3	<b>Develop</b> the climatic aspects and its bearing on planet earth and the oceanic process and availability of resources.	BT3
CO4	<b>Distinguish</b> between the different aspects of climatic and oceanic terms.	BT4

#### Detailed Syllabus:

Modules	Topics and Course Content	Periods
Unit 1	The structure and composition of Earth's atmosphere; Elements of weather and climate; Factors affecting the distribution of temperature; Vertical and horizontal and seasonal distribution of temperature; Insolation and heat budget; Temperature inversion; Atmospheric pressure and circulation of planetary winds; Air masses and their characteristics	15
Unit 2	Cyclones: Tropical Cyclones, Temperate Cyclones, Monsoon - Origin and Mechanism, Jet Streams; Atmospheric Moisture: Evaporation, Humidity, Condensation, Fog and Clouds, Precipitation Types, Stability and Instability; Climatic Regions, Climate change and global warming, El Nino	15
Unit 3	Ocean floor topography of Indian, Atlantic and Pacific oceans; Oceanic water Movements: Waves, Currents, Tsunamis and Tides; rainfall frequency analysis, water deficiency and surplus graph, weather chart interpretation,	15
Unit 4	Salinity and Temperature of ocean water: Distribution and Determinants; Coral Reefs , Marine Deposits and Ocean Resources.	15

	<b>Total</b>	<b>60</b>
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Notional Credit Hours for the course: 30X3= 90

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

**Text Books:**

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

**Reference Books:**

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

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

**Learning Outcome:**

**Course Outcomes:**

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

CO	Course Outcome	Blooms Taxonomy Level
C01	<b>Define</b> the geographical aspects that organise economic space.	BT1
C02	<b>Illustrate</b> the geographical aspects of tourism in an area.	BT2
C03	<b>Develop</b> practical field knowledge about tourist places across India.	BT3
C04	<b>Analyse</b> the knowledge gathered through field visits and prepare their respective reports.	BT4

**Detailed Syllabus:**

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

Notional Credit Hours for the course: 30X3= 90

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

**Text Books:**

1. Bhatia, A. K., 1996: *Tourism Development: Principles and Practices*, Sterling Publishers, New Delhi.

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

**Reference Books:**

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

### Minor

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

**Course Outcomes:**

After successful completion of the course, the students will be able to:			
CO	Course Outcome	Blooms Level	Taxonomy
C01	<b>Define</b> the various parameters and components of the sub-branch.	BT1	
C02	<b>Interpret</b> the development of a humanistic view of geography.	BT2	
C03	<b>Identify</b> the various aspects of human geography.	BT3	
C04	<b>Discover</b> the humanistic perspective and its dimensions in Geography in relation to the physical and cultural surrounding.	BT4	

**Detailed Syllabus:**

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

Notional Credit Hours for the course: 30X3= 90

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

**Text Books:**

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

**Reference books:**

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

Semester – II		
<b>Paper II/Subject Name: Introduction to Indian Knowledge System - II</b>		
<b>Subject Code: IKS992K201</b>	<b>L-T-P-C – 2-1-0-3</b>	
<b>Credit Units: 3</b>	<b>Course Level: 100</b>	
<b>Scheme of Evaluation: Summative Assessment - 70% + Formative Assessment -30%</b>		
Credit Distribution (NCH)		
Lecture/Tutorial (Hours)	Practical (Hours)	Experiential Learning (Hours)
60	0	30

**Course objectives:**

This Foundation course is designed to present an overall introduction to all the streams of IKS relevant to the UG program. It would enable students to explore the most fundamental ideas that have shaped Indian Knowledge Traditions over the centuries.

**Course Outcomes:**

On completion of this course, students will be expected to –

CO	Contents	BT Level
CO <sub>1</sub>	Recall traditional Indian knowledge traditions constituting Indian culture	BT level 1
CO <sub>2</sub>	Summarize differences between classical literature in Sanskrit and other Indian languages	BT level 2
CO <sub>3</sub>	Compare knowledge traditions originating in NE India	BT level 2
CO <sub>4</sub>	Appreciate the contribution of Indian Knowledge Systems to the world	BT level 3

Module	Course Contents	Periods
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<b>I</b>	<p><b>Indian Classical Literature</b>  Indian Classical Literature: A Brief Introduction; Ancient Indian Spritual Poetics-<i>Kavya</i>: Contribution of Kalidasa <b>Diversity and Indian Culture:</b> Diversity and Indian Culture; Indigenous Faith and Religion; Preservation of culture and indigenous knowledge <b>The Purpose of Knowledge:</b> Understanding Self-Awareness and Spirituality; Indian concept and purpose of Knowledge and Education; Understanding Spirituality and Materialism: <i>Para</i> and <i>Apara Vidya</i></p>	15
<b>Module</b>	<b>Course Contents</b>	<b>Periods</b>
<b>II</b>	<p><b>Methodology of Indian Knowledge System:</b>  <i>Shruti</i> and <i>Smriti</i> traditions; Intoduction to <i>Shastras</i>; Manuscriptology: The art and science of documenting knowledge; Repositories of ancient manuscripts with special reference to the Northeast India.  <b>Indian Architecture and Town Planning:</b>  Introduction ancient Indian architecture; <i>Sthapatya-Veda</i>: An Introduction; Indigenous tools &amp; techniques for town planning &amp; Temple Architecture. Lothal, Mohan Jo Daro; Temple Art: Lepakshi Temple, Jagannath Puri Temple, Konark Sun Temple; Vernacular architecture of Assam: Special reference to Brahmaputra Valley</p>	15
<b>III</b>	<p><b>Indian Agriculture:</b>  Agriculture: Significance in Human Civilization; Sustainable Agriculture; Historical significance of agriculture and sustainable farming in India; Step Cultivation of India: Special reference to Northeast India; Wet rice cultivation of Assam.  <b>Indian Textiles:</b>  What is Textile?; Tradition of cotton and silk textiles in India; The historical contribution of textile and weaving to the Indian economy; Varieties of textiles and dyes developed in different regions of India with special reference to Northeast India</p>	15
<b>IV</b>	<p><b>Indian Polity and Economy:</b>  Understanding Kingdom and Chiefdom; Role of a king; The Indian idea of a well-organized polity and flourishing economy; The <i>Chakravarti</i> System: Administrative System of Ancient Bharatvarsha; Village administrative system: Northeast India; <i>Arthashastra</i>: Brief synopsis  <b>The outreach of Indian Knowledge System across Geographical Boundaries:</b>  Indian Languages; Scripts; Linguistics; Ayurveda; Yoga and Meditation; Textile; Decimal value place system-based arithmetic, Algebra and Astronomy</p>	15
<b>Total</b>		<b>60</b>

**Textbooks Books:**

3. Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavan RN. (2022), *Introduction to Indian Knowledge System: Concepts and Applications*. PHI Learning Private Ltd.
4. Mukul Chandra Bora, *Foundations of Bharatiya Knowledge System*. Khanna Book Publishing

**Reference Books:**

6. Baladev Upadhyaya, *Samskrta Śāstrom ka Itihās*, Chowkhambha, Varanasi, 2010.
7. D. M. Bose, S. N. Sen and B. V. Subbarayappa, Eds., *A Concise History of Science in India*, 2nd Ed., Universities Press, Hyderabad, 2010.
8. Astāngahrdaya, Vol. I, *Sūtrasthāna and Śārīrasthāna*, Translated by K. R. Srikantha Murthy, Vol. I, Krishnadas Academy, Varanasi, 1991.
9. Dharampal, *The Beautiful Tree: Indian Indigenous Education in the Eighteenth Century*, Dharampal Classics Series, Rashtrottana Sahitya, Bengaluru, 2021.
10. J. K. Bajaj and M. D. Srinivas, *Indian Economy, and Polity in Eighteenth-century Chengalpattu*, in J. K. Bajaj ed., *Indian Economy and Polity*, Centre for Policy Studies, Chennai, 1995, pp. 63-84.

