



# Course Outcomes of 3-Year B.A./B.Sc. in Geography

**DEPARTMENT OF GEOGRAPHY**

**Aliah University**

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# **Combined Course Outcome of UG Courses (CBCS)**

## **Core Course - I GEOUGCC01: Geotectonics and Geomorphology Credits)**

### **Course Aims at:**

Develop a basic understanding how landforms originate, develop and changes with time. The theoretical knowledge backed by the hands on training in the field and laboratory will help the students better comprehending the geomorphic system behavior.

### **Intended Learning Outcomes of Course:**

After completing this course the students will be able to:

1. Understand the geological evolution of the earth and earth movements – diastrophic and catastrophic
2. Comprehend the basic theories on isostatic adjustment of the earth.
3. Develop a overview of the plate movements and their imprints
4. Grasp the fundamental concepts in geomorphology, basic geomorphic processes such as weathering, mass-wasting and erosion
5. Differentiate the cyclic and non-cyclic concepts on the landscape evolution and development.
6. Identify the selective samples of rocks and minerals by megascopic and microscopic methods
7. Identify and draw the simple geological structures on uncial, fold and fault and their landform expression
8. Extract and portray the basic aspects of relief and drainage characteristics from survey of India topographical maps (1:50000)

### **Career prospects:**

Completing this course, the skills developed among the students will help them find some opportunities both in the private and govt. sectors including the positions of geomorphologist, landscape planner, environmental monitoring analyst, petrologist, and minarologist.

## **Core Course - II GEOUGCC02: Cartographic Techniques (6 Credits)**

### **Course Aims at:**

The course content is designed such a way that it will develop and demonstrating a baseline level of academic and professional skills including, but certainly not restricted to; academic reading, writing, oral communication, group work, peer assessment, research integrity and personal reflection.

### **Intended Learning Outcomes of Course:**

By the time students complete this course they will be able to:

Will learn fundamental concepts of cartography i.e. the technique of map making.

Learn to create base map along with integration, transformation and also enlargement and reduction of map.

Learn map science and art behind making maps.

Will learn many aspects of map design and map production. .

Make policy makers better equipped with spatial information of location, availability and accessibility resources.

Select and correctly reference literature to equip them for project reports etc.

Make them employable for the contemporary job markets.

Develop to handle projects of their own from designing to implementation.

### **Career prospects:**

Good career opportunities exist in both the private and public sectors particularly after the introduction of digital cartography coupled with GIS skills. Positions include cartographer with map publishing company, government agency, or private service agency, ranging from support in large corporations (banking, insurance, retail), environmental consultancies, local authorities, utility companies; mapping specialist with software house or geoinformation data provider. In the govt departments and public sector undertakings there are ample opportunities for the cartographers, particularly in Census of India, Department of Surface Transport, Railway, Navigation and Aviation, Irrigation, Mining, Planning and Development, Agriculture, Forestry and wildlife some of the departments where job opportunities are there for cartographers.

## **Core Course – III GEOUGCC03: Human Geography (6 credits)**

### **Course Aims at:**

The aims and objective of this course is to introduce the major themes of human geography and its importance in present days with theoretical and practical approaches. The students will also learn about population growth and factors responsible for uneven distribution of population in the world. The students will also learn about race, religion, caste, languages in world perspectives. The student will also gain knowledge about the population resource relationship and various types of settlement pattern.

### **Intended Learning Outcomes of Course:**

On completion of the course, students are able to:

1. Explain the nature, scope and recent trends of Human Geography along with different approaches to study human geography.
2. Understand the resource, landscape and environment, and their interrelationship.
3. Study the concept and classification of human race and ethnicity, caste and tribe.
4. Understand the cultural regions, languages and religions in world perspectives, society and cultural processes.
5. Study the concept and indicators of human development and sustainable development.
6. Study the growth and distribution of population and population composition.
7. Acquire the knowledge of Demographic Transition Theory (DTM).
8. Understand the population-resource relationship by Ackerman.

9. Study the site and situation; Types and patterns of rural settlements, Morphology and segregation of rural settlements with reference to Indian.
10. Understand the origin and growth of urban settlements; Classification of urban settlements, issues and challenges Third World Urbanization.
11. Measure the growth rate of population by Arithmetic and Geometric methods.
12. Prepare the adequate maps and various graphs to represent the population data.
13. Understand and measures of HDI, GDI, GEM and HPI and their inferences.
14. Apply and understand the data analysis techniques for rural and urban settlement.

### **Career Prospects:**

This course will develop the ability of the students to assess the issues and challenges of population and environment at national and local level. It also help the students in various competitive examinations where lots of questions come from this course. It also help the students for teaching and other positions at national and international level. Moreover, it also help the students to get job in NGO /aid agency as community development officer, public relations executive, social researcher, research and development manager

### **Core Course - IV GEOUGCC04: Cartograms, Thematic Mapping and Surveying (6 Credits)**

#### **Course Aims at:**

A course on Cartograms, Thematic Mapping and Surveying is designed to develop and demonstrating a baseline level of academic and professional skills including, but certainly not restricted to; academic reading, writing, oral communication, group work, peer assessment, research integrity and personal reflection.

