

GRADUATE ATTRIBUTES IN GEOGRAPHY

Some of the Graduate attributes of a graduate in Geography are:-

1. **Disciplinary knowledge and skills-** Acquiring sound knowledge to understand the major concepts , theoretical principles and practical applicability in core Geography and its different sub -fields like, Geomorphology, Climatology and climate change, changing perspectives of Human Geography, Pedology, Ecology and Bio- geography, Environmental geography, Forest and wildlife management, Regional Planning, Cartography, Regional Geography, Economic Geography, Philosophy of Geography etc. with special reference to Resource Geography, Research Methodology, Sustainable Geography, Remote Sensing, GIS & GNSS, Hazard management and other related fields of study including broader interdisciplinary sub –fields like Geology, Mathematics, Physics, Chemistry, Life Sciences, Environmental Sciences, Information Technology etc.
2. **Skilled Interpreter-** Ability to explain complex geographical information in a clear and concise manner in writing as well as ability to express complicated concepts in a simple language for better understanding of the subject.
3. **Critical Observer and Analyser-** Ability to observe, understand and analyse geographical phenomena critically.
4. **Attitude of Investigation-** Ability to ask relevant questions relating to the geographical issues and problems so that the problem area may be developed properly.
5. **Efficient Planner-** Capable of formulating proper regional plans on the basis of resource inventory to solve the problem in question with appropriate planning, implementation and regular monitoring.
6. **Team activity-** Capable of working efficiently in diverse teams in classroom as well as field based situations.
7. **Trained professional-** Ability to deal with problems related with changing climatic scenario as well as hazard and disaster management as a skilled professional.
8. **Expert Field investigator-** Capable of conducting the Field work, the key activity of Geography by collecting proper primary data to understand and resolve the actual problem for the overall development of the area.
9. **Digitally efficient-** Capable of using computers for GIS and GNSS studies as well as developing ability to utilize appropriate numerical and statistical methods related to Geography.
10. **Ethical awareness-** Development of demonstrating ability to think and analyse rationally with modern and scientific outlook and identify ethical issues to avoid unethical practices like falsification, committing plagiarism etc. Developing ability to adopt unbiased objectives and following truthful activities in all geographical spheres.
11. **Lifelong learners-** Capable of self- paced and self- directed learning for personal development as well as to improve skill and knowledge leading to reskilling in all spheres of geography.
12. **National and International perspective-** The graduates should prepare themselves during their most formative years for their appropriate role to contribute towards the national development by reducing

GEOGRAPHY HONOURS/MAJOR (NEP)

regional disparities as well as to highlight our national priorities internationally pertaining to their field of interest and future proficiency.

13. Nature is the Laboratory of Geography- Ability to relate with the nature as well as with the environment appropriately for the essential issue of maintaining nature- human co-existence following the measures of Sustainable development oriented towards nurturing the balance of ecology and biosphere.

14. Maintenance of sustainability- Ability to apply the measures of sustainability in all spheres of life with genuine dedication.

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PROGRAM LEARNING OUTCOMES (POs) IN B.SC. (HONOURS) GEOGRAPHY (NEP)

The graduate students with the Degree of B.Sc. (Honours) in Geography should be able to:-

