

ASSAM UNIVERSITY: SILCHAR



DEPARTMENT OF GEOGRAPHY

**CURRICULUM FOR
FYUG (B.A/B.Sc.) PROGRAMME, GEOGRAPHY
W.E.F. 2023 - 24**

This course Curriculum prepared as per NEP 2020

SEMESTER - I

Course Code	Course Name	Credits	Marks
DSC - 101	Physical Geography	3	100
DSC - 102	Human Geography	3	100
DSM - 101	Fundamentals of Physical Geography	3	100
IDC - 101	Fundamentals of Geography	3	100
AEC - I	MIL - 101	2	50
SEC - 101	Statistical Methods in Geography (Practical)	3	100
VAC - 101	NSS / NCC / DTS / Sports / HW / Yoga / GCS / UI	3	100
Total		20	650

SEMESTER – I
DSC-101 PHYSICAL GEOGRAPHY
(DISCIPLINE SPECIFIC CORE)
FULL MARKS: 100
CREDITS: 3

Course Learning Objectives:

1. To understand the physical principles and processes governing the circulation and characteristics of the atmosphere and climates on Earth.
3. To understand the physical principles and processes governing the circulation and characteristics of water on Earth.
3. To understand the principles of geomorphology and the processes that shape the landscape.

Course Learning Outcomes:

After completion of paper student will learn Physical factors of the Earth system like earthquakes, volcanoes, atmosphere, climate, weathering processes types of precipitation, distribution of land and water.

UNIT – I: Definition, Nature, scope of Physical Geography. theories of Origin of the Earth – Big Bang Laplace Jean’s & Jeffrey’s, Earth movements and plate tectonics; volcanism; Earthquake, weathering, erosion, mass movement.

UNIT – II: Climatology - The atmosphere; its structure and composition; temperature; humidity, precipitation, pressure, and wind; jet streams; air masses and fronts; cyclones and related phenomena.

UNIT – III: Soil and Vegetation - Soil genesis, classification and distribution, biotic successions, and major biotic regions of the world with special references to ecological aspects of Savanna and monsoon forest biomes.

UNIT – IV: Oceanography - Ocean bottom relief; salinity, temperature, currents, and tides; ocean deposits and coral reefs; Marine resources – biotic mineral, and energy resources and their utilization.

UNIT - V: Ecosystem - Ecosystem concept, interrelations of energy flows, water circulation, biotic communities, and land capability; Man’s impact on the ecosystem, global ecological imbalances.

Reference Books:

1. Petersen, J. F., Sack, D., & Gabler, R. E. (2016). *Physical geography*. Cengage Learning.
2. Strahler, A., & Strahler, A. (2007). *Physical geography*. John Wiley & Sons.
3. Strahler, A. H. (2008). *Modern physical geography*. John Wiley & Sons.
4. Briggs, D. J., & Smithson, P. (1986). *Fundamentals of physical geography*. Rowman & Littlefield.

5. Davis, W. M. (1902). *Elementary physical geography*. Ginn.

DSC-102 HUMAN GEOGRAPHY

(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 3

Course Learning Objectives:

1. To understand the basics concepts of human geography.
2. To Study population attributes and dynamic nature of it.
3. Introduce economic, cultural, & trade activities & their impact on the development of the region.

Course Learning Outcomes:

1. Students will learn how human, physical & Environmental components of the world interact.
2. Students will be familiarized with economic processes such as globalization, trade & their impacts on economic, cultural & Social activities.
3. The student will Describe what geography and human geography are Understand population dynamics and migration.

UNIT – I Introduction to Human Geography – Meaning, Nature, Scope and significance; Branches of Human Geography; Approaches to human geography: Exploration & Descriptive approach, Areal Differentiation Approach. Modern Approaches: Welfare or Humanistic Approach, Behavioural Approach, Radical Approach.

UNIT-II: Man – Environment relationships; Man’s role in transforming the Environment, impacts of Environment on man; concepts of Determinism, Possibilism, Neo-determinism (Stop and go determinism), Humanistic and positivism.

UNIT III: Human Races: classification, characters world distribution Culture and Cultural Patterns & Processes - Concept of culture, Material & Non-material culture. Cultural Regions, Cultural Traits & Complexes, Cultural Diffusion. Languages, Religions of the World: Types, classification & Distribution.

UNIT – IV: Human Economic Activities – Primary, Secondary, Tertiary, quaternary, and quinary Activities: Manufacturing industry: Based on Forestry, Agriculture, Mineral and Chemical. Factors of industrial location.

UNIT-V: Human Settlements: Origin and evolution of Rural settlement – types and patterns. Origin and growth of Urban settlement, process of urbanization. Functional classification of towns. Types of Urban Settlements.

Reference Books:

1. Hartshorne, T.A., & Alexander, J.W. (2010), *Economic Geography*. New Delhi: PHI Learning.
2. Norton, W., & Mercier, M. (2016). *Human geography. OUP Catalogue*.
3. Cloke, P., Cook, I., Crang, P., Goodwin, M., Painter, J., & Philo, C. (2004). *Practising human geography*. Sage.
4. Lindsay, J. (2006). *Techniques in human geography*. Routledge.
5. Massey, D. B., Allen, J., & Sarre, P. (Eds.). (1999). *Human geography today*. Cambridge: Polity Press.

**DSM-101 FUNDAMENTALS OF PHYSICAL GEOGRAPHY
(DISCIPLINE SPECIFIC MINOR)**

FULL MARKS: 100

CREDITS: 3

Course Learning Objectives:

1. To understand the physical principles and processes governing the circulation and characteristics of the atmosphere and climates on Earth.
3. To understand the physical principles and processes governing the circulation and characteristics of water on Earth.
3. To understand the principles of geomorphology and the processes that shape the landscape.

Course Learning Outcomes:

After completion of paper student will learn Physical factors of the Earth system like earthquakes, volcanoes, atmosphere, climate, weathering processes types of precipitation, distribution of land and water.

UNIT – I: Definition, Nature and Scope of Physical Geography. Geomorphology - Origin and evolution of the earth's crust; earth movements and plate tectonics; volcanism; rocks, weathering, and erosion; Cycle of erosion.

UNIT – II: Climatology - The atmosphere; its structure and composition; temperature; pressure, humidity, precipitation, and wind; jet streams; air masses and fronts; cyclones and related phenomena.

UNIT – III: Soil and Vegetation - Soil genesis, classification and distribution, biotic successions, and major biotic regions of the world with special references to ecological aspects of Savanna and monsoon forest biomes.

UNIT – IV: Oceanography - Ocean bottom relief; salinity, currents, and tides; ocean deposits and coral reefs; Marine resources.

UNIT - V: Ecosystem - Ecosystem concept, interrelations of energy flows, hydrological cycle, biotic communities, and land capability; Man's impact on the ecosystem, global ecological imbalances.

Reference Books:

1. Petersen, J. F., Sack, D., & Gabler, R. E. (2016). *Physical geography*. Cengage Learning.
2. Strahler, A., & Strahler, A. (2007). *Physical geography*. John Wiley & Sons.
3. Strahler, A. H. (2008). *Modern physical geography*. John Wiley & Sons.
4. Briggs, D. J., & Smithson, P. (1986). *Fundamentals of physical geography*. Rowman & Littlefield.
5. Davis, W. M. (1902). *Elementary physical geography*. Ginn.

IDC-101 FUNDAMENTALS OF GEOGRAPHY

(INTERDISCIPLINARY COURSE)

FULL MARKS: 100

CREDIT: 3

Course Learning Objectives: This course has been designed particularly for those students who have little or no background in Secondary School geography but wish to have the opportunity to take at least an introductory course at university. The overall objective is to introduce you to many different areas of geographical inquiry and in the process, provide you with the means to develop a broad and intelligent awareness of the dynamic world we live in.

Course Learning Outcomes:

1. The student will be able to understand the nature and scope of geography, explore the themes and dimensions of the discipline; identify the different environmental components.
2. Able to identify the branches of geography and their respective areas of focus and help to acquiring the knowledge about the structure of the earth.
3. Able to analyze the different approaches to Geography and basic concepts and themes of geography.
4. Students will be able to know the basic concept about interrelationship, nature of interaction and able to analyze the human – environment relationship.

UNIT I: Introduction, definitions, scope, and Branches of Geography; Geography as an integrating discipline; Geography as a science of spatial attributes; Relation of geography with natural and social sciences.

UNIT II: Origin, shape, and size of the earth; movements of the earth – rotation and revolution, co-ordinates- latitude, longitudes, and time. Structure of the earth.

UNIT III: Earth movement, Endogenetic and exogenic forces; gradation processes, weathering and erosion.

UNIT IV: Rocks and minerals – origin and classification; Soil – types, profiles.

UNIT V: Spheres of the earth: Lithosphere, Atmosphere, Hydrosphere, Biosphere and Man-environment relationship.

Reference Books:

1. Strahler, A., (2013), *Introduction to Physical Geography*, John Wiley & Sons, New Jersey.
2. Tilbury, D., & Williams, M. (Eds.). (2002). *Teaching and learning geography*. Routledge.
3. Nijman, J., Muller, P. O., & De Blij, H. J. (2017). *Geography: realms, regions, and concepts*. John Wiley & Sons.
4. Holden, J. (2021). *Physical geography: the basics*. Routledge.
5. Knox, P. L., & Marston, S. A. (2013). *Human geography: Places and regions in global context*. Pearson.
6. Getis, A., Bjelland, M., & Getis, V. (2018). *Introduction to Geography*. USA: McGraw Hill Education.

AEC – I – MIL 101 ABILITY ENHANCEMENT COURSE (LANGUAGE)

FULL MARKS: 50

CREDIT: 2

SEC-101 STATISTICAL METHODS IN GEOGRAPHY (PRACTICAL)

(SKILL ENHANCEMENT COURSE)

FULL MARKS: 100

CREDIT: 3

Course Learning Objectives: To give the students an introduction to statistics, types of sampling, measures of dispersion, correlation, Time series analysis and index number.

Course Learning outcomes: Students will be able to understand the significance of statistical methods in Geography, practical use of different sampling types, measures of dispersion, correlation.

UNIT I: Significance of Statistical methods in Geography, Uses and Sources of Data, Different types of Data: Primary, secondary, Spatial, and non-spatial data.

UNIT II: Sampling and its techniques: Significance in research and data collection; Qualitative and quantitative sampling, Different Types of Sampling: Purposive, Random, Systematic, Stratified.

UNIT III: Central tendency (Mean, median, mode); Measures of Dispersion or variability; (i) Absolute measures of Dispersion (Range, Quartile Deviation, Mean Deviation, Standard Deviation) (ii) Relative measures of Dispersion (Co-efficient of Variation).

UNIT IV: Scatter diagram, Correlation, Rank Correlation, Product moment correlation, Uni-variate analysis, Bi-variate Regression, Multi-variate analysis.

UNIT V: Time Series analysis - Three year moving average method; Index Number.

Practical Record: Each Student will prepare a record book comprising of all the exercises taught.

Reference books:

1. Mahmood, Aslam, (1993), *Statistical Methods in Geographical studies*, Rajesh publications, New Delhi.
2. Singh, R.L., (1979), *Elements of Practical Geography*, Kalyani publishers, New Delhi.
3. Negi, Dr. B.S., (1993), *Statistical geography*, Kedarnath Ramnath, Meerut.
4. King, L.S., (1969), *Statistical Analysis in Geography*, Prentice-Hall.
5. Khan, N., (2002), *Quantitative Methods in Geographical research*, Concept Publishing Company, New Delhi.

COMMON VALUE-ADDED COURSE

VAC - 101 NSS / NCC / DTS /Sports / HW / Yoga / GCS / UI

FULL MARKS: 100

CREDIT: 3

SEMESTER - II

Course Code	Course Name	Credits	Marks
DSC - 151	Geomorphology	3	100
DSC - 152	Cartography – I (Practical)	3	100
DSM - 151	Fundamentals of Human Geography	3	100
IDC - 151	Resource Management	3	100
AEC - II	EL - 151	2	50
SEC - 151	Introduction to Physical and Social Survey	3	100
VAC - 151	EVS	3	100
Total		20	650

SEMESTER - II
DSC-151 GEOMORPHOLOGY
(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 3

Course Learning Objectives: This Course aims to introduce the basic concepts of geomorphology, geomorphic processes, and landforms processes and all other physical phenomena related with earth surface.