***The experiential learning sessions may include:***

- Field Visits: Organizing visits to historical sites, museums, traditional craft centers, and other places relevant to Indian knowledge systems.
- Interactive Sessions: Engaging students in discussions with experts and practitioners in various fields of Indian knowledge systems to gain insights and practical knowledge.
- Online Lecture Series: Providing the students with online lectures by distinguished experts in the field of the Indian Knowledge System.
- Hands-on Activities: Providing opportunities for students to participate in activities related to traditional arts, crafts, music, dance, agriculture, etc., to understand the practical aspects of Indian knowledge systems.
- Practical Demonstrations: Conducting workshops or sessions to demonstrate traditional practices, such as yoga, Ayurveda, Vastu Shastra, etc., for the students.



2. Chaturvedi, P. D. and Chaturvedi, Mukesh. (2014). *Business Communication*. Pearson.
3. Raman, Meenakshi and Sharma, Sangeeta. (2011). *Technical Communication: Principles and Practice* (2nd Edition): Oxford University Press.

**References:**

1. Hair, Dan O., Rubenstein, Hannah and Stewart, Rob. (2015). *A Pocket Guide to Public Speaking*. (5th edition). St. Martin's. ISBN-13:978-1457670404
2. Koneru, Aruna.(2017) *Professional Communication*. New Delhi: Tata McGraw Hill ISBN-13: 978-0070660021
3. Raman, Meenakshi and Singh, Prakash.(2012). *Business Communication* (2nd Edition): Oxford University Press
4. Sengupta, Sailesh.(2011) *Business and Managerial Communication*. New Delhi : PHI Learning Pvt. Ltd.

**Subject Name: Behavioural Sciences -II**

**UG 2<sup>nd</sup> Semester**

**Course code: BHS982A202**

**Credit: 1**

**Course objectives:** To increase one's ability to draw conclusions and develop inferences about attitudes and behaviour, when confronted with different situations that are common in modern organizations.

**Course outcomes:** On completion of the course the students will be able to:

CO 1: Develop an elementary level of understanding of culture and its implications on personality of people-BT 1

CO2: Understand the concept of leadership spirit and to know its impact on performance of employees- BT 2

CO3: Understand and apply the concept of Motivation in real life- BT 3

<b>Modules</b>	<b>Course Contents</b>	<b>Periods</b>
<b>I</b>	<b>Culture and Personality</b> Culture: Definition, Effect, relation with Personality, Cultural Iceberg, Overview of Hofstede's Framework, Discussion of the four dimensions of Hofstede's Framework.	<b>4</b>
<b>II</b>	<b>Attitudes and Values</b> Attitude's definition: changing our own attitudes, Process of cognitive dissonance Types of Values, Value conflicts, Merging personal and Organisational values	<b>4</b>
<b>III</b>	<b>Motivation</b> Definition of motivation with example, Theories of Motivation (Maslow, McClelland's theory & Theory X and Y)	<b>4</b>
<b>IV</b>	<b>Leadership</b> Definition of leadership, Leadership continuum, types of leadership, Importance of Leadership, New age leaderships: Transformational & transactional Leadership, Leaders as role models.	<b>4</b>
<b>Total</b>		<b>16</b>

Text books:

- J William Pfeiffer (ed.) Theories and Models in Applied Behavioural Science, Vol 3, Management; Pfeiffer & Company
- Blair J. Kolasa, Introduction to Behavioural Science for Business, John Wiley & Sons Inc.
- Organizational Behaviour by Kavita Singh (Vikas publishers, 3rd Edition).

**SEC**

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

**Course Outcomes:**

After successful completion of the course, the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
C01	<b>Define</b> the fundamental terms and terminologies of Geoinformatics.	BT1
C02	<b>Outline</b> the strength and application of Geospatial Technology.	BT2
C03	<b>Build</b> map of the resources, their location and availability.	BT3
C04	<b>Analyse</b> the different remote sensing data sets collected from various platforms.	BT4

**Detailed Syllabus:**

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

Notional Credit Hours for the course: 30X3= 90

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

**Text Books:**

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

**Reference Books:**

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

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

<b>VAC Course</b>	<b>GEOGRAPHY OF INDIA</b>  L-T-P-C: 4-0-0-4 Credit Units: 4      Scheme of Evaluation: (T)	<b>Subject Code:</b> <b>VAC992V2015</b>
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**Course Objectives:** *The course aims to define the regional basis of India and evaluate the basic ideas of the different aspects of India.*

**Course Outcomes:**

<b>By the end of this course, the students will be able to:</b>		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO1.</b>	<b>Define</b> the concepts involved in explaining India as a regional unit.	<b>BT 1</b>
<b>CO2.</b>	<b>Compare</b> and <b>interpret</b> the disparity that prevails among the different states of India.	<b>BT 2</b>
<b>CO3.</b>	<b>Build</b> knowledge on population structure, industrial aspects, transport and communication of the region.	<b>BT 3</b>
<b>CO4.</b>	<b>Analyse</b> various prospects of India.	<b>BT 4</b>

**Detailed Syllabus:**

<b>Modules</b>	<b>Topics and Course Content</b>	<b>Periods</b>
Unit 1	India as a geographical entity, Location and situation; India in the context of neighbouring countries, Physical background of regional development: relief, drainage system, climate, soil and natural vegetation, major crops, Indian monsoon: mechanism and characteristics, natural disaster in India (earthquake, drought, flood, cyclone, tsunami, Himalayan highland hazards)	10
Unit 2	Population and development issues: population growth and its socio-economic implications, literacy, urbanization, occupation and social structure and development inequalities, tribes and religion	14
Unit 3	Mineral and power resources and development: iron ore, coal, petroleum and hydro- electric power potential, agro-climatic and physiographic divisions of India, agro climatic regions, industrial regions of India	12
Unit 4	Regional disparities in economic development: Agriculture, industry and transport and communication, India's geo-economic position in Asia and the world; its economic development policies and international relations.	12
<b>Total</b>		<b>48</b>

**Text Books:**

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

**Reference Books:**

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

## Semester 3

<b>MAJOR</b>	<b>ECONOMIC GEOGRAPHY</b>	<b>Subject Code:</b>
	<b>L-T-P-C: 4-0-0-4</b> <b>Credit Units: 4</b> <b>Scheme of Evaluation: (T)</b>	<b>GEO162 M301</b>

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

**Course Outcomes:**

After successful completion of the course, the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
C01	<b>Define</b> concepts and ways on how geographical aspects organise economic space.	BT1
C02	<b>Compare</b> different sectors of economy and arrive at logical conclusion regarding importance of each sector in economic development of the nation.	BT2
C03	<b>Identify</b> the principles and significance of economic geography.	BT3
C04	<b>Discover</b> new insights among students on the relevance of economy and geography and associated problems in contemporary times.	BT4

**Detailed Syllabus:**

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

**Text Books:**

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

**Reference Books:**

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

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

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

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

**Course Outcomes:**

By the end of this course the students will be able to:			
CO	Course Outcome	Blooms Level	Taxonomy
CO1	<b>Define</b> and understand the basic terms and concepts of soil and biogeography.	BT1	
CO2	<b>Interpret</b> the important issues pertaining to environment.	BT2	
CO3	<b>Construct</b> the basic properties, morphology and other properties associated with soil and biogeography.	BT3	
CO4	<b>Analyse</b> independently the various biodiversity conservation and management issues.	BT4	

**Detailed Syllabus:**

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

**Text Books:**

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

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

**Reference Books:**

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

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

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

**Course Outcomes:**

After successful completion of the course, the students will be able to:		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
CO1	<b>Define</b> and understand the basic terms and concepts of biogeography.	BT1
CO2	<b>Interpret</b> the important issues pertaining to environment.	BT2
CO3	<b>Construct</b> the basic concepts of biogeography.	BT3
CO4	<b>Analyse</b> independently the various biodiversity conservation and management issues.	BT4

