

Programme Outcomes, Programme Specific Outcomes and Course Outcomes for PG Programmes

Programme Name: Two Years M. A/M. Sc. in Geography & Applied Geography
Number of Semesters: Four



समानो मन्त्रः समितिः समानी

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University of North Bengal
Raja Rammohunpur
District: Darjiling
West Bengal – 734013

PROGRAMME NAME: TWO YEARS M. A/M. SC. IN GEOGRAPHY & APPLIED GEOGRAPHY

PROGRAMME OUTCOMES

- Instill confidence and develop a sense of identity in facing the real world.
- Foster cooperation among students enabling them to connect and contribute towards teamwork activities.
- Develop effective communications skills that promote leadership qualities individually as well as within a group.
- Develop critical thinking and skills that train students to analyze problems and validate real life solutions.
- Prepare objective scientific approach so that students can address research problems in Applied Geography and allied fields.
- Strive towards making enlightened citizens with commitment and empathy to social concerns.
- Inculcate a sense of environmental ethics that focus research and concerns on sustainability.
- Inculcate strong moral and ethical values and a sense of discipline among the students.
- Ensure that the lessons are self-directed and lead to lifelong learning.

PROGRAMME SPECIFIC OUTCOMES

- Establish the position of Geography as a subject and its importance and interrelationships that reiterate and validate the Man Environment relationship.
- In the course of field surveys, students acquire a greater understanding of the socio-economic and cultural dimensions of the populations with greater focus on marginalized section of society.
- Physical field surveys enable the students to understand the landforms, geomorphic process and associated hazards.
- Provide training to students in handling modern instruments and methods like Aerial Photographs, Satellite Imagery, Total Station and Meteorological instruments.
- Computer-based techniques (RS & GIS) are incorporated in the syllabus which prepares the students for further analytical studies.
- The students are directed towards problem analysis so that they can design and conduct independent research.
- The comprehensive syllabus promotes and develops a thorough knowledge of concepts, methods and theory.
- The Ability Enhancement Course strives to develop communication powers in the student, both written and oral.
- The Dissertations written by the students prepare them to examine social and environmental issues along with the causes, consequences and remedial measures emerging at local and national levels.
- The syllabus is oriented towards emerging job opportunities and future prospects for the students.
- Assistance is given to students in preparing for various competitive exams like NET, SET, SSC etc.

PROGRAMME NAME: TWO YEARS M.A./M.SC. IN GEOGRAPHY & APPLIED GEOGRAPHY
COURSE OUTCOMES
SEMESTER—I

COURSE CODE	COURSE NAME	COURSE OUTCOMES
GAG-101	GEOMORPHOLOGY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Study landforms and the related processes from the traditional concept to the contemporary development in Geomorphology • Gain in-depth knowledge on the influence of various types of rocks on the development and evolution of the landforms; hydrologic characteristics of an open channel flow that produce erosional and depositional landforms; form-process interaction in the landform development and some modern methods of geomorphic analysis of the landforms through the concept of geomorphic threshold, geochronological methods and extreme events and equilibrium <p>SKILL GAINED:</p> <ul style="list-style-type: none"> • The skill for understanding the landform in a systematic way <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • To cope up with continuous progress in geomorphology
GAG-102	CLIMATOLOGY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Acquire clear concepts of climatology • Greater understanding of the nature and scope of climatology; ocean atmospheric interaction; climate change and its impacts <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Study various methods of data collection, check weather conditions and learn the theoretical basis of meteorological instruments • Acquire techniques of hydro-meteorology and agro-meteorology <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Response to global warming at individual as well as societal levels; responding to issues of climate change and its impacts • Weather interpretation and forecasting with focus on application of hydro-meteorology and agro-meteorology for future research work.

<p style="text-align: center;">GAG-103</p>	<p style="text-align: center;">ECONOMIC GEOGRAPHY</p>	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Acquire knowledge of the fundamental and modern issues in Economic Geography • To gain in-depth knowledge of the concepts and approaches; classification of economic activities and their changing trend; theories of economic development; agricultural geography based on Von Thunen’s model and concepts of crop concentration, diversification, combination; agricultural productivity and efficiency; industrial geography theories; industrial regions and spatial variation in production and transport costs and gain knowledge on transport and marketing geography <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Develop knowledge on geographical aspects of economy; types of economic activities • Conceptualize, demarcate and analyze the geographical determinates of agriculture and manufacturing activities <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Inculcate the knowledge of changing dynamics in the industrial and agricultural sector that will help them in their research studies
<p style="text-align: center;">GAG-104</p>	<p style="text-align: center;">SETTLEMENT GEOGRAPHY</p>	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Acquire clear concepts of rural and urban settlements • Greater understanding of origin and distribution of settlements; its classifications; settlement structure and settlement hierarchy; models and theories explaining morphology of rural and urban centres <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Fosters an ability to think in spatial terms, using geographic principles to understand the past as well and present growth of settlements • Inculcate a greater understanding of man-land relationship that is crucial for sustainable development <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Development of theoretical and methodological approaches in settlement