Intended Learning Outcomes of Course:

By the time students complete this course they will be able to:

Use different instruments to collect base level data for cartographic map production.

Learn map science and art behind making maps.

Will learn to design and produce thematic maps.

Make visualize space and place for users.

Make policy makers better equipped with location, availability and accessibility resources.

Work in a collaborative setting with experience of work in the field.

Select and correctly reference literature to equip them for writing research reports.

Make them employable for the contemporary job markets.

Develop to handle projects of their own from designing to implementation.

#### **Career prospects:**

Good career opportunities exist in both the private and public sectors particularly after the introduction of digital cartography coupled with GIS skills. Positions include cartographer with map publishing company, government agency, or private service agency; GIS specialist, ranging from support in large corporations (banking, insurance, retail), environmental consultancies, local authorities, utility companies; mapping specialist with software house or geoinformation

data provider. In the govt departments and public sector undertakings there are ample opportunities for the cartographers, particularly in Census of India, Department of Surface Transport, Railway, Navigation and Aviation, Irrigation, Mining, Planning and Development, Agriculture, Forestry and wildlife some of the departments where job opportunities are there for cartographers. Great opportunities also exist in the transportation, logistics, online marketing and land and land revenue department.

### **Core Course - V GEOUGCC05: Climatology (6 Credits)**

#### **Course Aims at**

Enhancing a baseline level of academic and professional skills. The proposed curriculum endeavours to empower the students and help them in their pursuit for achieving theoretical and practical excellence.

#### **Intended Learning Outcomes of Course**

After the completion of the course students will be able to:

Understand the concept of climatology and meteorology.

Know the composition and structure of atmosphere.

Learn the forces and laws of air motion.

Understand the process of insolation, temperature distribution, inversion of temperature and heat budget of the atmosphere.

Know the basic concept of air mass and stability-instability of weather.

Comprehend the process of condensation and mechanism of atmospheric circulation.

Learn different climatic classifications and causes and consequences of climate change.

Develop hands on training on measurement of weather elements using instruments.

Interpret Daily Weather Maps Hythergraph, Climograph (G. Taylor)

#### **Career prospects**

There is ample opportunity in governmental weather forecasting organizations through competition test carried out by SSC, UPSC or PSC. Beside that a good career opportunities exist in both the private and public sectors in the department of Meteorology, Agricultural Planning Divisions, Air Crafts and Missile Manufacturers, Weather Consulting Organisations, Navy, Air Force, Surface Transport, Railway, Mining, Planning and Development.

### **Core Course - VI GEOUGCC06: Soil and Biogeography (6 Credits)**

#### **Course Aims at**

Enhancing a baseline level of academic and professional skills. The proposed curriculum endeavours to empower the students and help them in their pursuit for achieving theoretical and practical excellence.

#### **Intended Learning Outcomes of Course**

After the completion of the course students will be able to:

Understand conceptual framework of soil and bio geography.

Know properties, classification and factors of soil.

Learn causes consequences of soil degradation.

Understand structure and organization of ecosystem along with Ecological Pyramids, laws of Thermodynamics and ecological succession.

Learn different types of bio-geochemical cycles and their significances.

Understand concept, threat and conservation of Biodiversity with special reference to India and learn major biomes of the world.

Analyse soil texture with 'Feel' method and laboratory Particle size analysis.

Develop hands on training of determining Soil N, P, K, pH, OM with soil testing kits.

Measure biomass and biodiversity of a place.

### **Career prospects**

There is high demand for a wide range of professional positions with government and private sectors. A good career opportunities exist as wetland specialist, watershed technician, environmental technician, soil and water quality specialist, soil conservationist, agricultural agent farming, crop consultant, soil scientist, mapping and interpretation, conservation planner, teacher etc.

### **Core Course – VII GEOUGCC07: Statistical Methods in Geography (6 Credits)**

#### **Course Aims at:**

The aims of the course i.e. 'Statistical Methods in Geography' is to understand the theory and practice of collecting, analysing and presenting data that has a geographic or areal dimension, such as census or demographics data to the students. Students will also use techniques for spatial analysis, methods of sampling, probability and interpretation of data.

#### **Intended Learning Outcomes of Course:**

On completion of the course, students are able to:

1. Learn the significance of statistics in geography.
2. Understand the classification, importance and use of data in geography.
3. Study the frequency distribution table and its graphical representation.
4. Understand the concept of sampling and designing and conducting a sample survey for data collation and data analysis.
5. Clear the facts about the probability, types of probability and applications and uses in different field of geography.
6. Measure of central tendencies and dispersion.
7. Understand the Product Movement Correlation, Rank Correlation and regression analysis and their application in various fields of Geography.
8. Study the time series analysis and its application in geographical study.

