

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: S.Y.B.A
Subject: **GEOGRAPHY**

NEP 2020
Choice Based Credit System (CBCS)
with effect from
Academic Year 2024-2025

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.

Deccan Education Society's
Kirti M. Doongursee College (autonomous)
Proposed Curriculum as per NEP 2020 Year of
implementation- 2024-25.
Name of the Department: Geography

Semester	Course Code	Course Title	Vertical	Credit
III	24GEOMJ311	Introduction to Climatology	Major	4
	24GEOMJ312	Regional Planning and Sustainable Development	Major	4
	24GEOMR321	Geography of India	Minor	4
	24GEOOE331	Sustainable Resource Development	OE	2
	24GEOVC341	Modern Surveying Techniques	VSC	2
IV	24GEOMJ411	Introduction to Oceanography	Major	4
	24GEOMJ412	Economic Geography	Major	4
	24GEOMR421	Regional Geography of South Asia	Minor	4
	24GEOOE431	Climate Change Vulnerability and Adaptation	OE	2
	24GEOSE451	Digital Cartography	SEC	2

Course Code	MAJOR SEM – III	Credits	Lectures /Week
24GEOMJ311	Paper I: Introduction to Climatology	4	4

Course Outcomes:

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

CO1: Remember key concepts of climatology, including the differences between climate and weather, components of the climate system, and factors influencing climate such as ENSO and regional variability. They will recall methods for collecting climate data, interpreting IMD weather maps, and constructing wind roses, climographs, and hythergraphs. Additionally, students will remember the criteria of the Koppen and Thornthwaite climate classifications and their regional applications.

CO2: Understand the components of Earth's climate system, including atmospheric circulation, ocean currents, solar radiation, and the greenhouse effect, and differentiate between climate and weather. They will comprehend factors influencing climate, like the El Niño-Southern Oscillation (ENSO) and regional variability, as well as methods of climate data collection, IMD weather symbols, and maps. They will also understand the construction and interpretation of wind roses, climographs, hythergraphs, and the principles of the Koppen and Thornthwaite climate classifications and their application.

CO3: Apply their knowledge of climate system components to explain the differences between climate and weather and use factors like ENSO and regional variability in case studies. They will employ climate data collection methods, interpret IMD weather maps, and construct wind roses, climographs, and hythergraphs. Students will also apply the Koppen and Thornthwaite climate classifications to analyze climates in various regions.

CO4: Analyze the interactions within Earth's climate system to differentiate climate from weather and assess the impact of factors like ENSO and regional variability on climates. They will evaluate climate data collection methods, IMD weather maps, and symbols, and analyze wind roses, climographs, and hythergraphs to identify climate patterns. Additionally, students will critique the application of the Koppen and Thornthwaite classifications in categorizing regional climates.

Unit	Topics	No of Lectures
I	Foundations of Climatology - Overview of Climatology - Components of Earth's Climate System - Factors Influencing Climate - Climate vs. Weather - Methods of Climate Data Collection	15
II	Climate Patterns and Processes - Atmospheric Circulation Patterns - Ocean Currents and Climate - Solar Radiation and Climate - Greenhouse Effect and Climate Change - El Niño-Southern Oscillation (ENSO) Phenomenon	15
III	Climate Classification	15

	• Koppen Climate Classification System • Thornthwaite Climate Classification • Regional Climate Variability • Application of Climate Classification to Different Regions	
IV	Practical • IMD: Weather signs and symbols, • Interpretation of IMD weather maps • Construction of: wind rose, Climograph and hythergraph	15
References: 1. "Climatology" by Robert V. Rohli and Anthony J. Vega 2. "Introduction to Modern Climate Change" by Andrew Dessler and Edward Parson 3. "The Atmosphere: An Introduction to Meteorology" by Frederick K. Lutgens, Edward J. Tarbuck, and Dennis G. Tasa 4. "Climatology" by John E. Oliver 5. "Global Physical Climatology" by Dennis L. Hartmann 6. "Understanding Weather and Climate" by Edward Aguado and James E. Burt 7. "Climate Change: What Everyone Needs to Know" by Joseph Romm 8. "Practical Meteorology: An Algebra-based Survey of Atmospheric Science" by Roland Stull 9. "Climate Dynamics" by John C. Marshall and R. Alan Plumb 10. "The Climate Crisis: An Introductory Guide to Climate Change" by David Archer		