Course Learning Outcomes:

After the completion of this course, student will be able to define the field of Geomorphology and to explain the essential fundamentals of Geomorphology. They will also understand the evolution, development, and the various theories of Geomorphology. It enables the students to analyze the conceptual and dynamic aspects of landform development and the application of geomorphic knowledge at various fields.

Unit I: Geomorphology - Meaning, scope and development; Fundamental Concepts of Uniformitarianism and Catastrophism, concept of Dynamic Equilibrium and Geomorphic Threshold, Recent trends in Geomorphology.

Unit II: Geomorphic Processes: Exogenetic and Endogenetic, Evolution of landforms (Erosional and Depositional): Fluvial, Glacial, Aeolian, Coastal and Karst Topography. Process of Weathering and mass-wasting.

Unit III: Concept of geomorphic cycle; cycle of erosion - Davis and Penck. Mountain: - classification and its Characteristics, Theories of Mountain building - Kober, Daly, and Holmes. Geosynclines - Concepts and Evolution.

Unit IV: Slope: types and elements; slope forming process and its Development; Hills slopes erosion and its consequences, landslides and its consequences, Slope Decline theory, Slope Replacement Theory and Parallel retreat theory.

Unit V: Applied Geomorphology: Meaning and its application; Drainage Pattern and Drainage Basin, Drainage network analysis; Drainage density; Stream orders, Sinuosity Index, Graded stream.

Reference Books:

1. Strahler, A.N and Strahler A.H (2008) *Modern Physical Geography*, John Wiley and Sons, New York.
2. Woodrige S.W and R.S. Morgan (1991) *An Outline of Geomorphology, The Physical Basis of Geography*, Orient Longman, Kolkata.
3. Dayal P. (1995) *A Text Book of Geomorphology*. Sukla Book/Dept. Patna.
4. Goudie Anrew et.al. (1981) *Geomorphological Techniques*, George Allen & Unwin, London.

5. Bloom A.L. (1978) *Geomorphology: A Systematic Analysis of Late Cenozoic Landforms* Prentice Hall of India, New Delhi.
6. S Savindra. (2019) *Physical Geography*. Pravalika Publication, Allahabad.
7. William D. Thornbury (2004). *Principles of Geomorphology*, CBS Publisher and Distributor Pvt. Ltd, New Delhi
8. Vishwas S. Kale, Avijit Gupta (2018), *Introduction to Geomorphology*, Universities Press.

DSC-152 GENERAL CARTOGRAPHY –I (PRACTICAL)

(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 3

Course Learning Objectives: To provide the students an introduction to Cartography, maps, contours and profiles drawing, preparation of Slope and Drainage maps. The students will also learn about the classification and construction of map projections.

Course Learning Outcomes: The students will be able to identify and analyses different relief features, construct different map projections, and understand their uses.

UNIT I: Definition, Nature, and Scope of Cartography; Manual Cartography Vs Computer Cartography; Elements and classification of Maps. Graphic elements of map making; Generalization: Symbolization: qualitative and quantitative; Visualization: visual variables; Colour and pattern; Production and reproduction.

UNIT II: Maps: Categories of maps and scale factor; Geodesy and coordinate systems.

UNIT III: Representation of Contours and Profiles (with brief description): (a) Ridge and Saddle (b) River Terraces (c) Water Divide (d) Cirque (e) Fiord Coast (f) Ria Coast

UNIT IV: Analysis of Relief from Topographical maps: (a) Slope Analysis (Wentworth's and Smith's Methods) (b) Drainage frequency and Drainage Density maps. Relief features and Profiles: Serials, Super-imposed, Projected and Composite; Cross and Longitudinal profiles of stream.

UNIT V: Map Projections: Classification, graphical construction, properties, and uses of:

- (a) Polar Zenithal Stereographic and Orthographic.
- (b) Conical with one Standard Parallels and Bonne's.
- (c) Cylindrical Equal Areas and Mercator's.

Practical Record: Students will prepare a Record book comprising of Contours and Profiles of different relief features, Slope Analysis, Drainage Frequency and Drainage Density maps, Serial profiles, Superimposed, Projected and Composite profiles, Cross and Longitudinal profiles of stream, map projections with outline maps drawn.

Reference books:

1. Singh, Dr. R.L. (1979), *Elements of Practical Geography*, Kalyani Publishers, New Delhi.

2. Singh, Dr. L.R. (2006), *Fundamentals of Practical Geography*, Sharda Pustak Bhawan, Allahabad.
3. Alvi, Zamir, (1994), *A Text Book of Practical Geography*, Vikas Publishing House Pvt. Ltd.
4. Misra, R.P. and Ramesh, A. (1989), *Fundamentals of Cartography*, Concept, New Delhi.
5. Talukdar, S., (2008), *Introduction to Map Projections*, EBH Publishers, Guwahati.

DSM-151 FUNDAMENTALS OF HUMAN GEOGRAPHY

(DISCIPLINE SPECIFIC MINOR)

FULL MARKS: 100

CREDITS: 3

Course Learning Objectives:

1. To understand the basics concepts of human geography.
2. To Study population attributes and dynamic nature of it.
3. Introduce economic, cultural, & trade activities & their impact on the development of the region.

Course Learning Outcomes:

1. Students will learn how human, physical & Environmental components of the world interact.
2. Students will be familiarized with economic processes such as globalization, trade & their impacts on economic, cultural & Social activities.
3. The student will Describe what geography and human geography are Understand population dynamics and migration.

UNIT – I Introduction to Human Geography – Nature, Scope and Development. Fields & Sub-Fields in Human Geography, Environmental Determinism & Possibilism, Neo-determinism (Stop and go determinism), Approaches to the study of human geography.

UNIT-II: Geographical Analysis of Population – growth, Distribution, and density of population. Population Theories: Malthus Theory of population, Demographic Transition Theory. Migration: Types and its causes and consequence.

UNIT III: Cultural Patterns & Processes - Concept of culture. Cultural Regions, Cultural Traits & Complexes, Cultural Diffusion. Human races of the World: classification & Distribution.

UNIT – IV: Human Economic Activities – Primary, Secondary, Tertiary, Quaternary and quinary.

UNIT-V: Human Settlements – Factors and classification; Types & Patterns of Rural and Urban Settlements. Functional classification of towns.

Reference Books:

1. Hartshone, T.A., & Alexander, J.W. (2010), *Economic Geography*. New Delhi: PHI Learning.
2. Norton, W., & Mercier, M. (2016). *Human geography. OUP Catalogue*.
3. Cloke, P., Cook, I., Crang, P., Goodwin, M., Painter, J., & Philo, C. (2004). *Practising human geography*. Sage.
4. Lindsay, J. (2006). *Techniques in human geography*. Routledge.
5. Massey, D. B., Allen, J., & Sarre, P. (Eds.). (1999). *Human geography today*. Cambridge: Polity Press.

**IDC - 151 RESOURCE MANAGEMENT
(INTERDISCIPLINARY COURSE)**

FULL MARKS: 100

CREDITS: 3

Course Objective: The basic and prime objective is to make the students aware about the values and importance of natural and human resources and its utilisation in sustainable manner.

Course Learning Outcomes: This course is designed to achieve understanding, applying and evaluate different types of resources and their judicious and sustainable uses.

UNIT-I: Introduction to Resource Management: Concept, Universality and Scope of Management, Approaches to the management, Ethics in management, Motivation Theory.

UNIT-II: Understanding meaning and concept of resource, Classification and characteristics of resources, factors affecting utilization, distribution, availability of resources and associated problems.

UNIT-III: Maximizing use of resources and resource conservation, Availability and Management of specific resources by an individual/family - Money, Time, Energy, Space, Human capacity.

UNIT-IV: Application and Management process of resources in Event Planning and Execution, Resource conservations and optimization/Green Technology (Natural Resources).

UNIT-V: Functions of Management: An Overview, Decision Making, Planning, Directing, Supervision, Controlling, Organizing, Leading and Evaluations.

Reference Books:

1. Koontz. And O Donnel C., (2005), *Management: A Systems and Contingency Analysis of the Managerial Functions*. Mc Graw- Hill book Company, New York.
2. Kreitner, R. (2009). *Management: Theory and Applications*, Cengage Learning: India.
3. Rao V.S. and Narayana P.S. (2007) *Principles and Practices of Management*, Konark Publishing.

AEC – II – EL 151 ABILITY ENHANCEMENT COURSE (LANGUAGE)

FULL MARKS: 50

CREDIT: 2

**SEC - 151 INTRODUCTION TO PHYSICAL AND SOCIO-ECONOMIC SURVEY
(SKILL ENHANCEMENT COURSE)**

FULL MARKS: 100

CREDITS: 3

Course Learning Objective: The main objective of field survey is to provide the students with the understanding of ground reality of a chosen village/town by observation, conducting physical and socio-economic survey of the urban household/village with the help of questionnaire, mapping of data, land use and cropping pattern.

Course Learning Outcomes: The course helps to develop the understanding about theoretical notions of socio-economic development/condition of sampled rural/urban households and expected to prepare a survey report on physical and socio-economic attributes.

UNIT-I: Field Work in Geographical Studies- Role, Value, Data and Ethics of Field-Work, Need of field work in geographical studies.

UNIT-II: Defining the Field and Identifying the Case Study-Rural/Urban /Physical/Human/Environment.

UNIT-III: Field 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 Discussion, Space Survey (Transects and Quadrants, Constructing a Sketch).

UNIT-IV: Use of Field Tools – Collections of Material for Physical and Socio-Economic Surveys.

UNIT-V: Designing the Field Report – Aims and Objectives, Methodology, Analysis, Interpretation and Writing the Report.

Reference Book:

1. Creswell J., (1994) *Research Design: Qualitative and Quantitative Approaches*. Sage Publications.
2. Dikshit, R.D. (2003) *The Art and Science of Geography: Integrated Readings*. Prentice Hall of India.

3. Evans M., (1988) *Participant Observation: The Researcher as Research Tool in Qualitative Methods in Human Geography*, eds. J. Eyles and D. Smith, Polity.

COMMON VALUE-ADDED COURSE

VAC - 151 EVS

FULL MARKS: 100

CREDIT: 3

SEMESTER - III

Course Code	Course Name	Credits	Marks
DSC - 201	Geographical Thought	4	100
DSC - 202	Climatology and Oceanography	4	100
DSM - 201	Introduction to Climatology	4	100
IDC - 201	Disaster Management	3	100
AEC - III	MIL - 201	2	50
SEC - 201	Field Studies (Socio-Economic Survey)	3	100
Total		20	550

SEMESTER - III
DSC - 201 GEOGRAPHICAL THOUGHT
(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 4

Course Learning Objective: To make the students understand about historical development of geographical concepts, philosophies, and approaches.

Course Learning Outcomes: The learning outcome of this course would be comprehended, correlate and connect geographical ideas and concepts with historical as well as contemporary context.

UNIT-I: Nature of Geography - Nature and scope of Geography: Geography as a spatial science, an interdisciplinary and integrated discipline. Place of Geography in the system of Sciences (Physical and Human Sciences). Paradigms in Geography.

UNIT-II: Pre-Modern –Early Origins of Geographical Thinking with reference to the Classical and Medieval Philosophies.

UNIT-III: Modern- Evolution of Geographical Thinking and Disciplinary Trends in Germany, France, Britain, United States of America.

UNIT-IV: Dichotomy and Dualism-Environmental Determinism and Possibilism, Systematic and Regional, Ideographic and Nomothetic, Qualitative and Quantitative, Physical and Human Geography.

UNIT-V: Trends – Quantitative Revolution and its impact, Behaviouralism, Systems Approach, Radicalism, Feminism; Towards Post Modernism- Changing Concept of Space in Geography, Future of Geography.

Reference Books:

1. Dikshit R.D. (1997), *Geographical Thought: A contextual History of Ideas*, Prentice- Hall India.
2. Holt Josen A., (2011) *Geography: History and its Concepts: A Student Guide*, Sage.
3. Hussain, M. (2002), *Evolution of Geographical Thought*, Rawat Publication, Jaipur & N. Delhi.
4. Rana, L. (2008). *Geographical thought*. Concept Publishing Company.
5. Nayak, A., & Jeffrey, A. (2011). *Geographical thought. An introduction to ideas in Human Geography*. Harlow: Pearson Education.