#### **Career Prospects:**

This course will equip the students with the ability to critically assess the numerical information/data mainly related to population and socio-economic issues, including population growth, public health, migration, ageing population, dependency ratio, quality of life and other

such concerns. It also help the students in various competitive examinations where lots of questions come from this course. Moreover, it also help the students to get job statistical analyst, data collector/technician, database administrator and teacher.

### **Core Course - VIII GEOUGCC08: Regional Geography of India (6 Credits)**

#### **Course Aims at**

Enhancing a baseline level of academic and professional skills. The proposed curriculum endeavours to empower the students and help them in their pursuit for achieving theoretical and practical excellence.

#### **Intended Learning Outcomes of Course**

After the completion of the course students will be able to:

Acquire knowledge of physiographic setup and regional disparity of India including climate, soil, and vegetation.

Learn some regional accounts like Vale of Kashmir, Deccan Trap and Tarai-Duars region.

Understand social base of India including population growth, population distribution and structure also know distribution of race, language and tribes of India.

Know resource base of India including conventional, non-conventional and alternative source of energy.

Acquire knowledge of characteristics of Indian agriculture and problems and prospects of Indian industries.

Develop hands on training on preparation of monthly temperature and rainfall graphs of different physiographic regions of India and learn about Ombrothermic diagram

Learn Agriculture Regionalization through crop combination after Weaver, Crop Diversification after Herfindahl.

Measure levels of development with Weighted Composite Index.

#### **Career prospects**

There is opportunity in governmental organizations through competition test carried out by SSC, UPSC or PSC. Beside that a good career opportunities exist to be Academicians. There are also scope of policy related jobs, developmental jobs and many more.

### **Core Course – IX GEOUGCC09: Economic Geography (6 Credits)**

#### **Course Aims at:**

The aims of this course is to introduce the major subject matters of economic geography with theoretical and practical approaches to the students. The students will also learn about concept of resources, goods and services, economic distance and transport costs. Students will also understand the concept and classification of economic activity, factors affecting location of economic activity and location models of industries. They will also know the agriculture system and transport and trade system as case studies and their practical applicability.

### **Intended Learning Outcomes of Course:**

On completion of the course, students are able to:

1. Study the nature and scope economic geography along with different approaches to the study economic geography.
2. Understand the concept of resources, goods and services, production, exchange and consumption.
3. Make out the concept of economic man, theories of choices, economic distance and transport costs.
4. Know the technological changes and their geographical impacts on the society.
5. Study the concept and classification of economic activities.
6. Explain the locational models in economic geography namely Von Thünen, Weber and Losch and their present day applicability.
7. Explain the agricultural systems with case studies of tea plantation in India and mixed farming in Europe.
8. Study the Trans-Asian highways; International agreements and trade blocs i.e. GATT and OPEC.
9. Measure and illustration of inequality of economic data with the help of Lorenz curve and Gini Coefficient and Location Quotient
10. Understand the spatial variation in occupational structure by proportional divided circles and calculation of bid-rent after Von Thunen.
11. Understand the application of transport network analysis by detour index and shortest path analysis.

### **Career Prospects:**

This course will equip the students with the ability to assess research designs and results and policy implications on different issues related to resource and economic disparity at national and local level. It also help the students in various competitive examinations where lots of questions come from this course. It also help the students for teaching and other positions at national and international level.

### **Core Course – X GEOUGCC10: Remote Sensing and GIS (6 Credits)**

**Course Aims at:** To understands the basic concepts, principal, and operational skills of remote sensing and GIS techniques. To learn about the conception of resolution, EMR, Satellite sensors and various data sources of remote sensing. To study the Digital Elevation Data, remote sensing data manipulation, analysis, and explanatory output. To study the principle of photogrammetry and covers the component, types, structure and format of GIS data, data input and transformation. To learn the practical image enhancement, image classification, Geo-referencing, digitization, making different maps and diagrams based on data in attribute table. It provides tools to visualize, query, and overlay the databases which are technically not possible through spreadsheets.

**Intended Learning Outcomes of Course:** At the end of the Remote Sensing & GIS course students will be..... able to learn a basic understanding of concepts, science, and theory, behind remote sensing and GIS, including visualization of organization, management, and geospatial data.



able to learn Digital image classification, correction, processing, GIS data base, Image enhancement, interpretation, and photogrammetric knowledge.

able to familiar with ground, air, and satellite based sensor platforms.

able to plot, map and interpret Earth science data and present the results in a designed and concise way; able to gain experience in the applications of remote sensing and GIS for solving problems in the physical and social science studies.

The course is strongly computer-based, and students will be gain experience in the use of Erdas (remote sensing), ArcGIS (GIS) and MapInfo software.

**Career prospects:** Remote sensing is used by private companies that sell imagery and data to Google, Bing, the federal government, scientists, academic and research libraries, and others. Specialists may also find employment in consulting firms, software development firms, and scientific laboratories. Some specialists become professors or research workers in academia. *In the government sector*, they may be involved in All India Soil and Land Use Survey, Atomic Minerals Division, Geological Survey of India, National Soil Survey Bureau and Land Use Planning in Town and Country Planning, various Remote sensing laboratories of universities are engaged in GIS and its application studies. *Among public sector organizations*, they can Forest Survey of India, Geological Survey of India, Survey of India, Department of Agriculture and Irrigation Department, Meteorological Department, Mining, Urban Development Authority and Municipality, Watershed and Wetland Management, although some specialist diploma or degree courses are required in these areas. However these sectors have requires different qualification in Remote Sensing and GIS.

