

GEOGC401: GEOGRAPHIC THOUGHT

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Fundamentals: i. Development of Geographical ideas: Indian, Greek and Roman ii. Place of Geography in relation to other Natural and Social Sciences
II	Development of Modern Geography: i. Impact of Explorations and Discoveries ii. Founders of Modern Geography: Humboldt and Ritter
III	Dichotomies in Geography: i. Physical and Human ii. Determinism and Possibilism iii. Regional and Systematic iv. Qualitative and Quantitative
IV	Schools of Geographic Thought: i. German ii. French iii. Anglo-American iv. Emergence of New Geography: Quantitative Revolution v. Behavioural, Radical, Humanistic and Neo-determinism Approaches

Suggested Readings:

1. Adhikari, S: Geographical Thought
2. Bunge, W. (1966): Theoretical Geography, Lund University, Series C
3. Dubey, B. (1967): Geographical Concept in Ancient India – NGS, Varanasi
4. Dickinson, R.G. (1969): The Makers of Modern Geography, Routledge Kegan Paul, London
5. Harthshorne, R. (1939): The Nature of Geography, Association American Geography, O. Lonchester
6. Hussain, M: Evolution of Geographical Thought, Rawat Publication, Jaipur
7. Misra, R.P. (1983 ed.): Contributions to Indian Geography Concepts and Approaches, Heritage Publication, New Delhi.
8. Taylor, G (1953 ed.): Geography in the 20th Century, Methuen, London
9. Tripathi, M.P: Development of Geographic Knowledge in Ancient India, Bharatiya Vidya Prakashan, Varanasi.
10. Wooldrige, S.W. (1960): Geographer as a Scientist, London

GEOGC402: GEOMORPHOLOGY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Development of Modern Geomorphic thought: i. Contribution of European and American school ii. Contribution of Indian scholars to geomorphology iii. Recent trends in Geomorphology
II	Tectonics and Mega geomorphology: i. Continental drift, ii. Sea floor spreading, iii. Plate tectonics; iv. Geomorphological realms a. Continental Shield b. Mountains c. River Valleys d. Planation surfaces
III	Geomorphic Processes: i. Processes and types of Mass wasting/movements; ii. Erosional and depositional processes a. Fluvial b. Aeolian c. Glacial d. Coastal e. Karst
IV	Rivers and River Basin: i. Processes of Channel initiation and Network development ii. Stream flow and stream energy iii. Forms of valley development and profile of equilibrium iv. Types and origin of River terraces v. Delta formation

Suggested Readings:

1. Bloom, A.L. (1978) : A Systematic Analysis of late Cenozoic Landforms, Englewood Cliffs, M.J. Prentice Hall.
2. Hart, M.G. (1986) : Geomorphology : Pure and Applied, George Allen and Unwin, London.
3. Holmes, A. 1978: Principles of Physical Geology, 3rd Edn. London . Nelson.
4. King, C.A. M. : Techniques in Geomorphology : London : Edward Arnold.
5. Leopold, L.B. : Fluvial Processes in Geomorphology.
6. Pitty, A.F. : Geomorphology
7. Scheidegger, A.E. : Theoretical Geomorphology. Berlin : Springer – Verlag.
8. Small, R.J. : A Text Book on the Study of Landforms.
9. Thorn, C.E. : Introduction to Theoretical Geomorphology.
10. Thornbury, W.D. (1969) : Principles of Geomorphology. New York : Wiley.

