

# **COTTON COLLEGE STATE UNIVERSITY**

**Department of Geography**

**Undergraduate Syllabus**

## **COURSE STRUCTURE OF GEOGRAPHY (UNDERGRADUATE PROGRAMME)**

**PAPER CODE            SUBJECT TITLE**

### **SEMESTER-I**

<b>GPH 101C</b>	<b>Geomorphology</b>
<b>GPH 102C</b>	<b>Climatology and Oceanography</b>
<b>GPH 103C</b>	<b>Cartographic Techniques in Geography</b>
<b>GPH 104E</b>	<b>Physical Geography</b>

### **SEMESTER –II**

<b>GPH 201C</b>	<b>Analytical Physical Geography</b>
<b>GPH 202C</b>	<b>Geography of Population and Settlement</b>
<b>GPH 203C</b>	<b>Map Projection Systems</b>
<b>GPH 204E</b>	<b>Human Geography</b>

### **SEMESTER –III**

<b>GPH 301C</b>	<b>Geography of Resources and Economic Activity</b>
<b>GPH 302C</b>	<b>Geography of Development</b>
<b>GPH 303C</b>	<b>Quantitative Methods in Geography</b>
<b>GPH 304E</b>	<b>Regional Geography</b>

#### **SEMESTER –IV**

<b>GPH 401C</b>	<b>Regional Geography: The World and South East Asia</b>
<b>GPH 402C</b>	<b>Geography of India and North-East India</b>
<b>GPH 403C</b>	<b>Geoinformatics</b>
<b>GPH 404E</b>	<b>Economic and Political Geography</b>

#### **SEMESTER –V**

<b>GPH 501C</b>	<b>Evolution of Geographical Thought</b>
<b>GPH 502C</b>	<b>Social and Political Geography</b>
<b>GPH 503C</b>	<b>Field Techniques and Land Surveying</b>
<b>GPH 504E</b>	<b>Cartographic and Quantitative Methods in Geography</b>

#### **SEMESTER –VI**

<b>GPH 601C</b>	<b>Disasters and Hazards</b>
<b>GPH 602C</b>	<b>Regional Planning and Development</b>
<b>GPH 603C</b>	<b>Research Methodology and Modern Techniques</b>
<b>GPH 604E</b>	<b>Regional Planning and Development</b>

C suffix in each Paper Code stands for Core Paper and E stands for Elective Paper

## SEMESTER - I

Paper Code	Subject Title	L+T+P	Credits
GPH 101C	Geomorphology	3+1+0	4
GPH 102C	Climatology and Oceanography	3+1+0	4
GPH 103C	Cartographic Techniques in Geography	2+0+2	4
GPH 104E	Physical Geography	2+1+0	3

### PAPER- GPH 101C: GEOMORPHOLOGY

No. of Lectures- 48

No. of Lectures per topic is within brackets.

#### Course Outline:

1. Geomorphology: Concepts and theories of landform development- Catastrophism, Uniformitarianism, Davisian Views, Dynamic Equilibrium, Modern Process Geomorphology. (9 Lectures)
2. Earth: Shape (Concept of Geoid, Ellipsoids), size, reference systems- Geocentric and Geodetic Co-ordinates, structure and composition of earth's crust and interior. (8 Lectures)
3. Earth Movements: Epeirogenic and Orogenic, Plate Tectonics, Types of Folds and Faults, Earthquakes and Volcanoes-associated processes and landforms. (12 Lectures)
4. Exogenetic process- Weathering, Mass wasting. (9 Lectures)
5. Geomorphic Agents- Processes and landform development in Fluvial, Arid and Karst environment. (10 Lectures)

#### Reading List (Paper Code GPH 101C):

1. Ahmed, E., 1985: Geomorphology, Kalyani Publishers, New Delhi
2. Bloom A. L., 2003: Geomorphology: A Systematic Analysis of Late Cenozoic Landforms, Prentice-Hall of India, New Delhi.
3. Bridges E. M., 1990: World Geomorphology, Cambridge University Press, Cambridge.
4. Christopherson, Robert W., (2011), Geosystems: An Introduction to Physical Geography, 8 Ed., Macmillan Publishing Company

5. Dayal, P. (2nd Ed.) 1996: A Textbook of Geomorphology, Shukla Book Depot, Patna
6. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
7. Khullar D.R. 2012: Physical Geography, Kalyani Publishers, New Delhi
8. Knighton A. D., 1984: Fluvial Forms and Processes, Edward Arnold Publishers, London.
9. Richards K. S., 1982: Rivers: Form and Processes in Alluvial Channels, Methuen, London.
10. Selby, M.J., (2005), Earth's Changing Surface, Indian Edition, OUP
11. Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to Physical Geology, 4th Edition, John Wiley and Sons
12. Thornbury W. D., 1968: Principles of Geomorphology, Wiley.
13. Wooldridge W. S. and Morgan R. S., 1959: An Outline of Geomorphology: The Physical Basis of Geography, Longmans.

## **PAPER- GPH 102C: CLIMATOLOGY AND OCEANOGRAPHY**

No. of Lectures- 48

No. of Lectures per topic is within brackets

### **Course Outline:**

1. Structure, Composition and Characteristics of Earth's Atmosphere – Vertical, Horizontal and seasonal variation, Insolation, Heat budget, Temperature inversion. (5 Lectures)
2. Atmospheric Pressure and Circulation – Planetary Winds, Forces affecting Winds, General Circulation, Jet Streams, Climate Change , Global warming. (17 Lectures)
3. Air Masses, Precipitation, Cyclones and Anticyclones – Characteristics of Air mass, Tropical Cyclones, Extra Tropical Cyclones, Monsoon wind system, Effects of El Nino. (13 Lectures)
4. Ocean Salinity, Temperature, Ocean Deposits, Ocean Floor Topography - Indian, Atlantic and Pacific Oceans. (8 Lectures)
5. Oceanic Movements – Waves, Currents and Tides, Tsunamis. (5 Lectures)

### **Reading List (Paper Code GPH 102C):**

1. Barry R. G. and Carleton A. M., 2001: Synoptic and Dynamic Climatology, Routledge, UK.

2. Barry R. G. and Corley R. J., 1998: Atmosphere, Weather and Climate, Routledge, New York.
3. Batten L. J., 1979: Fundamentals of Meteorology, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
4. Boucher K., 1975: Global Climates, Halstead Press, New York.
5. Critchfield H. J., 1987: General Climatology, Prentice-Hall of India, New Delhi
6. Lal, D.S., 200: Climatology, Chaitanya Publishing House, Allahabad
7. Lutgens F. K., Tarbuck E. J. and Tasa D., 2009: The Atmosphere: An Introduction to Meteorology, Prentice-Hall, Englewood Cliffs, New Jersey.
8. Oliver J. E. and Hidore J. J., 2002: Climatology: An Atmospheric Science, Pearson Education, New Delhi.
9. Singh, S. 2007: Climatology, Sharada Pustak Bhawan, Allahabad
10. Thompson D. R. and Perry A. (eds.), 1997: Applied Climatology: Principles and Practice, Routledge, USA and Canada.
11. Trewartha G. T. and Horne L. H., 1980: An Introduction to Climate, McGraw-Hill.
12. Anikouchine W. A. and Sternberg R. W., 1973: The World Oceans: An Introduction to Oceanography, Prentice-Hall.
13. Garrison T., 1998: Oceanography, Wordsworth Company, Belmont.
14. Gerald S., 1963: General Oceanography: An Introduction, John Willey & Sons, New York.
15. Kershaw S., 2000: Oceanography: An Earth Science Perspective, Stanley Thornes, U. K.
16. King C. A. M., 1962: Oceanography for Geographers, Edward Arnold.
17. Pinet P. R., 2008: Invitation to Oceanography (Fifth Edition), Jones and Barlett Publishers, USA, UK and Canada.
18. Sharma R. C. and Vatal M., 1980: Oceanography for Geographers, Chaitanya Publishing House, Allahabad.
19. Sverdrup K. A. and Armbrust, E. V., 2008: An Introduction to the World Ocean, McGraw Hill, Boston.
20. Thurman H. V., 1996: Essentials of Oceanography, Prentice-Hall, New Jersey

### **PAPER- GPH 103C: CARTOGRAPHIC TECHNIQUES IN GEOGRAPHY**

No. of Lectures- 32

No. of Lectures per topic is within brackets

#### **Course Outline:**

1. **(A) THEORY PART:** Cartography – Meaning and Scope, History of Cartography, Cartograms, mapping techniques and generalization principles, Fundamental idea on digital cartography (7 Lectures); **(B) PRACTICAL PART:** Drawing of

Isopleths and Choropleths of any event or process within small area- two exercises.