### **Core Course – XI GEOUGCC11: Regional Planning and Development (6 Credits)**

#### **Course Aims at:**

Provide students with opportunities for cooperative and intern placements to complement academic training and facilitate student entry into the practice. It also aims to maintain relationship with planning professionals and educators. The course develops a learning outcomes driven approach to curriculum development and student attainment. This will allow students to meet the needs of professional planning practice.

#### **Intended Learning Outcomes of Course:**

By the time students complete this course they will be able to:

9. Acquire knowledge in the principles and practice of learning, including regional spatial structure and economic development.
10. Enable students with skills necessary for the effective practice of planning, including its purpose and meaning, methods that envision future change, elements of plans, plan preparation and implementation.
11. Make students able for policy formulation that almost society need.
12. Develop values and ethical standards among students necessary to affect the practice of planning, including the values of justice, equity, fairness, efficiency, order and beauty.

### **Career prospects:**

There is growing need for those with degree in geography and regional planning in public and private sectors. Regional planners develop land use plans and programmes to reorganize land use in most scientific way to accommodate population growth and revitalizing physical facilities. A very good career prospects exist in both public and private sectors. Job opportunities as planner exist at all administrative level in urban and rural government. Positions include land use planner, community development specialist, transportation planner, technical specialist, Geographical information system specialist or analyst etc.

### **Core Course – XII GEOUGCC12: Research Methodology and Field Work (6 Credits)**

**Course Aims at:** Research Methodology and field work generally focuses on providing research skills to the beginners which in turn helps in improving the quality of research. To study about the research methodology, aims, research gap, hypothesis, and literature of review. To teach to design sampling, data manipulation, process, techniques, coding, decoding of data and reporting of research. Understand the meaning, principles, objectives and importance of field study in Geography. To learn also field investigation for social and physical environment, to select study area including observation, preparing questionnaire, taking interview of respondents using respective instruments based on field study on ground. It introduced to prepare the field report through collected data from primary and secondary sources on social and physical study to follow the generated research design.

**Intended Learning Outcomes of Course:** At the end of the Research Methodology and Field Work course students will be.....

able to learn a basic understanding of concepts and principles of research methodology, objectives, research gap, hypothesis, and literature of review.

able to know the to design to research, sampling, data manipulation, process and techniques of research.

able to learn to prepare questionnaire and taking interviews of respondents on ground.

Able to learn different instruments on ground and making different maps using GIS software

Able to learn to complete research report or dissertation on field based through collected data on social and physical study to follow the generated research design.

**Career prospects:** After completion of this program, candidates can opt for jobs in various fields of private as well as in government sector while varies the qualification requirement in college and universities, NGOs, govt. institutions, international organizations such as to be teacher/ lecturer, surveyor, researcher, social worker, scientist etc. they may be join as Market Research Analyst (Marketing), Operations Research Analyst, Economic Research analyst in Insurance companies, Banks, Governments, Health Care providers, Marketing agencies, Manufacturing companies and census offices.

### **Core Course – XIII GEOUGCC13: Evolution of Geographical Thought (6 Credits)**

#### **Course Aims:**

This course introduces the journey of ‘Geography’ for recognising itself as a separate discipline.

### **Intended Learning Outcomes of Course:**

By the time students complete this course they will be able to:

1. Assess the nature and trend in ancient, medieval, modern and post-modern periods in the field of geography and acquire knowledge about the future prospects of Geography as a discourse
2. Develop an idea about the relation with other disciplines
3. Develop a concept on philosophical and methodological issues in the development of the discipline of geography
4. Make differentiate between location, space and place.
5. Understand the process of paradigm shift in the approaches to study geography

### **Career prospects:**

The paper is useful for students in understanding perspectives on the development and contemporary trends in geography and its systematic study. The utility of this paper is reflected in UGC NET/SET exams and other competitive exams including the civil services where a noteworthy number of questions come from the Geographical Thought paper.

### **Core Course – XIV GEOUGCC14: Disaster Management (6 Credits)**

**Course Aims at:** To understand the concepts and classification of hazards and disasters. To know the approaches of hazards study including risk perception and vulnerability assessment. It teaches to respond to hazards and data, techniques and mapping of it. It also introduces about Geomorphic, atmospheric, hydrological hazards study and human induced disaster. It includes the field based study on flood, landslides, earthquake and human induced disaster through collected data from primary and secondary sources by students to prepare project report.