**Detailed Syllabus:**

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

**Text Books:**

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

**Reference Books:**

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

<b>Course Interdisciplinary</b>	<b>AGRICULTURAL PRACTICES IN INDIA</b>  <b>L-T-P-C: 4-0-0-4 Credit Units: 4</b> <b>Evaluation: (T)</b>	<b>Course Code: GEO162I301</b>
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**Course Objectives:** *The course aims to make the students understand the role and place of agriculture in Indian Economy.*

**Course Outcomes:**

By the end of this course the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
C01	<b>Recall</b> the definition, basic concepts and field of Agricultural Geography.	BT1
C02	<b>Apply</b> the various indices associated with agriculture.	BT2
C03	<b>Develop</b> the basic ideas related to geographical perspective of agriculture in India.	BT3
C04	<b>Analyse</b> the fundamental processes associated with agricultural system of India.	BT4
C05	<b>Appraise</b> the significance of agriculture in Indian economy.	BT5

**Detailed Syllabus:**

Modules	Topics and Course Content	Periods
Unit 1	Place of Indian agriculture in global economy, type, characteristics, growth, distribution and development, Agricultural regions of India and their characteristics,	10
Unit 2	Indian agriculture: types, characteristics, growth, distribution and development, Agricultural land use pattern and shifting cropping pattern in India;	10
Unit 3	Regional variation in the levels of agricultural development in India - Food deficit and food surplus regions; nutritional index, sustainability of agricultural practices and production	14
Unit 4	Problems of Indian agriculture: crop and cropping hazards, sustainability of agricultural practices and production; Technological factors in Indian agriculture, Government policy for agricultural policy and planning and agricultural trade in India.	14
	<b>Total</b>	<b>48</b>

**Text Books:**

1. Bayliss Smith, T. P., 1987: The Ecology of Agricultural Systems. Cambridge University Press, London

2. Morgan, W.B. : *Agriculture in the Third World - A Spatial Analysis*. Westview Press, Boulder, 1978
3. Hussain, M., 2001: *Systematic Agricultural Geography*, Rawat Publication, Jaipur and New Delhi.

**Reference Books:**

1. Grigg, D.B., 1978: *Agricultural Systems of the World: An Evolutionary Approach*, Cambridge University Press, Cambridge.
3. Singh, J., 1976: *Agricultural Geography*, Tata McGraw Hill Pub. Co., New Delhi. Sukla, S. P. and
4. Agarwal, A.K.: *Agriculture in Northeast India*.
5. Hussain, M., 2001: *Systematic Agricultural Geography*, Rawat Publication, Jaipur and New Delhi.
6. Mohammad, N. (ed), 1992: *New Dimensions in Agricultural Geography* (in 8 Volumes), Concept Publishing Company, New Delhi.

**Type of Course: AEC (w.e.f. 2023-24) UG programmes Semester: 3rd**  
**Course Code: CEN982A301**

**Course Title: CEN III – Fundamentals of Business**  
**Communication Total credits: 1**

**Course level: 200**

**L-T-P-C: 1-0-0-1**

**Scheme of Evaluation: Theory and Practical**

**Course Objective:** The aim of the course is to develop essential business communication skills, including effective writing, speaking, and interpersonal communication, to enhance professional interactions, collaboration, and successful communication strategies within diverse corporate environments.

**Course Outcomes:** On successful completion of the course the students will be able to:

<b>SI No</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO 1</b>	Define and list business documents using appropriate formats and styles, demonstrating proficiency in written communication for various business contexts.	<b>BT 1</b>
<b>CO 2</b>	Demonstrate confident verbal communication skills through persuasive presentations, active listening, and clear articulation to	<b>BT 2</b>

	engage and influence diverse stakeholders.	
<b>CO 3</b>	Apply effective interpersonal communication strategies, including conflict resolution and active teamwork, to foster positive relationships and contribute to successful organizational communication dynamics	<b>BT 3</b>

**Detailed Syllabus**

Units	Course Contents	Periods
I	<b>Business Communication: Spoken and Written</b> <ul style="list-style-type: none"> <li>• The Role of Business Communication</li> <li>• Classification and Purpose of Business Communication</li> <li>• The Importance of Communication in Management</li> <li>• Communication Training for Managers</li> <li>• Communication Structures in Organizations</li> <li>• Information to be Communicated at the Workplace</li> <li>• Writing Business Letters, Notice, Agenda and Minutes</li> </ul>	5
II	<b>Negotiation Skills in Business Communication</b> <ul style="list-style-type: none"> <li>• The Nature and Need for Negotiation <ul style="list-style-type: none"> <li>○ Situations requiring and not requiring negotiations</li> </ul> </li> <li>• Factors Affecting Negotiation <ul style="list-style-type: none"> <li>○ Location, Timing, Subjective Factors</li> </ul> </li> <li>• Stages in the Negotiation Process <ul style="list-style-type: none"> <li>○ Preparation, Negotiation, Implementation</li> </ul> </li> <li>• Negotiation Strategies</li> </ul>	5
III	<b>Ethics in Business Communication</b> <ul style="list-style-type: none"> <li>• Ethical Communication</li> <li>• Values, Ethics and Communication</li> <li>• Ethical Dilemmas Facing Managers</li> <li>• A Strategic Approach to Business Ethics</li> <li>• Ethical Communication on Internet</li> <li>• Ethics in Advertising</li> </ul>	5
IV	<b>Business Etiquettes and Professionalism</b> <ul style="list-style-type: none"> <li>• Introduction to Business Etiquette</li> <li>• Interview Etiquette</li> <li>• Social Etiquette</li> <li>• Workplace Etiquette</li> <li>• Netiquette</li> </ul>	5

**Text:**

1. *Business Communication* by Shalini Verma

**References:**

1. *Business Communication* by PD Chaturvedi and Mukesh Chaturvedi
2. *Technical Communication* by Meenakshi Raman and Sangeeta Sharma

<b>Credit Distribution</b>		
<b>Lecture/Tutorial</b>	<b>Practicum</b>	<b>Experiential Learning</b>
15 hours	-	10 hours - Group Discussion - Presentation - Quiz - Case Study

**Subject Name: Behavioural Sciences -III**

**UG 3rd semester**

**Course code: BHS982A302**

**Credit: 1**

**Course objectives:** To increase one's ability to draw conclusions and develop inferences about attitudes and behaviour, when confronted with different situations that are common in modern organizations. To enable the students to understand the process of problem solving and creative thinking.

**Course outcomes:** On completion of the course the students will be able to:

CO1: Understand the process of problem solving and creative thinking-BT 1

CO2: Develop and enhance of skills required for decision-making- BT 2

<b>Modules</b>	<b>Course Contents</b>	<b>Periods</b>
<b>I</b>	<b>Problem Solving Process</b> Defining problem, the process of problem solving, Barriers to problem solving(Perception, Expression, Emotions, Intellect ,surrounding environment)	<b>4</b>
<b>II</b>	<b>Thinking as a tool for Problem Solving</b> What is thinking: The Mind/Brain/Behaviour Critical Thinking and Learning: -Making Predictions and Reasoning. -Memory and Critical Thinking. - Emotions and Critical Thinking.	<b>4</b>
<b>III</b>	<b>Creative Thinking</b> - Definition and meaning of creativity, - The nature of creative thinking :Convergent and Divergent thinking, - Idea generation and evaluation (Brain Storming) - Image generation and evaluation. - The six-phase model of Creative Thinking: ICEDIP model	<b>4</b>
<b>IV</b>	<b>Building Emotional Competence</b> Emotional Intelligence – Meaning, components, Importance and Relevance Positive and Negative emotions Healthy and Unhealthy expression of emotions	<b>4</b>
<b>Total</b>		<b>16</b>

**Text books:**

- J William Pfeiffer (ed.) Theories and Models in Applied Behavioural Science, Vol 3, Management; Pfeiffer &Company
- Blair J. Kolasa, Introduction to Behavioural Science for Business, John Wiley & Sons Inc.