24GEOMJ311 Paper I: Introduction to Climatology

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Remember	3	2	2	2	2	1	2	2
CO2: Understand	3	3	3	3	3	2	3	3
CO3: Apply	3	3	3	3	3	3	3	3
CO4: Analyze	3	3	3	3	3	3	3	3

Course Code	MAJOR SEM – III	Credits	Lectures /Week
24GEOMJ312	Paper II: Regional Planning and Sustainable Development	4	4

Course Outcomes:

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

CO1: Remember the core ideas and definitions related to planning and regional planning, types and needs, characteristics of planning regions, and methods of region delineation. They will recall the role of surveys, geospatial technology, development concepts, models such as Rostow's and Myrdal's, strategies for addressing regional disparities, and the key features of India's Five-Year Plans, NITI Ayog, and backward area development programs.

CO2: Understand the key concepts of planning and regional planning, including types, needs, geographic relationships, and the role of surveys and geospatial technology. They will also understand the principles of regional delineation, Perroux's Growth Pole Theory, development indicators, regional disparities, development models like Rostow's and Myrdal's, and strategies for regional development, including India's Five-Year Plans, NITI Ayog, and micro-level planning.

CO3: Apply their knowledge of planning and regional planning to practical situations, using geospatial technology, survey data, and principles of region demarcation. They will implement development models like Rostow's and Myrdal's, develop strategies to reduce regional disparities, and assess the effectiveness of India's planning initiatives, including Five-Year Plans, NITI Ayog, and micro-level planning in rural areas.

CO4: Analyze the relationships between different types of planning, the effectiveness of regional planning strategies, and the role of surveys and geospatial technology. They will evaluate the principles and methods for delineating regions, critique development models like Rostow's and Myrdal's, and assess strategies for regional development and planning effectiveness, including the changes brought by NITI Ayog, multi-level planning, and backward area development programs.

Unit	Topics	No of Lectures
I	Understanding Regional Planning - Planning: Concept, types and need - Regional planning: Concept, nature, relation with Geography - Role of surveys and geospatial technology in regional planning - Problems associated with regional planning	15
II	Concept of Region in Planning - Region: Concept, types, and delineation - Planning Regions: Need, characteristics and hierarchy. - Demarcation of planning regions: Principles, criteria, and methods - Perroux's Growth Pole Theory and regional planning.	15
III	Understanding Regional Development Infrastructure Needs Assessment - Development: Concept and indicators - Regional disparities in development: Concept and measurements - Spatial and Non-Spatial Models of Development with Special Reference to - Rostow's Model and Myrdal's Model - Strategies for regional development	15
IV	Regional Planning in India - Five-Year Plans: Features, achievements, and failure - Multi-level planning in India - Planning regions of India - Changing planning mechanism of India: NITI Ayog - Micro level planning in rural area - Backward area development programmes	15

References:

1. "Introduction to Urban Planning: Cities and Regions in a Changing World" by Jonathan Barnett and Larry Beasley

2. "Sustainable Urban Development Reader" edited by Stephen M. Wheeler and Timothy Beatley
3. "Urban and Regional Planning" by Peter Hall and Mark Tewdwr-Jones
4. "Cities for People" by Jan Gehl
5. "Sustainable Communities: Planning for the 21st Century" by Daniel R. Mandelker and Christopher Duerksen
6. "Land Use Planning and Development Regulation Law" by Julian Conrad Juergen Meyer, Thomas E. Roberts, and Patricia E. Salkin
7. "Urban Planning and Real Estate Development" by John Ratcliffe and Michael Stubbs
8. "Infrastructure Planning and Finance: A Smart and Sustainable Guide" by Vicki Elmer and Kevin C. Desouza
9. "Transportation for Livable Cities" by Vukan R. Vuchic

24GEOMJ312 Paper II: Regional Planning and Sustainable Development

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Remember	3	2	2	2	2	1	2	2
CO2: Understand	3	3	3	3	3	2	3	3
CO3: Apply	3	3	3	3	3	3	3	3
CO4: Analyze	3	3	3	3	3	3	3	3

