4th sem HC/HG/RC

CBCS-based U.G. Course in Geography, 2019
Syllabus of Core Course
Name: Environmental Geography and Disaster Management
Paper Code: GGY-HC-4016
Total Credit: 6 (4+2)

Part I: Theory (4 Credit)

(40 Classes of 1 hour each)

1. Environmental Geography: Nature, Scope and Significance (4 Classes) PN

2. Human-Environment Relationships – Historical progression, Adaptation in different Biomes. (6 Classes) DP PN

3. Major Global Environmental Problems: Pollution, Deforestation, Desertification, Global Warming, and Bio-Depletion. (10 Classes) MS

4. National Environmental Policy and National Disaster Management Plan: Environmental Protection Act 1986 and Disaster Management Act 2005. (6 Classes) HD

5. Disasters: Meaning and Types (Natural and Manmade); Concept of Hazard, Risk and Vulnerability. (4 Classes) HD

6. Major Hazards and Disasters: Flood, Earthquake, Wildfire, and Chemical and Nuclear explosions. (6 Classes) HD

7. Disaster Management Cycle and Phases: Prevention, Preparedness, Response, Rehabilitation, Reconstruction and Mitigation, (4 Classes) ~~HD~~ MS

Part II: Practical (2 Credit)

(20 lasses of two hour duration each)

1. Exploring satellite imageries and toposheets to observe bank line change of Brahmaputra river from any selected stretch in three different time periods and preparation of map therefrom. (1 exercise) PKS

(Goalpara, Palashbari, Nimatighat, etc.)

Satellite images can be downloaded from https://earthexplorer.usgs.gov/

Survey of India toposheets can be downloaded freely from https://soinakshe.uk.gov.in/mtr/

2. Mapping of major wetlands in a district and computation of shape and size (area) based distribution. (1 exercise) DP

3. Preparation of a map of a nearby wetland and identify the changes in dimension,

water level and encroachment it faced during the last one decade. Present your data in tabular form along with the map (field-based). (1 exercise) MS

4. Preparation of a long-term precipitation time series curve for any selected station of N.E. India using moving average method by downloading the annual rainfall data for any district/station of Assam for at least 30 years from the portal PN https://www.indiawaterportal.org/met_data/. Students can also explore the web portal https://mausam.imd.gov.in/ to get an idea of different types of weather data in India and their historical and present distribution. (1 exercise)

5. Drawing of a diagram of disaster management cycle with reference to some disasters (flood and earthquake) in North-East India and to indicate the activities associated with each step. (2 exercise) HD

6. Drawing of a map of Assam showing the major fault lines thereon. Also to plot at least 50 epicentres in last few years and to explain the areas of their concentration by taking the help of Bhookamp app. (1 exercise) PKS

7. Preparation of a disaster vulnerability map of Assam/ N.E. India based on data of natural disasters (Flood/earthquake/landslide/bank erosion) with respect to their occurrence and frequency in different areas. (1 exercise) HD

4026 – Population and Settlement Geography

Part I: Theory (60 Marks)

(40 classes of 1 hour duration each)

Unit I: Population Geography (40 Marks) 26 Classes

1. Defining the field of population geography: nature and scope; Its relation with demography. MS

2. Sources, characteristics and problems of population data; Perspectives on Census of India publications – Primary Census Abstract, District Census Hand-Book, Sample Registration System, etc. (4 Classes) MS

3. Distribution and density of population: Factors influencing population distribution and density; global pattern of population distribution; population density regions in the world. ~~PKS~~ MS

4. Population Growth: Trend of global population growth; components of population growth– fertility, mortality and migration; factors influencing fertility and mortality; push and pull factors of migration; spatial variations in population growth in the world. (8 Classes) HD

5. Theories of population growth: Malthusian Theory and Demographic Transition Theory. ~~PKS~~ AS

6. Population composition and associated characteristic patterns in global contexts: Age-Sex Composition; Rural-Urban Composition; Contemporary population issues – population ageing, declining sex ratio, pandemics. PN

Unit II: Settlement Geography (20 Marks) 14 Classes

1. Defining the field of settlement of geography: Nature and scope. (2 Classes) JKB

2. Rural and urban settlements: Factors influencing distribution pattern of settlements; Types of rural settlements; Characteristics of rural and urban settlements. (4 Classes) JKB