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

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

**Course Outcomes:**

<b>After successful completion of the course, the students will be able to:</b>		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO1.</b>	<b>Define</b> the statistical methods and quantitative techniques used in Geography.	<b>BT 1</b>
<b>CO2.</b>	<b>Interpret</b> various methods and techniques of data collection, data tabulation, data interpretation and analysis.	<b>BT 2</b>
<b>CO3.</b>	<b>Identify</b> the importance of data in geography.	<b>BT 3</b>
<b>CO4.</b>	<b>Analyse</b> data through tabulation, sample size and other methods by handling data in the field.	<b>BT 4</b>

**Detailed Syllabus:**

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

**Text Book:**

1. Berry B. J. L. and Marble D. F. (eds.): *Spatial Analysis – A Reader in Geography*.
2. Ebdon D., 1977: *Statistics in Geography: A Practical Approach*.
3. Gregory, S. (2014). *Statistical methods and the geographer*. Routledge.

4. Hammond P. and McCullagh P. S., 1978: *Quantitative Techniques in Geography: An Introduction*, Oxford University Press.
5. King L. S., 1969: *Statistical Analysis in Geography*, Prentice-Hall.

**References:**

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

# **Semester 4**

<b>Major</b>	<b>SOCIAL AND POLITICAL GEOGRAPHY</b>			<b>Subject Code:</b>
	<b>L-T-P-C: 4-0-0-4</b>	<b>Credit Units: 3</b>	<b>Scheme of Evaluation: (T)</b>	<b>GEO162M401</b>

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

**Course Outcomes:**

After successful completion of the course, the students will be able to:			
Sl. No.	Course Outcome	Blooms Level	Taxonomy
CO1	<b>Define</b> the fundamental concepts of social and political dimensions.	BT1	
CO2	<b>Interpret</b> the social, cultural, and political concepts in a broader and analytical manner	BT2	
CO3	<b>Build</b> knowledge on structures, formations of countries as well as on various schools of political geography	BT3	
CO4	<b>Analyze</b> the socio-cultural and political theme in the geographical dimensions	BT4	

**Detailed Syllabus:**

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

**Text Books:**

1. Sen, J (2016): *A Textbook of Social and Cultural Geography*, Kalyani Publishers, New Delhi
2. Dwiveda R. L. (2019): *Fundamentals of Political Geography*, Surjeet Publications, Delhi

**Reference Books:**

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

<b>MAJOR</b>	<b>ENVIRONMENTAL GEOGRAPHY</b>			<b>Subject Code:</b>
	<b>L-T-P-C: 4-0-0-4</b>	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (T)</b>	<b>GEO1M402</b>

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

**Course Outcomes:**

By the end of this course the students will be able to:			
CO	Course Outcome	Blooms Level	Taxonomy
CO1	<b>Relate</b> to basics of science of environmental change and sustainable development.	BT1	
CO2	<b>Classify</b> different types of natural resources and its importance.	BT2	
CO3	<b>Develop</b> understanding about various impacts of Climate Change on Agriculture and Water, Flora and Fauna, Human Health, ozone layer and other spheres of environment.	BT3	
CO4	<b>Inspect</b> upon the issues of adaptation and mitigation from hazards and management of solid wastes.	BT4	
CO5	<b>Explain</b> the policies of development and environmental protection in developed and developing countries.	BT5	

**Detailed Syllabus:**

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

**Text Book:**

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

**References:**

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

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

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

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

**Learning Outcomes:**

<b>After successful completion of the course the students will be able to:</b>		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO 1.</b>	<b>Define</b> the various contributions of scholars in the field of Geography in India.	<b>BT 1</b>
<b>CO 2.</b>	<b>Interpret</b> the significance of geographical consciousness in India.	<b>BT 2</b>
<b>CO 3.</b>	<b>Identify</b> the various Indian traditions associated with earth elements.	<b>BT 3</b>
<b>CO 4.</b>	<b>Discover</b> the physical and humanistic perspective and its dimensions in Geography in relation to the physical and cultural surrounding	<b>BT 4</b>
<b>CO 5.</b>	<b>Explain</b> the significance of Indian culture	<b>BT 5</b>

**Detailed Syllabus:**

<b>Modules</b>	<b>Topics and Course Content</b>	<b>Periods</b>
Unit 1	Indian Geographical concepts: the earth, eclipses, latitudes and longitudes, cardinal points; weather and climate, Describe the earliest known Indian scholars and their knowledge on Earth and Gravity: Aryabhata and Bhaskara	14
Unit 2	Concepts of Panchatatva: Prithvi (Earth), Pavan (air), Jal (water), Tej (Solar energy) and Nabh (sky), Traditional practices of environmental conservation in India: Traditional water management practices, Indian Culture and conservation of biodiversity case studies from North East India (sacred forest of Mawphlang and Balpakram	10
Unit 3	Traditional housing designs of tribes, food habits, clothes etc, Agriculture in ancient India, Use of metals in ancient India: iron, steel, copper etc. The First Urbanisation in India: Indus Valley Civilization	12
Unit 4	Indian cultural sites and their significance in Indian spirituality; the idea of tirthas and their geographical implications; ideas of ancient Indian trade with South east Asian region, folk tales and their relevance in present day geography, customary land laws of North East India	12
<b>Total</b>		<b>48</b>

**Text Books:**

1. Eck, D. L., 2013: India: A Sacred Geography, Harmony.
2. Mahadevan B. and Bhat V. R., 2022: Introduction To Indian Knowledge System: Concepts And Applications, PHI Learning.
3. Adhikari, S., 1992: Geographical Thought, Chaitanya Pub. House, Allahabad.

4. Dikshit, R. D., 1997: Geographical Thoughts: A Contextual History of Ideas, Prentice Hall of India, New Delhi.
5. Hussain, M., 2022: Evolution of Geographical Thought, Rawat Publication, New Delhi.

**Reference Books:**

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

MINOR	<b>ECONOMIC GEOGRAPHY</b>		<b>Subject Code: GEO162N40 1</b>
	<b>L-T-P-C: 3-0-0-3</b>	<b>Credit Units: 4</b>	

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

**Course Outcomes:**

After successful completion of the course, the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
CO1	<b>Define</b> concepts and ways on how geographical aspects organise economic space.	BT1
CO2	<b>Compare</b> different sectors of economy and arrive at logical conclusion regarding importance of each sector in economic development of the nation.	BT2
CO3	<b>Identify</b> the principles and significance of economic geography.	BT3
CO4	<b>Discover</b> new insights among students on the relevance of economy and geography and associated problems in contemporary times.	BT4

**Detailed Syllabus:**

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

**Text Books:**

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

**Reference Books:**

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

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

<b>Minor</b>	<b>REGIONAL DEVELOPMENT</b>			<b>Subject Code:</b>
	<b>L-T-P-C: 3-0-0-3</b>	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (T)</b>	<b>GE0162N402</b>

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

**Course Outcomes:**

After successful completion of the course, the students will be able to:			
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Level</b>	<b>Taxonomy</b>
CO1	<b>Define</b> basic concepts of regional development	BT1	
CO2	<b>Explain</b> the strategic importance and applicability of regional development	BT2	
CO3	<b>Build</b> plans for development in rural and urban regions	BT3	
CO4	<b>Apply</b> this knowledge in real world situations.	BT4	
CO5	<b>Interpret</b> various issues related to regional development on national and global perspective	BT5	

**Detailed Syllabus:**

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

**Text Book:**

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

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

**References:**

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

**Type of Course:** AEC (w.e.f. 2023-24) UG programmes  
**Semester:** 4th **Course Code:** CEN982A401

**Course Title:** CEN IV – Employability and Communication  
**Total credits:** 1

**Course level:** 200

**L-T-P-C:** 1-0-0-1

**Scheme of Evaluation:** Theory and Practical

**Course Objectives:** This course is designed to enhance employability and maximize the students' potential by introducing them to the principles that determine personal and professional success, thereby helping them acquire the skills needed to apply these principles in their lives and careers.

