

## **COURSE OUTCOME (NEP)**

### **INTRODUCTION**

Geography is the study of places and the relationships between people and their environments. Geographers explore both the physical properties of Earth's surface and the human societies spread across it. It is not just about knowing places; it's about comprehending how these places interact and influence each other. Human geography deals with people and their distribution across Earth and their interaction with Earth's surface. Physical geography covers all of Earth's physical aspects. Geography is a vastly complex degree offering insight into many important aspects of the world today; whether it be climate change, migration or society through human geography.

If students are interested in experiencing real world, creative thinking, Keen to develop expertise in the field, team work, problem solving, data collection, interpretation, analysis and representation of maps, and innovative technologies like remote sensing and GIS, Seek to achieve an academic degree with a varied employment prospects ranging from Cartographer, town planner, Geographical Information System Officer, Environmental consultant, Teaching and many more.

### **PROGRAMME OUTCOME OF GEOGRAPHY**

Program outcomes in geography can vary depending on the level of study (undergraduate, graduate), program outcomes for a geography degree include:

**Spatial Analysis Skills:** Graduates should be able to analyze spatial patterns and relationships using various geographic information systems (GIS) tools and techniques.

**Understanding of Physical and Human Geography:** Students should have a solid understanding of both physical geography (e.g., landforms, climate, ecosystems) and human geography (e.g., population, culture, economic systems).

**Fieldwork and Research Skills:** Graduates should be proficient in conducting fieldwork, including data collection and analysis, as well as designing and executing research projects.

**Critical Thinking and Problem-Solving:** Students should develop critical thinking skills and be able to apply geographical concepts and theories to analyze real-world problems and propose solutions.

**Communication Skills:** Graduates should be able to effectively communicate geographical concepts, research findings, and analyses through written reports, presentations, and maps.

## Department of Geography 4 Years NCCF Programme Outcome & Course Outcome

**Environmental Awareness:** Students should understand the interactions between human societies and the environment, including issues related to sustainability, resource management, and environmental degradation.

**Cultural Competence:** Graduates should have an appreciation for cultural diversity and understand how cultural factors influence spatial patterns and human interactions with the environment.

**Ethical and Professional Responsibility:** Students should be aware of the ethical issues related to geographic research and practice, including issues of social justice, environmental stewardship, and respect for indigenous knowledge.

**Interdisciplinary Perspective:** Graduates should recognize the interdisciplinary nature of geography and be able to integrate knowledge and methods from other disciplines, such as economics, sociology, and environmental science.

**Career Readiness:** Graduates should be prepared for a variety of careers in fields such as urban planning, environmental management, geographic information science, education, and international development.

### **PROGRAMME SPECIFIC OUTCOME OF GEOGRAPHY**

A degree in geography can lead to a wide range of career opportunities across various sectors. Here are some common career paths for geography graduates:

**Urban and Regional Planning:** Geographers can work as urban or regional planners, helping to design and manage cities and regions to promote sustainable development, improve transportation systems, and enhance quality of life.

**Environmental Management:** Geographers can work in environmental consulting firms, government agencies, or non-profit organizations to assess and manage natural resources, monitor environmental quality, and develop policies for conservation and sustainability.

**Geographic Information Systems (GIS) Specialist:** Geographers with expertise in GIS can work in industries such as urban planning, natural resource management, transportation, and public health, creating maps, analyzing spatial data, and developing GIS applications to support decision-making.

**Cartographer or GIS Technician:** Geographers can work as cartographers or GIS technicians, creating maps and visualizations using GIS software, satellite imagery, and other geospatial technologies for various purposes, including navigation, land use planning, and environmental monitoring.

**Remote Sensing Specialist:** Geographers with expertise in remote sensing techniques can work in industries such as agriculture, forestry, urban planning, and environmental monitoring, using

## Department of Geography 4 Years NCCF Programme Outcome & Course Outcome

satellite or aerial imagery to analyze landscapes, monitor changes over time, and assess environmental conditions.

**Transportation Planner:** Geographers can work as transportation planners, analyzing transportation networks, traffic patterns, and travel behavior to design efficient and sustainable transportation systems, including public transit, highways, and bike lanes.

**GIS Analyst:** Geographers can work as GIS analysts in industries such as real estate, insurance, retail, and telecommunications, using spatial analysis and mapping techniques to support market analysis, site selection, and business decision-making.

**International Development Specialist:** Geographers can work for international organizations, non-governmental organizations (NGOs), or government agencies involved in international development, conducting research, implementing projects, and promoting sustainable development practices in areas such as poverty reduction, food security, and disaster risk management.

