

AC: 02.06.2025 ITEM NO: 15.3

Deccan Education Society's

Kirti M. Doongursee College of Arts, Science and Commerce (AUTONOMOUS)



Affiliated to

UNIVERSITY OF MUMBAI

Syllabus for
Program: Bachelor of Arts
Course: T.Y.B.A
Subject: **GEOGRAPHY**

NEP 2020

Choice Based Credit System (CBCS)
with effect from
Academic Year 2025-2026

PROGRAM OUTCOMES

PO	Description
A student completing Bachelor's Degree in Arts Program will be able to	
PO1	Disciplinary Knowledge: Demonstrate a blend of conventional discipline knowledge and its applications to the modern world. Execute strong theoretical and practical understanding generated from the chosen program.
PO2	Critical Thinking and Problem solving: Exhibit the skill of critical thinking and use higher order cognitive skills to approach problems situated in their social environment, propose feasible solutions, and help in its implementation.
PO3	Social competence: Express oneself clearly and precisely to build good interpersonal relationships in personal and professional life. Make effective use of linguistic competencies to express themselves effectively in real and virtual media. Demonstrate multicultural sensitivity in group settings.
PO4	Research-Related Skills: Seeks opportunity for research and higher academic achievements in the chosen field and allied subjects and is aware about research ethics, intellectual property rights and issues of plagiarism. Demonstrate a sense of inquiry and capability for asking relevant/appropriate questions; ability to plan, execute and report the results of a research project be it in field or otherwise under supervision.
PO5	Personal and professional competence: Equip with strong work attitudes and professional skills that will enable them to work independently as well as collaboratively in a team environment.
PO6	Effective Citizenship and Ethics: Demonstrate empathetic social concern and equity centered national development; ability to act with an informed awareness of moral and ethical issues and commit to professional ethics and responsibility.
PO7	Environment and Sustainability: Understand the impact of scientific solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.
PO8	Self-directed and Life-long learning: Acquire the ability to engage in independent and life-long learning in the broadest context of socio-technological changes.

Program Specific Outcomes (PSOs) – B.A. Geography

PSO	Description
PSO 1	Understanding Physical Systems Students will develop a solid understanding of physical geography, including geomorphology, climatology, oceanography, and coastal processes. They will be able to explain Earth's structure, weather systems, atmospheric stability, coastal dynamics, and the role of plate tectonics in shaping landforms.
PSO 2	Indigenous Geographical Knowledge Systems Students will explore the wisdom embedded in ancient Indian geographical thought—including settlement patterns, agriculture, forest conservation, water management, and spatial philosophies such as Vastu and Panchamahabhutas—to critically reflect on their contemporary relevance.
PSO 3	Integration of Physical and Human Geography Learners will interpret the complex relationship between humans and their environment by analyzing urban-rural dynamics, population patterns, transport systems, and regional planning. They will evaluate cultural, religious, linguistic, and socio-political diversity through the lens of geography.
PSO 4	Geospatial Skills and Technological Applications Students will gain practical skills in cartography, surveying, topographic interpretation, and remote sensing tools such as Google Earth. They will learn to interpret synoptic charts, use field instruments, and apply GIS and GPS technologies in mapping and spatial analysis.
PSO 5	Analytical and Statistical Competency Through exposure to both manual and software-based (Excel, SPSS) methods, students will acquire statistical and data visualization skills. They will perform hypothesis testing, correlation, regression, and sampling to analyze spatial datasets for research and planning.
PSO 6	Environmental and Sustainable Development Awareness Students will understand the functioning of ecosystems, biodiversity conservation, environmental hazards, and the principles of sustainable development. They will engage in disaster risk reduction, hazard zonation, and climate change studies with a sustainability mindset.
PSO 7	Research Aptitude and Field-Based Learning Students will learn the principles and practices of research methodology, including design, sampling, data analysis, and report writing. Emphasis will be

	placed on ethics, plagiarism, and the use of academic repositories and tools like Shodhganga, Mendeley, and ResearchGate.
PSO 8	Political and Regional Geography Insights Students will critically assess political processes, boundary issues, regional disparities, and globalization's spatial effects. They will explore the intersection of geography and political science, including geopolitics and territorial identity formation.
PSO 9	Historical and Philosophical Perspectives in Geography Students will trace the evolution of geographical thought—from ancient Indian traditions to modern schools like positivism, behaviouralism, and radicalism—and understand the philosophical underpinnings of spatial knowledge and inquiry.
PSO 10	Fieldwork and Community Engagement Students will build strong observational and analytical skills through field visits, surveys, and community-based research. They will identify socio-environmental challenges and propose grounded, sustainable solutions for real-world applications.
PSO 11	Climate and Weather Forecasting Applications Students will develop the ability to observe, record, and interpret synoptic weather data, analyze air masses and fronts, and understand atmospheric stability. They will apply synoptic climatology techniques in areas like aviation, navigation, and pollution forecasting.
PSO 12	Coastal Zone Management and Geomorphology Students will gain in-depth knowledge of coastal processes, landforms, and sediment transport. They will analyze shoreline evolution, hazards like tsunamis and storm surges, and evaluate coastal management policies such as ICZM and CRZ with reference to Indian coastlines.
PSO 13	Population and Settlement Dynamics Students will develop a comprehensive understanding of population growth, demographic structure, and migration patterns. They will apply theoretical models and interpret population data to analyze settlement trends, addressing both global shifts and national challenges in rural and urban contexts.
PSO 14	Rural and Urban Settlement Analysis Students will evaluate the growth, spatial structure, and planning of rural and urban settlements using geographical models, while critically examining contemporary issues and development strategies in the Indian context.