		<p>geography by helping correlate various land use related to urban morphological theories with any urban centres in reality</p> <ul style="list-style-type: none"> • Enable students to develop research questions and make a critical assessment based on both primary and secondary data
GAG-105	GENERAL PRACTICAL	<p><i>Computer Applications in Geography</i> KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Gain knowledge with both the hardware components of computer as well as software utilization through study of Computronics, Computer organization, Components of Hardware and Software, Operating Systems: MS-DOS, MS-Windows, Data Structure and Data Format, A – D and D – A presentation, Data representation, Computer Programming and Networking, Familiar with MS-Office, Page Maker, Corel Draw, Scanning, Geo-referencing, Mosaicing, Sub-setting, Database creation, Theme layer creation, Classification and Re-classification, Labelling, Layer calculation, and Mapping <p>SKILL GAINED:</p> <ul style="list-style-type: none"> • The skill for utilizing the computer in data representation. <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Ability to prepare digital map with synthesized data and satellite images. <p><i>Statistics</i> KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Understand the basic concept of sample and sampling; bi-variate analysis by correlation, regression and chi-square test <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Develop ability to choose samples for surveying; draw scatter diagram and calculate the different types of correlation; regression and chi-square values <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Can undertake sample based primary survey for studying any socio-economic issues in real world • Identify the nature and strength of relationship among various parameters of

		<p>socio-economic development</p> <p><i>Map Projections</i></p> <p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Gain knowledge in theoretical concept, derivation and plotting of Gall’s Stereographic Projection, Mercator’s Projection, Mollweide’s Projection, Simple Conical Projection with two Standard Parallels, Conical Equal Projection with one Standard Parallels, Conical Equal Area Projection with two Standard Parallels, Conical Orthomorphic Projection with one Standard Parallel, Interrupted Sinusoidal Projection and UTM Projection <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Acquire knowledge and clear concepts of the different types of map projection <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Acquire knowledge of applicability of different projections <p><i>Surveying</i></p> <p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Have an in-depth knowledge on Plate table survey; counterling with Dumpy Level; measuring of height and traversing by Theodolite <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Acquire knowledge and clear concepts of the different survey instruments <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Acquire competence in handling surveying instruments in individual capacity
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PROGRAMME NAME: TWO YEARS M.A./M.SC. IN GEOGRAPHY & APPLIED GEOGRAPHY
COURSE OUTCOMES
SEMESTER—II

COURSE CODE	COURSE NAME	COURSE OUTCOMES
GAG-201	APPLIED GEOGRAPHY - PHYSICAL	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Knowledge of the established techniques and models. Land and terrain evaluation covering principle, methods and applications by understanding established models given by reputed organization are learned by the students to build up capacity to apply knowledge in the field. <p>SKILL DEVELOPED:</p> <ul style="list-style-type: none"> • Application of knowledge in the reality i.e. on the field <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • To use this knowledge for further academic development e.g. in the area of research
GAG-202	APPLIED GEOGRAPHY - PHYSICAL	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Study the occurrences, causes and methodology for identifying landslides and managing landslides in the Darjeeling-Sikkim Himalaya • Causes, effects and mitigations of floods. Physical events and Natural hazards, impacts and interpretation of flood hazard. River floods: Geophysical processes, Spatial Characteristics. Coastal floods: Flood producing processes in coastal and estuarine areas. Flood estimation, Flood defense, Flood forecasting and warning, Mitigation and management of flood losses <p>SKILL GAINED:</p> <ul style="list-style-type: none"> • Techniques and methodology of identifying landslides and mitigation strategies • Analysis of flood frequency and management strategies. <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Assessment of landslide prone areas and landslide management strategies • Ability to identify flood-prone areas and flood forecasting