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

SI No	Course Outcome	Blooms Taxonomy Level
CO 1	<b>Demonstrate</b> understanding the importance of verbal and non-verbal skills while delivering an effective presentation.	BT 2
CO 2	<b>Develop</b> professional documents to meet the objectives of the workplace	BT 3
CO 3	<b>Define</b> and identify different life skills and internet competencies required in personal and professional life.	BT 3

Detailed Syllabus		
Units	Course Contents	Periods
I	<b>Presentation Skills</b> Importance of presentation skills, Essential characteristics of a good presentation, Stages of a presentation, Visual aids in presentation, Effective delivery of a presentation	5
II	<b>Business Writing</b> Report writing: Importance of reports, Types of reports, Format of reports, Structure of formal reports Proposal writing: Importance of proposal, Types of proposal, structure of formal proposals Technical articles: Types and structure	5

<b>III</b>	<p><b>Preparing for jobs</b>  Employment Communication and its Importance, Knowing the four- step employment process, writing resumes, Guidelines for a good resume, Writing cover letters  Interviews: Types of interview, what does a job interview assess,  strategies of success at interviews, participating in group discussions.</p>	<b>5</b>
<b>IV</b>	<p><b>Digital Literacy and Life Skills</b></p> <p><b>Digital literacy:</b> Digital skills for the '21st century', College students and technology, information management using Webspaces, Dropbox, directory, and folder renaming conventions. Social Media Technology and Safety, Web 2.0.  <b>Life Skills:</b> Overview of Life Skills: Meaning and significance of life skills, Life skills identified by WHO: self-awareness, Empathy, Critical thinking, Creative thinking, Decision making, problem- solving, Effective communication, interpersonal relationship, coping with stress, coping with emotion.  Application of life skills: opening and operating bank accounts, applying for pan, passport, online bill payments, ticket booking, gas booking.</p>	<b>5</b>

**Keywords:** Employability, business writing, presentation skills, life skills

**Text:**

1. *Business Communication* by PD Chaturvedi and Mukesh Chaturvedi

**References:**

1. *Business Communication* by Shalini Verma
2. *Technical Communication* by Meenakshi Raman and Sangeeta Sharma

<b>Credit Distribution</b>		
<b>Lecture/Tutorial</b>	<b>Practicum</b>	<b>Experiential Learning</b>
15 hours	-	10 hours - Movie/ Documentary screening - Field visits - Peer teaching - Seminars - Library visits

**Subject Name: Behavioural Sciences -IV**

**UG 4th semester**

**Course code: BHS982A402**

**Credit: 1**

**Course objectives:** To increase one's ability to draw conclusions and develop inferences about attitudes and behaviour, when confronted with different situations that are common in modern organizations.

**Course outcomes:** On completion of the course the students will be able to:

CO1: Understand the importance of individual differences- BT 1

CO2: Develop a better understanding of self in relation to society and nation- BT2

CO3: Facilitation for a meaningful existence and adjustment in society- BT 3

<b>Modules</b>	<b>Course Contents</b>	<b>Periods</b>
<b>I</b>	<b>Managing Personal Effectiveness</b> Setting goals to maintain focus, Dimensions of personal effectiveness (self-disclosure, openness to feedback and perceptiveness), Integration of personal and organizational vision for effectiveness, A healthy balance of work and play, Defining Criticism: Types of Criticism, Destructive vs Constructive Criticism, Handling criticism and interruptions.	<b>4</b>
<b>II</b>	<b>Positive Personal Growth</b> Understanding & developing positive emotions, Positive approach towards future, Impact of positive thinking, Importance of discipline and hard work, Integrity and accountability, Importance of ethics in achieving personal growth.	<b>4</b>
<b>III</b>	<b>Handling Diversity</b> Defining Diversity, Affirmation Action and Managing Diversity, Increasing Diversity in Work Force, Barriers and Challenges in Managing Diversity.	<b>4</b>
<b>IV</b>	<b>Developing Negotiation Skills</b> Meaning and Negotiation approaches (Traditional and Contemporary) Process and strategies of negotiations. Negotiation and interpersonal communication. Rapport Building – NLP.	<b>4</b>
<b>Total</b>		<b>16</b>

**Text books:**

- J William Pfeiffer (ed.) Theories and Models in Applied Behavioural Science, Vol 3, Management; Pfeiffer & Company

- Blair J. Kolasa, Introduction to Behavioural Science for Business, John Wiley & Sons Inc.

# Semester 5

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

<b>Paper I Major</b>	<b>REGIONAL PLANNING AND DEVELOPMENT</b>  <b>L-T-P-C: 4-0-0-4      Credit Units: 4      Scheme of Evaluation: (T)</b>	<b>Subject Code: GEO162M501</b>
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**Course Objectives:** *This course intends to make the students understand the concept of a region from a Geographic perspective and its ramifications in planning.*

### Course Outcomes:

After successful completion of the course, the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
C01	<b>Define</b> basic concepts of regional planning	BT1
C02	<b>Explain</b> the strategic importance and applicability of planning in multi-level aspects	BT2
C03	<b>Build</b> plans for development in rural and urban regions	BT3
C04	<b>Apply</b> this knowledge in real world situations.	BT4
C05	<b>Interpret</b> various issues related to regional planning on national and global perspective	BT5

### Detailed Syllabus:

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

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

**Text Book:**

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

**References:**

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

<b>Major Paper II</b>	<b>POPULATION AND SETTLEMENT GEOGRAPHY</b>		<b>Subject Code:</b>  <b>GEO162M 502</b>
	<b>L-T-P-C: 4-0-0-4</b>	<b>Credit Units: 4</b>	

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

**Course Outcomes:**

By the end of this course the students will be able to:		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
C01	<b>Tell</b> about the basic definitions and concepts related to population geography and human settlements.	BT1
C02	<b>Outline</b> the population parameters of India.	BT2
C03	<b>Apply</b> and analyse the resultant impact of contemporary issues related to population on society and environment.	BT3
C04	<b>Analyse</b> contemporary issues related to population dynamics and environment.	BT4
C05	<b>Determine</b> clear exposition of spatial and structural characteristics of human settlements	BT5

**Detailed Syllabus:**

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

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

**Text Books Suggested:**

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

**Reference books:**

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

<b>Paper III MAJOR</b>	<b>DISASTER MANAGEMENT</b>	<b>Subject Code: GEO162M50 3</b>
	<b>L-T-P-C: 4-0-0-4 Credit Units: 4      Scheme of Evaluation: (T)</b>	

**Course Objectives:** *The objective of this course is to make the student understand about the hazards, disasters, its associated causes and impacts, its distribution and mitigation with special reference to India.*

**Course Outcomes:**

<b>After successful completion of the course, the students will be able to:</b>		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
CO1.	<b>Define</b> the concepts of hazard and disaster and its related terminologies.	<b>BT 1</b>
CO2.	<b>Demonstrate</b> the distribution and mapping of disasters that is prevalent in India.	<b>BT 2</b>
CO3.	<b>Explain</b> the mitigation process and response to disasters across Indian territory.	<b>BT 2</b>
CO4.	<b>Distinguish</b> between causes and effect of varied disasters, as well as their implications in present day India.	<b>BT 4</b>

**Detailed Syllabus:**

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

**Text Book:**

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

**References:**

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

<b>Minor</b>	<b>POPULATION AND POLITICAL GEOGRAPHY</b>		<b>Subject Code:</b>
	<b>L-T-P-C: 4-0-0-4</b>	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (T)</b>
			<b>GEO162N501</b>

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

**Course Outcomes:**

By the end of this course the students will be able to:		
<b>CO.</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
CO1	<b>Tell</b> about the basic definitions and concepts related to population geography and human settlements.	BT1
CO2	<b>Outline</b> the population parameters of India.	BT2
CO3	<b>Apply</b> and analyse the resultant impact of contemporary issues related to population on society and environment.	BT3
CO4	<b>Build</b> knowledge on structures, formations of countries as well as on various schools of political geography	BT4
CO5	<b>Analyze</b> the socio-cultural and political theme in the geographical dimensions	BT5