DSC-202 CLIMATOLOGY AND OCEANOGRAPHY
(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDIT: 4

Course Learning Objectives: A comprehensive understanding of climatology is objective of this syllabus, which includes the nature, scope, and components of the atmosphere, as well as the processes and phenomena that affect weather and climate. As part of the syllabus, the students will be introduced to the morphology of the ocean floor, the properties of ocean water, and the movement of ocean water.

Course Learning outcomes:

1. Student will able to gain knowledge about different concept of atmosphere specially structure and composition, wind system, phenomenon of world climate distribution.
2. Application of different climatic model and theories of climatology in various field.
3. Deeper understanding of bottom relief features of ocean, distributional pattern of warm and cold current, sea level changes.
4. Practical utility in the field while carrying out research on issues of climate and Oceanography.

UNIT I: Nature and scope of Climatology, Origin, Composition, and structure of the atmosphere: Troposphere, Stratosphere, Mesosphere, Ionosphere, Exosphere, and their characteristics. Composition of the atmosphere, Concept of weather and climate.

UNIT II: Atmospheric temperature – Insolation, Heat Budget, Heat Balance, Inversion of temperature, Horizontal and Vertical distribution of temperature; Atmospheric pressure and winds – Planetary winds, forces affecting winds, general circulation, Jet streams. Atmospheric Moisture; Climatic classification (Koppens and Thornthwait).

UNIT III: Air masses and Fronts – origin, classification, and characteristics; Fronts, Frontogenesis and Frontolysis; Cyclones and Anti-Cyclones – Tropical and Extra-Tropical Cyclones; Monsoon – origin, mechanism, distribution, and its effects.

UNIT IV: Morphology of the ocean floor: Ocean bottom relief of the Pacific, Atlantic and Indian oceans. Density of oceanic water; Water masses and ocean deposits. Distribution of temperature and salinity in ocean water.

UNIT V: Marine deposits, coral reef, and Coral islands: Its growth, types and theories (Darwin and Dana); Movement of ocean waters: Ocean currents, Tides and waves, Sea level changes.

Reference books:

1. Critchfield, H.J. (2002), *General Climatology*, Prentice-Hall of India, *New Delhi*.
2. Lal, D.S. (1986), *Climatology*, Chaitanya Publications, Allahabad.
3. Singh, S. (2005), *Climatology*, Prayag Pustak Bhawan, Allahabad.

4. Sharma, R.C. and Vatal, M. (2001), *Oceanography for Geographers*, Chaitanya Publishing House, Allahabad.
5. Steers.J.A.(1994), *The Unstable Earth*, Kalyani Publishers, New Delhi.
6. Sharma, R. C. (1970). *Oceanography for geographers*. Chaitanya Publishing House.
7. Trewartha, G.T., (1980). *An Introduction to Climatology*. McGraw-Hill.

**DSM – 201 INTRODUCTION TO CLIMATOLOGY
(DISCIPLINE SPECIFIC MINOR)**

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives:

1. To define the field of climatology & components of the climate system.
2. To introduce various dimensions of climatology like structure & composition.
3. To understand the global atmospheric pressure, temperature, & wind system.
4. To study the concept of atmospheric moisture & its types.

Course Learning Outcome:

After completion of this course, Students should be able to

1. Define the field of climatology & to understand the atmospheric composition & structure.
2. To outline the mechanism & process of solar radiation transfer to Earth surface & explain the temperature distribution & variation accordingly to time & space.
3. To illustrate & explain the air pressure system, wind regulating forces & the formation of the Atmospheric Disturbances.
4. To understand & compute the air humidity as well as to explain the process of condensation & formation of precipitation & its types.

UNIT-I: Composition and Structure of the Atmosphere -Nature & scope of Climatology - Atmospheric Sciences - climatology & Meteorology, Origin & Structure of the Atmosphere: Troposphere, Stratosphere, Mesosphere, Ionosphere, Exosphere & their characteristics. Weather & Climate and their elements.

UNIT-II: Atmospheric Temperature - Insolation: Definition, Mechanism, Solar Constant. Factors affecting insolation. Temperature distribution – vertical and horizontal; Inversion of Temperature; Heat Budget.

UNIT - III: Atmospheric Pressure: Influencing factors, Vertical & Horizontal Distribution. Winds - influencing factors, Types - planetary, seasonal, local wind. Variable winds – Cyclones & anti-cyclones. Air-Masses & Fronts.

UNIT-IV: Humidity: Sources, influencing factors & types- Absolute, Relative & Specific. Hydrological Cycle: process of evaporation, condensation. Clouds & its types; Precipitation & its forms.

UNIT-V: Classification of Climate - Koeppen's classification. Climate change - Causes & Consequences, recent issues-floods, draughts.

Reference Books:

1. Lal, D. S. (1998). *Climatology*, Chaitanya Publishing House.
2. Singh, S. (2005). *Climatology*, Prayag Pustak Bhawan.
3. Critchfield, H. J., (1975). *General Climatology*, Prentice Hall, New Jersey.
4. Rohli, R. V., & Vega, A. J. (2017). *Climatology*. Jones & Bartlett Learning.
5. Miller, A. A. (2019). *Climatology*. Routledge.
6. Griffiths, J. F. (1966). *Applied climatology: an introduction*. Oxford U. P.

IDC-201 DISASTER MANAGEMENT

(INTERDISCIPLINARY COURSE)

FULL MARKS: 100

CREDITS:3

Course Learning Objectives:

1. To understand and increase the knowledge of the disaster phenomenon.
2. To ensure knowledge, skills, and abilities to analyze potentials effect of disasters and the strategies and methods for disaster reduction.

Course Learning Outcomes:

It will help to understand about Disaster Management Concept and Different approaches to reduces the impact of disaster. Understanding the types of disaster, causes and their management and their disaster profile of India and Learned to apply the technology for monitoring and management of the disaster. It will help to gain knowledge about natural calamities and disaster and students shall build the capacity for preparedness and mitigation of Disaster.

UNIT I: Disaster and Hazards – Concept, Definition and types; vulnerability. Disaster Management: meaning, methods, and approaches. Disaster preparedness and mitigation.

UNIT II: Causes and effects of disasters, Natural and Human induced disasters; Mapping, Rescue and Evacuation operations, food and nutrition, Hygiene and Sanitation.

UNIT III: Disaster of India: Bengal Famine, Bhopal Gas Tragedy, Bhuj earthquake, Tsunami, Nuclear Disaster, Covid-19 disaster. Use of ICT for Disaster management, application of GIS, GPS and Drone.

UNIT IV: Disaster Management Act 2005, Role of National Disaster Management Authority (NDMA), SDMA DDMA, Capacity building and strategies for Disaster management.

UNIT V: Disaster Management: Floods. Earthquake, Cyclones, and Landslide, Resettlement and Rehabilitation of affected person., Community –Based Disaster Management; roles and responsibilities of communities.

Reference Books:

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 Pub., 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. Singh, R. B. (ed.), (2006) *Natural Hazards and Disaster Management: Vulnerability and Mitigation*, Rawat Publications, New Delhi.
6. Sinha, A. (2001). *Disaster Management: Lessons Drawn and Strategies for Future*, New United Press, New Delhi.
7. Stoltman, J.P. et al. (2004) *International Perspectives on Natural Disasters*, Kluwer Academic Publications Dordrecht.
8. Singh Jagbir (2007) "Disaster Management Future Challenges and Opportunities", 2007. Publisher- I.K. International Pvt. Ltd. S-25, Green Park Extension, Uphaar Cinema Market, New Delhi, India.

AEC III – MIL 201 ABILITY ENHANCEMENT COURSE (LANGUAGE)**FULL MARKS: 50****PASS MARKS: 20****CREDIT: 2****SEC-201 FIELD STUDIES (SOCIO-ECONOMIC SURVEY)
(SKILL ENHANCEMENT COURSE)****Full Marks: 100****Credit: 3**

Course Learning Objectives: The main objective of the field study is to provide the students with the understanding of ground reality of a chosen area by observation, data collection and conducting socio-economic survey of the area.

Course Learning outcomes: This course help to develop the understanding about practical notions of socio-economic development/conditions of the surveyed area and expected to prepare a field study report on socio-economic attributes.

PART - A

UNIT I: Methods of field work: types of data, techniques of primary data collection, significance of field work in geographical studies.

UNIT II: Conduct a socio-economic survey of the area chosen by visiting and collecting data and information by personal observation and perception.

Unit III: Designing the field study report- aims and objectives, methodology, interpretation and writing the report.

PART -B

UNIT IV: Base on the observation and result of the socio-economic survey, preparation of a field survey report on the topic assigned. The report needs to be supplemented with Maps, diagrams, photograph, and sketches etc.

UNIT V: Students are to prepared field study report of minimum of 30 pages typed (A4 size) excluding figures, tables, photographs, maps, references, and appendices on the topic assign to them. The concerned department must assign supervisor to guide the students in the field as well as to complete the field report writing.

Reference books:

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

SEMESTER - IV

Course Code	Course Name	Credits	Marks
DSC - 251	Economic Geography	4	100
DSC - 252	Geography of India	4	100
DSC - 253	Cartography – II (Practical)	4	100
DSM - 251	Introduction to Cartography (Practical)	3	100
DSM - 252	Environmental Studies	3	50
AEC - IV	EL - 251	2	100
Total		20	550

SEMESTER - IV
DSC-251 ECONOMIC GEOGRAPHY
(DISCIPLINE SPECIFIC CORE)
FULL MARKS: 100
CREDITS: 4

Course Learning Objective: Providing students with a comprehensive understanding of Economic Geography is the purpose of this syllabus. This course will provide students with an understanding of key concepts, theories and concepts related to agricultural and industrial location, major industries, natural and mineral resources, principal crops, classification of economic activities, agricultural systems, international trade patterns, major trade blocks, and the effects of globalization on developing countries.

Course Learning Outcome:

1. Become familiar with the meaning, approaches, and concepts of economic geography.
2. Understand the implications of agricultural and industrial location theories.
3. Understand the major industries, natural and mineral resources, and principal crops of the country.
4. Examine the patterns of world transportation and international trade.

UNIT-I: Meaning, nature, scope, and recent trends in economic geography. Approaches to the study of Economic geography: Regional, Systematic and Sectoral, Relationship of Economic geography with other disciplines.

UNIT-II: Resources - Definition, Concept and classification; Conservation and management of Resource for sustainable Development.

UNIT-III: Agriculture and Industry: Factors affecting Agricultural activities, Agricultural region of the world (Derwent Whittlesey); Factors affecting Industrial location, Theory of Agricultural location (Von Thunen); theory of Industrial location (Weber); Major Industries: iron and steel and cotton textiles and sugar.

UNIT-IV: Economic Activities – Primary, Secondary, Tertiary, Quaternary and Quinary. Agricultural System of the World - intensive, extensive, plantation, mixed and dry farming.

UNIT-V: Transportation: Trans-continental railways and sea routes; WTO and International trade: patterns and trends; Major trade blocks: EEC, ASEAN; Effect of globalization on developing countries.

Reference Books:

1. Hartshorne, T. N., & Alexander, J. W. (1998). *Economic geography* Prentice Hall. New York.
2. Guha, J. L., & Chattoraj, P. R. (1969). *A new approach to economic geography: a study of resources*. The World Press Private Limited.
3. Siddhartha, K. (2017). *Economic Geography*. Kitab Mahal.

4. Wood, A., & ROBERTS, M. (2011). *Economic geography: places, networks, and flows*. London. Routledge.

**DSC - 252 GEOGRAPHY OF INDIA
(DISCIPLINE SPECIFIC CORE)**

FULL MARKS: 100

CREDITS: 4

Course Learning Objective: A comprehensive understanding of Indian geography is provided in this syllabus, which includes physiography, geology, drainage systems, climate, soil, natural vegetation, agriculture, mineral and energy resources, population, and manufacturing industries.

Course Learning Outcome:

1. Understand the India's geological structure, physiographic divisions, and drainage systems.
2. Know the climate patterns, soil types, and natural vegetation zones of India.
3. Learn about the different types of farming, challenges faced by Indian agriculture, and the Green Revolution.
4. Analyze the growth, distribution, density, migration, language classification, and ethnic composition of the Indian population.

UNIT-I: Physiographical Background: Location, Physiographic divisions and their Characteristics, Drainage systems (Himalayan and Peninsular); Climate, Soils, Natural Vegetation, Mechanism of Indian monsoons.