Deccan Education Society's
Kirti M. Doongursee College (autonomous)

**Proposed Curriculum as per NEP 2020 Year of
implementation- 2025-26.**

Name of the Department: Geography

Semester	Course Code	Course Title	Vertical	Credit
V	25GEOMJ511	Coastal Geomorphology	Major 1	4
	25GEOMJ512	Tools and techniques FOR SPATIAL ANALYSIS (Practical)	Major 2	4
	25GEOIKS513	Indian Geographical Thoughts	IKS (Subject Specific)	2
	25GEOEL531	Biogeography	Elective	4
	25GEOMR521	Principles of Geomorphology	Minor	4
	25GEOVS541	Statistical tools and techniques in Research	VSC	2
	25GEOFP5	Field Project	FP Field Project	2
VI	25GEOMJ611	Synoptic Climatology	Major 1	4
	25GEOMJ612	Geospatial Technology and Research Methodology in Geography (Practical)	Major 2	4

	25GEOMJ613	Political Geography	Major 3	2
	25GEOEL631	Geography of Disaster management and mitigation	Elective	4
	25GEOMR621	Introduction to Climatology and Oceanography	Minor	4
	25GEOOJT6	ON Job Training	OJT	4

Course Code	MAJOR SEM – V	Credits	Lectures /Week
25GEOMJ511	Paper I: Coastal Geomorphology	4	4
Course Outcomes: After successful completion of this course, students would be able to CO1: Define the basic terms and concepts related to coastal geomorphology, such as tides, waves, coastal zones, sediment budgets, and shoreline features. CO2: Explain the processes and factors shaping coastal landforms, including sediment transport, sea-level changes, and tectonic activity, and describe coastal hazards and management approaches. CO3: Apply field and analytical techniques to measure wave activity, tidal fluctuations, and coastal morphology using instruments, topographic maps, and remote sensing tools. CO4: Analyze coastal evolution, landform changes, and geomorphic features using map interpretation, geomorphic mapping, and evaluate the effectiveness of ICZM and CRZ in the Indian context.			
Unit	Topics	No of Lectures	
I	Introduction to Coastal Geomorphological Processes • Nature and scope of coastal geomorphology • Coastal zones: classification and delineation (ICZM) , Coastal sediment budgets and littoral cells, • Shore-zone processes – tides, waves and currents, swells, breakers and surf, storm surges and tsunamis, • Coastal sediment: production and transport – clastic and biogenic	15	
II	Coastal Landforms and Dynamic Shoreline Processes • Rocky and sandy/muddy coasts, • Erosional and Depositional shore-zone features, • Longshore drift, beach profile, and sediment transport • Role of sea level change and tectonics	15	
III	Coastal Evolution, Hazards, and Management Strategies • Constructional shore-zone features – Coral reefs, Shoreline changes: Quaternary eustatic changes – evidence, causes and effects, • Classification of coasts ,	15	

	• Coastal zones – hazards and management, • Case studies: Indian coastlines, Integrated Coastal Zone Management (ICZM) in India and Coastal regulation zones (CRZ) and sustainable coastal development	
IV	Coastal Geomorphic Field Techniques • Methods of measurement of waves in surf zone, monitoring of tides, analysis of wave/tide records • Study/measurement of beach/cliff/shore platform morphology in the field • Geomorphic mapping of coastal features – field (Observing coastal processes and landforms in situ.) / toposheets / images Planimetric and cross profile studies • Mobile-Based Coastal Survey Tools: Use of fieldwork apps and digital tools such as KoBoToolbox, QField, Geolocation-based data collection	15
References: • Bird, E. C. (1984). <i>Coasts: An introduction to coastal geomorphology</i> (3rd ed.). Basil Blackwell. • Kale, V. S., & Gupta, A. (2001). <i>Introduction to geomorphology</i>. Orient Longman. • King, C. A. M. (1972). <i>Beaches and coasts</i>. Edward Arnold. • Bloom, A. L. (2002). <i>Geomorphology</i> (3rd ed.). Prentice-Hall of India. • Bird, E. C. (2000). <i>Coastal geomorphology: An introduction</i>. John Wiley & Sons. • Bloom, A. L. (2002). <i>Geomorphology: A systematic analysis of late Cenozoic landforms</i> (3rd ed.). Prentice-Hall of India. • Goudie, A. S. (Ed.). (2004). <i>Encyclopedia of geomorphology</i> (Vols. 1–2). Routledge.		