**Intended Learning Outcomes of Course:** At the end of the Disaster Management course students will be.....

able to learn a basic understanding the basic conception, classification and different parameters of hazards and disasters.

able to gain knowledge about approaches and acquire knowledge about human induced disaster.

to learn to develop an idea about factors, consequences and management of earth quakes, landslide, flood and river bank erosion.

able to familiar how to gather field based data of flood, landslides, earthquake and human induced disaster.

able to generate the plot or thematic mapping of hazards or disaster phenomena.

**Career prospects:** There are good employment opportunities the government as well as in private organizations offered in the disaster management departments of government agencies such as: Fire departments, drought management departments, relief agencies etc and Insurance companies. Jobs can also be available in the public sector. Various opportunities are also offered in the fields of teaching, research, consultancy, documentation, training organizer. One can serve as social workers, medical health experts, environmental experts, rehabilitation

workers, etc. NGOs and International organizations such as World Bank, Asian Development Bank (ADB), United Nations Organisations (UNO), Red Cross, UNESCO offer various opportunities for professionally trained disaster management professionals. Here are some organizations that offer jobs in the disaster management: National Institute of Disaster Management (NIDM), Ministry of Home Affairs, Govt. of India, New Delhi SAARC Disaster Management Centre, NIDM Building, New Delhi National Disaster Management Authority, Indraprastha Estate, Ring Road, New Delhi India Meteorological Department, Ranchi G.B.Pant Institute of Himalayan Environment and Development, Nainital, Uttarakhand Disaster Management Centre, Bhopal Disaster Mitigation Institute, Ahmedabad Centre for Disaster Management etc.

### **Generic Elective – I GEOUGGE02: Physical Geography (6 Credits)**

#### **Course Aims at:**

Develop a basic understanding about the earth and its evolution. The different processes regarding landforms origin and evolution. An overview of the freshwater system and saline water system is also present. Besides, the theoretical knowledge coupled with corresponding practical application also help for a better understanding.

#### **Intended Learning Outcomes of Course:**

After completing this course the students will be able to:

1. Understand the interior of earth with the help of seismology.
2. Comprehend the plate tectonics as a unified theory of global tectonics.
3. Develop an overview of the degradational process and its resultant landforms.
4. Grasp the classification and sustainable utilization of ocean resources.
5. Understand the mechanism of Global hydrological cycle and its components.
6. Comprehend different processes of rain water harvesting.
7. Identify different Rocks and Minerals based on megascopic observations.
8. Interpret Geological maps with special reference to uniclinal and simple folded structure.

#### **Career prospects:**

Completing this course, the skills developed among the students will help them find some opportunities both in the private and govt. sectors including the positions of physical geographer, landscape planner provided that they undertake an advanced level of learning in physical geography.

### **Generic Elective – II GEOUGGE02: Human Geography (6 Credits)**

#### **Course Aims at:**

The aim of this course is to understand the major themes of human geography and its importance in present days to the general students. The students will also learn about population growth and factors responsible for uneven distribution of population in the world. The students will also learn about the distribution of race, religion, caste, languages and gender in world perspectives. The student will also expand knowledge about the population resource relationship.

**Intended Learning Outcomes of Course:**

On completion of the course, students are able to:

1. Explain the nature and scope of Human Geography.
2. Study of growth and distribution of population in world perspective.
3. Understand the concept and indicators of socio-economic development.
4. Know the population-resource relationship after Ackerman.
5. Study the concept of society, social groups and social processes.
6. Understand the concept and spatial distribution of caste, religion, race and gender.
7. Understand the cultural regions, cultural realms, cultural landscape, cultural hearth and cultural diffusion.
8. Measure the growth rate of population.
9. Apply and identify the cultural elements from toposheet (1:50,000)
10. Understand and measures of HDI and GDI and their inferences.

**Career Prospects:**

This course will develop the ability of the students to assess the issues and challenges of population and environment at national and local level. It also helps the students in various competitive examinations where lots of questions come from this course. It also help the students for teaching and other positions at national level.

**Generic Elective – III GEOUGGE03: Economic Geography (6 Credits)****Course Aims at:**

The aims of this course is to introduce the major themes of economic geography with theoretical and practical approaches to the students. The students will also learn about concept, types and conservation of resources, sectors of economy and location of economic activities. They will also know the types of agriculture and agricultural region of the world in details. Students will also learn about the industrial regions of the world and mode of transport and their characteristics as well as international trade.

**Intended Learning Outcomes of Course:**

On completion of the course, students are able to:

1. Understand the concept, types and conservation of resources.
2. Study the sectors of the economy i.e. Primary and world economic order and their characteristics.
3. Explain the locational models in economic geography namely Von Thünen, Weber and Losch and their present day applicability.
4. Know the types of agriculture and agricultural regions of the world.
5. Discuss the industrial regions of the world and cotton, iron and steel, and IT industries with special reference to India.
6. Study the models of transport and it characteristics.

7. Understand the international agreements and trade blocs.
8. Determine and represent the spatial variation in occupational structure by proportional divided circles.
9. Measure and interpret the inequality of economic data with the help of Location Quotient
10. Measure and analyse the connectivity and accessibility with the help of Alpha, Beta, Gamma and Detour index

### **Career Prospects:**

This course will prepare the students with the ability to assess the problem related to resources and economic development at regional and national level and will also provide research designs and policy implications on different issues of resource and economic condition.