**Detailed Syllabus:**

<b>Modules</b>	<b>Topics and Course Content</b>	<b>Periods</b>
Unit 1	Significance of Population and relation with demography; Key concepts of Population pressure: under population, optimum population, over population; Components of population change: fertility, mortality and migration; and associated factors	12
Unit 2	Population Growth and Distribution: World and India, factors influencing population distribution; Measures of population density and distribution; Demographic transition model and theory of population growth by Malthus; concept of population resource relationship and population resource regions	12
Unit 3	Nature, scope and subject matter of political geography; Approaches to the study of political geography, The field and school of thoughts in political geography: landscape school, ecology school	12
Unit 4	Concepts in political geography: frontier and boundary (with reference to India), lebensraum, state and nation, core-periphery and capital, buffer zone, federal state, Colonialism, desalinization, theories of Rim-land and Heartland.	12
	<b>Total</b>	<b>48</b>

**Text Books Suggested:**

- Singh R.Y. ( Rep. 2010 ) - Geography of Settlements, Sharda Pustak Bhawan, Allahabad
- Chandna R. C. (Rep.2010) – *A Geography of Population, Concepts, Determinants and Patterns*, Kalyani Publishers, New Delhi.

7. Maurya S.D (Rep. 2018): ***Settlement Geography***, Sharda Pustak Bhawan, Allahabad
8. Sandram, K. V. and Nangia, S., (eds): ***Population Geography***, Heritage Publishers, New Delhi. Inc., New York.

**Reference books:**

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

	<b>Internship</b>	<b>GEO162M5 24</b>
	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (P)</b>

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

**Course Outcomes:**

After the completion of course, the students will have ability to:		
CO	Course Outcome	Blooms Taxonomy Level
C01	<b>Relate</b> real world issues for carrying out research on a specific field	BT1
C02	<b>Infer</b> ideas of research through literature review.	BT2
C03	<b>Develop</b> hypotheses and research questions.	BT3
C04	<b>Identify</b> appropriate sampling techniques.	BT4
C05	<b>Interpret</b> the various types of data along with <b>critical evaluation</b> .	BT5
C06	<b>Design and develop</b> a detailed project report	BT6

**Detailed Syllabus:**

Modules	Topics and Course Content	Periods
Unit 1	Internship in institutes, organizations, and firms / industry of repute in Northeast India.	24
Unit 2	Preparation of internship report in prescribed format during 6th - 8th week of the commencement of course of 5th semester.  Submission of the report after a week of the announcement of routine for 5 <sup>th</sup>  End Semester Examination duly signed by the appropriate person in the institute concerned.	24
	<b>Total</b>	<b>48</b>

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

**Text Books:**

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

**Reference Books:**

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

**Learning Outcomes:**

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

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

# Semester 6

## SEMESTER 6

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

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

**Course Outcomes:**

By the end of this course the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
CO1	<b>Define</b> the concepts involved in explaining India as a regional unit.	BT1
CO2	<b>Compare</b> and <b>interpret</b> the disparity that prevails among the different states of India.	BT2
CO3	<b>Build</b> knowledge on population structure, industrial aspects, transport and communication of the region.	BT3
CO4	<b>Analyse</b> various prospects of India.	BT4
CO5	<b>Examine</b> the position of India in global context.	BT5

**Detailed Syllabus:**

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

**Text Books:**

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

**Reference Books:**

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

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

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

**Course Outcomes:**

By the end of this course the students will be able to:		
CO	Course Outcome	Blooms Taxonomy Level
CO1	<b>Define</b> the various parameters and components of Geography.	BT1
CO2	<b>Interpret</b> the chronological development of the subject of geography.	BT2
CO3	<b>Identify</b> the contributions made by the schools of geography.	BT3
CO4	<b>Discover</b> the physical and humanistic perspective and its dimensions in Geography in relation to the physical and cultural surrounding	BT4
CO5	<b>Explain</b> the various issues of real world with a geographical perspective	BT5

**Detailed Syllabus:**

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

**Text Books:**

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

**Reference Books:**

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

<b>Paper MAJOR</b>	<b>AGRICULTURAL GEOGRAPHY</b>		<b>Subject Code:</b>
	<b>L-T-P-C: 4-0-0-4</b>	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (T)</b>
			<b>GE0162M603</b>

**Course Objectives:** *The course tries to make the students understand the basic concepts of agricultural geography and its associated patterns and processes of the prime economic activities of the world.*

**Course Outcomes:**

<b>After successful completion of the course, the students will be able to:</b>		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO1.</b>	<b>Define</b> concepts of agricultural geography.	<b>BT 1</b>
<b>CO2.</b>	<b>Compare</b> different sectors of economy and arrive at logical conclusion regarding importance of agriculture sector in economic development of the nation.	<b>BT 2</b>
<b>CO3.</b>	<b>Identify</b> the principles and significance of agricultural geography.	<b>BT 3</b>
<b>CO4.</b>	<b>Discover</b> new insights on the relevance of agricultural geography and associated problems in contemporary times.	<b>BT 4</b>

**Detailed Syllabus:**

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

**Text Books:**

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

**Reference Books:**

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

**Learning Outcomes:**

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

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

<b>Paper MAJOR</b>	<b>PRACTICAL IN GEOGRAPHY</b>			<b>Subject Code: GEO162M604</b>
	<b>L-T-P-C: 0-0-8-4</b>	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (P)</b>	

**Course Objectives:** *The course aims at increasing the practical knowledge of the students.*

**Course Outcomes:**

By the end of this course the students will be able to:		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
C01	<b>Define</b> the principles and concepts involved in Practical Geography.	BT1
C02	<b>Classify</b> the nature, characteristics and sources of map projection.	BT2
C03	<b>Develop</b> the skills and technical capabilities of the students.	BT3
C04	<b>Simplify</b> the application of the concepts related to Geomorphology, Climatology and Population Geography.	BT4

**Detailed Syllabus:**

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

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

**Reference Books:**

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

<b>Minor</b>	<b>GEOGRAPHY OF DEVELOPMENT OF INDIA</b>			<b>Subject Code:</b> <b>GEO162N6 01</b>
	<b>L-T-P-C: 4-0-0-4</b>	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (T)</b>	

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

**Course Outcomes:**

<b>By the end of this course, the students will be able to:</b>		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO1.</b>	<b>Define</b> the concepts involved in explaining India as a regional unit.	<b>BT 1</b>
<b>CO2.</b>	<b>Compare</b> and <b>interpret</b> the disparity that prevails among the different states of India.	<b>BT 2</b>
<b>CO3.</b>	<b>Build</b> knowledge on population structure, industrial aspects, transport and communication of the region.	<b>BT 3</b>
<b>CO4.</b>	<b>Analyse</b> various prospects of India.	<b>BT 4</b>
<b>CO5.</b>	<b>Examine</b> the position of India in global context.	<b>BT 4</b>

**Detailed Syllabus:**

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

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

**Text Books:**

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

**Reference Books:**

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

# **Semester 7**

<b>Major</b>	<b>GEOGRAPHY OF RURAL DEVELOPMENT</b>		<b>Subject Code:</b>
	<b>L-T-P-C: 4-0-0-4 Credit Units: 4</b>	<b>Scheme of Evaluation: (T)</b>	<b>GEO162M701</b>

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

**Course Outcomes:**

After successful completion of the course, the students will be able to:		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
CO1	<b>Define</b> the need and approaches to rural development.	BT1
CO2	<b>Interpret</b> in detail about the rural economic base especially about the significance of development of non-farm sector in rural areas.	BT2
CO3	<b>Develop</b> in-depth knowledge of pre and post-independence period of rural development.	BT3
CO4	<b>Analyze</b> the relevance of access to services like health, education in rural areas	BT4
CO5	<b>Interpret</b> the various types of data along with <b>critical evaluation</b> .	BT5
CO6	<b>Design and develop</b> a detail project report	BT6

**Detailed Syllabus:**

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

**Text Book:**

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

**References:**

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

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

**Course Objectives:** *The course aims to give the idea of the concept of urban geography and its*

major aspects as well as it seeks to develop new insights among the students on the relevance of urban geography and its associated problems in a rapidly urbanizing world.