GEOGC403: CLIMATOLOGY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Bases of Weather and Climate: i. The Atmosphere and its radiative effects ii. Insolation and temperature iii. Atmospheric Moisture: Humidity and Precipitation iv. Atmospheric Pressure systems and circulation patterns, ITCZ
II	Weather and Atmospheric Disturbances: i. Air masses and Fronts ii. Cyclones: Tropical and Temperate iii. Extreme events: Drought - Flood iv. El-Nino and La-Nina
III	Classification of Climate and contemporary issues: i. Koeppen's and Thornthwaite's classification of world climate ii. Classification of climate in India iii. Global Warming, Ozone Depletion and Climate change
IV	Applied Climatology: Concepts and Application i. Weather forecasting ii. Agroclimatology iii. Hydrometeorology

Suggested Readings:

1. Critchfield, H.J. (1983) : General Climatology, Prentice Hall of India, New Delhi.
2. Lal, D.S. – Climatology.
3. Oliver John, E. and Hidore John, J. (2003) : Climatology, Pearson Education.
4. Subramanyam (1983) : General Climatology, Heritage, New Delhi.
5. Trewartha, G.T. and Horn, L.A. (1980) : An Introduction to Climate, Mc Graw Hill, New York.

GEOGC404: BIOGEOGRAPHY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Concept of Biogeography: i. Concepts, Scope ii. Biogeography and related sciences iii. Marine Biogeography (marine communities) iv. Habitat (Aquatic and Terrestrial) v. Biodiversity and Hotspots
II	Phytogeography: i. Factors determining plant growth and distribution (Topography, soil, climate and human) ii. Plant community and its vertical stratification iii. Phytogeographic regions of the world iv. Plant succession (Glacial, floodplain and agricultural land)
III	Zoogeography: i. Animal community ii. Geographical factors determining growth and distribution of Animals iii. Zoogeographic regions of the world & species distribution.
IV	Conservation of Plants and Animals: i. Conservation (<i>in-situ</i> , <i>ex-situ</i> and Red Data Book) ii. National Forest Policy of India (Forest Act of 1878, Forest Policy of India 1952 and 1998) iii. Biodiversity Act iv. Traditional Ecological Knowledge (TEK)

Suggested Readings:

1. Agarwal, D.P. (1992): Man and Environment in India through Ages, Books and Books
2. Andrew Millington: The Sage Handbook of Biogeography, Sage
3. Bradshaw, M.J. (1979): Earth and Living Planet, ELBS, London
4. Gaur, R. (1987): Environment and Ecology of Early Man in Northern India, R.B. Publication, Corporation.
5. Hugget, R.J. (1998): Fundamentals of Biogeography, Routledge, USA.
6. Illies, J. (1974): Introductory to Zoogeography, Mcmillan, London
7. Pager P: Applied Plant Geography, Rawat Bookseller
8. Pears, N. (1985): Basic Biogeography, 2nd Edn, Longman, London
9. Singh, R.B.: Biogeography and Biodiversity, Rawat Book seller
10. Singh S: Biogeography, Rawat Bookseller

GEOGC405: Practical I - CARTOGRAPHIC TECHNIQUES

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 0 Credits Practical: 4 Credits Tutorial: 0 Credits

Unit	Outline
I	Morphometric Analysis: i. Contours and contouring from Spot height ii. Wentworth's and Smith's method iii. Stream ordering and bifurcation ratio iv. Circulatory and elongation ratio v. Hypsometric curve and Hypsometric integral
II	Representation of Climatic data: i. Climatograph ii. Climograph iii. Hythergraph iv. Ergograph
III	Representation of Population and Economic data: i. Population growth ii. Population distribution iii. Population composition iv. Production and distribution of economic data
IV	Flora and Fauna survey and mapping: i. Phytogeographic survey ii. Zoogeographic survey iii. Mapping of plant and animal distribution (NNA)

Suggested Readings:

1. Bygott, G.L: Mapworks and Practical Geography
2. Mahmood, A. (1977): Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi.
3. Mishra, R.P and Ramesh, A. (1969): Fundamentals of Cartography, Concept Publishing Company, New Delhi.
4. Singh, R.L. and Singh, Rana, P.B. (1991): Elements of Practical Geography, Kalyani Publishers, Ludhiana.
5. Singh, R.L and Singh, R. (1991): Mapwork and Practical Geography, Central Book Depot, Allahabad.
6. Wilkinson, H.R. and Monkhouse, F.J. (1952): Maps and Diagrams, B.I. Publications, Pvt. Ltd, New Delhi.