2. **(A) THEORY PART:** Scales – Map Scale and Types, Scale factor, Conversion of scale, Concept of least count in Vernier Scale (5 Lectures); **(B) PRACTICAL PART:** Construction of scale: linear, comparative, Vernier Scale (linear and Circular) – four exercises.
3. **(A) THEORY PART:** Map design and Layout principles, Map production, Indian Topographical Maps- Types and interpretation, Method of numbering and Scales (7 Lectures); **(B) PRACTICAL PART:** Interpretation of topographical maps in terms of physical and cultural features and 2 Quantitative thematic maps – three exercises.
4. **(A) THEORY PART:** Maps - Types and their classification, Thematic maps and their types (7 Lectures); **(B) PRACTICAL PART:** Measurement of distance and bearing between any two given places/points on maps, Computation of area in desired units using Graphical/ Geometric or Electronic Method), Weather map interpretation– two exercises.
5. **(A) THEORY PART:** Definition of slope, Slope types, Computation of slope between any two points from topographic maps in terms of gradient, angle and per cent (6 Lectures); **(B) PRACTICAL PART:** Slope Analysis – Smith’s and Wentworth’s method, Profile drawing of mountainous/hilly/plateau areas – three exercises.

**Note:** Practical Records are to be maintained for the given assignments of each unit.

**Reading List (Paper Code GPH 103C):**

1. Anson R. and Ormelling F. J., 1994: International Cartographic Association: Basic Cartographic Vol. Pregmen Press.
2. Gupta K.K. and Tyagi, V. C., 1992: Working with Map, Survey of India, DST, New Delhi.
3. Loxton J., 1980: Practical Map Production, John Wiley.
4. Mishra R.P. and Ramesh, A., 1989: Fundamentals of Cartography, Concept, New Delhi.
5. Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
6. Rhind D. W. and Taylor D. R. F., (eds.), 1989: Cartography: Past, Present and Future, Elsevier, International Cartographic Association.
7. Robinson A. H., 2009: Elements of Cartography, John Wiley and Sons, New York.
8. Sharma J. P., 2010: Prayogik Bhugol, Rastogi Publishers, Meerut.

9. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
10. Tyner J. A., 2010: Principles of Map Design, The Guilford Press.

### **PAPER – GPH 104 E: PHYSICAL GEOGRAPHY**

No. of Lectures-32

No. of Lectures per topic is within brackets

#### **Course Outline:**

1. Nature, Scope and branches of Physical Geography, Processes of landform development - Exogenic and endogenic processes with examples of associated features / forms; Earth materials- Composition of the earth's crust, Rocks and minerals. (6 Lectures)
2. Concept of Cycle of Erosion, The lithosphere and Plate Tectonics. (5 Lectures)
3. Elements and factors of weather and climate, Structure and Composition of Atmosphere, Air Circulation, Pressure Systems, Cyclones and anticyclones, Global Climatic regions and Climatic changes and consequences. (9 Lectures).
4. Bottom Configuration of oceans with special reference to Atlantic Ocean, Distribution of salinity, temperature and ocean deposits and resources, ocean Currents. (7 Lectures)
5. Distribution of plants and animals, Structure, functioning and material cycles of Ecosystem, Ecological Balance, Traditional ecological knowledge. (5 Lectures)

#### **Reading List (Paper Code GPH 104E):**

1. Strahler, A. N. and Strahler, A. H., 1989: Elements of Physical Geography (4th Edition), John Wiley & Sons, New York.
2. Dayal, P. (2nd Ed.) 1996: A Textbook of geomorphology, Shukla Book Depot, Patna.
3. Kale V. S. and Gupta A., 2001: Introduction to Geomorphology, Orient Longman, Hyderabad.
4. Hussain, M.: Fundamentals of Physical Geography, Rawat Publications, Jaipur.
5. Raina, N. S.: Contemporary Physical Geography, Rawat Publications, Jaipur.
6. Khullar, D. R.: Physical Geography, Kalyani Publishers, New Delhi.

## SEMESTER- II

Paper code	Subject Title	L+T+P	Credits
GPH 201C	Analytical Physical Geography	3+1+0	4
GPH 202C	Geography of Population and Settlements	3+1+0	4
GPH 203C	Map Projection Systems	2+0+2	4
GPH 204E	Physical Geography	2+1+0	3

### PAPER - GPH 201C: ANALYTICAL PHYSICAL GEOGRAPHY

No. of Lectures - 48

No. of Lectures per topic is within brackets

#### Course Outline:

1. Rocks and Minerals– Characteristics and Classification. (6 Lectures)
2. Drainage Basin– Drainage Types and Patterns, Stream Orders, Bifurcation Ratio, Stream Frequency, Relief Ratio, Drainage Texture, Drainage Density, Overland Flow and Runoff. (12 Lectures)
3. Hypsometric Analysis and River Profiles and their significance. (6 Lectures)
4. Climatic Data Analysis and Interpretation (Rainfall, Temperature and Humidity), Thornthwaite's and Koppen's Climatic Classification. (8 Lectures)
5. Distribution of plants and animals, Structure, functioning and material cycles of Ecosystem, Biomes and ecological units, Ecological Balance, Traditional ecological knowledge; Soil –Characteristics, Chemical properties and Universal Soil Loss Equation and implications of various parameters. (16 Lectures)

#### Reading List (Paper Code GPH 201C):

1. Chorley R. J. (ed.), 1972: Spatial Analysis in Geomorphology, Harper and Row.
2. Gerrarda A. J., 1988: Rocks and Landforms, Unwin-Hyman, UK.
3. Mayer L., 1990: Introduction to Quantitative Geomorphology, Prentice-Hall, New Jersey.
4. Monkhouse F. J., 1970: Principles of Physical Geography, American Elsevier.
5. Morisawa M., 1983: Geomorphological Laboratory Manual, John Wiley & Sons, New York.
6. Nkapp B. J., 1979: Elements of Geographical Hydrology, Unwin- Hyman, UK.