Course Code	MINOR SEM – III	Credits	Lectures /Week
24GEOMR321	Paper I: Geography of India	4	4
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember the key features of India’s landforms, river systems, and coastal regions, as well as the impact of geography on climate and biomes. They will recall major languages, religions, cultural traditions, demographic trends, and historical development. Students will also remember details about urbanization, economic sectors, agricultural practices, natural resources, and conservation efforts, including sustainable development projects and their challenges. CO2: Understand India’s major landforms, including mountains, plateaus, plains, and river systems such as the Ganges and Indus. They will grasp the influence of physical geography on climate, biomes, and coastal regions. Students will also understand India’s linguistic and religious diversity, cultural traditions, demographic patterns, urbanization, historical development, and federal structure. They will learn about economic diversity, agriculture, natural resources, biodiversity, and sustainable development initiatives. CO3: Apply their knowledge of India’s landforms and river systems to assess their effects on climate, agriculture, and urbanization. They will use their understanding of linguistic and religious diversity to analyze cultural traditions and festivals. Students will apply concepts of sustainable development to evaluate case studies and assess the effectiveness of renewable energy and green practices in addressing development challenges. CO4: Analyze how India’s geological features, river systems, and coastal regions impact climate, economic activities, and demographic patterns. They will evaluate the role of linguistic and religious diversity in shaping cultural practices and festivals. Students will critically assess agricultural practices, natural resource distribution, and biodiversity conservation efforts, and analyze the success and challenges of sustainable development projects.			
Unit	Topics	No of Lectures	
I	Physical Geography of India • Overview of India's Major Landforms • Geological Features: Mountains, Plateaus, and Plains • River Systems: Ganges, Brahmaputra, Indus, and Others • Coastal Regions: Western Ghats, Eastern Ghats, and Coastal Plains • Impact of Physical Geography on Climate and Biomes	15	

II	Cultural and Demographic Landscape • Linguistic Diversity: Major Languages and Language Families • Religious Diversity: Hinduism, Islam, Christianity, Sikhism, Buddhism, Jainism • Cultural Traditions and Festivals • Demographic Patterns: Population Distribution and Density • Urbanization Trends and Rural-Urban Migration	15
III	Political and Economic Geography • Historical Development of States and Union Territories • Federal Structure of India: States and Union Territories • Economic Diversity: Major Industries and Economic Regions • Agriculture in India: Crops, Farming Practices, and Agricultural Regions • Natural Resources: Mineral Wealth, Energy Resources, and Their Distribution	15
IV	Environmental Challenges and Sustainable Development • Biodiversity Hotspots and Conservation Efforts • Sustainable Development Initiatives: Renewable Energy, Green Practices • Case Studies of Sustainable Development Projects in India • Prospects and Challenges for Sustainable Development	15
References: 1. "India: A Comprehensive Geography" by D. R. Khullar 2. "Geography of India" by Majid Husain 3. "Physical Geography of India" by K. Bharatdwaj 4. "Indian Geography" by Rupa Made Simple Editorial Board 5. "Geography of India" by R.C. Tiwari 6. "India: Environment and Development" by Khullar D.R. and Goh Cheng Leong 7. "Economic and Commercial Geography of India" by C.B. Mamoria, S. Mohan, and V.S. Vyas 8. "India After Gandhi: The History of the World's Largest Democracy" by Ramachandra Guha 9. "India's Struggle for Independence" by Bipan Chandra 10. "Indian Economy" by Ramesh Singh		

24GEOMR321
Paper I: Geography of India

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Remember	2	2	1	2	2	1	2	1
CO2: Understand	2	1	2	2	2	2	2	2
CO3: Apply	2	2	2	3	2	2	2	2
CO4: Analyze	2	2	2	2	2	2	1	3

Course Code	OE SEM – III	Credits	Lectures /Week
24GEOOE331	Sustainable Resource Development	2	2
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember concepts of sustainable resource development, types of natural resources, and their impacts. They will recall practices for managing water, energy, mining, forestry, agroforestry, and agriculture, as well as soil conservation, organic farming, and biodiversity conservation. CO2: Understand sustainable resource development, environmental stewardship, and the types and impacts of natural resources. They will grasp sustainable management practices, including water and energy conservation, mining reclamation, sustainable forestry, agroforestry, organic farming, soil conservation, and biodiversity strategies. CO3: Apply their knowledge to manage resources sustainably, including water, energy, and land. They will implement practices in mining, forestry, agriculture, and biodiversity conservation to promote sustainability. CO4: Analyze the impacts of resource extraction and evaluate sustainable management practices for water, energy, and land. They will assess the effectiveness of forestry, agroforestry, and biodiversity strategies in promoting sustainability.			
Unit	Topics	No of Lectures	
I	Principles of Sustainable Resource Development • Introduction to Sustainable Resource Development • Importance of Environmental Stewardship • Types of Natural Resources (Renewable and Non-renewable) • Environmental Impacts of Resource Extraction • Sustainable Management Practices • Water Resources: Conservation and Efficiency • Energy Resources: Renewable and Non-renewable • Mining Practices: Reclamation and Ecological Impact Mitigation	15	
II	Sustainable Management of Specific Resources • Sustainable Forestry Practices Forest Conservation and Management • Agroforestry: Integrating Trees into Agriculture • Sustainable Agriculture • Organic Farming and Agroecology • Soil Conservation and Crop Rotation • Biodiversity Conservation • Importance of Biodiversity • Strategies for Biodiversity Management and Conservation	15	