**Course outcomes:**

After successful completion of the course, the students will be able to:		
CO	Course Outcome	BT Level
CO1	Define concepts related to urban geography and its approaches.	BT 1
CO2	Explain different geographical factors which organise urban spaces and develop ideas in its relation.	BT 2
CO3	Identify the new insights on the relevance of urban geography.	BT 3
CO4	Discover and develop skills seeking advanced studies on urban planning and development.	BT 4

**Detailed Syllabus:**

Modules	Topics and Course Content	Periods
Unit 1	Urban Geography: Meaning, subject matter and scope; approaches and trends in urban geography; Towns: Types, characteristics, origin and growth in global and national contexts; Functional classification of towns; Schemes of city classification	10
Unit 2	Patterns of Urbanization in developed and developing countries; Components of urbanization and urban population growth; Urban morphology and land use structure; Theories on the internal structure of town: concentric zone theory of Burgess and the Sector Theory of Hoyt	14
Unit 3	Concept of city-region, urban agglomeration, urban sprawl, Umland and periphery, rural-urban dichotomy and continuum, urban fringe, satellite town, new town, smart city; Urban Systems: Concept of urban system and hierarchy; Christaller's Central Place Theory; the rank-size distribution of cities; concept of primate city.	14
Unit 4	Urban issues and problems: Housing, slums, civic amenities (transportation and drinking water), traffic congestion, pollution (air, noise, water), and crime. Urbanization and urban development planning in India: Trend and regional patterns of urbanization; national urban development policies and programmes; emerging urban issues of selected cities (Delhi NCR, Mumbai, Guwahati).	10
	<b>Total</b>	<b>48</b>

**Text Book:**

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

**References:**

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

<b>MAJOR III</b>	<b>GEOGRAPHY OF NORTHEAST INDIA AND ASSAM</b>			<b>Subject Code: GEO162M703</b>
	<b>L-T-P-C: 4-0-0-4</b>	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (T)</b>	

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

**Course Outcomes:**

By the end of this course the students will be able to:		
CO.	Course Outcome	Blooms Taxonomy Level
CO1	<b>Define</b> the concepts involved in explaining North-East India as a regional unit.	BT1
CO2	<b>Compare</b> and interpret the disparity that prevails among the different states of northeast.	BT2
CO3	<b>Build</b> knowledge on population structure, industrial aspects, transport and communication of the region.	BT3
CO4	<b>Analyse</b> various prospects of northeast India and Assam.	BT4

**Detailed Syllabus:**

Modules	Topics and Course Content	Periods
Unit 1	North East India: location and strategic significance; Physical characteristics and their relation to development: Relief, drainage, climate, soil and vegetation and bio-diversity, Position of North-East India in relation to India and its neighbours, Socio-economic and trade relation with ASEAN countries	12
Unit 2	Population and Development: Population growth, composition and distribution, migration, population characteristics, social structure: race, caste, religious and linguistic composition.	12
Unit 3	Natural resources, their utilization and development: Coal, petroleum, natural gas, water and forests in North East India; Agriculture and Development: Agricultural modernization and strategies for future development; constraints of Industrial development; problems and prospects of tourism.	12
Unit 4	Locational significance of Assam; Position of Assam in relation to rest of India, its physical characteristics and their relation to development: Relief, drainage, climate, soil and vegetation, Population growth, composition and distribution in North-East India and Assam; Characteristics and status of agriculture, industry and tourism in	12

	Assam	
	<b>Total</b>	<b>48</b>

**Text Books:**

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

**Reference Books:**

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

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

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

**Course Outcomes:**

After successful completion of the course, the students will be able to:			
<b>CO.</b>	<b>Course Outcome</b>	<b>Blooms Level</b>	<b>Taxonomy</b>
CO1	<b>How</b> to scientifically design a research and write a field report.	BT1	
CO2	<b>Interpret</b> the various dimensions of field work and its role in geographical studies.	BT2	
CO3	<b>Identify</b> the principles and techniques of surveying.	BT3	
CO4	<b>Analyze</b> with the help of different surveying techniques for representation of various spatial objects/Phenomena.	BT4	

**Detailed Syllabus:**

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

**Text Books:**

1. Creswell J., 1994: *Research Design: Qualitative and Quantitative Approaches*, Sage Publications.
2. Steers, J. A., 1965: *An Introduction to the Study of Map Projection*, University of London, London

**Reference Books:**

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

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

<b>Minor</b>	<b>GEOGRAPHY OF NORTHEAST INDIA</b>			<b>Subject Code:</b> <b>GEO164N701</b>
	<b>L-T-P-C: 4-0-0-4</b>	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (T)</b>	

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

**Course Outcomes:**

By the end of this course the students will be able to:		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
CO1	<b>Define</b> the concepts involved in explaining North-East India as a regional unit.	BT1
CO2	<b>Compare</b> and interpret the disparity that prevails among the different states of northeast.	BT2
CO3	<b>Build</b> knowledge on population structure, industrial aspects, transport and communication of the region.	BT3
CO4	<b>Analyse</b> various prospects of northeast India and Assam.	BT4
CO5	<b>Examine</b> the basic idea of position of Northeast India and Assam in Indian context.	BT5

**Detailed Syllabus:**

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

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

**Text Books:**

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

**Reference Books:**

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

# **Semester 8**

<b>Major</b>	<b>STATISTICAL GEOGRAPHY</b>	<b>Subject Code:</b>
	<b>L-T-P-C: 3-1-0-4 Credit Units: 4      Scheme of Evaluation: (T)</b>	<b>GEO162M801</b>

**Course Objectives:** *This course aims to provide a conceptual and practical understanding of statistical methods applied in geographic research. It enables students to grasp the theoretical underpinnings and develop applied skills in spatial and non-spatial data analysis.*

**Course Outcomes:**

After successful completion of the course, the students will be able to:		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
CO1	Define the principles and tools of statistical methods in Geography.	BT1
CO2	Interpret techniques for data collection, organization, and analysis in spatial contexts.	BT2
CO3	Identify the relevance and utility of various statistical methods in solving geographic problems.	BT3
CO4	Analyze and apply statistical tools including software-based techniques like SPSS to real-world geographic datasets.	BT4

**Detailed Syllabus:**

<b>Modules</b>	<b>Topics and Course Content</b>	<b>Periods</b>
Unit 1	<b>Introduction to Statistical Geography:</b> Scope and significance of statistical approaches in geography; Descriptive vs. inferential statistics; Data types and levels of measurement; Sources and methods of geographic data acquisition.	10
Unit 2	<b>Descriptive Statistics:</b> Measures of central tendency (Mean, Median, Mode); Measures of dispersion (Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variation); Spatial Mean and Median centres. <b>ampling Methods in Geography:</b> Concepts and applications of Purposive, Random, Systematic, and Stratified sampling; Relevance in field-based data collection and spatial analysis.	12
Unit 3	<b>Statistical Techniques in Spatial Analysis:</b> Time series analysis (Moving average, Least Squares); Correlation analysis (Spearman's Rank, Pearson's correlation); Linear and non-linear regression; Mapping residuals in geographic data.	12
Unit 4	<b>Applied Statistical Analysis Using SPSS:</b> Introduction to SPSS; Data entry and management; Performing descriptive and inferential statistical tests; Graphical data representation; Application in spatial and non-spatial data analysis (Hands-on exercises – 4 sessions).	14
	<b>Total</b>	<b>48</b>

**Text Books:**

1. Mahmood A., 1977: *Statistical Methods in Geographical Studies*, Concept.

2. Hammond P. and McCullagh P. S., 1978: ***Quantitative Techniques in Geography: An Introduction***, Oxford University Press.