7. Pal S. K., 1998: Statistics for Geoscientists: Techniques and Application, Concept, New Delhi.
8. Strahler A. H., 2008: Modern Physical Geography (4th Edition), Wiley-India.
9. Upton W. B., 1970: Landforms and Topographic Maps, John Wiley & Sons, New York.
10. Zavoianu I., 1978: Morphometry of Drainage Basins, Elsevier, USA

## **PAPER - GPH 202C: GEOGRAPHY OF POPULATION AND SETTLEMENT**

No. of Lectures - 48

No. of Lectures per topic within brackets

### **Course Outline:**

1. Defining the Field – Nature and Scope, Sources of Data with special reference to India (Census, Vital Statistics and NSS). (5 Lectures)
2. Population Size, Distribution and Growth, Theories of Growth, Malthusian Theory and Demographic Transition Theory. (10 Lectures)
3. Population Dynamics: Fertility, Mortality and Migration, Measures, Determinants and Implications, Population Composition and Characteristics, Age-Sex Composition, Rural and Urban, Literacy. (15 Lectures)
4. Rural and Urban Settlements, Hamlet and Village, Town, City, Metropolis, Megalopolis, Conurbation, Rural-Urban Fringe. (10 Lectures)
5. Central Place Theory, Rank-Size Rule, Primate City, Urban Land use Models. (8 Lectures)

### **Reading List (Paper Code GPH 202C):**

1. Barrett H. R., 1995: Population Geography, Oliver and Boyd.
2. Bhende A. and Kanitkar T., 2000: Principles of Population Studies, Himalaya Publishing House.
3. Chandna R. C. and Sidhu M. S., 1980: An Introduction to Population Geography, Kalyani Publishers.
4. Clarke J. I., 1965: Population Geography, Pergamon Press, Oxford.
5. Jones H. R., 1990: Population Geography, Sage.
6. Jones, H. R., 2000: Population Geography, 3 ed. Paul Chapman, London.

7. Lutz W., Warren C. S. and Scherbov S., 2004: The End of the World Population Growth in the 21st Century, Earthscan
8. Newbold K. B., 2009: Population Geography: Tools and Issues, Rowman and Littlefield Publishers.
9. Pacione M., 1986: Population Geography: Progress and Prospect, Taylor and Francis.
10. Peters G. L. and Larkin R. P., 1979: Population Geography – Problems, Concepts and Prospects, Kendall Hunt Publication Co.
11. Chishlom M., 2007: Rural Settlement and Land Use, Transaction Publishers.
12. Daniel, P. 2002: Geography of Settlement, Rawat Publs., Jaipur & New Delhi.
13. Ghosh, Santwana 1999: A Geography of Settlements, Orient Longman, Kolkata.
14. Kalia Ravi, 1999: Chandigarh: The Making of Indian City, Oxford University Press.
15. Kaplan D. H., Wheeler J. O. and Holloway S. R., 2008: Urban Geography, John Wiley.
16. Krishan G., 1999: Inner Spaces – Outer Spaces of a Planned City: A Thematic Atlas of Chandigarh, Celebrating Chandigarh.
17. Ramachandran R., 1989: Urbanisation and Urban Systems of India, Oxford University Press.
18. Ramachandran, R., 1992: The Study of Urbanisation, Oxford University Press, Delhi.
19. Singh R. Y., 1994: The Geography of Settlement, Rawat Publication, New Delhi.
20. Misra, R. P. & Misra, K. eds. 1998: Million Cities of India, Sustainable Development Foundation, New Delhi.

## **PAPER - GPH 203C: MAP PROJECTION SYSTEMS**

No. of Lectures - 32

No. of Lectures per topic is within brackets

### **Course Outline:**

1. **(A) THEORY PART:** Map Projections – Concepts, Classification, Properties and Uses, Principles of construction of graticules on Polar Zenithal Gnomonic and Polar Zenithal Equal Area Projection (8 Lectures); **(B) PRACTICAL PART:** Construction of graticules on Polar cases of Stereographic and Orthographic Projection– two exercises.
2. **(A) THEORY PART:** An introduction to Universal Transverse Mercator (UTM) Projection, its properties and uses, Concept of ellipsoids, Parameters of an ellipsoid. Conical projections - types and properties. (8 Lectures); **(B) PRACTICAL PART:** Construction of graticules on Conical Projection with one standard parallel – one exercise.

3. **(A) THEORY PART:** Cylindrical projections - General properties and uses, Comparison of Simple and Natural Cylindrical Projections in terms of principle of construction and properties, Modified Cylindrical Projections- Gall's and Mercator's Projection (8 Lectures); **(B) PRACTICAL PART:** Construction of graticules on Cylindrical Equal Area and Gall's Stereographic Projection- two exercises.
4. **(A) THEORY PART:** Choice of map projections for the World, Hemispheres and India. (4 Lectures); **(B) PRACTICAL PART:** Drawing of graticules and the map of India on Polyconic and Bonne's Projection– two exercises.
5. **(A) THEORY PART:** Mollweide's and Sinusoidal Projection - principles of construction, properties and uses (4 Lectures); **(B) PRACTICAL PART:** Drawing of graticules for the World and South America on Sinusoidal Projection– two exercises.

**Note:** Practical Records are to be maintained for the given assignments of each unit.

**Reading List (Paper Code GPH 203C):**

1. Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept, New Delhi.
2. Monkhouse F. J. and Wilkinson H. R., 1973: Maps and Diagrams, Methuen, London.
3. Sarkar, A., 2008: Practical Geography: A Systematic Approach, Orient Longman Pvt. Ltd., Kolkata.
4. Singh G. 2004: Map Work and Practical Geography, Vikas Publishing House Pvt. Ltd., Delhi,
5. Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
6. Slocum T. A., McMaster R. B. and Kessler F. C., 2008: Thematic Cartography and Geo visualization (3rd Edition), Prentice Hall.
7. Steers J. A., 1965: An Introduction to the Study of Map Projections, London.
8. Talukdar, S., 2010: Introduction to Map Projections, Eastern Book House, Guwahati-1.

## **PAPER – GPH 204 E: HUMAN GEOGRAPHY**

No. of lectures - 32

No. of Lectures per topic is within brackets

### **Course Outline:**

1. Meaning, Scope, Branches and approaches of Human Geography with emphasis on determinism and possibilism. (6 Lectures)
2. Human adaptation to environment with special reference to mountain, desert and plains; Man as an agent of environmental change with special reference to degradation of forests, wetlands and agricultural lands. (6 Lectures)
3. World population distribution and density patterns; Components of population change – fertility, mortality and migration; concept of over population, under population and optimum population. (8 Lectures)
4. Evolution human settlements, Rural and Urban settlements – Types, patterns, morphology and functions. (6 Lectures)
5. Social Geography- Concept of space, society and environment, social wellbeing, Social groups. (6 Lectures)

### **Reading List (Paper Code GPH 204E):**

1. Rubeinstein, J. 2010: Introduction to Human Geography (4th Edition), Pearson Education, Publications.
2. Adhikari, S.: Geographical Thought, Chaitanya Publications, Allahabad.
3. Hussain, M.: Human Geography, Rawat Publications, Jaipur.
4. Norton, William 2008: Human Geography (6th Edition), Oxford University Press, New Work.
5. Cater, J. and Jones, T. 2000: Social Geography: An Introduction to Contemporary Issues, Edward Arnold, London.