UNIT-II: Agriculture: Characteristics of Indian Agriculture, Agricultural Problems, and prospects. Cropping pattern, agricultural productivity, agricultural intensity, crop combination; Agro-forestry; Green revolution and its socio-economic and ecological implications; Agricultural regionalization; Agro-climatic zones; Agro ecological regions.

UNIT-III: Mineral Resources: types of Minerals; (Iron ore, Manganese, Copper, Bauxite, Lead, Zinc, Gold, and Silver), Mineral Production, Energy resources (coal, petroleum, & solar energy), non-Conventional energy; Multipurpose projects: Damodar valley and Bhakra Nangal. Major industrial regions of India.

UNIT-IV: Cultural Setting: Historical Perspective of Indian Society; Racial linguistic and ethnic diversities; religious minorities; Major tribes, tribal areas and their problems; Cultural regions.

UNIT-V: Transport, Communication and Trade: Road, railway, waterway, airway and pipeline networks and their complementary roles in regional development; Growing importance of ports on national and foreign trade; Developments in communication and information technology and their impacts on economy and society.

Reference Books:

1. Khullar, D. R. (2012). *India: A Comprehensive Geography* Ludhiana.
2. Spate, O. H. K., & Learmonth, A. T. A. (2017). *India and Pakistan: A general and regional geography*. Routledge.
3. Singh, R. L. (1971). *India; a regional geography. India; a regional geography*. UBS Publishers Distributors.
5. Singh, G. (1979). *A geography of India*. Atma Ram.
6. Tirtha, R. (2010). *Geography of India*. Rawat Publications.
7. Husain, M. (2014). *Geography of India*. Tata McGraw-Hill Education.

DSC - 253 GENERAL CARTOGRAPHY-II (PRACTICAL)**(DISCIPLINE SPECIFIC CORE)****FULL MARKS: 100****CREDIT: 4**

Course Learning Objectives: To make the students understand about the techniques in drawing of distribution maps and cartograms, how to interpret topographical maps, drawing of Area Height Curve, Hypsometric curve, Block diagrams from topographical maps and preparation of climatic graphs.

Course Learning Outcomes: Students will be able to represent different types of data with suitable maps and cartograms, interpret topographical maps and climate graphs.

UNIT I: Distribution maps: Proportionate Circles, Proportionate Squares, Spheres and Multiple Dots, pie- chart, Age-Sex Pyramid.

UNIT II: Diagrammatic data representation: Line, bar graphs, Band Diagram, Traffic Flow diagram, Isochronic cartogram.

UNIT III: Preparation of base map, Conventional sign and symbols. Interpretation of Topographical maps including its all physical and cultural features with special reference to Plain, Plateau and Mountain areas.

UNIT IV: Preparation and analysis of: (a) Area Height curve (b) Hypsometric curve (c) Block Diagrams (One-point perspective).

UNIT V: Climatic Data presentation: Climograph, Hythergraph and Ergograph. Thematic mapping techniques: Properties, uses and limitation, Representation of thematic map: dot map, choropleth map, Isoleth map.

Practical Record: Students will prepare a record book on all the exercises taught.

Reference books:

1. Singh, Dr. R.L., (1979), *Elements of Practical Geography*, Kalyani Publishers, New Delhi.
2. Singh, Dr. L.R., (2006), *Fundamentals of Practical Geography*, Sharda Pustak Bhawan, Allahabad.

3. Khan, Z.A., (1998), *A Text Book of Practical Geography*, Concept, New Delhi.
4. Misra, R.P. and Ramesh, A., (1989), *Fundamentals of Cartography*, Concept, New Delhi.

DSM - 251 INTRODUCTION TO CARTOGRAPHY (PRACTICAL)
(DISCIPLINE SPECIFIC MINOR)

FULL MARKS: 100

CREDITS: 3

Course Learning Objective: It is aimed at familiarizing students with the meaning, history, types, importance, and use of maps. Additionally, students will have an opportunity to explore map scales, contours and profiles of landforms, thematic mapping techniques, interpretation of topographical maps, and graphical representations of statistics.

Course Learning Outcome:

1. Understand maps and their importance, types, and uses.
2. Comprehend map scales and their implications for measurement.
3. Interpret the contours and profiles of landforms.
4. Apply thematic mapping techniques to represent thematic information.

UNIT-I: Maps: Meaning and Definition, History of maps, types of maps, importance, and use of maps. Scales: definition, type, conversion, enlargement, and reduction.

UNIT-II: Representation of Contours and Profiles (with brief description) - River terraces - Water divide - Cirque - Fiord coast - Ria coast - Ridge and saddle - Plateau - U shaped valley - Slope and gradient.

UNIT-III: Techniques of thematic mapping: proportionate circle, proportionate squares, proportionate spheres, and multiple Dots.

UNIT-IV: Interpretation of topographical maps with special reference to Plain or Mountain.

UNIT-V: Representation of Statistical Data: Hythergraphs, Ergographs, Band Graphs, Climograph and Cartograms. Distribution Maps- Isopleths method, Choropleth method.

Reference Books:

1. Singh, R. L. (1979). *Elements of practical geography*, Kalayani Publisher.
2. Robinson, A.H (2009). *Element of Cartography*, John Wiley and Sons, New York.
3. Darkes, G. (2017). *Cartography: An Introduction*. Trans-Atlantic Publications.
4. Misra, R. P., & Ramesh, A. (1989). *Fundamentals of cartography*. Concept Publishing Company.

DSM - 252 ENVIRONMENTAL STUDIES

(DISCIPLINE SPECIFIC MINOR)

FULL MARKS: 100

CREDITS:3

Course learning Objectives: To introduce the students regarding the environment knowledge. It will enable the students to learn about the basic principles of ecosystem, and Biogeography, Geochemical cycles environmental movement in India.

Course learning Outcome: Students will able to understand and evaluate the environmental problems and conserve the resources. It will create the awareness among the people about sustainable development.

UNIT I: Environment studies - Definition, scope, and importance; Concepts of an Ecosystem, Structure and Functions of Ecosystem, producers, Consumer in an Ecosystem.

UNIT II: Biogeography - Definition, scope, and its significance; Biome and Biomass; Biodiversity: Definition, types, conservation and Biodiversity hotspot in Northeast, Depletion of biodiversity.

UNIT III: Environmental and Natural Hazards - landslides, soil erosion, droughts and floods, earthquake; man-made hazards; technology hazards, global climate changes, global warming, greenhouse effect, ozone depletion. Environmental pollution; pollutants, sources and types of pollution, solid waste disposal, Environmental education, Environmental Impact Assessment (EIA), Environmental Policy, Environmental Management.

UNIT IV: Human Communities and the Environment; Population growth and its Impacts on environment, human health, and welfare. Disaster management: floods, earthquake, cyclones, and landslides. Environmental movements: Chipko, Silent valley, Apikko, Salumarada Thimmakka. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation Environmental communication and public awareness.

UNIT V: Field Work - Visit to an area to document environmental assets, rivers/flora/fauna/forest. Visit to a local polluted site- urban/ rural/industrial/ agriculture. Study of simple ecosystem-pond/river/lake.

Or

Problems related to urbanization and industrialization, management of resources for sustainable development and alternative strategies for resource utilization Environmental problems in North-East India with special references on floods, deforestation, and landslides.

Reference Books:

1. Gleeson, B. and Low, N. (eds.) (1999). *Global Ethics and Environment*, London, Routledge.
2. McCully, P. (1996). *Rivers no more: the environmental effects of dams Zed Books.*

3. Nandini, N. (2019). *A text book on Environmental Studies (AECC)*. Sapna Book House, Bengaluru.
4. Odum, E.P., Odum, H.T. & Andrews, J. (1971). *Fundamentals of Ecology*. Philadelphia: Saunders.
5. Pepper, I.L, Gerba, C.P. & Brusseau, M.L. (2011). *Environmental and Pollution Science*. Academic Press.
6. Rao, M.N. & Datta, A.K. (1987). *Waste Water Treatment*. Oxford and IBH Publishing Co. Pvt. Ltd
7. Rosencranz, A., Divan, S., & Noble, M. L. (2001). *Environmental law and policy in India*. Tripathi.
8. Sengupta, R. (2003). *Ecology and economics: An approach to sustainable development*. OUP.
9. World Commission on Environment and Development. (1987). *Our Common Future*. Oxford University Press.
10. Singh, S. (2008). *Environmental Geography*. Prayag Pustak Bhawan, Allahabad.

AEC IV – EL 251 ABILITY ENHANCEMENT COURSE (LANGUAGE)

FULL MARKS: 50

CREDIT: 2

SEMESTER - V

Course Code	Course Name	Credits	Marks
DSC - 301	Agriculture Geography	4	100
DSC - 302	Environmental Geography	4	100
DSC - 303	Disaster Management Project (Practical)	4	100
DSM - 301	Geography of India with Special Reference to North - East India	3	100
DSM - 302	Geography of Tourism	3	50
	Community Engagement	2	100
Total		20	550

SEMESTER V
DSC – 301 AGRICULTURAL GEOGRAPHY
(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 4

Course Learning Objective: The objective of this course is to introduce the basic concept, theme, classification, issues, problems, and determinants involved in agricultural geography with special reference to Indian agriculture.

Course Learning Outcomes: After the end of the syllabus students will be able to conceptualise the various agricultural reasons with respect to climate. Further it is expected that they will be able to critically examine the issues concerned of agricultural activities at global and Indian context.

UNIT-I: Agricultural Geography: Introduction, Nature, Scope, and significances; Origin and development of agriculture geography; Approaches to the study of agricultural geography – regional, systematic, ecological and commodity approach.

UNIT-II: Determinants of Agriculture: Climate, Relief, Soil, Mechanization, HYV Seeds, NPK fertilizers, Irrigation and pests Control, Marketing, Transportation, Size of land holding and Kisan Credit Card.

UNIT – III: Agricultural regionalization; delimitation of agricultural regions, different techniques delimitation. Agricultural Regions of India: Agro-Climatic Regions and Agricultural productivity Regions of India.

UNIT- IV: Agricultural Systems of the World: Whittlesey's classification and concept of agricultural land use location theory - Von Thunen's and its modification and relevance.

UNIT-V: Agricultural Revolutions in India and its impacts and consequences: Green, White, Blue, Pink, Yellow and Black; Concept of food security.

Reference Books:

1. Basu, D.N., and Guha, G.S., (1996) *Agro-Climatic Regional Planning in India, Vol-I & II*, Concept publications, New Delhi.
2. Hussain M. (1999) *Systematic Agricultural Geography, Rawat publication, Jaipur, and New Delhi.*
3. Mohammad, N., (1992) *New Dimension in Agricultural Geography Vol-I to VII*, Concept pub, New Delhi.
4. Shati, M., (2006) *Agricultural Geography*, Doring Kindersjoy India Pvt. Ltd., N. Delhi.
5. Singh, J., and Dhillon, S.S. (1984) *Agricultural Geography*, Tata M. Graw Hill, N. Delhi.

**DSC – 302 ENVIRONMENTAL GEOGRAPHY
(DISCIPLINE SPECIFIC CORE)**

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives: The course aims at introducing the World's natural environments. The course lets the students know the impacts and consequences of human activities on natural environment.

Course Learning Outcomes:

The students on the completion of the course will be able to:

1. Understand the physical/natural environment.
2. Know the interrelationships between living organisms and non-living elements of the Earth.
3. Recognize issues and challenges concerned with natural environment.
4. Realize the necessity of conservation of environment for ecological balance.

UNIT I: Geography of Environment - Concept, Scope and Significance - Approaches to Study of Environmental Geography. Environmental contrast (Biotic Abiotic, Global, Continental, Local) Environmental control of (light, Temperature, Water, topography and edaphic factors).

UNIT II: Ecology and Ecosystem - Components, Structure and Functions of Ecosystem. Concept of Food-chain, Food-web, Energy Transfer, Biotic Pyramid, Biomass, Habitat and Ecological Niche, Ecological Balance. Man-Environment Relationships: Local Regional and Global Perspectives.

UNIT III: Biomes of the World - aquatic, grassland, forest, desert, and tundra. World's Biotic Regions: Present Status and Future Prospects. Biotic Regions of India: Issues and Challenges.

UNIT IV: Environmental Issues and Challenges - Global Warming and Climate Change: Pollution, Deforestation, Ozone layer Depletion, Sea-level Rise, Green House Effect, Drought, Desertification, Biodiversity Loss.