<p>GAG-203</p>	<p>APPLIED GEOGRAPHY - CULTURAL</p>	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Acquire clear concept of global cities; urban planning, master plan and slum; recent process of urbanization in world with special reference to India; important planning thoughts <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Develop ability to measure various dimensions of urbanization • Comprehend various components of master plan <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Prepare master plan • Understand the various processes involved in the process of formation of slums
<p>GAG-204</p>	<p>APPLIED GEOGRAPHY - CULTURAL</p>	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Acquire clear concepts of recreational geography and rural development • Greater understanding of the scope and elements of tourism; impacts of tourism; ecotourism; tourism policy and planning • Have a clear understanding of the concept of rural development; rural development policies and strategies; rural development programmes in India and rural infrastructural and social sector development programmes <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Use the knowledge and skills acquired, for effective and creative application in tourism activities for betterment of the local community • Understand the significance of emergence of tourism as a leading employment and revenue generating industry • Understanding of various indicators of rural development in the light of rural development policies adopted in India <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Understanding that the basis of tourism is rooted in the culture, values and unique traditions of the host community • Utilize the knowledge gained in the classroom in addressing tourism research questions with sustainability (environmental, social and economic) as the ultimate aim

		<ul style="list-style-type: none"> Corroborate the conceptual knowledge of rural development, policies and strategies in the research work undertaken
GAG-205	GENERAL PRACTICAL	<p><i>Study of Topographical Maps</i></p> <p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> Use of topographical maps to perceive a landform or river basin and the interrelationship of the physical and cultural parameters. to efficiently use the topographical maps to obtain data with an objective to learn some quantitative techniques like basic morphometric analysis, nearest neighbor analysis of the settlements and bivariate correlation study (linear regression and correlation) between the physical and cultural aspects of an area. <p>SKILL DEVELOPED:</p> <ul style="list-style-type: none"> Preparation of various maps and diagrams related to geographical study <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> Capacity for using these maps and diagrams in the relevant areas <p><i>Weather Instruments</i></p> <p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> Use of Pluviometric chart, Thermo-hydrograph and Barometric chart <p>SKILL DEVELOPED:</p> <ul style="list-style-type: none"> Preparation of rainfall, temperature and pressure graphs based on the readings taken in the field <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> Proficiency in handling the weather instruments and making weather forecasts <p><i>Thematic Mapping</i></p> <p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> Methods of measuring namely crop combination, agricultural efficiency, location quotient and coefficient of geographical association; time series analysis; measuring of breaking points and detour index; spatial distribution of population mapping and population pyramid; Lorenz curve and centographic techniques

		<p>SKILL DEVELOPED:</p> <ul style="list-style-type: none">• Preparation of suitable thematic maps according to the given data <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none">• Proficiency in handling various types of data and apply the suitable methods to represent it
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COURSE OUTCOMES
SEMESTER—III

COURSE CODE	COURSE NAME	COURSE OUTCOMES
GAG-301	BIO-GEOGRAPHY AND SOIL GEOGRAPHY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • The distribution patterns of the plants and animals and the processes involved focusing on its development and content, the concept of habitat, plant-animal association, zoogeography as well as phytogeography with the objectives of understanding the geography of living organism in the earth in a more analytical perspective. <p>SKILL DEVELOPED:</p> <ul style="list-style-type: none"> • Ability to see the animate world from geographical perspective. <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Use of the knowledge in further academic development.
GAG-302	GEOGRAPHICAL THOUGHTS	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Acquire basic concepts in geographical thoughts through ancient, medieval and modern periods; recent trends and explanations in geography <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Develop philosophical and historical aptitude among students in the context of evolution and development of geographical ideas, theme, approaches and knowledge • Acquaint students with the philosophers of different schools of thought that have contributed in the development of geography as a branch of knowledge. <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Understanding of the basic theme, ideas, dichotomies and approaches of geographic knowledge • Critically evaluate the nature of geography as spatial science with changing space and time

<p>GAG-303</p>	<p>POPULATION GEOGRAPHY</p>	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Acquire clear concepts of population geography and demographic studies • Greater understanding of nature, scope and evolution of population geography through spatial and temporal frameworks; population dynamics; world population and development with special reference to India. <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Acquiring, handling and analyzing population data both at the grassroots level and secondary sources • Assessment of vital statistics of population data <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Acquire and interweave theoretical foundation for addressing research issues related to population dynamics in the real world • Assess resource management vis-à-vis population growth in the local and national context.
<p>GAG-304</p>	<p>REGIONAL GEOGRAPHY OF INDIA</p>	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • In-depth knowledge of climate, natural vegetation, agriculture and energy resources and industries of India <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Conceptualize the regional approaches and to examine regional differentiation in the study of India <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Recognize regional identities and environmental dimension of regionalization to address the issues and concern needed for regional planning
<p>GAG-305</p>	<p>GENERAL PRACTICAL</p>	<p><i>Remote Sensing</i></p> <p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Gain knowledge on Remote Sensing of the environment, interaction of EMR with earth surface features its characteristics; spectral regions; elements of Visual Image Interpretation for Mapping and database-cum-information extraction <p>SKILL GAINED:</p>