Course Code	MAJOR SEM – V	Credits	Lectures /Week
25GEOMJ512	Paper II Tools and techniques FOR SPATIAL ANALYSIS (Practical)	4	4
Course Outcomes: After successful completion of this course, students would be able to CO1: Define and recall basic concepts of map projections, elements of maps, types of surveys, and key terminology such as scale, azimuth, graticule, and great circle. CO2: Explain the principles of map projections (Zenithal, Cylindrical, Conical), interpret topographic map symbols and features, and describe the use of Google Earth tools. CO3: Use topographic sheets and Google Earth tools to calculate area, distance, elevation, and to identify physical and cultural features, including relief, settlements, and transport networks. CO4: Analyze topographic maps and survey data to evaluate physiographic and settlement patterns, and compare different surveying methods (Plane Table, Abney Level, Prismatic Compass).			
Unit	Topics	No of Lectures	
I	Map Projections • Basic Concepts Definition, scale, direction, azimuth, graticule, • great circle, true meridian, types of projections, choice of projections • Zenithal Polar Projections Equal Area, Equidistant • Cylindrical Projections - Equal Area, Equidistant • Conical Projections - One standard parallel, two standards parallel	15	
II	Interpretation of Topographical maps- S.O.I. Topographical Maps, • Basic elements of map and calculation or identification of relief, • direction, bearing and distance, Area Calculation and	15	

	demarcation of watershed • Study of physiography, drainage, and vegetation (one full toposheet of hilly and plateau region each) • Study of settlements size, pattern, utilities (one full toposheet of plains and urban region each) • Study of transport network (one full toposheet of plains and urban area each)	
III	Computer Section for practical - Google Earth • Download Google earth Pro (Free) • Identify Geomorphic Features and Determining Latitude and Longitude of College Location Using Google Earth Pro • Practically use of Google earth tool -Add Placement, Add polygon, • Add path, Add Image over layer, Historical image comparison, Show rules, Google Map, Elevation profile	15
IV	Surveying • Plane Table Surveying • Abney level Surveying • Prismatic compass surveying • Surveying Techniques and Displaying Survey Data in KML Format • Surveying and its significance	15

References:

- Karlekar, S. (n.d.). *Bhoogol Shastratil Sanshodhan Paddhati*. [In Marathi].
- Monkhouse, F. J. (1971). *Maps and diagrams* (3rd rev. ed.). Methuen and Co.
- NCERT. (n.d.). *Practical work in geography: Part II, Textbook for Class 12*. National Council of Educational Research and Training.
- Rogerson, P. A. (2001). *Statistical methods for geography*. SAGE Publications.
- Robinson, A. H. (n.d.). *Elements of cartography*. Wiley.
- Sarkar, A. (2015). *Practical geography*. Orient BlackSwan.
- Singh, R. L., & Singh, P. B. (2005). *Elements of practical geography* (2nd ed.). Kalyani Publishers.
- Stoddard, R. (n.d.). *Field techniques and research methods in geography*. Geography Faculty Publications. University of Nebraska–Lincoln.
<http://digitalcommons.unl.edu/geographyfacpub/26>
- Thakur, S. A. (2016). *Konkan Geographer's Publication*. [Likely self-published or

institutional].

Course Code	IKS SEM – V	Credits	Lectures /Week
25GEOIKS513	Indian Knowledge Systems: A Study of Geographical Wisdom	2	2
Course Outcomes: After successful completion of this course, students would be able to CO1: Identify key elements of geographical wisdom in ancient India such as Indus Valley settlement patterns, native crops, sacred groves, and traditional trade routes. CO2: Explain traditional urban and regional planning systems, agricultural practices, forest conservation methods, and cosmological concepts like Panchamahabhutas and Vastu. CO3: Apply indigenous geographical knowledge to understand spatial concepts such as timekeeping, cartography, maritime navigation, and ecological resource management. CO4: Analyze the interconnections between ancient spatial philosophies, environmental ethics, and geographical systems to evaluate their relevance in contemporary sustainability discourse.			
Unit	Topics	No of Lectures	
I	Indigenous Geography in ancient India - Geographical Wisdom of the Indus Valley Civilization: - Indigenous Agricultural Practices and Crop Geography: monsoon-based knowledge, Water harvesting methods - Trade Geography and Maritime Navigation: Trade routes, ancient ports, navigation techniques, and spatial economics. - Forest Conservation and Biodiversity Traditions, - Traditional Urban and Regional Planning	15	
II	Ancient Indian Spatial Knowledge Systems - Traditional Indian Travelogues and Tourism - Astronomy, Astrophysics, and Climate Observation Systems.	15	