References:

1. "Sustainable Development of Natural Resources and its Impact on the Environment" by Zekâi Şen
2. "Sustainable Resource Development" by N. Selvakumar
3. "Natural Resource Development and Environmental Sustainability in India" by P. Sudhakar Reddy and Ch. Pradeep Kumar Reddy
4. "Sustainable Resource Development" by T. V. Ramachandra and D. K. Subramanian
5. "Sustainable Resource Development: An Approach to Management" by K. R. Aneja and Gargi Aneja
6. "Sustainable Development of Natural Resources" by Berhanu Abegaz
7. "Renewable and Sustainable Energy" by K. S. Kasiviswanathan and K. R. Jothi
8. "Sustainable Energy Systems and Applications" edited by Ahmad Vassel-Be-Hagh, Ebrahim Zarei, and M. H. Saidi
9. "Sustainable Agriculture and Agroecology" by Peter F. Sale
10. "Sustainable Forestry: From Monitoring and Modelling to Knowledge Management and Policy Science" edited by Jeffrey G. Benjamin, Volker Radeloff, and Susan M. R. Leckie

24GEOOE331**Sustainable Resource Development**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Remember	3	2	2	2	2	1	2	2
CO2: Understand	3	3	3	3	3	2	3	3
CO3: Apply	3	3	3	3	3	3	3	3
CO4: Analyze	3	3	3	3	3	3	3	3

Course Code	VSC SEM – III	Credits	Lectures /Week
24GEOVC341	Modern Surveying Techniques	2	2
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember key concepts of geographical surveys, including different surveying methods, GPS, DGPS, GNSS, and their applications. They will recall details about drone and aerial photography, including geometry, scale, and applications. Additionally, they will remember aspects of remote sensing, earth observation systems, and digital image processing. CO2: Understand the concepts and types of geographical surveys, including field surveying methods, and the use of websites and mobile apps. They will grasp the principles of GPS, DGPS, GNSS, and their applications, as well as drone surveys, aerial photography, and remote sensing. They will also understand the processes of visual interpretation, thematic mapping, and digital image processing in earth observation. CO3: Apply their knowledge to conduct and utilize geographical surveys using GPS, DGPS, GNSS, and drones. They will use aerial photography and remote sensing techniques for visual interpretation, thematic mapping, and digital image processing. CO4: Analyze the effectiveness of different surveying methods, including GPS, DGPS, GNSS, and drones. They will evaluate the use of aerial photography and remote sensing for thematic mapping and visual interpretation. Students will also assess the integration of earth observation systems and digital image processing in geographical analysis.			

Unit	Topics	No of Lectures
I	Field Survey, GPS, and Drone Survey • Geographical Survey: Concept and Types • Field Surveying of Height and Area • Use of Websites and Mobile apps for surveying • GPS, DGPS and GNSS- Concept, Process and Applications • GPS Survey and Mapping- Point, Track and Area • Drone Survey and Mapping	15
II	Aerial Photography and Remote Sensing Technology • Aerial Photography: Concept, Types and Applications • Geometry and Scale of Aerial Photographs • Visual Interpretation and Thematic Mapping from Aerial Photographs • Remote Sensing: Concept, Process and Applications • Earth Observation System- Sensors & Platforms • Visual Interpretation, Thematic Mapping and Digital Image Processing	15

References:

1. Bailey, T. and Gatrell, A. C. (1995): Interactive Spatial Data Analysis. Longman, Harlow.
2. Dorling, D. and Fairborn, D. (1997): Mapping. Ways of Representing the World. Longman, Harlow.
3. Fraser Taylor, D.R. (1980): The Computer in Contemporary Cartography. John Wiley and Sons, New York.
4. Keates J.S. (1973): Cartographic Design and Production, Longman Group Ltd.
5. Mailing, D.H. (1973): Co-ordinate Systems and Map Projections. George Philip and Sons Ltd.
6. Monkhouse, F.J. and Wilkinson, H. R (1962): Maps and Diagrams, Methuen and Company Ltd. and Company Ltd., London.
7. Nag, P. (ed.) (1984): Census Mapping Survey, Concept Publishing Company, New Delhi.
8. Nair, N. B. (1996): Encyclopaedia of Surveying, Mapping and Remote Sensing. Rawat Publications. Jaipur and New Delhi.