		<ul style="list-style-type: none"> • Develop knowledge about the theoretical bases, principles, types and application of Remote sensing techniques maps <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Students can efficiently assess the scientific principles of Remote Sensing Techniques and observe and apply satellite based remote sensing data <p><i>GIS</i></p> <p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Knowledge on the definition of GIS; various components of GIS; structure of GIS; data input; verification, storage and output in GIS and application of GIS as a tool for DSS. <p>SKILL GAINED:</p> <ul style="list-style-type: none"> • Geo-referencing; conversion of raster image to vector map • Hands on training in Global Mapper software <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Prepare an administrative map using Global mapper software • Prepare landuse/land cover map using Global mapper software • Extracting spatial information from Google Earth platform <p><i>Aerial Photo interpretation</i></p> <p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Application of air photo techniques in Geography Development of air photo techniques: Application of air photo techniques in geography, type of air photograph and their application to situations; orthophotos, stereoscopic measurement of terrain elevation by using parallax bar, elements of subject identification, photo-mosaics, DEM and DTM, and their comparison with topographical maps. <p>SKILL GAINED:</p> <ul style="list-style-type: none"> • Identification of physical and cultural features from stereo-pairs of overlapping
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		<p>aerial photographs.</p> <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Ability to prepare photo mosaic by using aerial photographs along with the measurement of object height. <p><i>Statistical Techniques using Computer Software</i></p> <p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Understanding of statistical techniques with focus on univariate, bivariate and multivariate analysis <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Handling of statistical data using computer software <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Develop critical thinking and process statistical data for analyzing real world issues with the help of various statistical software
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COURSE OUTCOMES
SEMESTER—IV

COURSE CODE	COURSE NAME	COURSE OUTCOMES
GAG-401	OCEANOGRAPHY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Physical and chemical properties of sea water, bottom relief and distribution of oceanic resources; Nature and scope of oceanography, history of oceanographic expedition; distribution of water; major features of ocean basins; bottom topography of Indian, Pacific and Atlantic Oceans; Ocean deposits. Impact of Humans on the Marine Environment: law of the sea, exclusive economic zone, food and mineral resources of the sea, India's off-shore wealth. Physical and chemical properties of sea water; density, temperature and salinity; ocean currents, waves & tides; sea level changes. Coastlines & Shorelines, origin and characteristics of coastal features; Origin, characteristics and classification of continental shelf, continental slope, sub-marine canyons and coral reefs <p>SKILL GAINED:</p> <ul style="list-style-type: none"> • Identification of causes of conflict regarding ocean route, marine resources, etc. <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Ability to analyze sea surface temperature fluctuation and its impact on southern oscillation.
GAG-402	REGIONAL PLANNING AND DEVELOPMENT	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Concepts of region, regionalization and regional planning; theories on recent development; concept on inequality and regional disparity <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Delineation of formal and functional region • Identity the best measures of inequality and various indicators of regional development <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Analyze the interstate imbalance in India with respect to various indicators of

		<p>development</p> <ul style="list-style-type: none"> • Ability to prepare plans for development in backward region and backward group
<p>GAG-403 & GAG-404</p> <p>OPTIONAL COURSE – THEORY</p>	<p>APPLIED PEDOLOGY</p>	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Soil forming factors and related processes of soil formation pedogenesis, properties of soils, soil organic matter, soil nutrients, techniques of soil survey and soil classifications, the catena concept, pedo-geomorphology in environmental management, methodology for assessing soil degradation. <p>SKILL GAINED:</p> <ul style="list-style-type: none"> • Identification of factors affecting plant growth <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Ability to assess soil resources and possible alternative land use practices
	<p>CARTOGRAPHY</p>	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Gain in-depth knowledge on spherical trigonometry, conical, cylindrical and conventional types of projections; surveying using theodolite; photogrammetry and Airphoto interpretation; remote sensing and GIS and instruments namely GPS, Total Station, Clinometer and Box Sextant <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • To provide conceptual knowledge and training in various fields of Cartography • Develop cartographic skills which help the students depict and represent the geographic information on the map <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Ability to understand and read maps and develop cartographic skills by which they will be able to create maps on their own