UNIT V: Environmental Conservation - Environmental Policies and Programmes at Global and National Platforms: Applications and Challenges. Environmental Impact Assessment (EIA) in the context of India.

Reference books:

1. Robinson, H. (1972). *Biogeography*. Macdonald and Evans Ltd.
2. Lal, J. B. (1987). *Environmental Conservation*. International Book Distributors, Dehra Dun.
3. Cunningham, William P., Cunningham, Mary A. (2007). *Principles of Environmental Science*. Tata McGraw-Hill, New Delhi.

4. Singh, Savindra (2020). *Environmental Geography*. Pravalika Publications, Allahabad.
5. Chandna, R. C. (2002). *Environmental Geography*. Kalyani Publishers, Ludhiana.
6. Miller, G. T. (2004). *Environmental Science: Working with the Earth*. Thomson Books Cole, Singapore.
7. Singh, Dr. Lallan (2009). *Environmental Geography*. APH Publishing Corporation.
8. Saxena, H. M. (2021). *Environmental Ecology, Biodiversity and Climate Change*. Rawat Publications.
9. Narayanan, P. (2009). *Environmental Pollution: Principles, Analysis and Control*. CBS Publication.

DSC – 303 DISASTER MANAGEMENT PROJECT (PRACTICAL)

(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives: The course aims at introducing the management systems of all kinds of disaster in order to mitigate the risk. The course lets the students know how to tackle the challenges before, during and after the occurrence of disaster.

Course Learning Outcomes:

The students on the completion of the course will be able to:

1. Understand the basic concepts of Disaster Management.
2. Know the tools and techniques used in Disaster Preparedness Plans.
3. Integrate and analyze the geospatial data associated with the occurrence of disasters.
4. Prepare and present project report on disaster management.

UNIT I: Disaster, Disaster Management, Meaning, Concept and Scope and importance. Concepts of Hazard, Risk and Vulnerability.

UNIT II: Natural Disaster and Earthquake, Flood, Drought, Cyclone, Thunderstorm, Landslide, River-bank Erosion, Thunderbolt, Tsunami, Volcanic Eruption, Cloud Burst, Heat-wave, Cold-wave.

Unit III: Man-induced Disaster: Fire, Nuclear Accident, Chemical Accident, Biological Threat (Outbreak of infectious Disease). Disaster Management System in India: Issues and Challenges. National Disaster Management Guidelines.

Unit IV: Field visit and Preparation of Project Report.

Unit V: Presentation of Disaster Management Project

Reference books:

1. Subramanian R. (2018). *Disaster Management*. Vikas Publishing House.
2. Dhawan, N. G., Ambrina, S. K. (2012). *Disaster Management and Preparedness*. CBS Publication.

3. Kanda, Mohan (2019). *Disaster Management in India: Evolution of Institutional Arrangements and Operational Strategies*. BS Publications.
4. Gupta, Harsh K. (2003). *Disaster Management*. Universities Press.
5. Sakya, Andi Eka (2011). *Natural Disasters: Policy Issues and Mitigation Strategies*. Daya Publishing House.
6. <https://www.adb.org>. *Disaster Risk Assessment for Project Preparation: A Practical Guide*. Asian Development Bank.

DSM-301 GEOGRAPHY OF INDIA
WITH SPECIAL REFERENCE TO NORTH - EAST INDIA
(DISCIPLINE SPECIFIC MINOR)

FULL MARKS: 100

CREDITS: 3

Course Learning Objective: The objective of this syllabus is to provide students with a comprehensive knowledge of the geography of India and North Eastern India. Specifically, it seeks to provide them with information about physiographic divisions, drainage systems, climate, soil, natural vegetation, crops, mineral resources, energy resources, population growth and distribution, and manufacturing industries within a given geographical area.

Course Learning Outcome:

1. Understand the physical aspects of geography including physiographic divisions, drainage systems, climate, soil, and natural vegetation.
2. Learn about specific crops, mineral resources, and energy resources and their geographical distribution.
3. Analyze population growth, distribution, composition, and social composition in each region.
4. Explore manufacturing industries, major industrial regions, and specific industries' geographic characteristics.
5. Develop an understanding of a specific region, including its location, physiography, climate, soils, natural vegetation, agriculture, and mineral and power resources.

UNIT-I: Location and its significance, Physiographic Division, Drainage system, climate, soil and natural vegetation.

UNIT-II: Distribution and production of major Agricultural Crops (rice, wheat, sugarcane, and tea); spatial distribution and production of Mineral resources (iron ore, manganese, and bauxite) and Energy resource (coal & petroleum).

UNIT-III: Population growth, density, and distributions; manufacturing industries: cotton and jute (textile industry), iron and steel industry (metallurgical industry); major industrial regions of India.

UNIT-IV: North East India: Location, physiography, climate, soils, natural vegetation; Types, characteristics of Agriculture and Agricultural products, Problems, and consequences.

UNIT-V: Population: distribution and density, population composition, social composition, Literacy, Migration pattern of NE India. Distribution and Production of Mineral and power resources (coal, limestone, natural gas, petroleum, and hydropower) of NE India.

Reference Books:

1. Khullar, D. R., (1999). *India: A comprehensive geography*, Kalyani Publishers.
2. Spate, O. H. K., & Learmonth, A. T. A., (2017). *India and Pakistan: A general and regional geography*, Routledge.
3. Singh, R. L., (1971). *India: a regional geography*, National Geographical of India.
4. Wadia, D. N., (1953). *Geology of India*, Macmillan publications.
5. Singh, G. (1976). *A Geography of India*, Atma Ram & Sons Pub., New Delhi.
6. Tirtha, R., (2010). *Geography of India*, Rawat Publications.
7. Husain, M., (2014). *Geography of India*, Tata McGraw-Hill Education.

DSM- 302 GEOGRAPHY OF TOURISM

(DISCIPLINE SPECIFIC MINOR)

FULL MARKS: 100

CREDITS: 3

Course Learning Objectives: This course aims to Understand the basics concept, scope, and importance of tourism. It will equip the students with the Knowledge of tourism Geography and it will provide details understanding of tourism and the impact of tourism in the present-day context.

Course Learning Outcomes: At end of this course, student will able to describe about the scope and importance of geography in tourism. Students shall enable to understand tourism marketing and the create the sustainable strategies for the planning and promoting tourism in various level.

UNIT I: Tourism - Concept, Nature, and Scope; Components of tourism, factor influencing Tourism, elements of Tourism as an Industry. Role of government in tourism.

UNIT II: Types of Tourism - international and Domestic Tourism; Recent Trends in Tourism; Impact of Tourism; concept of ecotourism and sustainable tourism, Tourism planning in India: planning at national, regional, local level.

UNIT III: Tourism development with special Reference to North-East India. Case study of important places, culture, and festivals in the region. Infrastructure and Support System: - Accommodation, Transport; other facilities and amenities.

UNIT IV: Impact of tourism: physical, economic, and social and perceptual positive and negative impacts. Prospects and Challenges of Tourism, role of Government and NGO and the local communities in developing and promoting Tourism.

UNIT V: Tourism Marketing and its consequences: Products marketing, physical products, and services. difference between urban and rural tourism and its importance, Planning, and management strategies of Tourism.

Reference Books:

1. Bhatia, A.K. (1996) *Tourism Development: Principles and Practices*, Sterling Publishers.
2. Bhatia, A.K. (1991) *International Tourism – Fundamentals and Practices*. Sterling Publishers, New Delhi.
3. Biju, M.R. (2006) *Sustainable Dimensions of Tourism Management*, Mittal Publications.
4. Chandra, R.H. (1998) *Hill Tourism, Planning and Development*, Kanishka Publications.
5. Kaur, R.K., (1985) *Dynamics of Tourism and Recreation*, Inter – India, New Delhi.
6. Lea, J. (2006). *Tourism and development in the Third World*. Routledge.
7. Robinson, H. (1996) *A Geography of Tourism*, Macdonald and Evans, London.
8. Siddiqui, S. (2000) *Eco - friendly tourism in U.P. Himalayas*, B.R. Publishers, New Delhi.
9. Singh, I. (2005) *Manipur: A Tourist Paradise*, B.R. Publishers, New Delhi.
10. Khullar.D.R. (2020), *India: A Comprehensive Geography*, Kalyani Publishers.

Community Engagement

Full Marks:50

Credits: 2

Course Learning Objectives:

1. To promote deeper interaction between the University / College and local communities
2. To provide practical opportunities for students for participation in rural community mobilization, service engagement and empowerment activities along with trained resident community volunteers.
3. Learn about teamwork in which caring for the team and the community is a prerequisite.
4. Soft and hard skills are equally targeted.

Course Learning Outcomes:

- 1 Work in a non-university professional environment.
- 2 Demonstrate theoretical, critical, and methodological and disciplinary knowledge relevant to one's area of intellectual interest in a practical form that mirrors professional work.
- 3 Manage and finalise a research project at an advanced level.
- 4 Provide briefs, presentations, progress reports and posters in line with current professional standards with polished writing and other communication skills.

5 Show an awareness of the ways in which contemporary professional, industry, community, or government organisations operate in terms of practical and project research work.

Course content:

1. Promote geo-literacy.
2. Promote map reading and navigation skills.
3. Awareness on earth system including weather and climate.
4. Provide knowledge on geo chemical cycles.
5. Awareness on hill environment, landslide, drainage, vegetation, human activity, etc.
6. Awareness on watershed management.
7. Provide knowledge on soil and drainage.
8. Awareness on agriculture in context of human-environment interaction.
9. Provide knowledge of the regional geography of India and NE India.
10. Awareness on prevention of pollution and nature conservation.

Text / Reference Books:

1. Singh, K., & Shishodia, A. (2016). *Rural development: Principles, policies, and management*. SAGE Publishing India.
2. Sengupta, E., Blessinger, P., & Mahoney, C. (Eds.). (2020). *University-community Partnerships for Promoting Social Responsibility in Higher Education*. Emerald Group Publishing.
3. Rine, P. J., & Quiñones, S. (Eds.). (2020). *Community Engagement in Christian Higher Education: Enacting Institutional Mission for the Public Good*. Routledge.
4. Quezada, R. L., Alexandrowicz, V., & Molina, S. (Eds.). (2018). *Family, school, community engagement and partnerships: Theory and best practices*. Routledge.
5. Benneworth, P. (2013). University engagement with socially excluded communities. In *University engagement with socially excluded communities*. Springer, Dordrecht.

SEMESTER - VI

Course Code	Course Name	Credits	Marks
DSC - 351	World Physical Geography	4	100
DSC - 352	Population Geography	4	100
DSC - 353	Geography of Tourism	4	100
DSC - 354	Surveying and Levelling (Practical)	4	100
DSM - 351	Introduction to Surveying (Practical)	4	100
Total		20	500

SEMESTER - VI
DSC – 351 WORLD PHYSICAL GEOGRAPHY
(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives: The course aims at introducing the physical aspects of the Terrestrial World distributed over the surface. The course lets the students know the topographical features worldwide.

Course Learning Outcome:

The students on the completion of the course will be able to:

1. Understand the physical/natural World.
2. Locate the physical features over the surface of the Earth.
3. Correlate maps with the real ground.
4. Integrate and analyze the reasons behind the existence of landforms and features.

UNIT I: Morphology - Distribution and Spatial Arrangement of Landforms: First Order, Second Order and Third Order of the Terrestrial Earth (Land Surface) - their Morphological Features and Characteristics.

UNIT II: Soil and Minerals - Major Soil Regions of the World: Types, Nature and Characteristics. World Distribution of major Mineral Resources: Petroleum oil, Natural gas, Coal, Uranium, Lithium, Gold, Iron ore, Manganese ore, Mica, Diamond, Copper, Silver, Bauxite, Tin.

UNIT III: Drainage and Water Bodies - Major River Systems of the World - World Distribution of Lakes and Inland Seas. Indus, Ganges, Huang He, Mekong, Tigris, Volga, Danube, Nile, Congo, Mississippi, Amazon. Major Lakes and Inland Seas of the World.

UNIT IV: Climate - Major Climatic Regions of the World: Types, Nature and Characteristics. Tropical Rainy, Tropical Wet and Dry, Monsoon, Tropical Desert, Dry Continental, Mediterranean (Dry Summer Sub-tropical), Sub-arctic, Tundra, Highland.