24GEOVC341**Modern Surveying Techniques**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Remember	3	2	2	2	2	1	2	2
CO2: Understand	3	3	3	3	3	2	3	3
CO3: Apply	3	3	3	3	3	3	3	3
CO4: Analyze	3	3	3	3	3	3	3	3

Course Code	MAJOR SEM – IV	Credits	Lectures /Week
24GEOMJ411	Paper I: Introduction to Oceanography	4	4
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember key concepts about ocean features, circulation, seawater properties, and marine ecosystems. They will recall details on coastal erosion, human impacts, and conservation, as well as methods for oceanographic exploration and map interpretation. CO2: Understand ocean basins, circulation patterns, and seawater properties. They will grasp marine ecosystems, including coral reefs, kelp forests, and coastal wetlands, and recognize human impacts on marine environments. Students will also understand methods for oceanographic exploration and how to interpret navigation and bathymetric maps. CO3: Apply their knowledge to analyze oceanographic features and marine ecosystems, assess human impacts, and use methods for exploration. They will apply map interpretation skills to understand navigation and bathymetric charts. CO4: Analyze the interactions between ocean basins, circulation patterns, and physical properties of seawater. They will evaluate the structure and importance of marine ecosystems and the effects of human activities on marine environments. Students will critically assess coastal erosion, beach dynamics, and the effectiveness of conservation efforts. They will also analyze the information from navigation and bathymetric maps to			

inform their understanding of marine environments.

Unit	Topics	No of Lectures
I	Introduction to Oceanography • Overview of Earth's Oceans • Ocean Basins and Features • Ocean Circulation: Thermohaline and Surface Currents • Physical Properties of Seawater: Temperature, Salinity, Density • Methods of Oceanographic Exploration	15
II	Marine Ecosystems and Biodiversity • Classification of Marine Ecosystems • Coral Reefs: Structure and Importance • Kelp Forests and Seagrass Meadows • Pelagic and Benthic Zones • Marine Biodiversity: Species Interactions and Adaptations	15
III	Coastal Processes and Human Impacts • Coastal Erosion and Sedimentation • Beach Formation and Dynamics • Estuaries and Coastal Wetlands • Human Impacts on Marine Environments: Pollution and Overfishing • Conservation of Coastal Habitats and Species	15
IV	Practical • Map filling: Related to Oceanography • Reading and Interpretation of navigation charts and bathymetric maps	15

References:

1. "Oceanography: An Invitation to Marine Science" by Tom S. Garrison
2. "Essentials of Oceanography" by Alan P. Trujillo and Harold V. Thurman
3. "Introduction to Physical Oceanography" by Robert H. Stewart
4. "Marine Biology: Function, Biodiversity, Ecology" by Jeffrey S. Levinton
5. "Marine Ecology: Processes, Systems, and Impacts" by Michel J. Kaiser, Martin J. Attrill, Simon Jennings, and David N. Thomas
6. "Coastal and Estuarine Processes" by Richard A. Davis Jr.
7. "Coral Reefs: Biology, Threats, and Restoration" edited by T. P. Hughes, J. H. C. Ogden, and J. S. Jackson

24GEOMJ411
Paper I: Introduction to Oceanography

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Remember	3	2	2	2	2	1	2	2
CO2: Understand	3	3	3	3	3	2	3	3
CO3: Apply	3	3	3	3	3	3	3	3
CO4: Analyze	3	3	3	3	3	3	3	3

