Syllabus for
BA/B.Sc.(Regular) Geography
Choice Based Credit System (CBCS)

Course effective from the academic year 2019-20

4th Semester

This is approved in the Academic Council held on 8/11/2019

GAUHATI UNIVERSITY

Guwahati-781014

June, 2019

CBCS-based U.G. Course in Geography, 2019
Syllabus of Regular Course
Course Name: Geography of India with Reference N.E. India
Paper Code: GGY-RC-4016
Total Credit: 6 (4+2)
Total Marks: 100
(Theory: 60, Practical: 20 and Internal Assessment: 20)

Course objectives

- This is a core paper of regular course students which intends to introduce them to India as a geographical entity.
- It seeks to develop new insights among students on significant geographical dimensions of the country along with its north-eastern part.
- A field study is incorporated to make the students understand regional diversity of India with respect to its land, people and economy.

Course outcome

- The paper will be useful for students in developing understanding on Indian geography and its various dimensions.
- It will also be useful for students preparing for various competitive examinations includingcivil services.

Part I: Theory
Credit: 4 (60 Marks)
(40 classes of 1 hour duration each)

1. India's location and its significance; administrative divisions. **(2 classes)**

2. Physical setting: Major Physiographic Regions and their Characteristics; Drainage System (Himalayan and Peninsular). **(5 classes)**

3.Climate: Seasonal Weather Characteristics; Climatic Divisions; Indian Monsoon (mechanism and characteristics). **(5 classes)**

4. Population Growth and distribution; Characteristics and Composition of population (rural-urban, age, sex, occupational, literacy and religious), Population Policies of India. **(4 classes)**

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)**

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

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)**

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)**

Part II: Practical
Credit: 2 (20 Marks)

(20 classes of 2 hour duration each)

Unit 1: Practical works (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)**

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

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)**

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

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

Unit 2: Field Report (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)

Unit 3: Practical Note-Book and Viva-voce (4 Marks)
7. Evaluation of Practical Note-book (2 Marks)
8. Viva-voce on Practical Works (2 Marks)

Reading List:

1. Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, New Delhi.
2. Johnson, B. L. C., ed. 2001. Geographical Dictionary of India.Vision Books, New Delhi.
3. Mandal R. B. (ed.), 1990: Patterns of Regional Geography – An Intenational Perspective. Vol. 3 –Indian Perspective.
4. Sdyasuk Galina and P Sengupta (1967): Economic Regionalisation of India, Census of India
5. Sharma, T. C. 2003: India - Economic and Commercial Geography. Vikas Publ., New Delhi.
6. Singh R. L., 1971: India: A Regional Geography, National Geographical Society of India.
7. Singh, Jagdish 2003: India - A Comprehensive & Systematic Geography, Gyanodaya Prakashan, Gorakhpur.
8. Spate O. H. K. and Learmonth A. T. A., 1967: India and Pakistan: A General and Regional Geography, Methuen.
9. Tirtha, Ranjit 2002: Geography of India, RawatPubls., Jaipur & New Delhi.
10. Pathak, C. R. 2003: Spatial Structure and Processes of Development in India. Regional Science Assoc., Kolkata.
11. Tiwari, R.C. (2007) Geography of India. PrayagPustakBhawan, Allahabad
12. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur
13. Bhagabati, A.K., Bora, A. K. and Kar, B.K.: Geography of Assam, Rajesh Publications, New Delhi.
14. Taher, M and Ahmed, P.: Geography of North East India, Mani ManikPrakash, Guwahati.
15. Das, M..M.: Peasant Agriculture in Assam, EBH_India Publishers, Guwahati.
16. Gopal Krishnan, R : Geography of North East India.
17. Bhattacharya, P.2006 : Trend in Tourism Potentiality, BaniMandir, Guwahati.
18. Bhagabati, A.K. (ed) : Biodiversity of Assam, Eastern Book House, Guwahati.
19. Bhattacharyya, N.N. : North East India, Rajesh Publication, New Delhi.
20. Srivastava, S.C., : Demographic Profile of N.E. India, Mittal Publications, New Delhi.

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CBCS-based U.G. Regular Course in Geography, 2019
Syllabus of Skill Enhancement Course
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)

Course objectives

This course on Surveying Techniques provides a general understanding of the field of survey including its modern tools and importance in geographic study. It more particularly focuses on various types of survey instruments; principles of different types of surveying, methods of carrying out survey for preparation of map/plan in different environment by presentation of various aspects of the area.

Course outcomes

- Understanding the importance of various surveying techniques in geographical study
- General understanding of preparation procedures of different types of plan and map
- An acquaintance of different surveying techniques for representation of various spatial objects/
Phenomena.