UNIT V: Vegetation - Distribution of Natural Vegetation in the World: Types, Nature and Characteristics. Evergreen Forest: Equatorial and Tropical; Deciduous Forest: Tropical and Temperate; Grassland: Tropical and Temperate; Thorn and Scrubs; Desertic Vegetation; Mangrove and Tidal Forest; Montane Forest; Boreal Forest; Tundra Vegetation.

Reference books:

1. Heintzelman Oliver H., Highsmith, Richard M. (1965). *World Regional Geography*. Department of Geography, Oregon State University.
2. Runkle, Brewer Brenda (2000). *World Physical Geography*. Runkle Pub Inc.
3. Gautam, Dr. Alka (2023). *Regional Geography of the World*. Sharda Pustak Bhawan, Allahabad.

4. Hussain, Majid (2021). *World Geography*. Civil Service Books.
5. McDougal (2006). *World Geography*. McDougal Littell/Houghton Mifflin.
6. Manku, Darshan Sing (2017). *A Regional Geography of the World*. Kalyani Publishers.
7. Khullar, D. R. (2016). *World Geography*. Access Publishing.
8. Maurya, S. D. (2022). *World Regional Geography*. Pravalika Publications.
9. Finlayson, Caitlin (2019). *World Regional Geography*. Simple Book Publishing.

DSC – 352 POPULATION GEOGRAPHY

(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives: The course aims at introducing the students with various aspects of human population with reference to spatial arrangement over the surface of the Earth. The course makes the students understand the geographical factors and elements influencing the attributes of population.

Course Learning Outcomes:

The students on the completion of the course will be able to:

1. Understand human population as an element of geographical study.
2. Know the World's population composition.
3. Recognize the factors of population growth and their determinants.
4. Understand the relationships between population and Earth's natural resources.

UNIT I: Geography of Population - Concept, Scope, and Significance. Components of Population Geography; Historical Development; Relationship of Population Geography with other Social Sciences; Components of Population Geography.

UNIT II: Population Data and Population Composition - Data Types, Sources and Limitations. Patterns of Population Composition- their Determinants. Patterns of Population Composition: Biological Composition- Racial, Ethnic, Age, Sex; Cultural Composition- Religious Linguistic, Marital, Educational, Settlement; Economic Composition- Occupational Employment, Income.

UNIT III: Population Growth - Meaning; Factors of Population Growth: Birth, Death, Migration- their Determinants. Theories of Population Growth: Malthusian Model and Demographic Transition Model. Contemporary Issues: Declining Fertility Rate and Sex Ratio.

UNIT IV: Distribution and Density of Population; Growth and Distribution of World Population with Reference to India. Factors: Physical factors - Geographical Locational, Physiography, Climate, Soil Fertility, Power and Mineral Resources, Natural Disaster; Socio-cultural and Economic Factors - Technological Advancement, Social Amenities, Diversified Occupations, Social Disaster, Tradition and Culture, Government Policies.

UNIT V: Population and Resources - Conceptual Relationship; Significance of Resource-Population Ratio. Population Growth and Resource Development: Underpopulation, Optimum Population and Overpopulation. Pressure of Population: Population Problems; Population Policies with Reference to India.

Reference books:

1. Clarke, John I. (1972). *Population Geography*. Pergamon Oxford Geographies, UK.
2. Ghosh, B. N. (1985). *Population Geography*. Sterling Publishers Private Limited, New Delhi.
3. Chandna, R. C. (2015). *Geography of Population*. Kalyani Publishers, Ludhiana.
4. Hassan, Mohammad Izhar (2007). *Population Geography*. Rawat Publications, Jaipur.
5. Vatsyayan, Dr. (1991). *Social Demography and Population Studies*. Kedar Nath Ram Nath, Meerut.
6. Knowles, R., Wareing, J. (1990). *Economic and Social Geography*. Made Simple Books, Rupa & Co., Calcutta.
7. Singh, Dr. Y. I. (2021). *Population and Settlement Geography*. Global Net Publication.
8. Leong, Goh Cheng; Morgan, Gillian C. (1982). *Human and Economic Geography*. Oxford University Press.
9. Dyson, Tim (2011). *Population and Development*. Rawat publications, Jaipur.

**DSC – 353 GEOGRAPHY OF TOURISM
(DISCIPLINE SPECIFIC CORE)**

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives: This course aims to Understand the basics concept, scope, and importance of tourism. It will equip the students with the Knowledge of tourism Geography and it will provide details understanding of tourism and the impact of tourism in the present-day context.

Course Learning Outcomes: At end of this course, student will able to describe about the scope and importance of geography in tourism. Students shall enable to understand tourism marketing and the create the sustainable strategies for the planning and promoting tourism in various level.

UNIT I: Tourism - Concept, Nature, and Scope; Components of tourism, factor influencing Tourism, elements of Tourism as an Industry. Role of government in tourism.

UNIT II: Types of Tourism - international and Domestic Tourism; Recent Trends in Tourism; Impact of Tourism; concept of ecotourism and sustainable tourism, Tourism planning in India: planning at national, regional, local level.

UNIT III: Tourism development with special Reference to North-East India. Case study of important places, culture, and festivals in the region. Infrastructure and Support System: - Accommodation, Transport; other facilities and amenities.

UNIT IV: Impact of tourism: physical, economic, and social and perceptual positive and negative impacts. Prospects and Challenges of Tourism, role of Government and NGO and the local communities in developing and promoting Tourism.

UNIT V: Tourism Marketing and its consequences: Products marketing, physical products, and services. difference between urban and rural tourism and its importance, Planning, and management strategies of Tourism.

Reference Books:

1. Bhatia, A.K. (1996) *Tourism Development: Principles and Practices*, Sterling Publishers.
2. Bhatia, A.K. (1991) *International Tourism – Fundamentals and Practices*. Sterling Publishers, New Delhi.
3. Biju, M.R. (2006) *Sustainable Dimensions of Tourism Management*, Mittal Publications.
4. Chandra, R.H. (1998) *Hill Tourism, Planning and Development*, Kanishka Publications.
5. Kaur, R.K., (1985) *Dynamics of Tourism and Recreation*, Inter – India, New Delhi.
6. Lea, J. (1988) *Tourism and Development in the third world*, Rout Ledge, London.
7. Robinson, H. (1996) *A Geography of Tourism*, Macdonald and Evans, London.
8. Siddiqui, S. (2000) *Eco - friendly tourism in U.P. Himalayas*, B.R. Publishers, New Delhi.
9. Singh, I. (2005) *Manipur: A Tourist Paradise*, B.R. Publishers, New Delhi.
10. Khullar.D.R. (2020), *India: A Comprehensive Geography*, Kalyani Publishers.

DSC-354 SURVEYING AND LEVELLING (PRACTICAL)

(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDIT: 4

Course Learning Objectives:

To develop the concept of basic principles of surveying including the uses of chain and plane table survey.

To determine the relative position of any objects or points of the earth and to determine the distance and angle between different objects.

To prepare a map or plan to represent an area on a horizontal plan.

To impart idea about levelling and sectioning of surfaces.

Course Learning Outcomes:

1. Explain Basic surveying instruments and techniques.
2. Apply skills in using basic surveying instruments, analyze data, conduct traverse survey & to find the area.
3. To learn to work as team, ethics and prepare technical reports of surveying.

4. To establish horizontal control and vertical control by traversing and triangulation.
5. To prepare topographical map and contour map on an area.

UNIT I: Definitions, Object of Survey, Primary Divisions of Survey, Classification and use of survey, Principle of surveying, Measurement, Units of measurements, Methods of locating points, Works of surveyor, Precision in surveying.

UNIT II: Principles of Chain Surveying, Triangulation survey, Survey station, Selection of stations, Survey lines, ranging and types of ranging, Chaining, Type of chains, Recording the measurement, Offsets and their types, Number of offsets, Computation of areas. Errors in lengths due to incorrect chain, Correction for slopes, Error in chaining with tape and corrections, Numerical on chain and tape corrections.

UNIT III: Types and Methods of Traverse survey, Prismatic Compass, Bearing of line, and computation of angles. Local attraction and numerical, Magnetic declinations, Dip of needles, Plotting of traverse survey, Errors and limitation of compass survey. GPS Surveying.

UNIT IV: Plane Tabling, Instruments & Accessories. Advantages and Disadvantages, setting & orientating tables, Methods of Plane tabling, Radiation, Intersection, Traversing and Resection, Errors in Plane Tabling.

UNIT V: Leveling, Terms used in leveling, Types of levels, leveling staffs, Focusing, Bench Marks, Adjustment of Level. Principles of leveling, Reduction of levels, booking of staff reading, Classification of leveling, Differential, Profile, Cross sectioning, effect of curvature and refraction, check leveling, Reciprocal and precise levelling, Contouring and Height determination using theodolite.

Practical Record: Each student will prepare a record book comprising Chain, Plane table, Prismatic Compass and Dumpy's level surveying.

Reference Books:

1. Basak, N. N. (2014). *Surveying & Levelling*. McGraw-Hill Education.
2. Kanetkar, T. P., & Kulkarni, S. V. (1994). *Surveying and Levelling Vols. I and II*. Vidyarthi Griha Prakashan.
3. Punmia, B. C. (2005). *Surveying Vol. I & 2*. Firewall Media.
4. Duggal, S. K. (2013). *Surveying (Vol. 1 & 2)*. Tata McGraw-Hill Education.

DSM - 351 INTRODUCTION TO SURVEYING (PRACTICAL)
(DISCIPLINE SPECIFIC MINOR)

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives:

1. To develop the concept of basic principles of surveying including the uses of chain and plane table survey.
 2. To determine the relative position of any objects or points of the earth and to determine the distance and angle between different objects.
 3. To prepare a map or plan to represent an area on a horizontal plan.
- To impart idea about levelling and sectioning of surfaces.

Course Learning Outcomes:

1. Explain Basic surveying instruments and techniques.
2. Apply skills in using basic surveying instruments, analyze data, conduct traverse survey & to find the area.
3. To learn to work as team, ethics and prepare technical reports of surveying.
4. To establish horizontal control and vertical control by traversing and triangulation.
5. To prepare topographical map and contour map on an area.

UNIT I: Definitions, Object of Survey, Primary Divisions of Survey, Classification and use of survey, Principle of surveying, Measurement, Units of measurements, Methods of locating points, Works of surveyor, Precision in surveying.

UNIT II: Principles of Chain Surveying, Triangulation survey, Survey station, Selection of stations, Survey lines, ranging and types of ranging, Chaining, Type of chains, Recording the measurement, Offsets and their types, Number of offsets, Computation of areas. Errors in lengths due to incorrect chain.

UNIT III: Types and Methods of Traverse survey, Prismatic Compass, Bearing of line, and computation of angles. Local attraction and numerical, Magnetic declinations, Dip of needles, Plotting of traverse survey, Errors and limitation of compass survey

UNIT IV: Plane Tabling, Instruments & Accessories. Advantages and Disadvantages, setting & orientating tables, Methods of Plane tabling, Radiation, Intersection, Traversing and Resection, Errors in Plane Tabling.

UNIT V: Leveling, Terms used in leveling, Types of levels, leveling staffs, Focusing, Bench Marks, Adjustment of Level. Principles of leveling, Reduction of levels, booking of staff reading, Classification of leveling, Differential, Profile, Cross sectioning.

Reference Books:

1. Basak, N. N. (2014). *Surveying & Levelling*. McGraw-Hill Education.

2. Kanetkar, T. P., & Kulkarni, S. V. (1994). *Surveying and Levelling Vols. I and II*. Vidyarthi Griha Prakashan.
3. Punmia, B. C. (2005). *Surveying Vol. I & 2*. Firewall Media.
4. Duggal, S. K. (2013). *Surveying (Vol. 1 & 2)*. Tata McGraw-Hill Education.

SEMESTER - VII

Course Code	Course Name	Credits	Marks
DSC - 401	Resource Geography	4	100
DSC - 402	Regional Planning & Development	4	100
DSC - 403	Settlement Geography	4	100
DSC - 404	Fundamentals of Remote Sensing & GIS (Practical)	4	100
DSM - 401	Introduction to GIS	4	100
Total		20	500

SEMESTER - VII
DSC- 401 RESOURCE GEOGRAPHY
(DISCIPLINE SPECIFIC CORE)
FULL MARKS: 100
CREDITS: 4

Course Learning Objectives:

1. Explain the types of natural resources that exist.
2. Study the role of government and different agencies in the natural resource management.
3. Study the threat to the natural resources and the policies to solve it.