1. Acquire a fundamental / structured or cogent understanding of the academic field of Geography, its various learning fields and applications in basic Geography like Geotectonics, Climatology, Pedology, Regional Geography, Human Geography, Bio- Geography, Economic Geography, Environmental Geography, Cartography etc. and its linkages with related disciplinary areas / subjects like Geology, Mathematics, Physics, Chemistry, Life Sciences, Environmental Sciences, Information Technology etc.
2. Gather procedural knowledge which creates various types of professionals related to the disciplinary field of Geography, including professionals engaged in research and development, teaching and government / public services.
3. Obtain skills in fields related to one's specialization area within the disciplinary / subject territory of Geography and most recent as well as emerging developments in the ever changing field of Geography.
4. Demonstrate the coherent and systematic knowledge in the discipline of geography to deal with current issues, hazard and disaster problems and their solution.
5. Display an ability to read and understand maps and topographic sheets to look at the various aspects on the space.
6. Cultivate ability to evaluate critically the wider chain of network of spatial aspects from global to local level on various time scales as well.
7. Recognize the skill development in Geographical studies programme as part of career avenues in various fields like teaching, research and administration.
8. Understand the relevance of geographical knowledge to everyday life focussing changing climatic scenario as well as ecosystem structure and potential.
9. Get the ability to communicate geographic information utilizing both lecture and practical exercises.
10. Inculcate the ability to evaluate geographical problems effectively.
11. Exhibit the skill in using geographical research tools including spatial statistics, cartography, remote sensing, GIS, IRNSS and GIScience.
12. Identify and explain the physical and cultural characteristics globally and processes at varied spatio-temporal contexts.
13. Understand human-environment and nature-society interactions as well as various global environmental challenges.
14. Analyse geographic information by using geo-spatial technologies.
15. Respond towards the global and national challenges and initiatives.
16. Based on the field knowledge and advanced technologies, the students should be able to understand the on-going geographical problems in different regions and levels with appropriate pragmatic solutions.

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CORE COURSE FOR B.Sc. GEOGRAPHY (HONS.)/MAJOR -NEP

Sl No	POs	GEOG – H-CC1	GEOG- H-CC 2
1	Basic concept	x	x
2	Understanding Landscape	x	x
3	Understanding climate focussing man- environment relationship	x	x
4	Understading Ecosystem Structure and Potential	-	x
5	Human Perception and Behaviour	-	x
6	Identification of critical problems and issues	x	x
7	Field based knowledge	x	x
8	Spatial tools and Techniques	x	x
9	Statistical Techniques	-	x
10	Mathematical techniques	x	x
11	Applied Dimensions	x	x
12	Case Study based Analysis	x	x
13	Public Policy and Management	x	-
14	Communication Skills	x	x

GEOGRAPHY HONOURS/MAJOR (NEP)

Skill Enhancement Course (SEC) and Interdisciplinary Course (IDC) for B.Sc. Geography (Hons.)/MAJOR - NEP

Sl No	POs	GEOG-H-SEC 01	GEO-H-IDC 01-1
1	Basic concept	X	X
2	Understanding Landscape	X	-
3	Understanding climate focussing man-environment relationship	X	-
4	Understanding Ecosystem Structure and Potential	X	-
5	Human Perception and Behaviour	X	-
6	Identification of critical problems and issues	X	X
7	Field based knowledge	X	-
8	Spatial tools and Techniques	X	X
9	Statistical Techniques	X	X
10	Mathematical techniques	X	X
11	Applied Dimensions	X	X
12	Case Study based Analysis	X	-
13	Public Policy and Management	X	-
14	Communication Skills	X	X

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Course Learning Outcomes (CLO)

Core Courses (CC)- (NEP)

CC 1: PHYSICAL GEOGRAPHY

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (COs):

The students will acquire knowledge about-

- Cartography focussing concept and applications of different types of scales and projections along with components and classification of maps.
- Geotectonics mainly the internal structure of the earth in relation with seismic waves.
- Geomorphic processes and resultant landforms like weathering and various agents of erosion along with some other denudation processes and landforms produced by fluvial processes.
- Nature, composition and layering of the atmosphere with special reference to circulation in the atmosphere.
- Accumulate clear concept about factors of soil formation along with evolution of an ideal soil profile.
- Biogeography by gathering knowledge about plant adaptation and distribution according to water availability.
- True concept of nature and classification of hazards and disasters in Indian context.
- In the Laboratory course students learn first-hand-
 - i) Graphical construction of different types of scales,
 - ii) Delineation of drainage basins on Survey of India 1:50,000 topographical map to determine stream Ordering and Bifurcation ratio.
 - iii) Identification of drainage and channel patterns from Survey of India 1:50,000 topographical maps.
 - iv) Construction and interpretation of Wind rose diagram.