GEOGC451: POPULATION GEOGRAPHY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Field of Population Geography: i. Nature, Scope, Development and Approaches ii. Relationship with Demography iii. Population – Resource Relationship
II	Population Growth and Distribution: i. Global population growth trend and distribution ii. Determinants of Population Changes (fertility, mortality and mobility) iii. Population growth and associated issues in Developed and Developing Countries
III	Population Growth Theories: i. Malthus ii. Marx iii. Ricardo iv. Demographic Transition Model
IV	Population Composition: i. Age Sex structure, Economic composition ii. Rural – Urban Composition iii. Concept of Ageing and Gender in population composition

Suggested Readings:

1. Bhendea, A and Kanitkar, T. (1985): Principles of Population Studies, Himalayan Publishing House, Mumbai.
2. Chandana, R. C. and Sidhu, M. S. (1980): Introduction to Population Geography, Kalyani Publishers, Ludhiana.
3. Clarke, J. L. (1992): Population Geography, Pergamon Press, Oxford.
4. Demko, G. J., Rose, H. M. and Schnell, G. A. (1979): Population Geography: A Reader, Mc Graw Hill, New York.
5. Dubey, R. M. (1981): Population Dynamics in India, Chugh Publications, Allahabad.
6. Mandal, R. B., Uyanga, J and Prasad, H. (1989): Introductory Methods in Population Analysis, Concept Publishing, New Delhi.
7. Sundaram, K. V. and Nangia, S. (1985): Population Geography, Heritage, New Delhi.
8. Samuel H. Preston (2000). Demography: Measuring and modeling population processes, Willey – Blackwell.
9. Thomas Robert Malthus and Geoffrey Gilbert (1999). An Essay on the principles of Population, Oxford University Press, USA.

GEOGC452: ECONOMIC GEOGRAPHY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Field of Economic Geography and Resources i. Nature, scope and approaches ii. Dynamic concept of resources iii. Classification of resources iv. Mineral and Energy resources: Global perspectives v. Resource Conservation and Policies
II	Economic Geography of Agriculture i. Types of Agriculture ii. Factors influencing agricultural activities iii. von Thunen's Agricultural model iv. Place of Agriculture in global economy
III	Economic Geography of Manufacturing i. Types of Industries ii. Factors influencing industrial activities and location iii. Theories of Industrial location: Weber, Losch and Smith iv. Environment and Industrial sustainability
IV	Economic Geography of Transport and Trade i. Role of transport and communication in resource mobilization ii. Significance of trade in global and national economy iii. Major trading blocks of the world iv. Special Economic Zones of India

Suggested Readings:

1. Agarwal & Monga: Economic Geography
2. Alexander, J.W. (1974): Economic Geography, Prentice Hall
3. Dubey, R.N. & Singh, L: Economic and Commercial Geography
4. Guha and Chattoraj (1971): A New Approach to Economic Geography, Oxford
5. Leong & Morgan: Human and Economic Geography
6. Miller, E.W.: A Geography of Manufacturing, Prentice Hall
7. Singh, B.S.: Geography of Resources
8. Singh, G.S.: Economic and Commercial Geography
9. Singh, J.S.: Agriculture Geography
10. Zimmerman: Economic Geography

GEOGC453: CULTURAL GEOGRAPHY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Introduction: i. Concept of Cultural Geography: Nature, Scope and Approaches ii. Cultural convergence and divergence processes iii. Cultural changes: Perception, behavioralism and relativism iv. Major cultural realms of the world.
II	Evolution and growth of Cultural groups: i. Cultural Practices and identity ii. Folk Geography; cultural landscape and cultural ecology iii. Religion: Origin, diffusion and spatial distribution iv. Language: Origin, diffusion and spatial distribution
III	Bases of Cultural Diversity in India: i. Cultural diversity ii. Race, language and religion. iii. Geographical factors as bases of Cultural diversity iv. Cultural regions of India.
IV	Cultural changes: i. Various economic activities & cultural adaptations ii. Agriculture, industrialization and development iii. Technological changes and their geographic implications iv. Modernization and social structure.