3. Morphology of rural and urban settlements; Burgess theory of internal structure of a town. MS

4. Concept of settlement hierarchy, primate city and urban fringe; Christaller's Central Place Theory. DP

Part II: Practical (20 Marks)

1. Trend of population growth in Assam/N.E. India/India through line graph; Calculation and graphical representation of trend of decadal and annual growth rates of population in Assam/N.E. India/India. (3 Exercises) MS

2. Choropleth map to show spatial pattern of decadal variation in population growth in Assam/N.E. India/India. (1 Exercise) JKB

3. Choropleth map showing spatial pattern of population density in Assam/India. (1 Exercise) JKB

4. Calculation of distribution pattern of settlements in an area using Nearest Neighbour Analysis. (1 Exercise) PN

5. Map showing spatial variation in social/religious/rural-urban composition of population in Assam/N.E. India using pie-graph. (1 Exercise) JKB

6. Choropleth map showing spatial pattern of level of urbanization in Assam/N.E. India. (1 Exercise) JKB

7. Map showing distribution of towns and their varied population size with spheres in Assam/N.E. India. (1 Exercise) MS

8. Flow cartogram showing direction and volume of migration into Assam/N.E. India from different parts of India. (1 Exercise)HD

CBCS-based U.G. Course in Geography, 2019

Syllabus of Honours Core Course

Course Name: Remote Sensing, GIS and GPS

Paper Code: GGY-HC-4036

Total Credit: 6 (4+2)

Total Marks: 100

(Theory: 60; Practical: 20; Internal Assessment: 20)

Part I: Theory (60 Marks)

(40 classes of 1 hour duration each)

Unit 1 (Remote Sensing)

1. Remote Sensing: Definition and History of Development. (3 classes) DP

2. Principles of Remote Sensing System: Energy sources, EMR and its interaction with Atmosphere and Earth Features; Platform, Sensor and Resolutions; Aerial and Satellite Remote Sensing; Fundamentals of Photogrammetry. (8 classes) PKS

3. Remote Sensing data products, sources and characteristics; Elements of Image Interpretation (Visual & Digital); Digital Image Processing: Image Enhancement and Classification (Supervised and Un-supervised). (6 classes) PKS

4. Application of Remote Sensing: Land, Vegetation and Water (3 classes)

Unit 2 (GIS) PKS

1. Geographical Information System (GIS): Definition, Development, Components, and Functions; Open source GIS. (4 classes) ~~DP~~ PKS

2. GIS Data Types &Structures: Spatial and Non-Spatial Data; Raster and Vector Data Structure, Database Management Syste (DBMS). (4 classes) DP

3. Data Layer Extraction and Spatial Analysis: Buffer, proximity and overlay analysis. (3 Classes) PKS

4. Application of GIS in geographical studies (Land Suitability analysis, Network analysis, Flood damage estimation) (3 classes) DP

Unit 3 (GPS)

1. Global Positioning System (GPS): Types, basic principles and functions; Different Navigational Systems. DP

2. Application of GPS in surveying and mapping. DP

Part II: Practical (20 Marks)

(20 classes of 2 hour duration each)

Unit I: Practical Works (16 Marks)

(Two questions of 8 marks each)

1. Visual Interpretation of Aerial photograph and Satellite Imagery and preparation of thematic maps based on appropriate classification scheme. (2 assignments) PKS

2. Analysis of aerial photographs and satellite image: Determination of photo scale and object height from aerial photo (Using Sterescope); Digital classification of satellite image: supervised and unsupervised. (3 assignments) PKS

3. Geo-referencing and Data layer creation: Map scanning, geometric correction, digitization of different layers using point, line and polygon, attribute data input and their thematic representation, Buffer creation, Overlay analysis. (3 Assignments) DP

4. GPS data collection, plotting and mapping of various features within college campus. ~~PKS~~ AS

(2 Assignments)

CBCS-based U.G. Course in Geography, 2019

Syllabus of Skill Enhancement Course

Skill

Course Name: Surveying Techniques

Paper Code: GGY-SE-4024

Total Credit: 4 (2+2)

Total Marks 100

(Theory: 40, Practical: 40 and Internal Assessment: 20)