	• Holistic Spatial Philosophy • Ancient Cartography, Surveys, and Timekeeping. • Case Study: "Ancient Indian Cartography and the Role of the Yavanajataka"and "Geographical Knowledge in Varahamihira's Brihat Samhita	
References: • Majumdar, R. C. (n.d.). <i>The history and culture of the Indian people</i>. Bharatiya Vidya Bhavan. • Sharma, R. S. (2007). <i>India's ancient past</i>. Oxford University Press. • Thapar, R. (2003). <i>Early India: From the origins to AD 1300</i>. Penguin Books. • Bhattacharya, N. N. (n.d.). <i>Ancient Indian rituals and their social context</i>. [Publisher information not provided]. • Dharampal. (2000). <i>Indian science and technology in the 18th century</i>. Other India Press. • Gadgil, M., & Guha, R. (1992). <i>This fissured land: An ecological history of India</i>. Oxford University Press. • Altekar, A. S. (n.d.). <i>Education in ancient India</i>. [Publisher information not provided]. • Jha, D. N. (1998). <i>Ancient India: An introductory outline</i>. Manohar Publishers.		

Course Code	Elective SEM – V	Credits	Lectures /Week
25GEOEL531	Elective: Population and Settlement Geography	4	4
Course Outcomes: After successful completion of this course, students would be able to CO1: Recall and classify the various population distribution patterns and settlement types based on their characteristics. CO2: Explain the significance of demographic transition, migration patterns, and settlement planning in the development of regions. CO3: Use information on the effects of population growth, urbanization, and rural settlement changes to form policies, and suggest measures to address challenges in India. CO4: Analyze and identify the factors influencing urban and rural settlement structures, and assess the impact of urban planning on settlement development.			
Unit	Topics	No of Lectures	
I	Population Geography - Basics, Data, and Dynamics • Concept, definition, nature, and scope of Population Geography • Approaches to the study of Population Geography • Basic sources of population data • Population growth in the world • Structure of population (Age, Sex, and Occupational)	15	
II	Population Geography - Theories and Migration • Demographic Transition Model • Malthus's Population Theory • Karl Marx's Population Theory • Concept of underpopulation, overpopulation, and optimum population	15	

	• Migration: Definition, classification, and trends in India	
III	Rural Settlement Geography - Origin, Structure, and Changing Patterns • Origin and growth of rural settlements • Structure of rural settlements in India • Factors affecting rural settlements (Physical, Economic, Sociocultural, Political) • Types of rural settlements based on location, pattern, and function • Changing patterns of rural land use and settlement	15
IV	Urban Settlement Geography - Growth, Morphology, and Planning • Concept and scope of urban geography • Factors affecting urban settlement growth • Patterns of urban settlements (Nuclear, Linear, Rectangular, Circular, Star) • Urbanization: Concept, growth, and urban problems in India • Theories of urban morphology (Central Place Theory, Concentric Zone Theory, Sector Theory, Multiple Nuclei Theory) • Urban Planning: Town planning concepts, need for urban planning, and urban policies in India	15
References: • Ahrens, C.D. (2012). <i>Essentials of Meteorology: An Invitation to the Atmosphere</i>. Cengage Learning. • Barry, R.G., & Chorley, R.J. (2003). <i>Atmosphere, Weather and Climate</i>. Psychology Press. • Chawan, S.V. (Ed.). (2015). <i>Physical Geography, Paper I</i>. Institute of Distance and Open Learning, University of Mumbai. • Dasgupta, R. (2007). <i>Disaster Management and Rehabilitation</i>. Mittal Publications. • Dixit, R.D. (1982). <i>Political Geography</i>. Tata McGraw Hill.		

- Gupta, A., & Kapoor, A.N. (2001). *Principles of Physical Geography*. S.C. Chand & Company Ltd.
- Huggett, R.J. (2007). *Fundamentals of Geomorphology*. Routledge.
- Kale, V.S., & Gupta, A. (2001). *Introduction to Geomorphology*. Orient Longman.
- Karlekar, S., & Borges, J. (2008). *Diamond Bhugol- Paryavaran Shatra Kosh* (Marathi). Diamond Publications.
- Majumdar, R.C. (1958). *The History and Culture of the Indian People*. Bharatiya Vidya Bhavan.
- Monkhouse, F.J. (1971). *Maps & Diagrams* (3rd ed.). Methuen and Co.
- Robinson, A.H. (2002). *Elements of Cartography*. Wiley.
- Sarkar, A. (2015). *Practical Geography*. Orient Black Swan.
- Singh, R.L., & Singh, P.B. (2005). *Elements of Practical Geography*. Kalyani Publishers.
- Thapar, R. (2002). *Early India: From the Origins to AD 1300*. Penguin Books.