## **SEMESTER- III**

<b>Paper Code</b>	<b>Subject Title</b>	<b>L+T+P</b>	<b>Credits</b>
GPH 301C	Geography of Resources and Economic Activity	3+1+0	4
GPH 302C	Geography of Development	3+1+0	4
GPH 303C	Quantitative Methods in Geography	2+0+2	4
GPH 304E	Regional Geography	2+1+0	3

## **PAPER – GPH 301C: GEOGRAPHY OF RESOURCES AND ECONOMIC ACTIVITY**

No. of lectures - 48

No. of Lectures per topic is within brackets

### **Course Outline:**

1. Concept of Resource and Classification based on Availability and Use. (8 Lectures)
2. Natural and Human; Renewable and Non-renewable; Biotic and Abiotic Resources. (10 Lectures)
3. Conservation and Management of Resources for Sustainable Development. (6 Lectures)
4. Concept and Classification of Economic activities, Primary, Secondary and Tertiary. (10 Lectures)
5. Factors Affecting location of Economic Activity with special reference to Agriculture, Industry and Services. (14 Lectures)

### **Reading List (Paper Code GPH 301C):**

1. Cutter S. N., Renwick H. L. and Renwick W., 1991: Exploitation, Conservation, Preservation: A Geographical Perspective on Natural Resources Use, John Wiley and Sons, New York.
2. Gadgil M. and Guha R., 2005: The Use and Abuse of Nature: Incorporating This Fissured Land: An Ecological History of India and Ecology and Equity, Oxford University Press, USA.
3. Guha, J.L. and Chattaraj, P.R., 2009: A New Approach to Economic Geography, The World Press Pvt.Ltd., Kolkata.
4. Holechek J. L. C., Richard A., Fisher J. T. and Valdez R., 2003: Natural Resources: Ecology, Economics and Policy, Prentice Hall, New Jersey.
5. Jones G. and Hollier G., 1997: Resources, Society and Environmental Management, Paul Chapman, London.
6. Klee G., 1991: Conservation of Natural Resources, Prentice Hall, Englewood.
7. Mather A. S. and Chapman K., 1995: Environmental Resources, John Wiley and Sons, New York.
8. Mitchell B., 1997: Resource and Environmental Management, Longman Harlow, England.
9. Negi, B.S.: Geography of Resources, Kitab Mahal, Delhi.
10. Owen S. and Owen P. L., 1991: Environment, Resources and Conservation, Cambridge University Press, New York.

11. Rees J., 1990: Natural Resources: Allocation, Economics and Policy, Routledge, London.
12. Alexander J. W., 1963: Economic Geography, Prentice-Hall Inc., Englewood Cliffs, New Jersey.
13. Coe N. M., Kelly P. F. and Yeung H. W., 2007: Economic Geography: A Contemporary Introduction, Wiley-Blackwell.
14. Hodder B. W. and Lee Roger, 1974: Economic Geography, Taylor and Francis.

## **PAPER – GPH 302C: GEOGRAPHY OF DEVELOPMENT**

No. of Lectures - 48

No. of Lectures per topic is within brackets

### **Course Outline:**

1. Introduction to sustainable development, Changing Concept of Development, Patterns and problems of development. (10 Lectures)
2. Measuring development, Indicators- Economic, Social and Environmental. (10 Lectures)
3. Theories of Development – Myrdal and Rostow, Concept of Underdevelopment. (10 Lectures)
4. Global Pattern of Development, Inter-regional variations. (10 Lectures)
5. Human development: International, Interstate comparison in India. (8 Lectures)

### **Reading List (Paper Code 302C):**

1. Abler R., Adams J. S., and Gould P. R., 1971: Spatial Organization: A Geographer's View of the World, Englewood Cliffs, Prentice-Hall.
2. Blij H. J. De, 1971: Geography: Regions and Concepts, John Wiley and Sons.
3. Claval P., 1998: An Introduction to Regional Geography, Blackwell Publishers, Oxford and Massachusetts.
4. Friedmann J. and Alonso W. (1975): Regional Policy - Readings in Theory and Applications, MIT Press, Massachusetts.
5. Gore C. G., 1984: Regions in Question: Space, Development Theory and Regional Policy, Methuen, London.

6. Gore C. G., Köhler G., Reich U-P. and Ziesemer T., 1996: Questioning Development: Essays on the Theory, Policies and Practice of Development Intervention, Metropolis- Verlag, Marburg.
7. Haynes J., 2008: Development Studies, Polity Short Introduction Series.
8. Hooper, Paul, 2012: Understanding Development, Polity Press, Cambridge, UK.
9. Peet R., 1999: Theories of Development, The Guilford Press, New York.
10. Potter, B. R. et al, 2004: Geographies of Development, Pearson-Prentice Hall, New York.
11. UNDP 2001-04: Human Development Report, Oxford University Press.
12. World Bank 2001-05: World Development Report, Oxford University Press, New York.

## **PAPER – GPH 303C: QUANTITATIVE METHODS IN GEOGRAPHY**

No. of Lectures - 32

No. of Lectures per topic is within brackets

### **Course Outline:**

1. **(A) THEORY PART:** Significance of Statistical Methods in Geography, Sources of Data, Geographical Data Matrix, Scales of Measurement (Nominal, Ordinal, Interval, Ratio), Descriptive statistics - Measures of central tendency (Mean, Median and Mode for discrete and continuous / grouped data (7 Lectures); **(B) PRACTICAL PART:** Mean Centre of Settlements and Standard Distance, Weighted Mean Centre of Population or any other attribute– two exercises.
2. **(A) THEORY PART:** Deciles, Quartiles and Percentiles of data, Measures of Dispersion - Interquartile Range, Mean Deviation, Standard Deviation, Variance and Coefficient of Variation (6 Lectures); **(B) PRACTICAL PART:** Preparation of variability map (Assam or North East India) of rainfall and agricultural production – two exercises.
3. **(A) THEORY PART:** Sampling: Purposive, Random, Systematic and Stratified Numerical Distribution-Normal, Skewed (7 Lectures); **(B) PRACTICAL PART:** (i) Time Series Analysis - moving average and Least Square Method– two exercises.
4. **(A) THEORY PART:** Simple correlation- Rank correlation coefficient, Product Moment Correlation coefficient ( $r$ ), testing of significance of  $r$  by student's  $t$ -test (4 Lectures); **(B) PRACTICAL PART:** Drawing of Scatter Plot / Scattergram and computation of  $r$  and its interpretation– two exercises.

5. **(A) THEORY PART:** Simple Regression, Setting up Regression Equations (Y on X type and X on Y type), Standard Error of estimate, Regression residuals (8 Lectures); **(B) PRACTICAL PART:** Drawing of regression line of Y on X and Computation of residuals for selected pair of data– one exercise.

**Note:** Practical Records are to be maintained for the given assignments of each unit.

**Reading List (Paper Code GPH 303C):**

1. Berry B. J. L. and Marble D. F. (eds.): Spatial Analysis – A Reader in Geography.
2. Ebdon D., 1977: Statistics in Geography: A Practical Approach.
3. Hammond P. and McCullagh P. S., 1978: Quantitative Techniques in Geography: An Introduction, Oxford University Press.
4. King L. J., 1969: Statistical Analysis in Geography, Prentice-Hall.
5. Mahmood A., 1977: Statistical Methods in Geographical Studies, Concept.
6. Pal S. K., 1998: Statistics for Geoscientists, Tata McGraw Hill, New Delhi.
7. Silk J., 1979: Statistical Concepts in Geography, Allen and Unwin, London.
8. Spiegel M. R.: Statistics, Schaum's Outline Series.
9. Yeates M., 1974: An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York.

## **PAPER – GPH 304E: REGIONAL GEOGRAPHY**

No. of Lectures - 32

No. of Lectures per topic is within brackets

**Course Outline:**

1. Concept of region, regionalization and methods / approaches of regional description. (4 Lectures)
2. World regional geography: An overview of the continents with special emphasis on physical aspects and population characteristics of Asia. (6 Lectures)
3. Regional Geography of India – Location , physiography, climate, soil, vegetation and biodiversity; human and natural resources (major emphasis on Coal, iron and steel, and cotton). (8 Lectures)
4. Regional Geography of North East India: Strategic location of North East India, Relief, Climate, Vegetation, Soils, Population- Growth, Distribution and density patterns in the states. (6 Lectures)



5. Regional Geography of Assam: Relief, climate, drainage; agriculture, natural resources, industries and prospects of tourism. (8 Lectures)

**Reading List (Paper Code GPH304E):**

1. Manku, D. S.: A Regional Geography of the World, Kalyani Publishers, New Delhi
2. Stembridge, J. (1973): Geography of the World, Oxford University Press, London
3. Bhagawati, A. K. (ed) 2007: Geography of Assam, Rajesh Publications, New Delhi.
4. Bhattacharyya, N. N. (2005): North East India: A Systematic Geography, Rajesh Publications, New Delhi.
5. Taher, M. and Ahmed, P. (2007): Geography of North East India, Mani Manik Prakash, Guwahati.