1. Surveying: Its meaning, types and significance in geography. (4 Classes) MS

2. Principles of surveying: plane and geodetic surveying; Principles of triangulation. (4 Classes) HD

3. Techniques of surveying by Plane Table, Prismatic Compass, Theodolite and Dumpy Level. (12 Classes) PN

Skill

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4. Methods of radiation, intersection, traversing, contouring and leveling in surveying. (5 Classes)PN

5. GPS: Basic concept, principles and utilities; surveying by Total Station. (5 Classes) DP

Part II: Practical (40 Marks)

(30 classes of 2 hour duration each)

Unit I: Practical Works (32 Marks)

To attempt 2 questions carrying 16 marks each

1. Preparation of a plan or a map of an area within the college campus or any suitable area using Plane Table (applying both radiation and intersection methods) (2 Assignments) PN

2. Open and Closed Traverse Surveying with Prismatic Compass: Preparation of plan along with adjustment of closing errors. (2 Assignments) HD

3. Closed Traverse Surveying with Theodolite: Plotting of data for preparation of a plan through computation of Reduced Bearing, Consecutive Co-ordinates and Independent Coordinates; Measurement of height of object/objects using Theodolite (2 Assignments) HD

4. Profile levelling and contouring in a selected area by Dumpy Level (2 Assignments) PN

5. Preparing a map of a short trail along with prominent features by using hand-held GPS and associated software/freeware. (2 Assignments) DP

Unit II: Practical Note-Book and Viva-voce (8 Marks)

1. Evaluation of Practical Note-Book (4 Marks)

2. Viva-voce (4 Marks)

CBCS-based U.G. Course in Geography, 2019 HG/RC

Syllabus of Generic Elective Course

Course Name: Geography of India with Reference N.E. India

Paper Code: GGY-HG/RC-4016

Total Credit: 6 (4+2)

Total Marks 100

(Theory: 60, Practical: 20 and Internal Assessment: 20)

Part I: Theory

Credit: 4 (60 Marks)

(40 classes of 1 hour duration each)

1. India's location and its significance; administrative divisions. PN.

2. Physical setting: Major Physiographic Regions and their Characteristics; Drainage System (Himalayan and Peninsular). MS

3. Climate: Seasonal Weather Characteristics; Climatic Divisions; Indian Monsoon (mechanism and characteristics). MS

4. Population Growth and distribution; Characteristics and Composition of population (ruralurban, age, sex, occupational, literacy and religious), Population Policies of India. (4 classes) PN

5. Agriculture: Environmental, Technological and Institutional Factors affecting Indian Agriculture; Distribution and Production of Rice, Wheat and Tea; Agro Climatic Zones; Food Security. (4 classes) JKB

6. Distribution and characteristics/potential of Natural Resources: Soil, Vegetation, Water, Mineral Resources (Coal, Petroleum and Iron ore). (4 classes) PKB. AS

7. Factors influencing Industrial development in the country; Industrial Regions and their characteristics; Industrial Policies in India; Distribution and production patterns of iron and steel and cotton textile. (4classes) JKB

8. North-East India: Land of seven sisters and its locational significance; physiographic framework; forest cover; agricultural practices including shifting cultivation; industrial development scenario; population growth pattern. (8 classes) HD/DP HD

Part II: Practical

Credit: 2 (20 Marks)

Unit 1: 10 marks (2 Questions of 5 marks each)

1. Trend of population growth and growth rates in India and N.E. India/Assam since 1901 using Census of India data (Source: censusindia.gov.in) (2 assignments) MS

2. Choropleth mapping to show spatial variation in decennial population growth rate in India /N E India/Assam. (1 assignment) PN

3. Spatial variation in the patterns of religious composition of population in India and Social composition of population (SC, ST and General) in N.E. India using pie-graph. (2 assignments) JKB

4. Trend of food grains production (rice, wheat, maize, barley, jowar and bajra) in India since 1950-51 using band-graph. (1 assignment) JKB

5. Map showing distribution of major tribal groups in North-East India (1 assignment) HD/DP

Unit 2: 6 Marks

6. Preparation of field report based on field study through observational knowledge about the geographical personality of any part of India/N.E. India/Assam under the guidance of teacher(s). (Evaluation of the Content of Field Report; 4 Marks; Viva-voce on Field Report: 2 Marks) Dept. Activity