Course Code	Minor sem V	Credits	Lectures /Week
25GEOMR521	Principles of Geomorphology	4	4
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember and recall the essential concepts of geomorphology, including the geological time scale, the structure of the earth, principles of plate tectonics, processes of weathering, types of mass wasting, erosion cycles, and various techniques for illustrating and interpreting landforms. CO2: Understand the fundamental concepts of geomorphology, including the geological time scale, earth's structure, plate tectonics, weathering processes, mass wasting, erosion cycles, and methods for depicting landforms. CO3: Apply geomorphological principles to resolve societal and real-world issues, such as managing natural disasters, planning land use, and conserving environments, by utilizing their understanding of geological processes, landform development, and erosion control methods. CO4: Analyze core geomorphological processes and concepts, encompassing geological time scales, the structure of the Earth, plate tectonics, weathering phenomena, mass wasting dynamics, erosion cycles, and techniques for representing and interpreting landforms and geomorphic features on topographic maps.			
Unit	Topics	No of Lectures	
I	Introduction to Geomorphology • Definition and scope of geomorphology • Branches of geomorphology & its application • Geological Time Scale • Interior of the Earth and Earth's Movements	15	
II	Earth Movements and Tectonic Processes • Isostasy and its role in earth movements • Continental drift theory, Plate tectonics and its influence on landforms • Exogenetic forces: Types of folds and faults • Endogenetic forces: Earthquakes and volcanoes	15	
III	Geomorphic Processes and Evolution of Landforms	15	

	• Weathering processes and their impact on landforms • Types of mass wasting and their role in shaping landforms • Davis cycle of erosion • Erosion and sediment transport, Erosional and depositional processes of fluvial, karst, aeolian, glacial, and coastal landforms	
IV	Practical • Method of Showing Relief: Interpolation, contour, form line, Identification of Slope • Demarcation of Drainage Patterns and Stream Ordering • Identification of drainage pattern from the 1:50,000 toposheets. • Visit to Geomorphic features sites.	15
References: • Bloom, A. L. (2003). <i>Geomorphology: A systematic analysis of late Cenozoic landforms</i>. Prentice-Hall of India. • Bridges, E. M. (1990). <i>World geomorphology</i>. Cambridge University Press. • Christopherson, R. W., & Birkeland, G. H. (2012). <i>Geosystems: An introduction to physical geography</i> (8th ed.). Pearson Education. • Das Gupta, A., & Kapoor, A. N. (2001). <i>Principles of physical geography</i>. S. Chand & Company Ltd. • Dayal, P. (1996). <i>A textbook of geomorphology</i>. Shukla Book Depot. • Huggett, R. J. (2007). <i>Fundamentals of geomorphology</i>. Routledge. • Kale, V. S., & Gupta, A. (2001). <i>Introduction to geomorphology</i>. Orient Longman. • Khullar, D. R. (2012). <i>Physical geography</i>. Kalyani Publishers. • Mal, S., Singh, R. B., & Huggel, C. (2018). <i>Climate change, extreme events and disaster risk reduction</i>. Springer. https://doi.org/10.1007/978-3-319-56469-2		

Course Code	VOCATIONAL SKILL COURSE SEM – V	Credits	Lectures /Week
25GEOVS541	Statistical tools and techniques in Research	2	2

Course Outcomes:

After successful completion of this course, students would be able to

CO1: Recall basic statistical terms and methods including types of central tendency, frequency distribution, and sampling techniques.

CO2: Explain statistical tools such as skewness, kurtosis, and hypothesis testing methods, and interpret their meaning in spatial data analysis.

CO3: Apply statistical functions (manual, Excel, SPSS) to tabulate data, compute averages, dispersion, correlation, regression, and perform hypothesis testing.

CO4: Analyze geographical datasets using inferential statistics (e.g., Chi-square, correlation, regression) and evaluate spatial patterns through systematic and random sampling methods.

Unit	Topics	No of Lectures
I	- Frequency Distribution, Data Tabulation and central tendency (Manual and Excel and SPSS) , Histogram, Frequency Polygon and Ogive - Measures of Central Tendency- mean, median and mode - Skewness and Kurtosis	15
II	Dispersion and Deviation (Manual and Excel and SPSS) - Mean Deviation , Quartile Deviation ,Standard Deviation - Moving Averages (3 years and 5 years) - Inferential Statistical Techniques and Hypothesis Testing (Manual and Excel and SPSS) - Calculation of correlation coefficient - Pearson's and Spearman's methods - Regression analysis ,Chi square Test. - Systematic and random Sampling with Point, Line and Area types	15

References:

- Karlekar, S. (n.d.). *Bhoogol Shastratil Sanshodhan Paddhati*. [In Marathi].
- Monkhouse, F. J. (1971). *Maps and diagrams* (3rd rev. ed.). Methuen and Co.
- NCERT. (n.d.). *Practical work in geography: Part II, Textbook for Class 12*. National Council of Educational Research and Training.
- Rogerson, P. A. (2001). *Statistical methods for geography*. SAGE Publications.
- Robinson, A. H. (n.d.). *Elements of cartography*. Wiley.
- Sarkar, A. (2015). *Practical geography*. Orient BlackSwan.
- Sarkar, A. (2013). *Quantitative geography*. Orient BlackSwan.
- Singh, R. L., & Singh, P. B. (2005). *Elements of practical geography* (2nd ed.). Kalyani Publishers.
- Stoddard, R. H. (n.d.). *Field techniques and research methods in geography*. Geography Faculty Publications. University of Nebraska-Lincoln.