Course Learning Outcomes:

At the end of the course the students will:

1. Understand concepts of different natural resources, its use, overuse, with its solution by natural resources management methods.
2. Appreciate the need for managing land and water resources for sustainable growth and development, managerial skills such as land evaluation and land classification.
3. Also, able to understand the causes and consequences of water stress and draw water conservation and management plans.

UNIT- I: Concept of Resource - Meaning, Definition, importance, and classification of Resources - based on renewability: Renewable, Non-renewable & Cyclic; Based on origin- Biotic & Abiotic; Based on utility-Energy & Raw materials.

UNIT- II: Land Resources - Land classification methods, Land use and Land cover, Issues related to land change-Land use and Population, Land use Pattern in the world, Land use Planning and development, Soil Erosion, Soil degradation, methods of conservation.

UNIT- III: Water Resources - Importance of water, recent trends in water use in the world, Water crises, Causes and Consequences of water stress or crises, methods of water conservation, watershed management.

UNIT- IV: Mineral Resources - Types of minerals, classification of major minerals, their distribution and production - Petroleum, Coal, Iron ore, Gold, Bauxite and Copper. Mineral exploration & its effects on environment.

UNIT - V: Conservation & Management of Natural Resources - History of conservation, need for conservation & Management of Natural Resources – Role of government & NGO - Agencies – Resource creating factors, Environment Risk – types, Wildlife, forest risk & its impact on environment & its management.

Reference Books:

1. Gautam, Alka (2016): *Geography of Resources; Exploitation, Conservation & Management*, Sharada Pustak Bhawan, Allahabad.
2. Pandey, B. W. (Ed.). (2005). *Natural resource management*. Mittal Publications.

3. George, G., & Schillebeeckx, S. J. (Eds.). (2018). *Managing natural resources: Organizational strategy, behaviour and dynamics*. Edward Elgar Publishing.
4. Verhoeven, J. T., Beltman, B., Bobbink, R., & Whigham, D. F. (Eds.). (2006). *Wetlands and natural resource management* (Vol. 190). Springer Science & Business Media.
5. Shetty, Rajashekara (2009) *An analysis of World Resources with reference to India*, Sarala Raj, Ria Publishers, Mysore.
6. Khana K. K. & Gupta V. K. (1993) *Economic & Commercial Geography*, Sultan Chand, New Delhi.

DSC - 402 REGIONAL PLANNING AND DEVELOPMENT

(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDIT: 4

Course Learning Objectives: To introduce the students to the regional concept in geography, scope and purpose of regional planning, types of regions, regional process, indicators of development, regional development and multi-regional planning, application of remote sensing and GIS in planning, multi-level planning, theories, and models for regional planning.

Course Learning outcomes: The students will be able to identify different types of regions, regional planning, and planning processes. Students will also learn about regional development planning and multi-regional planning, Remote sensing, and GIS in development planning.

UNIT I: Regional concept in geography: Concept, scope, and purpose of Regional Planning. Types of Regions: Formal and Functional; Uniform and Nodal; delineation of regions.

UNIT II: Regional Planning: Planning process – Sectoral, Temporal and Spatial dimensions; Short-term and Long-term perspective planning. Conservation and management of resources for regional development.

UNIT III: Indicators of development, measuring levels for regional development and disparities; Planning for regional development and multi-regional planning in national context. Application of Remote Sensing and Geographic Information System in development planning.

UNIT IV: Concept of Multi-level Planning: Decentralized planning; people's participation in the planning process; Concept and approaches of urban development.

UNIT V: Theories and models for regional planning: Growth Pole Model of Perroux; Myrdal, Hirschman, Rostow and Friedmann, Central place theory of Christaller, DVC-The Success Story and Failures; NITI Aayog.

Reference books:

1. Chand, M. and Puri, V.K., (1983), *Regional Planning in India*, Allied Publishers Ltd., New Delhi.
2. Chandana, R.C. (2000), *Regional Planning and Development*, Kalyani Publishers.
3. Mishra, R.P., (1969), *Regional Planning*, Concept Publishing Company, New Delhi.
4. Bhat, L.S., (2006) *Regional Planning in India*. Statistical Pub. Society.

DSC-403 SETTLEMENT GEOGRAPHY**(DISCIPLINE SPECIFIC CORE)****FULL MARKS :100****CREDITS:4**

Course Learning Objective: A comprehensive understanding of Settlement Geography is the objective of this syllabus. The course aims to familiarize students with the meaning, classification, types, and patterns of rural and urban settlements. Additionally, the syllabus covers the origin, growth, and functional classification, urbanization in India, urban poverty, slums, and urban housing models.

Course Learning Outcomes:

1. Understand the nature and scope of settlement geography.
2. Identify and analyze rural settlement types and patterns.
3. Explore urbanization in India, urban poverty, slums, and urban housing issues.
4. Learn about models explaining urban land use patterns.

UNIT-I: Settlement geography: definitions, nature and scope, Settlement types, their characteristics, and differences; Factors influencing growth and distribution of settlements, Importance of settlement studies in geography.

UNIT-II: Rural Settlements: Origin and growth, evolution, site, and situation; Classification of rural settlements based on - population patterns, spacing and functions.

UNIT-III: Distribution and density of rural settlements in India, Structure and type of house in India; Regional variations in rural settlement patterns in India, Morphology of rural settlement in India.

UNIT-IV: Urban settlements: Origin and growth of urban settlements, Classification of urban settlements based on culture and functions, Hierarchy of urban Settlement; rank size rule and primate city, Central Place theory. Models of urban land use (Concentric Zone theory, Sectoral model, Bid Rent theory).

UNIT-V: Urbanisation in India: Trends, patterns and types of towns, Morphology of urban settlements in India, Urban problems in Indian cities, Smart city: Concept, need and implementation in India.

Reference Books:

1. Singh, R. Y. (2014). *Geography of settlements*. Rawat Publications.

2. Chand, M., & Puri, V. K. (1983). *Regional planning in India* (Vol. 1). Allied Publishers.
3. Mandal, R. B. (1979). *Introduction to rural settlements*. Concept Publishing Company.
4. Ghosh, S. (1998). *Introduction to settlement geography*. Kolkata: Orient Longman.
5. Pacione, M. (2009). *Urban geography: A global perspective*. Routledge.
6. Latham, A., McCormack, D., McNamara, K., & McNeill, D. (2008). *Key concepts in urban geography*. Sage.
7. Short, J. R. (2017). *An introduction to urban geography*. Routledge.
8. Alam, S. M., & Gopi, K. N. (1982). *Settlement system of India*. Oxford & IBH.

DSC – 404 FUNDAMENTALS OF REMOTE SENSING & GIS

(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives:

1. To congregate the basic concepts & fundamentals of Remote Sensing & GIS.
2. To study basics of digital image processing & image interpretation techniques & also to study the application of the remote sensing to solve the real-world problem.
3. Understand the concept & techniques of the Geographical Information Systems & Define the GIS data types & structures.

Course Learning Outcomes:

1. This course is to make understand the basic concepts of Remote Sensing & GIS. & to impart necessary skills of Remote sensing analysis, image interpretation to the students. So that students acquire employable skills in Remote Sensing.
2. Students will have the hands-on training on various models of spatial & non-spatial data collection, data storage, data analytics, data interpretation & data display through the thematic maps.
3. Students are employable in various corporate & government organisation where they deal to solve geographical problems.

UNIT – I: Remote Sensing – Definition & Principles of Remote Sensing; History & Development, overview of different platforms, Types & characteristics of Remote Sensing Sensors.

UNIT – II: Image Acquisition & Preprocessing, Image acquisition methods & Parameters, Radiometric & Geometric corrections; Sensor calibration & image enhancement techniques, Image formats & data compression; Basics of digital image processing, Image enhancement techniques (e.g., Contrast adjustment, filtering).

UNIT – III: GIS – Definition & Components; Types of data models – Raster & Vector data. GIS – Hands-on Exercise, Introduction to the software, Georeferencing, creation of

shapefiles, Digitizing point, line & polygon feature; Integration of information in the attribute Table – Adding new fields, deleting existing fields, Data Selection from attribute table; Deleting features from the attribute table; Labelling features on map – selection of Value fields for labelling, Selection of font size, placement properties.

UNIT – IV: GIS – Map Making Working with layout view – Adding in the layout view, Inserting title, legend, scale bar, North arrow, grids/graticules, Map export in different formats.

UNIT – V: Remote Sensing and GIS Applications - Land cover & land use mapping, Agriculture & forestry applications, Environmental monitoring & assessment, urban planning & infrastructure mapping, Disaster management & Emergency response.

Reference Books:

1. Campbell, J. B., & Wynne, R. H. (2011). *Introduction to remote sensing*. Guilford press.
2. Bhatia, B. (2011) *Remote Sensing & GIS*, Oxford.
3. Khorram, S., Koch, F. H., Van der Wiele, C. F., & Nelson, S. A. (2012). *Remote sensing*. Springer Science & Business Media.
4. Bernhardsen, T. (2002). *Geographic information systems: an introduction*. John Wiley & Sons.
5. Ian, H. (2010). *An introduction to geographical information systems*. Pearson Education India.

**DSM - 401 INTRODUCTION TO GIS & GPS
(DISCIPLINE SPECIFIC MINOR)**

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives: This course aims to introducing concept, principles and applications of Geographic Information Systems (GIS). Course also aims to develop the skill of using software and other tools of GIS in students.

Course Learning outcomes: The students on the completion of the course will be able to explain and communicate the concept of various kind of maps and geospatial data, develop, edit, and update geospatial data, create digital maps, apply projections and other characteristics of mapping, integrate various kind of data from various sources and analyses the same using GIS concept and tools, apply the knowledge and skill for various applications.

UNIT I: GIS: Definition, Components, and principles; History and Emergence of GIS, Milestone, and Developmental stages in GIS; GIS as an integrating technology.

UNIT II: GIS Data Analysis: Inputs; Geo-Referencing; editing and output; overlays. Image Processing Techniques: Visual and Digital, Classification: Supervised and Unsupervised.

UNIT III: GIS structures: Types Spatial and Non-Spatial; Raster and Vector Data Structure; Digital Elevation Model (DEM): Characteristics and application

UNIT IV: Global Positioning System (GPS): Principles and Uses. Geo-Referencing and Its importance Spatial Data Integration (Digitization) –Point, Line, Polygon. Map Design or Layout, Map Production. Import And Export of Map in Various Formats

UNIT V: Application of GIS & GPS: Flood; Landslides; Earthquake; Drought; Agriculture, Ocean Studies; Health; Geology; and Geomorphology; Transport; Surveying; Urban sprawl, Landuse and landcover; Natural Resource management.

Reference books:

1. Ian, H. (2010). *An introduction to geographical information systems*. Pearson Education India.
2. Burrough, P. A., McDonnell, R. A., & Lloyd, C. D. (2015). *Principles of geographical information systems*. Oxford university press.
3. Bernhardsen, T. (2002). *Geographic information systems: an introduction*. John Wiley & Sons.
4. Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W. (2005). *Geographic information systems and science*. John Wiley & Sons.
5. Elangovan, K. (2006). *GIS: fundamentals, applications, and implementations*. New India Publishing.
6. Saha, K., & Froyen, Y. K. (2021). *Learning GIS Using Open-Source Software: An Applied Guide for Geo-spatial Analysis*. Taylor & Francis.
7. Kumar, S. (2005). *Basics of remote sensing and GIS*. Firewall Media.
8. <https://nptel.ac.in/courses/105107155>

SEMESTER - VIII

Course Code	Course Name	Credits	Marks
DSC - 451	Research methodology in Geography	4	100
DSM - 451	Introduction to Climate Change	4	100
	Research Project / Dissertation OR DSC - 452, DSC - 453, DSC - 454	12	300
DSC - 452	Basics Of Geospatial Science	4	100
DSC - 453	Political Geography	4	100
DSC - 454	Social Geography	4	100
Total		20	500

SEMESTER VIII
DSC - 451 RESEARCH METHODOLOGY IN GEOGRAPHY
(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives: The course will acquaint the students with the important components of research such as meaning and types of research, stages of research, literature review, statement of the problem, hypothesis, data collection, sampling, data analysis, referencing styles, research ethics, plagiarism, and research paper writing.