**Climatologist or Meteorologist:** Geographers can work as climatologists or meteorologists, studying weather and climate patterns, analyzing climate data, and contributing to weather forecasting, climate modeling, and climate change research.

**Education and Research:** Geographers can work as educators or researchers in academic institutions, conducting research, teaching courses, and mentoring students in various subfields of geography, including physical geography, human geography, and geographic techniques.

These are just a few examples of the many career opportunities available to geography graduates. The interdisciplinary nature of geography and the diverse skills acquired during a geography degree program can open doors to a wide range of professions and industries.

Course outcomes in Geography courses typically focus on the specific knowledge, skills, and competencies that students are expected to acquire by the end of the course. Here are some examples of course outcomes for Geography courses:

### SEMESTER- I

#### MAJOR-1: Physical Geography

- I. To define the concepts of Physical Geography and geo-tectonics
- II. To introduce the fundamental concept of geomorphology and the evolution of landforms
- III. To understand the dynamic nature of the weather and climate.

#### MAJOR-1: Basic Cartographic Techniques and Map Reading

Department of Geography 4 Years NCCF Programme Outcome & Course Outcome

- I. To learn the basics of Cartography and Mapmaking.
- II. To understand and interpret SOI toposheets.
- III. To draw maps with the help of SOI toposheets

**MDC-1: Fundamentals of Physical Geography**

- I. To introduce the fundamental concept of geomorphology and the evolution of landforms
- II. To know the concept of hydrology and hydrological cycle and ground water dynamics
- III. To understand the biogeography and ecosystem.
- IV. To make an understanding about local landforms

**SEMESTER- II**

**MAJOR -2: Fundamentals of Human Geography**

- I. To learn Meaning, Concept, Nature, Scope and development of Human Geography.
- II. To understand Cultural Changes in and around the world.
- III. To learn about the different races, religions, tribes, their culture and cultural development

**MAJOR -2: Elementary Instrumental Observation and Map Reading**

- I. To learn function and use of meteorological instruments
- II. To learn function and use of Geomorphological instruments
- III. To know the representation of climatic data

**SEMESTER- III**

**MAJOR -3: Hydrology and Oceanography:**

- i. Demonstrate a comprehensive understanding of hydrology and oceanography principles.
- ii. Apply various methods to measure runoff, evapotranspiration, and groundwater occurrence.
- iii. Implement techniques for artificial rainmaking and water harvesting.
- iv. Analyze oceanic features, movements, and phenomena.
- v. Assess marine resources and propose solutions to ocean pollution issues.

**MAJOR -3: Hydrographic and Geological Mapping (Practical)**

- I. Interpret rating curves and hydrographs for streamflow analysis effectively.
- II. Derive the phi index and W index for hydrological assessment accurately.
- III. Analyze ombrothermic graphs and hyetographs proficiently.
- IV. Interpret the geological maps depicting structural features with competence.

**MAJOR -4: Soil Geography and Biogeography**

- I. Demonstrate proficiency in the fundamentals of soil science and biogeography
- II. Analyze the formation, properties, and classification of soil accurately.
- III. Evaluate soil erosion and degradation processes and propose effective management strategies.
- IV. Identify and describe ecosystem structure, energy flow, and biodiversity concepts.
- V. Describe the ecological characteristics of different biomes comprehensively.
- VI. Implement measures for biodiversity conservation and address factors contributing to its degradation effectively.

**MAJOR -4: Soil and Biogeography Techniques and Surveying and Levelling (basic) (Practical)**

- I. i. Utilize field kits to determine soil colour, pH, and NPK levels accurately.
- II. Identify soil types through ternary diagram textural plotting effectively.
- III. Assess plant species diversity using the matrix method proficiently.
- IV. Understand and apply Field Surveying techniques with a Prismatic Compass competently.
- V. Prepare longitudinal and cross-sectional profiles using a Dumpy Level accurately.

**MINOR 3: Physical Geography**

- I. Demonstrate a comprehensive understanding of geological processes and landforms.
- II. Interpret oceanographic and atmospheric phenomena proficiently.
- III. Analyze soil characteristics and ecosystem dynamics effectively.
- IV. Evaluate the importance of biodiversity and propose conservation strategies.