### **Generic Elective - IV GEOUGGE04: Cartography (6 Credits)**

#### **Course Aims at:**

The course content is designed such a way that it will develop and demonstrating a baseline level of academic and professional skills including, but certainly not restricted to; academic reading, writing, oral communication, group work, peer assessment, research integrity and personal reflection.

#### **Intended Learning Outcomes of Course:**

By the time students complete this course they will be able to:

Will learn fundamental concepts of cartography i.e. the technique of map making.

Learn to create base map along with integration, transformation and also enlargement and reduction of map.

Learn map science and art behind making maps and integration of spatial data with point, line and area data.

Will learn many aspects of map design and map production. .

Will learn to prepare different cartogram to be integrated with the map to make more visually appealing and useful.

Select and correctly reference literature to equip them for project reports etc.

Make them employable for the contemporary job markets.

Develop to handle projects of their own from designing to implementation.

#### **Career prospects:**

Career opportunities exist in both the private and public sectors particularly after the introduction of digital cartography coupled with GIS skills. Positions include cartographer with map publishing company, government agencies, or private service agency, ranging from support in large corporations (banking, insurance, retail), environmental consultancies, local authorities, utility companies; mapping specialist with software house or geoinformation data provider. In the govt departments and public sector undertakings there are ample opportunities for the cartographers, particularly in Census of India, Department of Surface Transport, Railway, Navigation and Aviation, Irrigation, Mining, Planning and Development, Agriculture, Forestry and wildlife some of the departments where job opportunities are there for cartographers.

Transport service providers such as OLA and UBER etc., logistic companies and online marketing agencies require great skill of cartographer to enhance business.

### **Discipline Specific Elective – I GEOUGDS01: Urban Geography (6 Credits)**

#### **Course Aims at:**

It aims to study the site, situation, size and character of a city of agglomeration, population, urban space, urbanization, theories of urbanization and its relation to industrialization. The study of urban places is central to many social sciences, including geography, because of their importance not only in the distribution of population within countries but also in the organization of economic production, distribution, and exchange in the structuring/restructuring social tenet and cultural life and in the exercise of political power.

#### **Intended Learning Outcomes of Course:**

By the time students complete this course they will be able to:

1. Acquire knowledge of, understand, and critique key paradigms and approaches in urban geography (industrial location, urban form, urban growth, urbanization etc.)
2. Able students to link these topics and approaches to specific cases.
3. Develop skills in the critical analysis of existing theories, urbanization, and urban problems.
4. Apply the knowledge in an analysis of urban social or public policy.
5. Develop new visions among the students on the relevance of an urban space, environment, economy and geography and related problems in a rapidly urbanizing world.

#### **Career prospects:**

The course provides students with an excellent training for a career in research, policy making, consultancy, and project development. The knowledge and skills acquired through the study of urban geography makes the students successful in career in a wide range of public and private organizations including government offices, private consultancies, research agencies, municipalities and municipal corporations.

### **Discipline Specific Elective – II GEOUGDS02: Agriculture Geography (6 Credits)**

**Course Aims at:** To introduce concept, scope, theories, development, models, and classification of agriculture. To understand the physical, technological, institutional factors effecting to agriculture performance. To provide the status of Agricultural Revolutions, food security, its factors effecting, land use planning and strategies for agriculture development in India. To learn how the crop Calendar, Crop combination, Crop Diversification and Crop Productivity techniques will be applied to find the performance of agriculture practice with latest data.

**Intended Learning Outcomes of Course:** At the end of the Agriculture course students will

Obtain information regarding various agricultural issues and food security status and insecurity in India and remedies.

be able to gain knowledge for demarcating agricultural regions through various models and theories.

Know about various agricultural factors effects on performance and development of agriculture sector in India.

Learn some strategies and land use planning for agricultural development.

Learn also few methods such as Crop Calender, Crop combination, diversification and determination of crop productivity.

**Career prospects:** After pursuing courses in agriculture field, they can apply for jobs in government as well as in private organizations. There are various job opportunities are available for agriculture graduate aspirants. Agriculture field offers job opportunities in horticulture, poultry farming, plant science, soil science, food science, animal science, etc. Some of the other agricultural activities that give attractive returns are horticulture, dairying & poultry farming. After completing the course in agriculture, they can work as a supervisors, distributors, researcher & engineer. They may be joining as Crop specialist, Fertilizer sales representative, Food microbiologist, Food researcher, Soil surveyor and Farm manager

### **Discipline Specific Elective – III GEOUGDS03: Environmental Geography (6 Credits)**

#### **Course Aims at**

Enhancing a baseline level of academic and professional skills. The proposed curriculum endeavours to empower the students and help them in their pursuit for achieving theoretical and practical excellence.