GEOGRAPHY HONOURS/MAJOR (NEP)

Course Learning Outcomes (CLO)

Core Courses (CC)- (NEP)

CC2 : HUMAN GEOGRAPHY

(Credits: 04; Theory-03, Practical: 01)

Course Learning Outcome (COs):

The students will acquire knowledge about-

- Nature, scope, recent trends and elements of Human Geography in special reference to different schools of thought.
- Evolution of human society in temporal sense and spatially, human adaptation to their environment with a journey focussing post- industrial urban societies.
- Population Geography with special reference to the concept of Demographic transition and demographic dividend as well as distribution, density and growth of population in India.
- Characteristics of Urban and Rural settlements with special reference to site, situation, types and patterns of rural settlement as well as morphology and hierarchy of urban settlement after Census of India.
- In the Laboratory course students learn first-hand-
 - i) Measurement of Arithmetic growth rate of population comparing two decadal datasets.
 - ii) Representation and interpretation of population density by Choropleth Method.
 - iii) Identification of types of settlements from Survey of India 1:50,000 topographical map.
 - iv) Construction of Proportional Squares to have a clear concept regarding distribution of households.

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Course Learning Outcomes (CLO)

Skill Enhancement Course (SEC)- (NEP)

GEOG- H-SEC 01-TH

METHODS IN GEOGRAPHY

(Credits: 04)

Course Learning Outcome (COs):

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

- Design primary survey with clear concept about sampling types and strategy on diverse research problems, prepare questionnaire and interview schedule as well as gain proper knowledge about pilot survey and its relevance.
- Data compilation into master table with special regard to computer assisted field data entry as well as data tabulation into frequency distribution tables coupled with cognizance about statistical analysis of data focussing measures of central tendency and dispersion.
- Use minor survey instruments like Brunton Compass, Distometer and Smartphone levelling applications with accurate skill and will also be able to analyse the texture of grains by using sieves following proper process.
- Collect skill to prepare maps and extract flooded areas from satellite images and digital elevation models.
- Secure comprehensible knowledge with special reference to methods of preparing maps about areal and linear extents of riverbank and coastline shift from Survey of India 1:50,000 topographical map.
- Accumulate sufficient knowledge regarding important methods in Human Geography like,
 - i) Dominant and Distinctive functions to analyse functional structure,
 - ii) Ternary diagram to understand occupational patterns,
 - iii) Preparation of Accessibility map to study the attainability scenario,
 - iv) Preparation of Flowcharts to define transportation situation as related with accessibility status.

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Course Learning Outcomes (CLO)

Interdisciplinary Course (IDC)- (NEP)

GEO-H-IDC-01-

GEOMATICS AND SPATIAL ANALYSIS

(Credits: 03; Theory-02, Practical: 1)

Course Learning Outcome (COs):

This course will enable the student to:-

- Understand the basic concepts of Cartography, Surveying, Remote Sensing (RS), Geographical Information System (GIS) and Global Navigation Satellite System (GNSS) with their diverse applications in geographical studies.
- Study the definition, concept, components, classification and application of Scales, Maps, and Projections with special emphasis on properties and uses of simple conical projection and Universal Transverse Mercator (UTM).
- Learn about the different types of Bearing and the concept of geoid and spheroid with special reference to WGS-84.
- Procure the basic concepts of three survey instruments, their features and uses: Dumpy level, Theodolite and lastly, Total Station which is the most updated survey instrument.
- Obtain fundamental concept about Global Navigation Satellite System (GNSS).
- Discuss about the definition and principles of Remote Sensing which includes mainly the satellites and sensors with special reference to space missions undertaken by Indian Space Research Organization (ISRO) and National Aeronautics and Space Administration in U.S.A (Landsat missions).

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- Develop the skill to understand and interpret the standard false colour composition of satellite images (FCC).
- Acquire basic knowledge about the principles and significance of supervised image classification.
- Differentiate between various GIS data structures like spatial and non-spatial, raster and vector with emphasis on metadata.
- Achieve true knowledge about the basic principles of preparing an attribute table, data manipulation, query operation and overlay analysis in GIS.

- In laboratory course they can apply specific techniques of cartograms like:-
 - i) Construction of simple conical projection with one standard parallel,
 - ii) Traverse survey and plotting UTM coordinates using selected smartphone GNSS application,
 - iii) Identification of land use / land cover features from satellite imagery and preparation of inventories,
 - iv) Detection of change (in area & perimeter) of riverbank or coastline shift from multi-dated maps and images.