**MINOR 3: Scale and Map Projection (Practical)**

- I. To learn function and use of Map scale
- II. To learn function and use of Map projection

## **MDC 2: Fundamentals of Human Geography**

- I. Demonstrate understanding of Human Geography concepts.
- II. Analyze human adaptation and cultural diversity effectively.
- III. Evaluate societal progress using the Human Development Index.
- IV. Understand cultural and societal structures proficiently.
- V. Interpret population dynamics and migration accurately.
- VI. Analyze human settlement patterns competently

## **SEMESTER -IV**

### **MAJOR-5: Settlement Geography and Population Geography**

- I. Define settlement geography and its scope, with a focus on both rural and urban settlements.
- II. Analyze the evolution, patterns, and morphology of settlements comprehensively.
- III. Explore urban settlement concepts and models of urban morphology effectively.
- IV. Classify towns according to various frameworks accurately.
- V. Examine factors influencing population distribution to elucidate the nature and scope of population geography.
- VI. Discuss theories of population growth and analyze population structure proficiently.
- VII. Address key issues in Population Geography competently.

### **MAJOR-5: Settlement and Population Geography (Practical)**

- I. Identify settlement types accurately using Survey of India maps.
- II. Map accessibility utilizing the Detour index from Survey of India maps effectively.
- III. Conduct Nearest Neighbour Analysis proficiently with Survey of India maps.
- IV. Represent the population density of Indian states and West Bengal districts using the Choropleth method competently.
- V. Utilize Dot and Sphere methods appropriately for population representation.
- VI. Construct and interpret Age-Sex pyramids, distinguishing progressive and regressive patterns accurately.

### **MAJOR-6: Economic and Industrial Geography (Theoretical)**

- I. Understand the classifications and types of economic activities comprehensively.
- II. Comprehend the theories and models explaining the spatial distribution of industries effectively.
- III. Analyze specific examples of industries in various countries and regions to understand their characteristics and significance proficiently

**MAJOR-6: Economic and Industrial Geography (Practical)**

- I. Create and interpret proportional pie diagrams for economic data visualization.
- II. Analyze labour productivity patterns using ergographs.
- III. Identify economic functions using Nelson's functions.
- IV. Conduct time series analysis of industrial production trends.
- V. Apply Location Quotient to identify industrial concentration zones. vi. Assess industrial performance using Z-scores.

**MINOR- 4: Economic and Human Geography**

- I. Demonstrate understanding of resource concepts and their conservation.
- II. ii. Analyze economic activities and sectors proficiently.
- III. iii. Interpret human adaptations and ethnic diversity accurately.

**MINOR- 4: Topographical Map and Weather Map (Practical)**

- I. Interpret topographical maps comprehensively, identifying various geographic features accurately.
- II. Apply morphometric techniques confidently to analyze and assess land features.
- III. Utilize weather instruments effectively and represent climatic data accurately using climographs and Hythergraphs.

**SEMESTER -V**

**MAJOR-7: Geography of India and West Bengal (Theoretical)**

- I. Understand India's diverse physiographic divisions and their implications. ii.
- II. Analyze the impacts of agricultural revolutions and industrial regions in India. iii.
- III. Evaluate India's mineral and power resources for economic development. iv.
- IV. Investigate West Bengal's geographical characteristics and industrial development. v.
- V. Examine population dynamics and tourism prospects in West Bengal.

**MAJOR-7: Geography of India and Statistical Methods in Geography (Descriptive) (Practical)**

- I. Interpret monthly temperature and rainfall graphs for various Indian regions effectively.
- II. Calculate the mean centre of population for West Bengal across census years accurately.
- III. Analyze regional disparity using Sopher's Index proficiently.
- IV. Construct and interpret frequency distributions competently.
- V. Understand measures of central tendencies such as mean, median, and mode appropriately.
- VI. Calculate and interpret quartiles, deciles, and percentiles with competence

**MAJOR -8: Geographical Thought (Theoretical)**

- I. Explore the development of geography from ancient to modern times comprehensively.
- II. Analyze the contributions of classical geographers effectively.
- III. Investigate dualisms and dichotomies present in geographical thought proficiently.
- IV. Understand the impact of the quantitative revolution on geography accurately.
- V. Examine the systems approach in geography competently.
- VI. Discuss Radicalism, Positivism, and Behavioural approaches in geographical thought with depth.
- VII. Compare and contrast absolute and relative space concepts appropriately
- VIII. Explore the dynamic relationship between humans and the environment comprehensively.

**MAJOR -8: Statistical Methods in Geography (Inferential) and Megascopic Identification of Rocks and Minerals (Practical)**

- I. Apply measures of Dispersion and Correlation Coefficients proficiently for geographical data analysis.
- II. Perform simple bivariate analysis techniques, including regression trend lines and residual mapping effectively.
- III. Identify various minerals and rocks through megascopic analysis accurately.