Suggested Readings:

1. Broek, J.C. and Webb, J.W: A Geography of Mankind, McGraw Hill, New York, 1978.
2. Crang, Mike: Cultural Geography, Routledge publications, London, 1998.
3. Harmandorf, Tribes of India: The Struggle for Survival, Oxford University Press, Delhi, 1989.
4. Hazra, (ed.), Dimensions in Human Geography, Rawat Publication, Jaipur, 1997.
5. Hutchinson, and Smith, D: Ethnicity; Oxford University press, Oxford, 1996.
6. Jordon, & Lester G: The Human Mosaic, Harpar& Row, New York; 1979.
7. Massey, D & Jess P. A Place in the World: Places, Cultures and Globalization Oxford University, New York, 1995.
8. Massey, et.al (ed), Human Geography Today, Polity Press, Cambridge, 1999.
9. Mukherjee, A.B. and Aijazuddin, A: India: Culture, society and Economy, Inter-India Publication, New Delhi, 1985.
10. Steve.P&Michael.K (ed): Places and the Politics of Identify, Routledge, London, 1993.
11. Schwartzberg, J.E: Historical Atlas of South Asia, University of Chicago, 1978.

GEOGC454: REGIONAL PLANNING

Total Marks : 100
 Internal Exam Marks : 20 Time: 1 hr
 End Term Exam Marks : 80 Time: 3 hrs
 Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Fundamentals: <ol style="list-style-type: none"> i. Concept, nature and scope of Regional Planning ii. Regional planning and national development iii. Planning regions: Concepts and types iv. Planning regions of India
II	Conceptual: <ol style="list-style-type: none"> i. Concept of growth centres, growth pole, service centre, market centres and regional development with reference to India i. Economic development and regional development ii. Regional Economic complexes iii. Regional imbalances and inequalities in India
III	Approaches: <ol style="list-style-type: none"> i. Approaches of Hirschman, Myrdal and growth theories of Perroux, Christaller ii. Approaches to integrated regional planning at different levels: local, regional and national iii. Multi-level planning in India: State, District and Block level planning for tribal, agricultural, industrial and urban (metropolitan) regions iv. Methods and purpose of regionalization
IV	Development perspective: <ol style="list-style-type: none"> i. Regional Planning in Five Year plans ii. Backward area development iii. Decentralized planning themes and issues iv. Institutional framework for regional planning- a case study of North-East Region

Suggested Readings:

1. Bernstein, H. (1979): Sociology of Development versus Sociology of Underdevelopment in D. Lehmann (ed.), Development Theory: Four Critical Studies, Cass, London
2. Brookfield, H.C. (1975): Interdependent Development, Methuen, London
3. Cary, J. Hudson, R. and Lewis, J. (ed) (1980): Regions in Crisis, Croom Helm, London.
4. Dewar, D. et al (1986): Regional Development and Settlement Policy, Allen and Unwin, Boston
5. Forbes, D.K. (1984): The Geography of Underdevelopment: A critical survey, Croom Helm, London
6. Hall, P. (1981): Urban and Regional Planning, Allan and Unwin, Boston.
7. Hansen, N.N. (1972): Growth Centres in Regional Economic Development, Macmillan, London
8. Kuklinski, A. (1975): Regional Development and Planning, Sythoff, London
9. Mishra, R.P., K. V. Sundaram and V.L.S.P. Rao (1974): Regional Development Planning in India, Viking, Delhi
10. Stohr, W.B. and Taylor, D.R.F. (1981): Development from above or Development from Below, John Wiley, Chichester.