Course Learning Outcomes: The students will acquire knowledge about the various important aspects of research and will be able to write research papers and reports by themselves.

UNIT I: Research in Geography: Meaning and Characteristics; Types – pure and applied research; descriptive, correlational, exploratory, and explanatory research; quantitative and qualitative research; Overview of research process – research problem, research design, determining data collection tools, sample selection, research proposal, data collection, processing data, and writing research paper.

UNIT II: Literature review: need for literature review; Literature review process – search for existing literature, review of selected literature, developing theoretical and conceptual framework; Research problem – selecting area of interest (statement of the problem), formulating objectives, framing operational definitions; Variables – concepts, indicators, variables; Types of variables; Types of measurement scale.

UNIT III: Hypothesis – definition, functions and characteristics of hypothesis, null and alternative hypothesis, hypothesis testing; Data collection: primary sources (observation, interview, questionnaire), secondary sources (types of documents); Research ethics – ethics in research, ethical conduct in research (scientific integrity), ethical issues related to research participants and researcher.

UNIT IV: Sampling – concept of population, sample, sampling frame, sampling error, sample size; Types of sampling (random/probability, non-random/non-probability, mixed); Random sampling designs – simple random sampling, stratified random sampling, cluster sampling; Non-random sampling designs – quota sampling, accidental sampling, purposive sampling, snowball sampling; Mixed sampling design.

UNIT V: Data analysis – descriptive analysis (distribution, central tendency, variability) and inferential analysis (hypothesis testing and regression analysis); Research journals in Geography; Impact factor; Plagiarism; Referencing styles (APA); Structure of a research paper – cover page, abstract, keywords, introduction, methods, results, discussion, conclusion, references.

Reference Books:

1. Ahuja, R. (2001). *Research Methods*. Rawat Publications.
2. Clifford, N., French, S., & Valentine, G. (2010). *Key Methods in Geography*. SAGE.
3. Kothari, C. R. & Garg, G. (2004). *Research Methodology: Methods and Techniques*. New Age International.
4. Kumar, R. (2010). *Research Methodology: A Step-by-Step Guide for Beginners*. SAGE.

DSM - 451 INTRODUCTION TO CLIMATE CHANGE**(DISCIPLINE SPECIFIC MINOR)****FULL MARKS: 100****CREDITS: 4**

Course Learning Objective: To make the students understand about the vulnerability related to climate change and possible future mitigation and adoption climate change threat.

Course Learning Outcome: At the end of the course, students will be able to sensitize the issues of climate change among peer group, local people and academic with personal and possible group effort.

UNIT-I: Science of Climate Change: Understanding Climate change: Causes of Climate change, Green House Gases and Global Warming; Global Climatic Assessment IPCC.

UNIT-II: Climate change and Vulnerability; Evidences and Causes of Climatic Change in the past, Human impact on Global Climate. Economic Vulnerability: Physical Vulnerability; Economic Vulnerability; Social Vulnerability.

UNIT-III: Impact of climate change: Air, water, soil and Ecosystem, Agriculture; Flora and fauna; Human Health.

UNIT-IV: Adaptation and Mitigation: Global Initiatives: United Nations Framework Convention on Climate Change (UNFCCC), Kyoto Protocol, Paris Agreement, International Carbon Action Partnership; Problems and Prospects.

UNIT-V: National Action Plan on climate change: Objectives of National Action Plan on Climate Change (NAPCC) and its major missions, Local Institutions to mitigate and Adaptation towards resilience path.

Reference Books:

1. Burroughs, W. J. (2007). *Climate change: a multidisciplinary approach*. Cambridge University Press.
2. Dessler, A. E. (2021). *Introduction to modern climate change*. Cambridge University Press.
3. Fletcher, C. (2018). *Climate change: what the science tells us*. John Wiley & Sons.
4. Houghton, J. (2009). *Global warming: the complete briefing*. Cambridge university press.

5. Singh, M., Singh, R.B. and Hassan, M.I. (Eds.) (2014) *Climate change and biodiversity: Proceedings of IGU Rohtek Conference, V.SI- I. Advance in Geographical and Environmental Studies*, Springer.
6. Sen Roy, S and Singh, R. B. (2002) *Climate variability extreme Events and Agricultural Productivity in Mountain Regions*, Oxford & IBH Prob, N. Delhi.

RESEARCH PROJECT / DISSERTATION

FULL MARKS: 300

CREDITS: 12

Publication / Presentation of papers out of Research Project / Dissertation carried out in VIII semester is not mandatory. However, the project shall have to be presented before Departmental Research Committee and in presence of an external examiner during end semester examination. Total marks of the project shall be 300 of which 90 shall be internal and 210 is for end semester examination. Out of 90 marks as internal, in case of Dissertation / Project, there shall be three progress reviews and each review shall be of 30 marks. Marks obtained by a student in each of the review shall be notified immediately. Review of progress shall be done by concerned supervisor in presence of Departmental Research Committee.

OR

DSC – 452 BASICS OF GEOSPATIAL SCIENCE

(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives: The course aims at introducing the fundamentals of the Geospatial Science in geographical studies. The course lets the students know how to use tools and techniques while analyzing and explaining the geographical facts.

Course Learning Outcomes:

The students on the completion of the course will be able to:

1. Understand the basic concepts of new tools and techniques used for geographical analysis.
2. Know the significance of geospatial data in our day-to-day life.
3. Handle the computer software concerned with map making.
4. Integrate and analyze the geospatial data.

UNIT I: Geospatial Science - Concept, Nature, Scope, and Importance. Relationships of Geospatial Science with Natural Sciences and Social Sciences. Fundamental Concepts of Cartography: Scale- Types and Construction; Maps- Types and Classification; Map Projection- Classification and Uses.

UNIT II: Geospatial Data - Types and Patterns; Sources, Collection and Management of Geospatial Data. Data Structure: Raster and Vector. Functional Aspects of Geospatial Technology: Analysis, Modeling, Simulation and Visualization.

UNIT III: Tools and Techniques used in Geospatial Science - Surveying and Mapping: Chain Surveying, Compass Surveying, Plane Table Surveying, Theodolite Surveying, Dumpy Level Surveying. Modern Surveying Instruments- EDM- Total Station, Digital Levels, GPS, CORS Network.

UNIT IV: Remote Sensing Technology in Geospatial Science - Aerial Remote Sensing- Air Craft, Drone. History and Development of Satellite Remote Sensing in India. Satellite Remote Sensing: Definition, Elements and Stages - Satellite Classification- Based on Orbit, Based on Purpose. Satellite Sensor and Resolution. Software Technology for Analysis and Image Interpretation: GIS, Internet Mapping Technology Software- Google Earth, etc.

UNIT V: Satellite Image Interpretation - Visual-Elements and Methods. Digital- Image Enhancement, Filtering, Classification, and Integration. Applications of Remote Sensing and GIS. Global Positioning System: Principles and Segments. GPS Error- Differential GPS. Navigation Systems- GLONASS, BEIDOU, GALILEO, GNSS. Applications of GPS.

Reference books:

1. Garg, P. K. (2019). *Principles and Theory of Geoinformatics*. Khanna Book Publishing.
2. Das, Chandan Surabhi; Mallick, Debajyoti (2023). *Geospatial Techniques and Research in Geography*. Enova Publications.
3. Dwivedi, R. S., Roy, P. S. (2016). *Geospatial Technology: For Integrated Natural Resource Management*. Yesdee.
4. Allan, Dr Arthur L. (2007). *Principles of Geospatial Surveying*. Whittles Publishing.
5. Wegmann, Martin et al. (2020). *An Introduction to Spatial Data Analysis*. Pelagic Publishing.
6. Bhatta, Basudeb (2021). *Remote Sensing and GIS*. Oxford University Press, India.
7. Deren, Li et al. (2009). *Geospatial Technology for Earth Observation*. Springer.
8. Ian, H. (2010). *An introduction to geographical information systems*. Pearson Education India.

DSC – 453 POLITICAL GEOGRAPHY

(DISCIPLINE SPECIFIC CORE)

FULL MARKS: 100

CREDITS: 4

Course Learning Objectives: To introduce the students regarding political geography; state, nation, and nation state; electoral geography; political geography of social conflicts; and politics of displacement.

Course Learning Outcomes:

1. Understand elements of political Geography.

2. Learn the concept of nation and state and geopolitical theories.
3. Understand the different dimensions of electoral geography and resource conflicts.

UNIT-I: Political Geography: Emergence and development of political geography, concept, nature, and scope; Relation of political geography to geo-politics; Approaches to the study of political geography.

UNIT-II: State, nation, and nation state: Concept of nation and state, attributes of state-frontiers, boundaries, shape, size, territory, and sovereignty, concept of nation state; Geopolitics; Theories (Heartland and Rimland); Elements of political geography- territorial, population, system of government, physical, economic, transport and communication.

UNIT-III: Electoral geography- geography of voting, geographic influences on voting pattern, geography of representation, Gerrymandering; Place of electoral studies in political geography; spatial organization of electoral areas.

UNIT-IV: Political geography of resource conflicts: water sharing disputes, disputes and conflicts related to forest rights and minerals; International boundaries: Nature and function; Core area, ecumene and capital city.

UNIT-V: Politics of displacement: Issues of relief, compensation and rehabilitation with reference to dams and special economic zones; Politico-geographic factors in the rise of Indian federalism; India and her neighbours from geopolitical perspective; Geopolitical significance of the Indian ocean as a zone of peace; North East India from geopolitical perspective.

Reference Books:

1. Adhikari, S., (1997) *Political Geography*, Rawat Publication., Jaipur.
2. Agnew, J., (2002) *Making Political Geography*, Arnold.
3. Agnew, J., Mitchell K. and Total G., (2003) *A Companion to Political Geography*, Blackwell.
4. Cox, K.R., Low M. and Robinson J., (2008) *The Stage Handbook of Political Geography*, Sage Publications.
5. Cox, K.R., (2002) *Political Geography: Territory, State and Society*, Wiley-Blackwell.
6. Dikshit, R.D., (1996) *Political Geography-A Contemporary Perspective*, Tata Mc Graw, Dehi.
7. Grassner, M., (1993) *Political Geography*, Wiley.
8. Taylor, P. and Flint, C., (2000) *Political Geography*, Pearson Education.
9. Verma, M.K., (2004) *Development, Displacement and Resettlement*, Rawat Publications, Delhi.

DSC – 454 SOCIAL GEOGRAPHY

Full Marks:100

Credits:4

Course Learning Objectives: This course aims to make them understand about various social attributes and its relation with geography.

Course learning Outcome: This course will develop them in interpretation, analysis and evaluation of social issues through geographical dimension.

UNIT I: Social Geography: Nature, Meaning & Development, Subfields; Philosophical bases of social geography (Positivism, Structuralism); Social Structure and Social processes; Concept of society; Social Space.

UNIT II: Elements of Social Geography: Ethnicity, tribes, dialect, languages, caste, class, Race, Gender, and religion; Socio-Cultural regions of India; Linguistic elements of India.

UNIT III: Geographies of Welfare and wellbeing: Concepts and Components; Types of wellbeing; Social geographies of Inclusion and Exclusion; Slums, Communal conflicts and Crime.

UNIT IV: Peopling process of India: Technology and occupational change; Migration as factor of peopling; Migration theories; Gravity Model of Migration; Contemporary social issues in India.

UNIT V: Modernization and social change: Socio- cultural changes through human history; Modernization; Socio- cultural changes (material and non-material); Diffusion of modernization.

Reference Books:

1. Ahmed, A. (2001) *Social Geography*, Rawat publications, New Delhi.
2. Cater, J. and Jones, T. (2000) *Social geography: An Introduction to contemporary issues*, Hodder Arnold.
3. Smith, D.M. (1997) *Human Geography: A Welfare Approach*, Edward Arnold, London.
4. Smith, D.M. (1994) *Geography and Social Justice*, Blackwell, Oxford.
5. Taher, M. (1993) *An Introduction to Social Geography*, NEIGS, Gauhati University, Assam.
6. Valentine, G. (2001) *Social Geographies: Space and Society*, Prentice Hall.

Note:

- 1) One Credit means one hour of theory or two hours of Field Study / Dissertation per week.
- 2) 30% of all theory papers will be Internal.
- 3) Unit wise Weightage of Marks is 20%.