<http://digitalcommons.unl.edu/geographyfacpub/26>

Course Code	Filed Project SEM – V	Credits	Lectures /Week
25GEOFP5	Field Project	2	2

Course Code	MAJOR SEM – VI	Credits	Lectures /Week
25GEOMJ611	Paper I: Applied Climatology	4	4

Course Outcomes: After successful completion of this course, students would be able to CO1: Recall the basic concepts of synoptic climatology, including types of air masses, fronts, and weather observation methods. CO2: Explain the processes of air mass modification, frontogenesis and frontolysis, and interpret synoptic charts and maps for weather analysis. CO3: Use synoptic data, station models, and weather instruments to construct and plot weather charts, and decode weather symbols effectively. CO4: Analyze atmospheric stability and synoptic weather systems to evaluate their role in forecasting, and assess their applications in aviation, navigation, and pollution studies.		
Unit	Topics	No of Lectures
I	Fundamentals of Applied Climatology • Introduction and scope of climatology, • weather Observations and analysis • Synoptic charts and maps, Experiential Exploration of Atmospheric Stability and Instability: dry adiabatic lapse rate and saturated adiabatic lapse rate, changes in stability	15
II	Air Masses and Fronts • Air masses: air mass characteristics • air mass identification, air mass modification. • Fronts: frontogenesis and frontolysis and frontal types frontal weather	15
III	Synoptic Scale Forecasting and Applications • Synoptic scale forecasting: types and methods • Application of synoptic climatology in pollution studies , Agriculture and aviation and navigation • Frontal weather conditions and their interpretation on synoptic charts	15
IV	Weather Instruments, Data Processing, and Synoptic Chart Interpretation • Instrumentation and measurement techniques of	15

	weather elements and processing of weather data • Climograph and Hythergraph • Plotting of synoptic data 2 3 Climatic map Analysis: Daily weather reports	
References: • Barry, R. G., & Chorley, R. J. (2003). <i>Atmosphere, weather and climate</i> (8th ed.). Routledge. • Critchfield, H. J. (1983). <i>General climatology</i> (4th ed.). Prentice-Hall. • Lutgens, F. K., & Tarbuck, E. J. (2013). <i>The atmosphere: An introduction to meteorology</i> (12th ed.). Pearson Education. • Ahrens, C. D. (2012). <i>Meteorology today: An introduction to weather, climate, and the environment</i> (10th ed.). Cengage Learning. • India Meteorological Department (IMD). (n.d.). <i>Synoptic charts and forecasting manuals</i>. IMD, Government of India. https://mausam.imd.gov.in • Oliver, J. E. (2002). <i>Climatology: An atmospheric science</i> (2nd ed.). Pearson Education. • National Oceanic and Atmospheric Administration (NOAA), & World Meteorological Organization (WMO). (n.d.). <i>Online publications on synoptic weather analysis</i>. https://www.noaa.gov & https://public.wmo.int		

Course Code	MAJOR SEM – VI	Credits	Lectures /Week
25GEOMJ612	Paper II: Geospatial Technology and Research	4	4

	Methodology in Geography (Practical)		
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember Recall the key components of geographical research, including identification of the area of study, methodology, quantitative and qualitative analysis, and the conclusions drawn. CO2: Understand Explain how to manage logistics and respond to emergencies effectively during fieldwork. CO3: Apply Use the key components of geographical research, such as identifying the study area, applying appropriate methodology, and conducting quantitative and qualitative analyses to draw meaningful conclusions. CO4: Analyze Assess the strategies for managing logistics and responding to emergencies during fieldwork, considering various scenarios and practical challenges.			
Unit	Topics	No of Lectures	
Section: A			
I	Geospatial Technologies: Fundamentals and Applications of GIS and GPS • GIS: Concept, Components and Applications - Map Projection and Coordinate System • GIS Data Acquisition and Types, Importing Image into GIS Software and Geo referencing, Creating Layers by Digitization of Point, Line and Polygon Features • GPS: Concept, Segments, Applications, Types of GPS GPS Data Accuracy and Errors • Factors Affecting GPS Data - Global Navigation System	15	
II	Geospatial Data Management and UAV Applications • Functions of Database Creation Input, Editing and Linking • Spatial Database Analysis: Overlay, Merge, Query • Using Map-Composer for Map Layout and Design • Geospatial Applications of UAVs in Geography • Preparation of Thematic Maps	15	
Section: B			