**MAJOR-9: Regional Planning and Transport Geography (Theoretical)**

- I. Demonstrate comprehension of regional planning principles for effective analysis and decisionmaking.
- II. Apply regional planning models to address real-world development issues critically.
- III. Recognize the significance of transportation in regional development and spatial connectivity.
- IV. Proficiently analyze transport networks to evaluate efficiency and propose optimization strategies

**MAJOR-9: Regional Planning and Transport Geography (Practical)**

- I. Understand measures of inequalities such as the Lorenz Curve and Gini's Coefficient proficiently.
- II. Apply the Shortest Path Matrix, particularly the Shimbel Index, for transportation analysis effectively.
- III. Analyze transportation networks using the Cyclomatic Number, Alpha, Beta, Gamma, Eta Indices, and Aggregate Transportation Score accurately.
- IV. Develop practical skills in conducting field research, including data collection, analysis, and presentation, to address socio-economic or environmental issues competently.

**MDC-3: Fundamentals of Economic Geography**

- I. Identify various classifications and types of economic activities effectively.
- II. Apply theories and models to explain the spatial distribution of industries proficiently.
- III. Analyze specific examples of industries in various countries and regions accurately

**SEMESTER-VI**

**MAJOR-10: Development Geography and Regional Geography of North Bengal**

- I. Define and comprehend the scope of Development Geography effectively.
- II. Identify and analyze indicators of economic, social, and environmental development accurately.
- III. Understand human development concepts and measurements proficiently. iv.
- IV. Explore issues like rural development and urban planning for sustainable development competently.
- V. Understand the physiography, drainage patterns, and vegetation types of North Bengal comprehensively.
- VI. Explore biodiversity and conservation efforts, as well as ethnic cultures and heritage adeptly.
- VII. Evaluate tourism status, challenges, prospects, and major environmental issues competently

**MQAJOR-10: Map Projection and Inferential Statistics (advanced) (Practical)**

- I. Understand map projection fundamentals, terminology, and purpose effectively.
- II. Explore classification methods for map projections proficiently.
- III. Learn mathematical/graphical construction and properties of specific projections accurately.
- IV. Grasp the roles and definitions of null and alternative hypotheses competently.
- V. Differentiate between parametric and non-parametric tests and their applications appropriately.
- VI. Understand Type I and Type II errors in hypothesis testing comprehensively.
- VII. Apply statistica

**MAJOR-11: Political Geography and Geography of Sustainability**

- I. Understand the concepts, nature, and scope of political geography effectively.
- II. Examine the attributes of the state, including frontiers, boundaries, and sovereignty accurately.
- III. Analyze global strategic views such as the Heartland and Rimland theories proficiently.
- IV. Define sustainability and its principles, emphasizing its importance competently.
- V. Explore the Sustainable Development Goals (SDGs) and Millennium Development Goals (MDGs) comprehensively.
- VI. Investigate sustainable agriculture, urban sustainability, and tourism, including their meanings, implementations, and future strategies adeptly

**MAJOR-11: Advanced Surveying and Computer Application (Practical)**

- I. Utilize a Dumpy Level proficiently to create contour plans accurately.
- II. Understand methods for determining the height and distance of objects using a Transit Theodolite effectively.
- III. Apply Radiation, Intersection, and Traversing techniques in plane table survey competently.
- IV. Gain knowledge of recording points using GPS technology accurately.
- V. Apply MS-Excel skills for processing demographic, weather, climatic, and socio-economic data proficiently, including creating thematic diagrams like bar, pie, and line graphs, and performing basic calculations and interpretations.
- VI. Develop skills in creating PowerPoint slides for presenting geographical data and information effectively.

**MAJOR-12: Environmental Geography**

- I. Understand environmental geography and its significance comprehensively.
- II. Identify environmental components, including physical and socio-cultural aspects, accurately.
- III. Explore human adaptation in different biomes proficiently.
- IV. Analyze global and Indian environmental programs effectively.
- V. Define hazards, disasters, risk, vulnerability, and susceptibility accurately.
- VI. Examine various types of disasters in India and their management competently.
- VII. Discuss response and mitigation measures comprehensively.
- VIII. Emphasize capacity building for disaster management adeptly.

**MAJOR-12: Field Report (Practical)**

- I. Effectively collect Primary Data using direct observation and fieldwork techniques.
- II. Conduct spatial analysis for mapping, GIS, and spatial modeling proficiently.
- III. Assess environmental conditions and impacts on air, water, soil, and biodiversity accurately.
- IV. Analyze human activities, behaviours, and interactions within specific geographic contexts competently.
- V. Evaluate land use and land cover changes over time adeptly.
- VI. Document geographical phenomena such as natural hazards, geological formations, and weather patterns comprehensively.
- VII. Validate Remote Sensing data through ground-truthing effectively.
- VIII. Provide valuable inputs for policy decisions and planning initiatives at various levels.
- IX. Serve educational purposes for students and public outreach proficiently.