## SEMESTER- IV

Paper Code	Subject Title	L+T+P	Credits
GPH 401C	Regional Geography: The World and South East Asia	3+1+0	4
GPH 402C	Geography of India and North East India	3+1+0	4
GPH 403C	Geoinformatics	2+0+2	4
GPH 404E	Economic and Political Geography	2+1+0	3

### **PAPER – GPH 401C: REGIONAL GEOGRAPHY: THE WORLD AND SOUTH EAST ASIA**

No. of Lectures - 48

No. of Lectures per topic is within brackets

**Course Outline:**

1. World regional Geography: An overview with special reference to physical and population characteristics. (10 Lectures)
2. Regional Geography of Europe: Physiography, Climate, Major resources, Industrial development. (9 Lectures)
3. Regional Geography of North America: Physiography, Climate, Major resources, Industrial development; Resource base and development of USA. (9 Lectures)

4. Regional Geography of Asia: Physiography, Major Resources, Economy; China as an emerging economy. (10 Lectures)
5. South East Asia with emphasis on trade relations among SAARC and ASEAN countries. (10 Lectures)

**Reading List (Paper Code GPH 401C):**

1. Bradshaw, M. et al, 2007: Contemporary Regional Geography, McGraw Hill International Edition.
2. Briggs, K., 1979: A Geographical Note Book of North America, Hodden and Stoughton, London.
3. Dobby, E. H. G., 1970: Monsoon Asia: A Systematic Regional Geography, University of London Press, London.
4. Manku, D. S.: A Regional Geography of the World, Kalyani Publishers, New Delhi.
5. Paterson, J. H., 1975: North America, Oxford University Press, London.
6. Stembridge, J. (1973): Geography of the World, Oxford University Press, London
7. Sounders, C. L., et al, 1998: Essentials of World Regional geography, Saunders College Publishing, USA
8. Regional Geography Books of Modern Geography Series (Asia, Europe, North America), University Tutorial Press, London.

**PAPER – GPH 402C: GEOGRAPHY OF INDIA AND NORTH-EAST INDIA**

No. of Lectures - 48

No. of Lectures per topic is within brackets

**Course Outline:**

1. Physical: Relief and Drainage, Soil and Vegetation, Climatic classification. (5 Lectures)
2. Economic: Mineral and power resources distribution and utilisation of Iron ore, Coal, Petroleum, Gas, Agricultural production and distribution of Rice and Wheat, Industrial development, automobile and Information technology. (16 Lectures)
3. Regionalisation of India: Physiographic, Socio – cultural and Economic regions. (6 Lectures)
4. North East India - An overview of Location Peculiarity, Resources: Minerals, Forest and Wildlife, Agriculture and Industrial development, Environmental problems. (9 Lectures)

5. Population dynamics and associated problems of NE India, Tourism potential, Look-East Policy and North East India. (12 Lectures)

**Reading List (Paper Code GPH 402C):**

1. Deshpande C. D., 1992: India: A Regional Interpretation, ICSSR, New Delhi.
2. Khullar, D. R. 2007: India: A Comprehensive Geography, Kalyani Publishers, 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 Pub., New Delhi.
6. Singh R. L., 1971: India: A Regional Geography, National Geographical Society of India.
7. Singh, Jagdish 2003: India - A Comprehensive and 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, London.
9. Tirtha, Ranjit 2002: Geography of India, Rawat Pub., Jaipur & New Delhi.
10. Bose, A. et. al. eds, 2001: Population in India's Development, 1947-2000, Vikas, New Delhi.
11. Pathak, C. R. 2003: Spatial Structure and Processes of Development in India, Regional Science Assoc., Kolkata
12. Bhagabati, A. K., et.al. (ed), 2007: Geography of Assam, Rajesh Publications, New Delhi
13. Bhattacharyya, N.N., 2005: North East India: A Systematic Geography, Rajesh Publications, New Delhi
14. Dutta, A. K., 2001: The Brahmaputra, National Book Trust, India,
15. Goswami, P. C. 1988: The Economic Development of Assam, Kalyani Publication, New Delhi
16. Gopal K. R., 1991: The North East India, Land, Economy and People, Vikass Publication, New Delhi
17. Sharma, P. (Ed), 2006: State of Environment, Assam, 2004, ASTEC, Guwahati
18. Sharma, S.K. & Sharma U., 2005: Discovery of North-East India (11 Volumes) Mittal Publications, New Delhi
19. Taher, M. And Ahmed, P, 2007: Geography of North- East India, Mani Manik Prakash: Guwahati

## **PAPER – GPH 403C: GEOINFORMATICS**

No. of Lectures - 32

No. of Lectures per topic is within brackets

### **Course Outline:**

1. **(A) THEORY PART:** A concise idea on Geoinformatics, Remote Sensing: Historical development, platforms, Sensors and types of Remote Sensing; Satellite Remote Sensing - Principles, EMR Interaction with Atmosphere and Earth Surface, Landsat and IRS satellite data products and applications, Visual interpretation keys (8 Lectures); **(B) PRACTICAL PART:** Visual Interpretation of IRS / LANDSAT Data.
2. **(A) THEORY PART:** Aerial Photography: Principles, Types and Geometry (6 Lectures); **(B) PRACTICAL PART:** Determination of Scale, Relief displacements and Aerial photograph interpretation.
3. **(A) THEORY PART:** Geographical Information System (GIS) – Definition, Components, Data types and structure; Earth models and referencing systems; Data in GIS - Data sources, type and structure (vector, raster and TIN) and input methods, errors involved (6 Lectures); **(B) PRACTICAL PART:** Georeferencing a part of topographical maps and extraction of point, line and polygon features from it by using standard GIS software package.
4. **(A) THEORY PART:** Concept of database management system (DBMS) and relational database management system (RDBMS), Application areas of Geoinformatics with special focus on land and water resources, sustainable development planning and decision making (8 Lectures); **(B) PRACTICAL PART:** Attribute mapping and analysis, Designing a Digital Elevation Model for a very small watershed in the hilly terrain, its 3-D visualization.
5. **(A) THEORY PART:** Introductory idea on Global Positioning System (GPS)– Working principles and applications, Digital Image Processing and Classification techniques (4 Lectures); **(B) PRACTICAL PART:** Image rectification and reprojection, Image classification to generate Land use/ Land Cover.

**Note:** Practical Records are to be maintained for the given assignments of each unit.

### **Reading List (Paper Code GPH 403C):**

1. Burrough P. A. and McDonnell R. A., 2000: Principles of Geographical Information Systems–Spatial Information Systems and Geostatistics, Oxford University Press.
2. Chang K. T., 2009: Introduction to Geographic Information Systems, McGraw-Hill.