III	Research Methodology in Geography • Concept and Significance of Research in Geography: Meaning, objectives, types • Research Design and Data Collection Tools: Types and features of research designs, Sampling design and measurement scales, Tools. • Internet and Digital Research Tools: Use of Shodhganga, INFLIBNET, ResearchGate, Academia, Mendeley, Referencing, citation tools, and online literature review • Data Processing and Analysis: Editing, coding, classification, tabulation, Use of MS-Excel and SPSS: graphical, descriptive statistics, Hypothesis: meaning, types, errors, levels of significance, degrees of freedom • Report Writing and Research Ethics: Structure and layout of a research report, Bibliography, references, footnotes, Plagiarism and ethical practices in research	15
IV	Research Methodology, Geospatial Technology Applications, and Field Survey Report Writing • Research Methodology and Applications of Geospatial Technologies • Study tour and report writing or Village Survey and report writing.	15
References: • Guantam, A. (2015). <i>Advanced economic geography</i>. Sharda Pustak Bhavan. • Knowles, R., & Wareing, J. (2010). <i>Economic and social geography</i>. Rupa Publication India Pvt. Ltd. • Alexander, J. W. (1963). <i>Economic geography</i>. Englewood Cliffs. • Bale, J. (1984). <i>The location of manufacturing industry</i>. Oliver & Boyd. • Behrman, J. N. (1967). <i>Industrial policies: International restructuring and transnational corporations</i>. Lexington Books. • Brilton, J. N. H. (1991). <i>Regional analysis and economic geography: A case study of manufacturing in the Bristol region</i>. London. • Chapman, K., & Devid, W. (1991). <i>Industrial location</i>. Oxford University Press.		

Course Code	MAJOR SEM – VI	Credits	Lectures /Week
25GEOMJ613	Paper III: Political Geography	2	2
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember Recall the concept of uneven outcomes in political processes and recognize how spatial structures influence and shape these political processes. CO2: Understand the development of group identities, such as nations, and explain the connection between these identities and the political organization of territory. CO3: Apply knowledge to appreciate the effects of boundaries on economic, political, and social processes by analyzing how boundaries shape interactions, resource distribution, and governance systems. CO4: Analyze the theoretical concepts and challenges underpinning the study of geography and politics by critically examining their interconnections and the complexities they present in real-world contexts.			
Unit	Topics	No of Lectures	
I	Introduction of Political Geography - Political Geography: Definition, Nature and Scope - Development of Political Geography - Significance of Political Geography and approaches in Political Geography - Recent trends in Political Geography - Concept of State, Factors affecting the State. - Centrifugal Forces & Centripetal Forces in the States and its effects - Geopolitical Conflicts and Alliances, Regional Organizations and Their Geopolitical Influence - Impact of Trade Wars on Global Economy	15	
II	Theories in Political Geography and world Geopolitics - Differences Between Frontiers and Boundaries - Disputes of Indian borders with neighboring countries - Geo-politics of Indian Ocean - Hartland Theory – H.J. Mackinder - Rimland Theory – N. J. Spykeman	15	
References: - Adhikari, S. (1997). <i>Political geography</i>. Rawat Publications. - Cohen, S. B. (1973). <i>Geography and politics in a divided world</i>. Oxford University Press.			

- Dixit, R. D. (1982). *Political geography*. Tata McGraw-Hill.
- Dwivedi, R. L. (1996). *Political geography*. Chaitanya Prakashan.
- Moor, R. (1981). *Modern political geography*. Macmillan.
- Pounds, N. G. (1972). *Political geography*. McGraw-Hill.
- Taylor, P. (1998). *Political geography*. Prentice Hall.
- Adhikari, S. (2015). *Political geography*. Rawat Publications.

Course Code	Elective SEM – VI	Credits	Lectures /Week
25GEOEL631	Elective: Geography of Disaster management and mitigation	4	4
Course Outcomes: After successful completion of this course, students would be able to CO1: Define the nature of hazards and disasters. CO2: Explain how to assess risk, perception, and vulnerability in relation to hazards. CO3: Create hazard zonation maps based on risk and vulnerability assessments. CO4: Evaluate the nature, impact, and management of major natural and man-made hazards affecting the Indian subcontinent.			
Unit	Topics	No of Lectures	
I	Meaning & Concept of Disaster & Hazard • Concept of Disaster, Hazard, Vulnerability and Risks • Typology of hazards & Disasters-Natural Disasters and Man- made Disaster. • Impacts of Disaster-Socio-economic and Political • Need of Disaster Management in India	15	
II	Disaster Management: Method & Approaches • Disaster Management: Meaning & Concept • Disaster Management: Historical Perspective • Disaster Management: Methods & Approaches • Pre & Post -Disaster Stage of Management	15	