GEOGC455: PRACTICAL II - QUANTITATIVE TECHNIQUES AND COMPUTER APPLICATION

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 0 Credits Practical: 4 Credits Tutorial: 0 Credits

Unit	Outline
I	i. Significance of quantitative techniques in Geography ii. Measures of Central tendencies: Mean, Median and Mode iii. Measures of Dispersion: Mean deviation, Standard deviation, Coefficient of Skewness, Quartiles
II	i. Measures of Bivariate: Correlation coefficient, Regression and Residual ii. Time series analysis: Moving average method, Least square method, Testing of hypothesis
III	i. Chi square (X^2) test ii. 't' test iii. 'f' test iv. Anova
IV	i. Basics of Computers ii. Access to open source data and information: Internet / Inflightnet iii. Presentation (PowerPoint) iv. Data analysis and graphics using Excel, SPSS for statistics

Suggested Readings:

1. Alvi Z. : Statistical Geography, Rawat Bookseller
2. Gupta, S.P.: Statistical Methods
3. James E. Burt, Gerald M.B: Elementary Statistics for Geographers
4. J. Chapman McGrew, Charle: An Introduction to Statistical Problem solving in Geography
5. Mahmood, Aslam (1977): Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi
6. Peter A. Rogerson: Statistical Methods for Geography: A Student's Guide

GEOGC501: REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEM

Total Marks : 100
 Internal Exam Marks : 20 Time: 1 hr
 End Term Exam Marks : 80 Time: 3 hrs
 Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Bases of Remote Sensing: <ol style="list-style-type: none"> i. Definition and historical development ii. Interaction of Electro-Magnetic Radiation (EMR) with atmosphere and earth surface. iii. Sensors and Remote Sensing data products.
II	Aerial Photographs and Photogrammetry: <ol style="list-style-type: none"> i. Types of Aerial photos ii. Fundamentals of air photographs interpretation iii. Geometry of aerial photographs: tilt and relief displacement.
III	Digital Image Processing: <ol style="list-style-type: none"> i. Restoration ii. Enhancement iii. Classification: supervised and unsupervised.
IV	Geographical Information System and GPS: <ol style="list-style-type: none"> i. Concepts and data capture ii. Global Positioning Systems (GPS) iii. Data model and Topology

Suggested Readings:

1. B arret, E.C. and Curtis, L.F. (1976): Introduction to Envir

1. Environmental Remote Sensing, John Wiley and Sons, New York.
2. Camphell, J.B. (1983): Mapping the land, American Association of Geographers, Reprint in India, Scientific Publisher, Jodhpur.
3. Hyatt E: Remote Sensing
4. Kathuria C.D.: Remote Sensing and Geographical Information System
5. Luder, D. (1959): Aerial Photography Interpretation: Principles and Applications, Mc Graw Hill, New York
6. Markandey K: Urban Environment and Geoinformatics
7. Nag P: Introduction to Geographical Information System.
8. Ramaswamy SM: Remote Sensing in Water Resources
9. Robert: Digital Cartography
10. Sabins Flyed, F. (1978): Remote Sensing: Principles and Interpretation, San Francisco, WH France

GEOGC502: APPLICATION OF REMOTE SENSING AND GIS

Total Marks : 100
 Internal Exam Marks : 20 Time: 1 hr
 End Term Exam Marks : 80 Time: 3 hrs
 Lecture : 0 Credits Practical: 4 Credits Tutorial: 0 Credits

Unit	Outline
I	i. Preparation of Base map ii. Preparation of land use / land cover mapping using stereopair and Satellite data
II	i. Delineation of litho-unit and rock mass strength ii. Extraction of hydrological features from aerial photograph and Satellite data
III	i. Georeferencing of maps and images (coordinate & feature based) and Mosaicing ii. Contrast enhancement of Satellite image: Histogram stretch, PCA and Band rationing iii. Image Classification: Supervised & Unsupervised
IV	i. Digitization: Point, line, polygon layer from maps and images ii. Single layer operation: Proximity, Buffer analysis, DEM generation, Map slicing iii. Multiple layer operation: Clip, map crossing, map integration iv. Thematic map generation and Map query