#### **Intended Learning Outcomes of Course**

After the completion of the course students will be able to:

Acquire knowledge of the nature of the subject, environmental geography and learn many key concepts.

Learn components of environment and principles of ecology.

Understand the concept, types, characteristics and function of Ecosystem.

Know dynamics of Ecosystem along with different functions, Ecological Pyramids and Models of Ecosystem.

Understand man and environment relationship that they affect each other from Deterministic and Possibilistic perspective.

Know how plant response to physical environment and animal response to physical environment.

Learn causes, consequences and management of deforestation and different types of pollution i.e. water, air and soil pollution.

Know issues and Concerns for bio diversity.

Prepare of questionnaire for perception survey on environmental problems (Air Pollution and Health Perception Survey).

Develop hands on training on measurement of quality assessment of soil using field kit: pH and NPK.



Make Map of wetlands and forests.

### **Career prospects**

There is high demand for a wide range of professional positions with government and private sectors. A good career opportunities exist as teacher, environmental pollution specialist, environmental technician, conservation planner, wetland specialist, watershed technician, soil and water quality specialist, soil conservationist, agricultural agent farming, crop consultant, soil scientist, mapping and interpretation etc.

### **Discipline Specific Elective – IV GEOUGDS03: Fluvial Geomorphology (6 Credits)**

#### **Course Aims at:**

Develop a basic knowledge about the river system, its forms and processes and its spatio-temporal dynamics. The field orientation of this discourse makes the learners more practical to solve the real world problems.

#### **Intended Learning Outcomes of Course:**

After completing this course the students will be able to:

1. Understand different fluvial forms and processes i.e. entrainment, erosion, transportation and deposition.
2. Perceive the causes of tropical flood and also different measures for flood management.
3. Develop an overview of the drainage basin.
4. Understand how human alters the natural river processes.
5. Identify the different channel and drainage pattern from survey of India topographical maps (1:50000) and also learn to compute sinuosity index and braiding index.
6. Prepare the flood risk map and drainage basin management.
7. Measure the spatio-temporal dynamics river bankline shifting.

#### **Career prospects:**

Completing this course, the skills developed among the students will help them find some opportunities both in the private and govt. sectors including the positions of fluvial geomorphologist, environmental monitoring analyst, stream restoration engineer etc. Besides, the work of river is common in physical geography. Naturally, this paper will benefit the students for various competitive exams such as WBCS, UPSC, NET/SET/GATE etc.

### **Discipline Specific Elective – V GEOUGDS05: Population Geography (6 Credits)**

#### **Concept, Theories and Dynamics of Population, Population growth and, population-development-environment**

#### **What you'll learn to do:**

- Will learn different concepts, theories, population dynamics and the issues related to population and development.

- Understand different measurements to population growth and dynamics of growth of population.
- Understand the concepts of development and displacement, difference between environmental refugee and displaced people, and also an internally displaced person, an asylum-seeker, and a refugee,
- Describe a number of population policies of countries with small and stable population and also fast growing countries.
- Population projection using both linear and exponential and other basic measures of population.

**Career prospects:** Good career opportunities with knowledge and skill of demographic data analysis and interpretation exist in both the private and public sectors growing population is problem and will remain same even in the years to come. Among the government departments and public sector undertakings, there are ample opportunities for job in the Census Organization of India, NSSO, NHFS, Social Backward and Social Development Department etc. There are number of NGOs dealing with population, health, labour and gender related issues where there are scopes of absorption.

### **Discipline Specific Elective – VI GEOUGDS06: Settlement and Transport Geography (6 Credits)**

#### **Course Aims:**

This course is designed to make the students understand the importance of settlement and transport in our daily life. The theoretical concept of settlement and transport and its impact on socio-economic development has been introduced in this course. Students are introduced with various techniques to analyse settlement pattern and also transport network and this course also provide solution to contemporary transport problem.

#### **Intended Learning Outcomes of Course:**

By the time students complete this course they will be able to:

1. Build an idea about urban and rural settlements, and its relationship with environment
2. Differentiate the characteristics between rural and urban settlement
3. Know about classification and hierarchy of urban settlements.
4. Examine the relationship between transport and regional development through different theories.
5. Build up thorough theoretical knowledge about the transport and economic development
6. Develop an idea about new transport strategic planning in India and its relevance on India's development
7. Make them employable for the contemporary job markets.
8. Develop to handle projects of their own from designing to implementation.

#### **Career prospects:**

The paper is valuable in land-use and transport planning, in the design of the transport systems and in addressing environmental problems. This knowledge will help to be

consumed in the job market like Town Planning, Settlement Office and Industries. The utility of this paper is also reflected in UGC NET/SET exams and other competitive exams including the civil services.

**Discipline Specific Elective – VII GEOUGDS07: Hydrology and Oceanography  
(6 Credits)**

**Course Aims at:**

Develops a holistic understanding regarding freshwater (hydrology) and saline water (oceanography). Hands on training in field using some equipments and laboratory analysis help them for better understanding to perceive the hydrological system.