Course Code	MAJOR SEM – IV	Credits	Lectures /Week
24GEOMJ412	Paper II: Economic Geography	4	4
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember key theories of economic geography, including industrial location, agricultural land use, and central place theory. They will recall details on urbanization, city functions, regional development, trade patterns, and economic zones. They will also remember information on policies for reducing regional disparities and the impacts of international trade. CO2: Understand economic geography concepts, including spatial organization, industrial location theories (Weber's Least Cost Theory), and agricultural land use (Von Thünen's Model). They will grasp central place theory (Christaller), urbanization trends, and city functions. They will also understand regional disparities, factors affecting development, and the core-periphery model. Additionally, they will learn about global trade patterns, trade agreements, and the impacts of international trade. CO3: Apply economic geography theories to analyze industrial locations, agricultural land use, and urbanization patterns. They will use their knowledge to assess regional development, trade flows, and the role of infrastructure. Students will also apply concepts to evaluate case studies of global cities and trade agreements. CO4: Analyze the spatial organization of economic activities, industrial location theories, and urban economic patterns. They will evaluate the impact of regional disparities, trade balances, and the effectiveness of policies aimed at reducing inequalities. Students will also analyze the effects of international trade on economies and the role of economic zones.			
Unit	Topics	No of Lectures	
I	Foundations of Economic Geography • Introduction to Economic Geography • Spatial Organization of Economic Activities • Theories of Industrial Location • Weber's Least Cost Theory • Von Thünen's Agricultural Land Use Model • Christaller's Central Place Theory	15	
II	Urbanization and Cities in Economic Geography • Urbanization Trends and Patterns • Functions and Hierarchies of Cities • Urban Economic Base and Industry Clusters • Urban Sprawl and Suburbanization • Case Studies: Global Cities and Megacities	15	
III	Economic Development and Regional Disparities • Regional Disparities in Income and Employment • Factors Influencing Regional Development	15	

	• Core-Periphery Model and Spatial Inequality • Role of Infrastructure in Regional Development • Policies for Reducing Regional Disparities	
IV	International Trade and Economic Geography • Patterns of Global Trade Flows • Trade Agreements and Regional Integration • Impacts of International Trade on Economies and Regions • Trade Balances and Trade Deficits • Economic Geography of Free Trade Zones and Special Economic Zones	15
References: 1. "Economic Geography: A Contemporary Introduction" by Neil Coe, Philip Kelly, and Henry W. C. Yeung 2. "The New Oxford Handbook of Economic Geography" edited by Gordon L. Clark, Maryann P. Feldman, Meric S. Gertler, and Dariusz Wójcik 3. "Global Economic Geography: A Geographic Perspective" by Joseph P. Stoltman, Roger F. Riefler, and Barney Warf 4. "Economic Geography: Places, Networks and Flows" by Elizabeth Jane Holden and Richard Shearmur 5. "The Geography of International Economic Systems" by Mark W. Zacher 6. "International Business: The Challenge of Global Competition" by Donald Ball, Michael Geringer, Michael Minor, and Jeanne McNett		

24GEOMJ412**Paper II: Economic Geography**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Remember	3	2	2	2	2	1	2	2
CO2: Understand	3	3	3	3	3	2	3	3
CO3: Apply	3	3	3	3	3	3	3	3
CO4: Analyze	3	3	3	3	3	3	3	3

Course Code	MINOR SEM – IV	Credits	Lectures /Week
24GEOMR421	Regional Geography of South Asia	4	4
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember key physical features of South Asia, such as its mountain ranges, river systems, and coastlines. They will recall climate zones, languages, religions, cultural traditions, historical landmarks, and colonial history. Additionally, students will remember information on agriculture, manufacturing industries, services sector, urbanization, and environmental challenges. CO2: Understand South Asia's physical features, including mountain ranges (Himalayas, Western Ghats, Eastern Ghats), river systems (Ganges, Brahmaputra, Indus), and coastal plains. They will grasp climate zones, the impact of geography on agriculture and biodiversity, and the region's linguistic and religious diversity. Additionally, they will understand cultural traditions, historical landmarks, colonial legacy, agriculture, and industrial sectors, including services and urbanization trends.			

CO3: Apply their knowledge to analyze the effects of physical geography on agriculture and biodiversity in South Asia. They will use their understanding of cultural and historical contexts to evaluate agricultural practices, industrial sectors, and urbanization trends. Students will also apply concepts to assess the impact of infrastructure on economic development and address environmental challenges.

CO3: Analyze the relationships between South Asia's physical features, climate zones, and their impacts on agriculture and biodiversity. They will evaluate the effects of historical and colonial legacies on cultural and economic development. Students will also analyze trends in urbanization, manufacturing, services, and infrastructure, as well as assess environmental challenges and conservation efforts.