**Reference Books:**

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

<b>MAJOR</b>	<b>DISSERTATION/RESEARCH PROJECT</b>	<b>Subject Code:</b> <b>GE0162M82</b> <b>2</b>
	<b>Credit Units: 4      Scheme of Evaluation: (P)</b>	

**Learning Objectives:** *The course aims to make the students understand how to approach a research problem and to formulate research objectives and research questions in proper perspective, formulation of hypothesis and testing, framing of questionnaires, techniques of collection of both qualitative and quantitative data and their analysis.*

**Learning Outcomes:**

<b>After the completion of course, the students will have ability to:</b>		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO1.</b>	<b>Choose</b> appropriate research methods for carrying out research on a specific field.	<b>BT 1</b>
<b>CO2.</b>	<b>Infer</b> ideas and <b>classify</b> the issues that needs attention for formulation of hypothesis.	<b>BT 2</b>
<b>CO3.</b>	<b>Develop</b> hypothesis and research questions.	<b>BT 3</b>
<b>CO4.</b>	<b>Identify</b> appropriate sampling techniques.	<b>BT 3</b>
<b>CO5.</b>	<b>Interpret</b> the various types of data along with <b>critical evaluation</b> .	<b>BT 5</b>
<b>CO6.</b>	<b>Design and develop</b> a detail project report	<b>BT 6</b>

**Detailed Syllabus:**

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

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

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

**Text Books:**

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

**Reference Books:**

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

<b>MINOR</b>	<b>RESEARCH METHODOLOGY</b>		<b>Subject Code:</b>
	<b>L-T-P-C: 4-0-0-4</b>	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (T)</b>
			<b>GEO162N801</b>

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

**Course Outcomes:**

<b>After the completion of course, the students will have ability to:</b>		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO1.</b>	<b>Define</b> the concepts and tools of research.	<b>BT 1</b>
<b>CO2.</b>	<b>Infer</b> ideas that can be taken up for research work through literature review.	<b>BT 2</b>
<b>CO3.</b>	<b>Develop</b> hypothesis and research questions.	<b>BT 3</b>
<b>CO4.</b>	<b>Identify</b> appropriate data collection and sampling techniques.	<b>BT 3</b>
<b>CO5.</b>	<b>Interpret</b> the various types of data along with <b>critical evaluation</b> .	<b>BT 5</b>
<b>CO6.</b>	<b>Design and develop</b> a scientific research report	<b>BT 6</b>

**Detailed Syllabus:**

<b>Modules</b>	<b>Topics and Course Content</b>	<b>Periods</b>
Unit 1	Research: Definition, types, significance and important features; Research methodology in geography; Defining a research problem; Statement of the problem; Objectives, and hypothesis/ research questions, Database and methodology, significance, review of research works and bibliography and references.	12
Unit 2	Research design: Meaning, need and features of a good design, Inductive and deductive approaches in geographic research, Hypothesis, theories and models in Geography; concept of model building and hypothesis testing.	12
Unit 3	Field techniques in Geography: Types, role and significance; Questionnaire design (Open, Closed, Structured, Non-structured), data collection, Post field processes: construction of data matrix, data processing and analysis; Introduction to qualitative techniques in Geography-observation, focus group discussion, case study, narratives, content analysis, oral history.	12
Unit 4	Sources of geographic data (Conventional and Geospatial technology based), their representation, interpretation and analysis; Research ethics: Plagiarism-classification and prevention; Intellectual property rights; Research report:	12

	Structural components and presentation.	
	<b>Total</b>	<b>48</b>

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

**Text Books:**

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

**Reference Books:**

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

<b>MAJOR</b>	<b>GLOBAL CLIMATE CHANGE</b>			<b>Subject Code:</b>
	<b>L-T-P-C: 4-0-0-4</b>	<b>Credit Units: 4</b>	<b>Scheme of Evaluation: (T)</b>	<b>GEO162M8 04</b>

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

**Course Outcomes:**

<b>After successful completion of the course, the students will be able to:</b>		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO1.</b>	<b>Relate</b> to basics of Science of Climate Change.	<b>BT 1</b>
<b>CO2.</b>	<b>Classify</b> different types of vulnerability.	<b>BT 2</b>
<b>CO3.</b>	<b>Develop</b> understanding about various Impacts of Climate Change on Agriculture and Water; Flora and Fauna; Human Health.	<b>BT 3</b>
<b>CO4.</b>	<b>Inspect</b> upon the issues of adaptation and mitigation.	<b>BT 4</b>
<b>CO5.</b>	<b>Recommend</b> suitable measure for mitigation of issues related to climate change.	<b>BT 5</b>

**Detailed Syllabus:**

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

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

**Text Books:**

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

**Reference Books:**

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

<b>MAJOR</b>	<b>ENVIRONMENT AND SUSTAINABLE DEVELOPMENT</b>	<b>Subject Code:</b>
	<b>L-T-P-C: 4-0-0-4 Credit Units: 4      Scheme of Evaluation: (T)</b>	<b>GEO162M805</b>

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

**Course Outcomes:**

<b>By the end of this course the students will be able to:</b>		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
<b>CO1.</b>	<b>Relate</b> to basics of science of environmental change and sustainable development.	<b>BT 1</b>
<b>CO2.</b>	<b>Classify</b> different types of natural resources and its importance.	<b>BT 2</b>
<b>CO3.</b>	<b>Develop</b> understanding about various impacts of Climate Change on Agriculture and Water, Flora and Fauna, Human Health, ozone layer and other spheres of environment.	<b>BT 3</b>
<b>CO4.</b>	<b>Inspect</b> upon the issues of adaptation and mitigation from hazards and management of solid wastes.	<b>BT 4</b>
<b>CO5.</b>	<b>Explain</b> the policies of development and environmental protection in developed and developing countries.	<b>BT 5</b>

**Detailed Syllabus:**

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

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

**Text Books:**

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

**Reference Books:**

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

<b>MAJOR</b>	<b>GEOGRAPHY OF HEALTH</b>		<b>Subject Code:</b> <b>GEO162M806</b>
	<b>L-T-P-C: 3-1-0-4</b>	<b>Credit Units: 4</b> <b>Evaluation: (T)</b>	

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

**Course Outcomes:**

By the end of this course the students will be able to:		
<b>CO</b>	<b>Course Outcome</b>	<b>Blooms Taxonomy Level</b>
CO1	<b>Recall</b> the different disease classifications and the approaches to study about health.	BT1
CO2	<b>Outline</b> the concept of human health and healthcare from the perspective of geography.	BT2
CO3	<b>Develop</b> knowledge about factors influencing human health and occurrence of diseases in varying ecological settings.	BT3
CO4	<b>Analyse</b> the impact of environmental degradation on human health and occurrence of various diseases in different ecological settings.	BT4

**Detailed Syllabus:**

<b>Modules</b>	<b>Topics and Course Content</b>	<b>Periods</b>
Unit 1	Geography of Health: Definition and significance; approaches of study: ecological, social, and spatial; dualism between medical geography and geography of health. Classification of diseases: genetic, zoonotic, communicable, non-communicable, occupational, deficiency diseases and malnutrition.	10
Unit 2	Disease ecology: ecology and human health; geographical factors affecting human health; factors influencing disease transmission (pathological, physical, environmental, social, cultural, and economic); Diffusion of diseases and their causes in varied biotic, physical, and cultural environments.	14
Unit 3	Disease occurrence: emergence, re-emergence, and persistence; modes of transmission of major diseases (Malaria, Japanese encephalitis, tuberculosis, hepatitis, AIDS, and COVID-19) and their broad global distribution.  Healthcare systems: Meaning and components; Universal government-funded health system; Role of WHO and UNICEF in global health care; SDG3 for good health and Well-being.	14
Unit 4	Environment, human habit, and health: Basic concept and ideas relating to food habit and health, occupation and health, environmental degradation and health, lifestyle, and human	10

	health.	
	<b>Total</b>	<b>48</b>

**Text Book:**

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

**References:**

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