GEOGRAPHY (MAJOR)
SEMESTER III
COURSE 1 (CODE: GEOG 3011)

COURSE TITLE: GEOGRAPHY OF INDIA **Credits: 5**

Total Marks: 75 Course Evaluation: Semester Examination (60 marks) and Internal Assessment (15 Marks)

Course Objective: • To provide knowledge about the Physiography, Economy, and Demography of India.

Learning Outcome: • To gain enough knowledge about the Physiography, Economy and Demography of India.

Professional Skill Development: • Several skills and knowledge will develop among the students after studying about their nation which will help them to become an expert and professional planner for the betterment of the nation. It will also help them for preparation of different competitive examinations.

UNIT I: Physical Geography

1. Geological set-up: Archaean, Purana, Dravidian, and Aryan Rock systems
2. Physiographic divisions
3. Drainage Systems: Himalayan and Peninsular
4. Climate: Types and characteristics; Significance of Indian Monsoon
5. Soil: Types, Characteristics and Distribution
6. Vegetation: Types and Classification

UNIT II: Economic and Social Geography

1. Agricultural regions, Green Revolution and its consequences
2. Industrial development since independence
3. Distribution of Minerals and Energy Resources (Renewable and Non-renewable)
4. Regionalisation of India: Views of Spate and Bhatt.
5. Population: Distribution, growth, structure and policy
6. Population Problems: Poverty and Unemployment

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Reference Books:

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 International 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, Rawat Publs., 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. Prayag PustakBhawan, Allahabad
12. Sharma, T.C. (2013) Economic Geography of India. Rawat Publication, Jaipur20. Thornbury, W. D. (I960)

GEOGRAPHY (MAJOR)
SEMESTER III
COURSE 2 (CODE: GEOG 3012)

COURSE TITLE: CARTOGRAPHY & SURVEYING (PR) **Credits: 5**

Total Marks: 75 Course Evaluation: Semester Examination (60 marks) and Internal Assessment (15 Marks)

Course Objective: ● To impart knowledge about mathematical principles of maps, to gain knowledge to analyze maps and diagrams prepared using mathematical principles. To provide knowledge of using precision instruments for survey purposes.
Learning Outcome: ● Preparation of maps and diagrams using different formulas; measurement of height, distance, and area using the survey instruments.
Professional Skill Development: ● Ability to assimilate and understand various maps, perform mathematical analysis, and hands-on training of the instruments for professional skill enhancement.

Unit 1: Map Scales and Thematic Mapping

1. Concepts of Cartograms and Thematic Maps
2. Concept of Scales: R.F, Conversion of large scale and small scales
3. Construction of scales: Plain, Comparative, Diagonal, and Vernier
4. Diagrammatic representation of data: Star and Age-sex pyramid diagram, Proportional Pie diagram, Ternary diagram.
5. Representation of data on a map by proportional circles, dots and spheres, isolines and Choropleth method, Chorochromatic maps.
6. Preparation and interpretation of Climograph, Hythergraph, Ergograph.

Unit 2: Surveying

1. Basics of surveying and survey equipment: Concepts of Bearing: magnetic and true; whole-circle and reduced.
2. Numerical problems related to traverse: calculation of Exterior and Interior angles, measurement of area.
3. Open and closed traverse survey using Prismatic Compass; Correction for closing error (Bowditch's method).
4. Drawing of the longitudinal profile and Contouring over closed traverse using Dumpy level and Digital levelling instrument.

5. Measurement of Height and distance of objects using Transit Theodolite (Accessible and Inaccessible bases) on horizontal plains with the same and different instrument heights.
6. Measurement of ground slope using Abney level. Determination of strike and dip using Brunton Compass.

Reference Books

1. Cuff J. D. and Mattson M. T., 1982: Thematic Maps: Their Design and Production, Methuen Young Books Dent B. D., T
2. organon J. S., and Holder T. W., 2008: Cartography: Thematic Map Design (6th Edition), McGraw-Hill Higher Education
3. Gupta K. K. and Tyagi V. C., 1992: Working with Maps, Survey of India, DST, New Delhi.
4. Kraak M.-J. and Ormeling F., 2003: Cartography: Visualization of Geo-Spatial Data, Prentice-Hall.
5. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept, New Delhi.
6. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
7. Slocum T. A., Mcmaster R. B. and Kessler F. C., 2008: Thematic Cartography and Geovisualization (3rd Edition), Prentice Hall.
8. Tyner J. A., 2010: Principles of Map Design, The Guilford Press.
9. Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan PrivateLtd., New Delhi

GEOGRAPHY (MDC)
SEMESTER III
COURSE 1 (CODE: GEOG 3031)

COURSE TITLE: ENVIRONMENTAL GEOGRAPHY Credits: 3

Total Marks: 50 Course Evaluation: Semester Examination (40 marks) and Internal Assessment (10 Marks)

Course Objective: ● The objectives of environmental geography are to impart basic knowledge about the environment and its allied problems and to create awareness about environmental problems among people.
Learning Outcome: ● Students shall develop an attitude of concern for the environment.
Professional Skill Development: ● This knowledge will help to develop awareness about local environmental quality.

ENVIRONMENTAL GEOGRAPHY Credits 3

1. Concepts and approaches of Environmental Geography
2. Structure and Functions of Ecosystem
3. Soil Pollution and Management
4. Solid Waste Pollution and Management
5. Marine Pollution and Management

Reference Books:

1. Casper J.K. (2010) Changing Ecosystems: Effects of Global Warming. Infobase Pub.New York.

2. Hudson, T. (2011) Living with Earth: An Introduction to Environmental Geology, PHI Learning Private Limited, New Delhi.
3. Miller, G.T. (2007) Living in the Environment: Principles, Connections, and Solutions, Brooks/ Cole Cengage Learning, Belmont.
4. Singh, R.B. (1993) Environmental Geography, Heritage Publishers, New Delhi.
5. UNEP (2007) Global Environment Outlook: GEO4: Environment for Development, United Nations Environment Programme. University Press, Cambridge.
6. Wright R. T. and Boorse, D. F. (2010) Toward a Sustainable Future, PHI Learning Pvt Ltd, New Delhi.

7. Singh, R.B. and Hietala, R. (Eds.) (2014) Livelihood security in Northwestern Himalaya:
8. Case studies from changing socio-economic environments in Himachal Pradesh,
9. India. Advances in Geographical and Environmental Studies, Springer

GEOGRAPHY (SEC)
SEMESTER III
COURSE 1 (CODE: GEOG 3051)

COURSE TITLE: BASICS OF RS & GIS **Credits: 3**

Total Marks: 50 Course Evaluation: Semester Examination (40 marks) and Internal Assessment (10 Marks)

Course Objective: ● To provide knowledge about Remote Sensing and GIS technology-enabled information on natural and built environments.
Learning Outcome: ● Students will acquire knowledge about the mapping techniques in RS &GIS software and its use in various fields.
Professional Skill Development: ● This knowledge will help the students to enhance their skills in the preparation of digital maps for planning purposes.

Remote Sensing

1. Remote Sensing: Definition, Development, Platforms and Types.
2. Satellite Remote Sensing: Principles, EMR Interaction with Atmosphere and Earth Surface; Satellites (Landsat and IRS) and Sensors.
3. Georeferencing of Scanned Maps
4. Digitization of point, line, and polygon features.
5. Digitization of administrative boundaries by using the snap tool.

***Sub-unit 4 and 5 are to be done using QGIS Software.**
***A Project File Consisting of Practical Exercises on the above Themes is to be Submitted.**

Reference Books:

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.