Unit	Topics	No of Lectures
I	Physical Geography of South Asia - Overview of South Asia's Physical Features - Mountain Ranges: Himalayas, Western Ghats, Eastern Ghats - River Systems: Ganges, Brahmaputra, Indus - Coastal Plains and Coastlines - Climate Zones: Tropical, Subtropical, Arid, and Highland - Impact of Physical Geography on Agriculture and Biodiversity	15
II	Cultural Diversity and Historical Legacies - Languages and Linguistic Diversity - Religions: Hinduism, Islam, Buddhism, Sikhism - Cultural Traditions and Festivals - Historical Landmarks and Dynasties - Colonial Legacy and Independence Movements - Cultural Heritage Sites: Temples, Mosques, Monuments	15
III	Economic Landscapes and Urbanization - Agriculture in South Asia: Crops, Farming Practices, and Challenges - Manufacturing Industries: Textiles, Information Technology, Automotive - Services Sector: IT Services, Tourism, Banking - Urbanization Trends: Growth of Megacities and Urban Sprawl - Informal Settlements and Slums - Role of Infrastructure in Economic Development	15
IV	Globalization, Regional Conflicts, and Environmental Challenges	15

	• Geopolitical Dynamics: Borders and Strategic Interests • Environmental Challenges: Pollution, Deforestation, Water Scarcity • Conservation Efforts and Biodiversity Hotspots	
References: 1. "South Asia: An Environmental History" by David Arnold 2. "South Asia: A Systematic Regional Geography" by R. L. Singh 3. "South Asia: The Spectre of Terrorism" by Bruce Vaughn 4. "South Asia: An Introduction" by Milton Israel 5. "South Asia: An Interpretive Geography" by Lallanji Gopal 6. "South Asia: Geopolitical Challenges and Opportunities" by Shahid Javed Burki 7. "South Asia: Politics and Economics" by Craig Baxter		

24GEOMR421
Regional Geography of South Asia

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Remember	3	2	2	2	2	1	2	2
CO2: Understand	3	3	3	3	3	2	3	3
CO3: Apply	3	3	3	3	3	3	3	3
CO4: Analyze	3	3	3	3	3	3	3	3

Course Code	OPEN ELECTIVE SEM – II	Credits	Lectures /Week
24GEOOE431	Climate Change Vulnerability and Adaptation	2	2
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember key concepts related to climate change, including its drivers, factors influencing vulnerability, and assessment tools. They will recall case studies on climate change impacts, adaptation strategies, technological solutions, and policy planning. They will also remember how climate change adaptation links to sustainable development. CO2: Understand the fundamentals of climate change and its impacts, including the drivers of vulnerability and the social, economic, and environmental factors contributing to it. They will grasp various vulnerability assessment tools and methodologies, community-based adaptation approaches, technological solutions, and policy planning. Additionally, they will understand the connections between climate change adaptation and sustainable development. CO3: Apply their knowledge to assess climate change vulnerability using various tools and methodologies. They will use case studies to evaluate impacts on ecosystems, societies, and economies and apply community-based and technological adaptation approaches. Students will also apply principles of policy and planning to climate change adaptation and sustainable development. CO3: Analyze the relationship between climate change drivers and vulnerability, evaluating how social, economic, and environmental factors contribute. They will assess the effectiveness of different adaptation strategies and tools, analyze case studies for impacts, and critically evaluate policy and planning measures. Students will also analyze how adaptation efforts align with sustainable development goals.			

Unit	Topics	No of Lectures
I	Understanding Climate Change Vulnerability • Introduction to Climate Change and its Impacts • Drivers of Climate Change Vulnerability • Social, Economic, and Environmental Factors Contributing to Vulnerability • Vulnerability Assessment Tools and Methodologies • Case Studies of Climate Change Impacts on Ecosystems, Societies, and Economies	15
II	Climate change Adaptation Strategies and Policies • Community-Based Adaptation Approaches • Technological Solutions for Climate Change Adaptation • Policy and Planning for Climate Change Adaptation • Linkages Between Climate Change Adaptation and Sustainable Development	15
References: • "Climate Change 2014: Impacts, Adaptation, and Vulnerability" edited by Intergovernmental Panel on Climate Change (IPCC) • "Climate Change Adaptation Manual: Lessons Learned from European and Other Industrialized Countries" by Philipp Schmidt-Thome and Johannes Klein • "Climate Change and Adaptation Planning for Ports" by Jens Hesselbjerg Christensen, Kirk Bryan, and Haakon Lein • "Climate Change Adaptation and Disaster Risk Reduction: Issues and Challenges" edited by Rajib Shaw, Fuad Mallick, and Aminul Islam • "Climate Change Adaptation in Africa: Fostering Resilience and Capacity to Adapt" edited by Walter Leal Filho, Samuel Fankhauser, and Celine McInerney • "Adapting to Climate Change: An International Perspective" edited by James A. Adejuwon and Victor O. Sadras		