III	Disaster Management & Organizations • Role of National Organization for Disaster Management • Role of International Organization for Disaster Management –UNISDR, INSARAG, Red Cross • Role of NGOs, Community & social media in Disaster Management • Need & Challenges faced by various organizations	15
IV	Disaster and its Management in India • Climate change and Disaster • Earthquake Distribution, Causes, Effects, Management • Flood-Distribution, Causes, Effects, Management • Cyclone- Distribution, Causes, Effects, Management • Industrial Hazard-Causes, Effect, and management • Terrorism – Causes, effect, and management • Deforestation - , Causes, Effect and management • Accidents – Causes, Effect and management	15
References: • Coppola, D. P. (2011). <i>Introduction to international disaster management</i>. Elsevier, Butterworth-Heinemann. • Dasgupta, R. (2007). <i>Disaster management and rehabilitation</i>. Mittal Publications. • Government of India. (n.d.). <i>Disaster management in India</i>. Ministry of Home Affairs. • Murthy, D. B. N. (2008). <i>Disaster management</i>. Deep & Deep Publications Pvt. Ltd. • Singh, S., & Singh, J. (2016). <i>Disaster management</i>. Pravalika Publications. • Goel, S. L. (n.d.). <i>Management of man-made disasters</i>. Deep & Deep Publications Pvt. Ltd.		

Course Code	Minor SEM – VI	Credits	Lectures /Week
25GEOMR621	Minor: Geography of Rural Settlement	4	4

Course Outcomes: After successful completion of this course, students would be able to CO1: Recognize and recall the definitions, nature, scope, characteristics, and importance of settlement geography. CO2: Describe the origin, growth, characteristics, distribution, structure, and rural-urban fringe of rural settlements. CO3: Discover and apply concepts like the origin, growth, classification, and hierarchy of rural settlements. CO4: Analyze the distribution of settlements in India.		
Unit	Topics	No of Lectures
I	Origin of Rural Settlements • Origin and growth of settlements - evolution of rural settlements – Definition – Nature – Scope – Importance • Structure of house and building materials in India • House types and distribution in India • Regional variations in rural settlement patterns in India	15
II	• Factors and Types of Rural Settlement • Factors affecting on Rural Settlements – Physical, Economical, Sociocultural Political • Types of Rural settlement on the basis of location, pattern, function, & spacing • Location – Wet point, Dry point, Pattern – Liner, Circular, Square, • Fan, Net/Reticulum, Star/Radial, Arrow, Terrace pattern • Function – Agriculture, Fishing, Lumbering, Mining • Spacing- Compact, Scattered	15
III	Changing Pattern of Rural Settlement • Changing pattern of Rural Land use – (Special Reference of local villages) • Rural Urban Fringe – Definition, significance and Concept, Impact of Rural Urban Fringe - Examples in Maharashtra • Distribution and density of rural settlements in India • Sustainable development of rural settlements with Special Reference to India	15
IV	IRDP and Rural Settlement	15

	• Rural problems and need of planning. • Integrated Rural Development Programme (IRDP) Definition, Nature, Scope & Importance • IRDP – Self Employment Programmes • Integrated Rural Development Programme - Problems of implementation	
References: • Thakur, Dr. Shivram, and Patil, Dr. Rajaram. (2016). <i>Settlement Geography</i>. Konkan Geographers Association of India. • Sahu, B.K. (2003). <i>Rural Development in India</i>. Anmol Publishers, Delhi. • Mandal, R. B. (2001). <i>Introduction to Settlement Geography</i>. Concept Publications, New Delhi. • Singh, R. Y. (2005). <i>The Geography of Settlement</i>. Rawat Publication, Jaipur. • Singh, R. L. <i>Readings in Settlement Geography</i>. The National Geographical Society of India.		

Course Code	Sem VI OJT	Credits	Lectures / Week
25GE00JT6		4	4

Evaluation Scheme for First Year (UG) under NEP (4 credits)

I. Internal Evaluation for Theory Courses – 40 Marks

1) Continuous Internal Assessment (CIA) Assignment –

Tutorial/ Case Study/ Project /Presentations/ Group Discussion / Ind. Visit. – 20 marks

2) Continuous Internal Assessment (CIA) ONLINE Unit Test – 20 marks

II. External Examination for Theory Courses – 60 Marks

Duration: 2 Hours

Theory question paper pattern:

Question	Based on	Marks
Q.1	Unit I	15
Q.2	Unit II	15
Q.3	Unit III	15
Q.4	Unit IV	15

- All questions shall be compulsory with internal choice within the questions.
- Each Question may be subdivided into sub questions as a, b, c, d, etc. & the allocation of Marks depends on the weightage of the topic.

NOTE: To pass the examination, attendance is compulsory in both Internal & External (Theory + Practical) Examinations.

Evaluation Scheme for First Year (UG) under NEP (2 credits)

I. Internal Evaluation for Theory Courses – 50 Marks

Project (30) + Presentation (20) = 50 Marks

NOTE: To pass the examination, attendance is compulsory.

Commented [1]: 50marks assessment pattern

Evaluation Scheme for First Year (UG) under NEP (2 credits)

II. External Examination for Theory Courses – 50 Marks

Duration: 2 Hours

Multiple Choice Questions (50) Questions

All questions are compulsory.

Question	Based on	Marks
Q.1	Unit I	25
Q.2	Unit II	25