Part I: Theory

Credit: 2 (40 Marks)

(20 classes of 1 hour duration each)

1. Surveying: Its meaning, types and significance in geography. (2Classes)

2. Principles of surveying: plane and geodetic surveying; Principles of triangulation. (3Classes)

3. Techniques of surveying by Plane Table, Prismatic Compass, Theodolite and Dumpy Level. (8Classes)

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

5. GPS: Basic concept, principles and utilities; surveying by Total Station. (3Classes)

Part II: Practical

Credit: 2 (40 Marks)
(20 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)

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

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

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

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

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

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

2. Viva-voce (4 Marks)

Reading List:

1. Campbell, J., 1984: Introductory Cartography, Prentice Hall Inc., Englewood Cliff.
2. Misra, R.P. and Ramesh, A., 1995: Fundamentals of Cartography, Concept Publishing Company, NewDelhi.
3. Robinson, A.H., et al: Elements of Cartography, John Wiley & Sons, New York.
4. Raisz, E.: Principles of Cartography, McGraw Hills, London.
5. Kenetkar, T.P. and Kulkarni, S.U.: Surveying and Levelling, Vol. I & II, VidyarthiGrithaPrakashan, Pune.
6. Das, A.K.2021: Pocket Size Handbook on Handling of GPS for Field Studies, GTAD and Aranyak, Guwahati (In PDF format).

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Code: GGY-SE-4034
Total Credit: 4 (2+2)
Total Marks: 100
(Theory: 40, Practical: 40 and Internal Assessment: 20)

Course objectives

- This paper is a core paper that intends to introduce students to the interface of Remote Sensing and GIS
- It seeks to develop new insights among students on the relevance of geospatial studies within the field of geography.

Course outcomes

- The paper remains useful for students in developing skills in spatial data analysis if they wish to pursue a research programme.
- The paper will be useful for students preparing for different competitive exams including the civil services.

Part I: Theory

Credit: 2 (40 Marks)

(20 classes of 1 hour duration each)

Unit 1: Remote Sensing (25 Marks)

1. Remote Sensing: Definition and Development; Platform and types. (2classes)
2. Principles of Remote Sensing: Electro Magnetic Radiation (EMR) and its interaction with atmosphere and earth features; Fundamentals of Satellite Remote Sensing and Photogrammetry; Resolutions. (4classes)
3. Remote Sensing Data Products and their characteristics (Landsat, Spot, IRS) (2classes)
4. Image interpretation: Visual interpretation; Concept of Supervised and unsupervised classification. (3classes)
5. Application of Remote Sensing: Land use and Land cover and Agriculture. (2classes)

Unit 2: GIS and GPS (15 Marks)

1. Geographical Information System (GIS): Definition, Components and Functions. (2 classes)
2. Data types of GIS; Raster and Vector Data Model. (1classe)
3. Data Sources and characteristics; Data input and Management; Concept of spatial analysis (Buffer and overlay). (2Classes)
4. Application of GIS (Natural Resource Management) (1classe)
5. GPS: Types, principles and functions. (1classe)

Part II: Practical
Credit: 2 (40 Marks)

(20 classes of 2 hour duration each)

Unit I: Practical Works (32 Marks)

To attempt 4 questions carrying 8 marks each

1. Visual Interpretation of satellite imagery and preparation of thematic maps using suitable classification scheme. (Flood and LULC mapping) 2 assignments
2. Visual interpretation of aerial photograph and preparation of thematic map using stereoscope; Determination of photo scale 2 assignments
3. Unsupervised classification of satellite imagery and preparation of thematic maps (Physical/cultural features) 2 assignments
4. Spatial data input for GIS application: Map scanning and Geo-referencing 1 Assignment
5. Digitization of different layers using point, line and polygon, attribute data input and their thematic representation (Administrative Divisions/Drainage/Road/Headquarter/ Population Density/Literacy) 3 assignments
6. GPS survey, plotting and preparation of map (waypoint, trekking and area). 2 Assignments

N.B: Basic Remote Sensing and GIS Software's for practical works: Arc GIS/Erdas Professional /Q-GIS/SAGA GIS.

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

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

Reading List:

1. Campbell J. B., 2007: *Introduction to Remote Sensing*, Guildford Press.
2. Jensen J. R., 2004: *Introductory Digital Image Processing: A Remote Sensing Perspective*, Prentice Hall.
3. Joseph, G. 2005: *Fundamentals of Remote Sensing*, United Press India.
4. Lillesand T. M., Kiefer R. W. and Chipman J. W., 2004: *Remote Sensing and Image Interpretation*, Wiley. (Wiley Student Edition).
5. Nag P. and Kudra, M., 1998: *Digital Remote Sensing*, Concept, New Delhi.
6. Rees W. G., 2001: *Physical Principles of Remote Sensing*, Cambridge University Press.
7. Singh R. B. and Murai S., 1998: *Space-informatics for Sustainable Development*, Oxford and IBH Pub.
8. Wolf P. R. and Dewitt B. A., 2000: *Elements of Photogrammetry: With Applications in GIS*, McGraw-Hill.
9. Sarkar, A. (2015): Practical Geography: A Systematic Approach. Orient Black Swan Private Ltd., New Delhi.

10. Chauniyal, D.D. (2010): SudurSamvedanevamBhogolikSuchanaPranali, ShardaPustak Bhawan, Allahabad.

10. Burrough, P.A. 1998: *Principles of Geographical InformationSystems*, Oxford University Press.

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