**Intended Learning Outcomes of Course:**

After completing this course the students will be able to:

1. Understand the functions of the global and basin hydrological cycle and its different components.
2. Gain knowledge about different forms and occurrences of fresh water.
3. Comprehend the origin of different sub-marine features in the light of plate tectonics.
4. Understand different physical and chemical properties of sea water.
5. Perceive the interaction between air and ocean and the development of ENSO
6. Prepare beach profile with the help of Auto level and GPS.
7. Measure the coastline shifting with the help of GIS software.

**Career prospects:**

Completing this course, the skills developed among the students will help them find some opportunities both in the private and govt. sectors including the positions of hydrologists, physical oceanographer, marine biologists, hydraulic engineer and different govt. jobs related to environmental protection and ocean resource management etc.

**Discipline Specific Elective – VIII GEOUGDS08: Social and Cultural Geography\_(6  
Credits)**

**Course Aims:**

This course is designed to provide theoretical base regarding existing societal problems and prospects with reference to space. Acquire the knowledge on culture and its elements.

**Intended Learning Outcomes of Course:**

By the time students complete this course they will be able to:

1. Evaluate the social issues such as- racism, cast conflict, social distance.
2. Understand the causes of social inequality and their impact on society.

3. Understand indicators of social well-being and quality of life..
4. Discuss about the social space, social groups and intra-urban mobility.
5. Define the cultural region of the world.
6. learn about rural settlement morphology, urban-industrial landscape
7. Work in a collaborative setting with experience of work in the field to analyse social set-up at micro level.
8. Select and correctly reference literature to equip them for writing research reports.
9. Make them employable for the contemporary job markets.
10. Develop to handle projects of their own from designing to implementation.

### **Career prospects:**

The paper is useful for students to analysis social problems and cultural trends with spatial context. This knowledge will help to be consumed in the job market like Development Officer in NGO or non-profitable organizations, Natural and Cultural Heritage Interpreter in Government Services and Tourism Information Officer in Travel Services. The utility of this paper is also reflected in UGC NET/SET exams and other competitive exams including the civil services.

### **Skill Enhancement Course - I GEOUGSE 01: Remote Sensing and GIS (6 Credits)**

**Course Aims at:** To understands the basic concepts, of map, aerial photo and satellite image. To understands the principals of remote sensing such as types of satellite sensors and image resolution. To study about GIS component, utility and database management. To knows the principles of GNSS positioning, waypoint collection by GPS, and transferring. To learns the calculation of area and length from GNSS data.

**Intended Learning Outcomes of Course:** At the end of the Remote Sensing & GIS course students will be.....

able to learn a basic understanding of concepts and principles of remote sensing and GIS data.

able to familiar with ground, air, and satellite based sensor platforms.

able to learn Geographic Information Systems GIS data types, utility and database management.

Know the GNSS positioning, waypoint collection by GPS, and transferring and calculation of area and length from GNSS data.

able to know the basics concepts of map, aerial photo, and satellite images.

Students will be known to the different software of RS & GIS such as use of Erdas (remote sensing), ArcGIS (GIS) and MapInfo software.

**Career prospects:** they can get job in private as well as in government sector while varies the qualification requirement. Specialists may also find employment in consulting firms, software development firms, and scientific laboratories, where they are expected to improve technologies, software, or technical analysis techniques. Some specialists become professors or research workers in academia. These positions require at least a master's degree, while

tenured faculty has a doctoral degree.

## **Skill Enhancement n1nt Course - II GEOUGSE02: Advanced Spatial Data Analysis \_(6 Credits)**

### **Course Aims at:**

Primary aim of the UG level advanced spatial data analysis is to provide opportunities to understand spatial data, analyse data, explore issues, problem solve and evaluate situations in a geographic and spatial context.

### **Intended Learning Outcomes of Course:**

By the time students complete this course they will be able to:

1. Understand the spatial data and process of its collection.
2. Explore the mapped data.
3. Analyse spatial data to solve some real-life problems of human beings in spatial context.
4. Create map and extract inferences from it.
5. Examine the causal associations between geographical phenomena in spatial context.

### **Career prospects:**

Spatial data scientist know how to access spatial data and they understand how to apply this information. Their job may involve gathering data and presenting it in reports or on maps. They use a combination of computer and mathematical skills to develop applications and programmes that can gather geospatial data. Spatial scientists acquainted with handling the spatial data, developing map and skill of inference them may have positions in public and private sectors.

### **List of Faculty members:**

1. AKM (Dr. Abul Kalam Mohammad Anwaruzzaman)
2. JA (Dr. Md. Julfikar Ali)
3. MM (Dr. Md. Mustaquim)
4. RK (Dr. Rukhsana)
5. AI ( Dr. Aznarul Islam)
6. MK (Dr. Moududa Khatun)
7. NB (Dr. Nasrin Banu)

### **Disclaimer:**

1. Course outcomes are only indicative, not exhaustive.
2. Offering of course by a faculty member is not fixed; it changes with availability of faculty member in the department. Sometimes a course is shared by two or even more faculty members according to the need.