3. Clarke K. C., 2001: Getting Started with Geographic Information Systems, Prentice Hall.
4. DeMers M. N., 2000: Fundamentals of Geographic Information Systems, John Wiley & Sons.
5. French, G. T. 1996: Understanding the GPS: An Introduction to the Global Positioning System, Geo Research Inc.
6. Heywood I., Cornelius S. and Carver S., 2006: An Introduction to Geographical Information Systems, Prentice Hall.
7. Schuurman N., 2004: GIS – A Short Introduction, Blackwell.
8. Campbell J. B., 2007: Introduction to Remote Sensing, Guildford Press.
9. Jensen J. R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
10. Jensen, John R. (2011): Remote Sensing of Environment: An Earth Resource Perspective, Pearson Education India, Noida
11. Joseph, G. 2005: Fundamentals of Remote Sensing, United Press India.
12. Lillesand, T. M., Kiefer R. W. and Chipman J. W., 2004: Remote Sensing and Image Interpretation, Wiley. (Wiley Student Edition).
13. Nag P. and Kudra, M., 1998: Digital Remote Sensing, Concept, New Delhi.
14. Rees W. G., 2001: Physical Principles of Remote Sensing, Cambridge University Press.
15. Singh R. B. and Murai S., 1998: Space-informatics for Sustainable Development, Oxford and IBH Pub.
16. Wolf P. R. and Dewitt B. A., 2000: Elements of Photogrammetry: With Applications in GIS, McGraw-Hill.

## **PAPER – GPH 404E: ECONOMIC AND POLITICAL GEOGRAPHY**

No. of Lectures - 32

No. of Lectures per topic is within brackets

### **Course Outline:**

1. Scope of Economic Geography and its approaches; Resources- renewable and non-renewable; Energy efficiency and their development; (6 Lectures)
2. Principal Natural Resources of the World: (a) Forest- Importance, types, utilization and conservation; Social Forestry, Agro-forestry and Participatory Management of forest; (b) Marine- Resources potential of the ocean; Important marine fisheries; Concept of Exclusive Economic Zone (EEZ). (6 Lectures)

3. Minerals and Manufacturing Industries (a) Minerals- Distribution of producing belts and uses of metals Iron ore, Bauxite, Manganese and Copper; (b) Energy- (c) steel, Agro-based-Cotton and Food processing, Forest based- Paper; (d) Manufacturing Industries: Classification of industries; Metal- based- Iron and Conventional uses and producing belts coal, petroleum, of natural gas, hydel power and atomic energy; Non-conventional-solar, wind, tidal and bio-gas. (11 Lectures)
4. Agriculture: Farming types- Intensive farming of rice, Commercial grain farming of wheat, Plantation farming of tea. (3 Lectures)
5. Political Geography – Meaning , Scope and Geopolitics, Concept of state, nation and nation state, Attributes of states – Frontier, Border, Shape, Size, Territory and Sovereignty, Geopolitical problem of India. (6 Lectures)

**Reading List (Paper Code GPH 404E):**

1. Negi, B. S. : Geography of Resources, Kitab Mahal, New Delhi.
2. Guha, J. L. and Chattoraj, P. R. : A New Approach to Economic Geography, The World Press Pvt. Ltd., Kolkata.
3. Dixit, R. D.: Political Geography: A contemporary Approach, PHI, Learning Pvt. Ltd., New Delhi.
4. 4.Gallahar et al.(2009) : Key Concept in Political Geography, Sage Publications, New Delhi
5. Gautam, A. (2010): Advanced Economic Geography, Sharada Pustak Bhawan, Allahabad.

## SEMESTER- V

Paper Code	Subject Title	L+T+P	Credits
GPH 501C	Evolution of Geographical Thought	3+1+0	4
GPH 502C	Social and Political Geography	3+1+0	4
GPH 503C	Field Techniques and Land Surveying	2+0+2	4
GPH 504E	Quantitative and Cartographic Methods in Geography	2+0+1	3

**PAPER – GPH 501C: EVOLUTION OF GEOGRAPHICAL THOUGHT**

No. of Lectures - 48

No. of Lectures per topic is within brackets

### **Course Outline:**

1. Nature and scope of Geography, Geography as a spatial science, as interdisciplinary and integrated discipline, Branches of Geography, Dichotomies in Geography: Systematic and Regional, Ideographic and Nomothetic. (12 Lectures)
2. Basic concepts in Geography: Spatio-temporal variation, spatial association, spatial interaction, spatial diffusion, spatial organisation. (9 Lectures)
3. Development of Human Geography; Contribution of German, French, British and American geographers. (10 Lectures)
4. Explanation in Geography- Environmental Determinism and Possibilism, Morphology of landscape, Areal differentiation, locational school, humanism, Marxism and Post-modernism. (10 Lectures)
5. Quantitative Revolution and its impact, Systems Approach in Geography (7 Lectures).

### **Reading List (Paper Code 501C):**

1. Abler, R., Adams, J. and Gould, P.P., 1971: Spatial Organization: the Geographers' View of the World, Prentice Hall, Englewood Cliff
2. Adhikari, S., 1992: Geographical Thought, Chailnaya, Allahabad
3. Arentsen M., Stam R. and Thuijjs R., 2000: Post-modern Approaches to Space, ebook
4. Chorley, R.J. & Hagget, P. (eds.) 1967: Models in Geography, Methuen, London
5. Dikshit, R.D., 1997: Geographical Thoughts: A Contextual History of Ideas, Printice Hall of India, New Delhi.
6. Hussain, M., 1989: Evolution of Geographic Thought, Rawat Publications, Jaipur
7. Hartshorne, R., 1939: The Nature of Geography, Rand Mckully, Chicago
8. Hartshorne, R., 1959: Perspective on the Nature of Geography, Indians edition, Scientific Publishers, Jodhpur
9. Harvey, D., 1969: Explanation in Geography, St. Martin Press, New York
10. Johnston, R.J. (ed): The Dictionary of Human Geography, Oxford, Basil, Blackwell
11. Knox, P.L., 1975: Social Wellbeing: A Spatial Perspective, Oxford University.

### **PAPER – GPH 502C: SOCIAL AND POLITICAL GEOGRAPHY**

No. of Lectures - 48

No. of Lectures per topic is within brackets

### **Course Outline:**

1. Origin, Nature and Scope of Social Geography; Approaches in Social Geography; Concept of Space: Types and characteristics of space. (9 Lectures)
2. Social Categories: Defining Caste, Class and Religion, Ethnicity and Gender and their Spatial Underpinnings; Social changes - westernisation and modernisation. (8 Lectures)
3. Geographies of Welfare and Wellbeing: Concept and Components – Healthcare, Housing and Education with Special Reference to Problems of Children, Youth, Aged and Differently Able Populations. (17 Lectures)
4. Political Geography: The field of Political Geography; Concept of nation, state, nation state, city state; Buffer state, Attributes of state; Types and functions of Frontier and Boundary. (7 Lectures)
5. Geopolitics and Mackinder's theory of Heartland, N. J. Spykman's Rimland theory, Geopolitical problems of North East India. (7 Lectures)

### **Reading List (Paper Code 502C): Social Geography**

1. Ahmed A., 1999: Social Geography, Rawat Publications.
2. Casino V. J. D., Jr., 2009: Social Geography: A Critical Introduction, Wiley Blackwell.
3. Cater J. and Jones T., 2000: Social Geography: An Introduction to Contemporary Issues, Hodder Arnold.
4. Holt L., 2011: Geographies of Children, Youth and Families: An International Perspective, Taylor & Francis.
5. Panelli R., 2004: Social Geographies: From Difference to Action, Sage.
6. Rachel P., Burke M., Fuller D., Gough J., Macfarlane R. and Mowl G., 2001: Introducing Social Geographies, Oxford University Press.
7. Smith D. M., 1977: Human geography: A Welfare Approach, Edward Arnold, London.
8. Smith D. M., 1994: Geography and Social Justice, Blackwell, Oxford.
9. Smith S. J., Pain R., Marston S. A., Jones J. P., 2009: The SAGE Handbook of Social Geographies, Sage Publications.
10. Sopher, David (1980): An Exploration of India, Cornell University Press, Ithaca
11. Valentine G., 2001: Social Geographies: Space and Society, Prentice Hall.

### **Reading List (Paper Code 502C): Political Geography**

1. Agnew, J., 2002: Making Political Geography, Arnold
2. Cox, K., 2002: Political Geography: Territory, State and Society, Wiley Blackwell.