24GEOOE431**Climate Change Vulnerability and Adaptation**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Remember	3	2	2	2	2	1	2	2
CO2: Understand	3	3	3	3	3	2	3	3
CO3: Apply	3	3	3	3	3	3	3	3
CO4: Analyze	3	3	3	3	3	3	3	3

Course Code	SEC Skill Enhancement Course SEM – IV	Credits	Lectures /Week
24GEOSE451	Digital Cartography	2	2
Course Outcomes: After successful completion of this course, students would be able to CO1: Remember key concepts of cartography, map types, and components. They will recall how to read different types of maps and the processes involved in georeferencing, digitization, and data types. They will remember how to use QGIS for thematic map preparation, Web GIS tools, SPSS for data analysis, and SAGA and DIVA GIS for specialized mapping. CO2: Understand the concepts of cartography and digital cartography, including the different types and components of maps. They will grasp how to read thematic, weather, and topographical maps, as well as the processes of georeferencing, digitization, and data types (raster and vector). Additionally, they will understand the use of QGIS for thematic map preparation, Web GIS tools like Bhuvan, Google Earth Pro, and Open Street Maps, and the application of SPSS for statistical data analysis. They will also understand hydro geomorphological mapping with SAGA and climate and vegetation mapping using SAGA and DIVA GIS software. CO3: Apply their knowledge to create and analyze maps using QGIS for thematic maps and SAGA for hydro geomorphological and climate mapping. They will use Web GIS tools for geographic data visualization and apply SPSS for statistical data analysis. Students will also			

apply their understanding of cartographic concepts to practical mapping and data representation tasks.

CO4: Analyze the effectiveness of different cartography methods and tools, including digital cartography and Web GIS applications. They will evaluate the accuracy and utility of thematic, weather, and topographical maps, and assess the processes of georeferencing, digitization, and data handling in QGIS and other software. Students will also critically analyze mapping results from SAGA and DIVA GIS to determine their relevance for climate and vegetation studies.

Unit	Topics	No of Lectures
I	Concept and Processes of Cartography & Digital Cartography • Cartography and Digital Cartography: Concept and Applications • Maps: Concept, components and types • Reading of Thematic, Weather and Topographical maps • Georeferencing, Digitization, Raster and Vector Data Processes – QGIS software • Preparing and composition of thematic maps- QGIS software. • Web GIS- Bhuvan (NRSC-ISRO), Google Earth Pro, Open Street Maps etc.	15
II	Digital Data Processing • Use of computer in statistical data analysis and representation (SPSS software) • Hydro Geomorphological Mapping (SAGA software) • Climate and Vegetation Mapping- SAGA and DIVA GIS software	15

References:

1. "Thematic Cartography and Geographic Visualization" by Terry A. Slocum, Robert B. McMaster, Fritz C. Kessler, and Hugh H. Howard
2. "Designing Better Maps: A Guide for GIS Users" by Cynthia Brewer
3. "Map Use: Reading and Analysis" by A. Jon Kimerling, Aileen R. Buckley, and Phillip C. Muehrcke
4. "Geographic Information Science and Systems" by Paul A. Longley, Michael F. Goodchild, David J. Maguire, and David W. Rhind
5. "GIS Fundamentals: A First Text on Geographic Information Systems" by Paul Bolstad
6. "Getting to Know ArcGIS Pro" by Michael Law and Amy Collins
7. "Mastering ArcGIS" by Maribeth H. Price
8. "Remote Sensing and Image Interpretation" by Thomas Lillesand, Ralph W. Kiefer, and Jonathan Chipman

24GEOSE451
Digital Cartography

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1: Remember	3	2	2	2	2	1	2	2
CO2: Understand	3	3	3	3	3	2	3	3
CO3: Apply	3	3	3	3	3	3	3	3
CO4: Analyze	3	3	3	3	3	3	3	3

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

I. Internal Evaluation for Theory Courses – 40 Marks

1) Continuous Internal Assessment (CIA) Assignment –

Project /Presentations. – 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.

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