	FLUVIAL GEOMORPHOLOGY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> Advanced knowledge in fluvial geomorphology develop advanced knowledge in fluvial geomorphology which deals with the action of the flow of water in the development of landform. Different mechanisms and processes both traditional and contemporary have been included to cover up the important aspects of the subject. <p>SKILL DEVELOPED:</p> <ul style="list-style-type: none"> Ability to understand process and mechanism involved in fluvial action for landform development. <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> Use of this knowledge in further academic development
	POPULATION GEOGRAPHY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> Develop deeper understanding of Population geography and demographic studies Focus on establishing in-depth knowledge on the determinants and patterns of population growth and change with special reference to India <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> Identifying and resolving population issues in the context of processes of population change in the global, national and local contexts Analysis of population data enables students to identify problems at the community and regional level <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> Prepare the students to critically assess relevant population issues and prepare high quality research output Students are trained to generate and disseminate scientific knowledge and evidence in the course of their teaching learning and research activities
	URBAN GEOGRPHY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> Develop deeper understanding of Urban geography Focus on establishing in-depth knowledge on spatial and temporal basis of urban studies; physical, social, cultural and economic setup of urban centers with special reference to India

		<p>SKILLS GAINED:</p> <ul style="list-style-type: none"> • Helps to understand, analyse and interpret the morphology of urban centres • Learn the significance of human activities, physical-biological and cultural phenomena, across temporal and spatial variations, that influence the urban landscape <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Acquire competency to address a variety of contemporary issues in the light of rapid expansion of the dynamic discipline • Understand and appreciate the value of different perspectives to examine the complexities of urban life and the consequences inherent in the built-up environment
<p>GAG-405 OPTIONAL COURSE - PRACTICAL</p>	<p>APPLIED PEDOLOGY</p>	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Techniques of soil sampling from the field, sample preparation and profile analysis methods of soil sampling and preparation of soil samples, laboratory analysis of soil properties, measurement of hygroscopic moisture, mechanical analysis (Robinson’s method), Munsell colour analysis, determination of organic matter and organic carbon (Walkley & Black’s Rapid Titration method), soil pH (Kuhn’s Colourimetric method), soil kit box analysis (N.P.K., O.M. and pH), Keen Raczkowski measurement (Keen Box Analysis): soil specific gravity, soil porosity, volume expansion, water holding capacity and soil density <p>SKILL GAINED:</p> <ul style="list-style-type: none"> • Determination of analytical value through laboratory testing. <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Comparison of various soil analysis techniques and field verification of soil categories.

	CARTOGRAPHY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Apply the theoretical knowledge gained in the practical aspects by using theodolite, dumpy level in the field; interpreting air photographs and preparing mosaics from air photos; interpretation of satellite imagery, digital image processing, filtering; enhancement and classification; characteristics and applications of Remote sensing and application of GIS in Thematic maps <p>SKILL GAINED:</p> <ul style="list-style-type: none"> • Develop the skill of spatial data acquisition, management, analysis and mapping • Create digital maps defining the purpose, content and function of geospatial data <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Applying the knowledge in producing appropriate and accurate cartographic images in dissertation work
	FLUVIAL GEOMORPHOLOGY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Quantitative and qualitative estimation and geomorphic analysis of a selected drainage basin along with Geomorphological mapping and measurements of some selected fluvial parameters <p>SKILLS DEVELOPED:</p> <ul style="list-style-type: none"> • Analysis and measurements of fluvial properties of a drainage basin. <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Use of the knowledge in the further academic development
	POPULATION GEOGRAPHY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> • Develop the practical concepts of population geography and demographic studies related to trends, patterns and measures of population dynamics <p>SKILLS GAINED:</p> <p>Acquire knowledge and training to collect and analyze data from the primary and secondary sources</p> <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> • Apply requisite analytical and technical skills in diverse fields of population

		<p>geography</p> <ul style="list-style-type: none"> Acquire competency in handling data from Census, NFHS, NSSO and related sources for further research work
	URBAN GEOGRPHY	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> Develop the practical concepts of urban geography related to spatial analysis of geographical data; morphology of urban area; application of matrix in geographical study; testing urban rank size rule and its application <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> Acquire knowledge and training to collect and analyze data from the primary and secondary sources <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> Apply requisite analytical and technical skills in diverse fields of urban geography Analyse and construct spatial and temporal maps using GIS software
GAG-406	GENERAL PRACTICAL	<p>KNOWLEDGE GAINED:</p> <ul style="list-style-type: none"> Hands on training using Global Mapper software and Map Info software <p>SKILLS GAINED:</p> <ul style="list-style-type: none"> Linking attribute data with spatial data Preparation of thematic map with attribute data <p>COMPETENCY DEVELOPED:</p> <ul style="list-style-type: none"> Handle any spatial information in digital platform Use maps for measuring, correlation and interpretation