3. Dixit, R. D.: Political Geography, A contemporary Approach, PHI, Learning Pvt. Ltd., New Delhi.
4. Gallahar et al., 2009: Key Concept in Political Geography, Sage Publications, New Delhi.
5. Glassner, M., 1993: Political Geography, Wiley.
6. Jones, M., 2004: An Introduction to Political Geography, Sage Publications.
7. Pounds, N. J. G., (...): Fundamentals of Political Geography, .....
8. Taylor, P., and Flint, C., 2000: Political Geography, Pearson Education

### **PAPER – GPH 503C: FIELD TECHNIQUES AND LAND SURVEYING**

No. of Lectures - 32

No. of Lectures per topic is within brackets

#### **Course Outline:**

1. **(A) THEORY PART:** Field Work in Geographical Studies – Role, Value and Ethics of Field-Work. Defining the Field and identifying the problem /case study – Physical landscape and Humanized landscape, Environmental problems (7 Lectures);  
**(B) PRACTICAL PART:** One page each write up on a well defined problem from physical environment, cultural environment and environmental issues observed by you in a locality/region.
2. **(A) THEORY PART:** Field Techniques – Merits, Demerits and Selection of the appropriate tools and techniques; Principles of designing Questionnaires (Open/ Closed / Structured / Non-Structured); Need of Interview and Focused Group Discussions on specialized topics; (8 Lectures) **(B) PRACTICAL PART:** Listing of objectives and designing the questionnaire: Based on any three listed objectives of each problem outlined in practical part of unit 1 and Preparation of Field Report on a chosen theme.
3. **(A) THEORY PART:** Surveying – Definition, Principles and types of Surveying (4 Lectures); **(B) PRACTICAL PART:** Closed Traverse Survey by Prismatic compass (with minimum number of 4 stations and 8 offsets). Longitudinal profile by Dumpy level /Digital Auto Level, Determination of height of an accessible object by Transit Theodolite / Total Station.
4. **(A) THEORY PART:** Traditional land surveying equipment - Land Surveying by Plane table and Prismatic compass, Modern Tools –An overview on Total Station and GPS (7 Lectures); **(B) PRACTICAL PART:** Campus Survey by GPS.

5. **(A) THEORY PART:** Working principles of Barometer, Anemometer, Thermometer, Clinometer (6 Lectures); **(B) PRACTICAL PART:** Handling of weather instruments-Thermometer, Barometer, Anemo Meter, Rain Gauge and Slope measurement by Clinometer.

**Note:** Practical Records are to be maintained for the given assignments of each unit.

**Reading List (Paper Code GPH 503C):**

1. Creswell J., 1994: Research Design: Qualitative and Quantitative Approaches, Sage Publications.
2. Dikshit, R. D. 2003. The Art and Science of Geography: Integrated Readings, Prentice-Hall of India, New Delhi.
3. Evans M., 1988: "Participant Observation: The Researcher as Research Tool" in Qualitative Methods in Human Geography, eds. J. Eyles and D. Smith, Polity.
4. Gopi, S. 2005: Global Positioning System Principles and Applications, Tata McGraw Hill, New Delhi.
5. Kanetkar, T. P. and Kulkarni, S. V. 1972: Surveying and Levelling (Part-1), Vidyarthi Griha Prakashan, Pune.
6. Mukherjee, Neela 1993: Participatory Rural Appraisal: Methodology and Application, Concept Publs. Co., New Delhi.
7. Mukherjee, Neela 2002. Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi
8. Robinson A., 1998: "Thinking Straight and Writing That Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
9. Special Issue on "Doing Fieldwork" The Geographical Review 91:1-2 (2001).
10. Stoddard R. H., 1982: Field Techniques and Research Methods in Geography, Kendall/Hunt.
11. Wolcott, H. 1995. The Art of Fieldwork, Alta Mira Press, Walnut Creek, CA.

**PAPER – GPH 504E: QUANTITATIVE AND CARTOGRAPHIC METHODS IN GEOGRAPHY**

No. of Lectures - 32

No. of Lectures per topic is within brackets

**Course Outline:**

1. A brief introduction to Cartography and its importance in geographical studies. (2 Lectures)

2. Types and characteristics of maps, scale factor in mapping, map projections – definition and classification, types and characteristics of thematic mapping; Practicals on isopleths and choropleths (representation Population data in maps). (8 Lectures)
3. Surveying – Definition, Principles and types of Surveying. (8 Lectures)
4. An introduction to the principles and applications of Remote Sensing, Geographic Information System (GIS) and Global Positioning System (GPS). (6 Lectures)
5. Quantitative methods - geographic data matrix, need of quantification in Geography, Descriptive Statistics (mean, median, mode, dispersion- range, mean deviation, standard deviation and co-efficient of variation) and their characteristics and uses; Practicals on Representation of statistical indices (mean , median, mode) on Graphs/ Charts, Frequency polygon and Histogram. (8 Lectures)  
[ **Unit 2 to 5 will have practical components**]

**Note:** Practical Records are to be maintained for the given assignments of each unit.

**Reading List (Paper Code GPH 504E):**

1. Mishra, R. P. and Ramesh, A. P.: Fundamentals of Cartography, Concept Publishing House, New Delhi.
2. Singh, R. P., Singh R. P. B.: Elements of Practical Geography, Kalyani Publications,
3. Jensen, John R. (2011): Remote Sensing of Environment: An Earth Resource Perspective, Pearson Education India, Noida
4. Burrough, P. A.(1998): Principles of geographical information systems for land resources assessment, Oxford University Press.
5. Robinson, A. H., et al: Elements of Cartography, John Wiley and Sons, New York.
6. Hammond, R. and McCullagh, P. (1965): Statistical Methods in Geographical Studies, Oxford University Press.
7. Mahmood, A.: Quantitative Methods in Geography, Rajesh Publications., New Delhi.

## SEMESTER- VI

Paper Code	Subject Title	L+T+P	Credits
GPH 601C	Disasters and Hazards	3+1+0	4
GPH 602C	Regional Planning and Development	3+1+0	4
GPH 603C	Research Methodology and Modern Techniques	2+0+2	4
GPH 604E	Regional Planning and Development	2+1+0	3

### PAPER – GPH 601C: DISASTERS AND HAZARDS

No. of Lectures - 48

No. of Lectures per topic is within brackets

#### Course Outline:

1. Disasters – Definition, Classification and related concepts of Hazard and risk. (8 Lectures).
2. Impact of Disasters: Case Studies from Developed and Developing Countries; Draught, Flood and Earthquake hazards in India. (18 Lectures)
3. Concept of vulnerability to disasters – its dimension and analysis. (6 Lectures)
4. Response to Disasters – Community, Non-Government Organizations, National and International. (10 Lectures)
5. Disaster Management – Principles / Practices of Mitigation and Preparedness. (6 Lectures).

#### Reading List (Paper Code 601C):

1. Frampton C., Hardwick and McNaught, 1999: Causes, Consequences and Management of Disasters, Hodder and Stoughton, London.
2. Frank W. L., 1986: The Violent Earth, Croom Helm, London.
3. Goel S. L., 2001: Encyclopaedia of Disaster Management, Vol. 1, 2 and 3, Deep and Deep Publications, New Delhi.
4. Kapur A., 2010: Vulnerable India: A Geographical Study of Disasters, Sage Publication, New Delhi.
5. Keith S., 2002: Environmental Hazards: Assessing Risk and Reducing Disaster, Routeledge, London.

6. Keller E. A. and Blodgett R. H., 2006: Natural Hazards: Earth's Processes as Hazards, Disasters and Catastrophe, Prentice Hall, New Jersey.
7. Singh R. B. (ed.), 2006: Natural Hazards and Disaster Management: Vulnerability and Mitigation, Rawat Publications, New Delhi.
8. UN and WMO, 2002: Living with Risk: A Global Review of Disaster Reduction Initiatives, International Strategy for Disaster Reduction, (ISDR), WMO and UN Publication.
9. Wisner B., Blaike P., Cannon T. et al., 1994: At Risk: Natural Hazards, People's Vulnerability and Disasters, Routledge, London.

## **PAPER – GPH 602C: REGIONAL PLANNING AND DEVELOPMENT**

No. of Lectures - 48

No. of Lectures per topic is within brackets

### **Course Outline:**

1. Introduction: Concept of Region, Classification, Regional Disparities, Need for Regional Planning. (8 Lectures)
2. Regional Planning in India, Regional Approach to Planning in India's Five Year Plans, Experience of Regional Planning in India: Decentralization and Multi-Level Planning - State, District and Block level Planning. (14 Lectures)
3. Planning Regions (identification, characteristics, problems and policies): Planning regions of India; Case Studies of a River Valley Development Plan - Damodar Valley. Tribal Area Development Plan. (10 Lectures)
4. Hill Area Development Plan, Planning regions of North East India. (9 Lectures)
5. Metropolitan Regional Plan, National Capital Region Plan. (7 Lectures)

### **Reading List (Paper Code 602C):**

1. Bhalla A. S., 1992: Uneven Development in the Third World: A Study of India and China, Macmillan, London.
2. Bhat, L.S., 1976: Micro Level Planning in India, K.B. Pub. New Delhi.
3. Chandna, R. C., 2000: Regional Planning A Comprehensive Text, Kalyani Publishers, Ludhiana.
4. Dreze J. and Sen A., 1996: Indian Development: Select Regional Perspectives, Oxford University Press.
5. Hall, Peter 1992: Urban and Regional Planning, Routledge, London.

6. Misra R. P. (ed), 1980: Regional Planning Concepts, Techniques, Policies and Case Studies, Vikas Publishing, Delhi.
7. Misra R. P., Sundaram K. V. and Prakasa Rao V. L. S., 1974: Regional Development Planning in India A New Strategy, Vikas Publishing, Delhi.
8. Sharma H. S and Chattopadhyaya S., 1998: Sustainable Development: Issues and Case Studies, Concept Publishing, Delhi
9. Sundaram K. V., 1980: Decentralised Multilevel Planning: Principles and Practices(Asian and African Experiences), Concept Publishing, Delhi.
10. Yugandhar, B. N. and Mukherjee, Amitava (eds.) 1991: Readings in Decentralised Planning (with special reference to District Planning), 2 vols. Concept Pubs. Co., New Delhi.
11. Misra, R. P. & Misra, K. eds. 1998: Million Cities of India, Sustainable Development Foundation, New Delhi.

## **PAPER – GPH 603C: RESEARCH METHODOLOGY AND MODERN TECHNIQUES**

No. of Lectures - 32

No. of Lectures per topic is within brackets

### **Course Outline:**

1. **(A) Theory part:** Key methods and skills in Geography - Literacy (Descriptive / Qualitative), Numeracy (Quantitative) and Graphicacy (Cartographic): Their significance, need and limitations (8 Lectures); **(B) Practical part:** Creation of geographic (spatial) district level database of Assam and mapping of one social and one economic attribute using standard GIS package- two exercises .
2. **(A) Theory part:** Sources of geographic data, data processing, analysis and presentation (6 Lectures); **(B) Practical part:** Processing of bivariate data using Spread Sheet (MS Excel) / SPSS - Computation of Mean, Standard Deviation, Coefficient of correlation and fitting of regression line of the dataset- four exercises.
3. **(A) Theory part:** Definition of research, identification of research problem - major criteria and considerations, Essentials of formulating research questions and hypothesis (6 Lectures); **(B) Practical part:** Hypothesis testing - testing of coefficient of correlation of bivariate samples- one exercise.

4. **(A) Theory part:** Literature Review and Referencing Systems in research - its needs, functions, significance and limitations; Introductory idea on use of theory and model in Geography (6 Lectures); **(B) Practical part:** Construction of population growth model and The distance decay model from the given datasets using M S Excel- two exercises.
5. **(A) Theory part:** Research and field report writing - Guiding principles, reporting components, techniques (6 Lectures); **(B) Practical part:** Digital Image Processing- Raster computation, Image classification and reporting the statistics of classification results.

**Note:** Practical Records are to be maintained for the given assignments of each unit.

**Reading List (Paper Code GPH 603C):**

1. Burrough, P. A. (1998): Principles of Geographical Information Systems for Land Resources Assessment, Oxford University Press.
2. Burrough P. A. and McDonnell R. A., (2000): Principles of Geographical Information Systems–Spatial Information Systems and Geostatistics, Oxford University Press.
3. Chorley, R. J., Hagget, P. (1979): Integrated Models in Geography, Methuen & Co. Ltd., London.
4. Gonjalez, R. C., Woods, R.E. (2000): Digital Image Processing, Addison-Wesley Longman (Singapore), Pvt. Ltd, Delhi-92.
5. Hammond, R. and McCullagh, P. (1965): Statistical Methods in Geographical Studies, Oxford University Press.
6. Jensen J. R., 2004: Introductory Digital Image Processing: A Remote Sensing Perspective, Prentice Hall.
7. Jensen, John R. (2011): Remote Sensing of Environment: An Earth Resource Perspective, Pearson Education India, Noida
8. King, L. J., (1969): Statistical Analysis in Geography, Prentice-Hall.
9. Mahmood, A.: Quantitative Methods in Geography, Rajesh Publications., New Delhi.
10. Mathew, J. A., David, H.J., (2008): Geography: A Very Short Introduction, Oxford, New York
11. Pal S. K., (1998): Statistics for Geoscientists, Tata McGraw Hill, New Delhi.
12. Robinson A., 1998: "Thinking Straight and Writing That Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
13. Silk J., (1979): Statistical Concepts in Geography, Allen and Unwin, London.
14. Spiegel M. R.: Statistics, Schaum's Outline Series.
15. Stoddard R. H., 1982: Field Techniques and Research Methods in Geography, Kendall/Hunt.
16. Prasad, H., (1992): Research Methods and Techniques in Geography, Rawat Publications, Jaipur.

17. Yeates, M., (1974): An Introduction to Quantitative Analysis in Human Geography, McGraw Hill, New York.

### **PAPER – GPH 604E: REGIONAL PLANNING AND DEVELOPMENT**

No. of Lectures - 32

No. of Lectures per topic is within brackets.

#### **Course Outline:**

1. Concept of Regional Planning, Planning regions and Economic Development and its indicators. (6 Lectures)
2. Approaches in Regional planning – Synoptic, Operational, co-ordinating. (6 Lectures)
3. Regional planning for sustainable development in urban and rural areas. (8 Lectures)
4. Integrated planning for problem areas: Tribal sub-plan, Flood prone area and Hill area. (8 Lectures)
5. Regional Planning Strategies under Five Year Plans in India. (4 Lectures)

#### **Reading List (Paper Code GPH 604E):**

1. Mishra, R. P. (1992): Regional Planning, Concepts, Techniques and Case Studies, Concept Publications, New Delhi.
2. Bhat, L. S. (1976): Micro-level Planning in India, K. B. Publications, New Delhi.
3. Glasson, J.(1974): An Introduction to Regional Planning, Hutchinson, London
4. Hopper, P. (2011): Understanding Development, Polity Press, Massachussets.
5. Rao, P. K. (2000): Sustainable Development, Blackwell, Malden, USA.