Suggested Reading s:

1. Allan, T.D. (Ed.): Satellite Micro Wave Remote Sensing, Micro

Ellis Horwood, Chichester

2. Awry, T.E. & G.L. Berlin: Interpretation of Aerial Photographs (4th ed) Burgers, Minneapolis, Minn.
3. Burrough, P.A. and McDonnel, R.A. (1998): Principles of Geographical Information Systems, Oxford University Press, Oxford.
4. Colwell, R.N.: American Society of Photogrammetry, Manual of Remote Sensing, Vol. I & II, American Society of Photogrammetry, Falls Church, Virginia.
5. Frank, A.U and Campari, I (ed.) (1993): Spatial Information Theory: A Theoretical Basis for GIS.
6. Lillisand, et al. : Remote Sensing and Image Interpretation
7. Lisle, R.J. (1999): Geological Structure and Maps: A Practical Guide, Pergamon Press, New York.
8. Miller, V.C.: Photogeology, Mc Graw Hill, New York

GEOGE511: RURAL DEVELOPMENT

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Fundamentals of Rural Settlement: i. A Geographical perspective of rural development ii. Rural Settlements structure and spatial organization iii. Concepts of integrated rural Land use and settlement planning
II	Dimensions of Rural sociology: i. Differences in Rural-Urban sociology and continuum ii. Dichotomy and integration of rural and urban components in health, education, religion, marriage and migration iii. Gender issues in Rural areas
III	Dimensions of Rural economy: i. Physical and human resources ii. Rural land use pattern iii. Sectoral structure of the rural economy and employment iv. Agriculture, household industries and infrastructural aspects
IV	Rural poverty and under development: i. Concept and measurement of rural poverty ii. Rural development strategies of India: Case studies of Governmental and other agencies iii. Incidences of Poverty in Indigenous communities iv. Planning and development for NE region of India with special reference to Arunachal Pradesh

Suggested Readings:

1. Boudeville, J.R. (1966): Problems of Regional Economic Planning, Edinburg, University Press Edinburg
2. Bunge, W. (1966): Theoretical Geography, Lund studies in Geography Series, CI, Lund, Gleerup.
3. Chenery, H. et. Al (1974): Redistribution with Growth, Oxford University Press, Oxford
4. Darwent, D.F. (1969): Growth poles and growth centres in regional planning: a review, Environment and Planning
5. Forbes, D. (1982): Geography of Under – development, Croom Helm, London
6. Frank, A.G. (1981): Crisis in the Third World, Heinerman, London
7. Gilbert, A. (ed.) (1976): Development Planning and Spatial Structure, John Wiley, London
8. Hagerstrand, T. (1967) Innovation Diffusion as a Spatial Structure, John Wiley, London
9. Hilhorst, J.G.M (1971) Regional Problems, Macmillan, London

GEOGE512: GEOGRAPHY OF NORTH-EAST INDIA

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Physiographic set up: <ul style="list-style-type: none">i. Physiography and drainageii. Climate and Soiliii. Flora, fauna and biodiversityiv. Natural hazards
II	Peopling of North-East India: <ul style="list-style-type: none">i. Origin and migrationii. Ethnic composition and distributioniii. Linguistic and Religious composition
III	Society, Economy and Culture: <ul style="list-style-type: none">i. Traditional Village Councilsii. Marriage system and status of womeniii. Hunting, gathering, fishing, agriculture and animal husbandryiv. Social problems: Migration, unemployment, terrorism and impact of globalization
IV	Arunachal Pradesh: Land and People: <ul style="list-style-type: none">i. Physical backgroundii. Major tribes and their cultureiii. Economic activitiesiv. Social problems of ethnicity, migration and unemploymentv. Continuity and changes of culture

Suggested Readings:

1. Bhagabati, A.K. et al. (2001): Geography of Assam, Rajesh Publications, New Delhi
2. Das, H.P (1972): Geography of Assam
3. Singh, R.L. (ed) (1972): India: A Regional Geography, Varanasi.
4. Taher, M. and Amhed, P. (2001): Geography of North – East India: Mani Manik Prakash, Guwahati

GEOGE513: SETTLEMENT GEOGRAPHY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Introduction: i. Nature, scope, significance and approaches ii. Theories of evolution and development of settlements iii. Geographical factors affecting growth of settlement distribution iv. Types of Settlement: Rural and Urban
II	Distribution Pattern: i. Spatial distribution pattern of settlements ii. Histogenesis and Morphogenesis of settlements iii. Rural-urban dichotomy and continuum
III	Settlement Structure: i. Functional classification of towns ii. Land use: Principles and theories of land use in urban and rural settlements iii. House types, building materials and distribution pattern of houses in India
IV	Settlement Hierarchy and Policies: i. Factors contributing to hierarchy of settlements ii. Central Place theory (Christaller) and Measurement of centrality iii. Issues and policies of Settlements

Suggested Readings:

1. Ambrose, Peter, Concepts in Geography Vol.-I Settlement Pattern, Longman 1970.
2. Baskin, C., (Translator), Central Places in Southern Germany, Prentice-Hall Inc.
3. Haggett, Peter, Andrew D. Cliff and Allen Frey (editor), Locational Models Arnold Heinemann 1979.
4. King, Leslie, J., Central Place Theory, Saga Publications, New Delhi 1986.
5. Mayer, M. Harold and Clyde F. Kohn (editors), Readings in Urban Geography, Central Book Depot, Allahabad 1967.
6. Nangia, Sudesh, Delhi Metropolitan Region, K.B. Publications, New Delhi 1976.
7. Prakasa, Rao, V.L.S., Urbanisation in India; Spatial Dimensions, Concept Publishing Co., New Delhi 1983.
8. Ramachandran, R., Urbanisation and Urban Systems in India, Oxford University Press, New Delhi 1992.
9. Singh R.L. and KashiNath Singh (editors), Readings in Rural Settlement Geography, National Geographical Society of India, Varanasi 1975.
10. Srinivasan, K. and M. Vlassoff, (editors), Population-Development Nexus in India: Challenges for the New Millennium, Tata McGraw-Hill Publishing Co. Ltd., New Delhi 2001.
11. Ucko, M.J., Ruth Tringham and G.W. Dimbleby (editors), Man, Settlement and Urbanism, Duckworth 1972.

GEOGE514: SOIL GEOGRAPHY

Total Marks : 100
 Internal Exam Marks : 20 Time: 1 hr
 End Term Exam Marks : 80 Time: 3 hrs
 Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Suggested Readings:

Unit	Outline
I	Bases of Soil Geography: i. Nature, Scope and Relationship with other Sciences ii. Factors of Soil formation iii. Processes of Soil formation iv. Soil Profile Development under different environment
II	Composition of Soil i. Physical Composition: Structure, Texture, Colour and Pore space ii. Chemical Composition: pH, Organic matter and Clay minerals
III	Soil Classification and Capability: i. Concepts and methods ii. USDA iii. Land Capability / Suitability classification: FAO and
IV	Soil Erosion and conservation i. Erosion: Processes, mechanism and types ii. Methods for assessing Soil erosion (USLE) iii. Soil Conservation: Methods and Techniques

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1. n New York, 1960.
2. Bennet, Hugh H.: Soil Conservation, McGraw Hill, New York .
3. Bunting, B.T.: The Geography of Soils, Hutchinson, London, 1973.
4. Clarke G.R.: Study of the Soil in the Field, Oxford University Press, Oxford, 1957.
5. Foth H.D. and Turk, L.M.: Fundamentals of Soil science, John Wiley, New York,1972.
6. Govinda Rajan, S.V. and Gopala Rao, H.G.: Studies on Soils of India Vikas, New Delhi,1978.
7. Mc. Bride, M.B.:Environmental Chemistry of Soils, Oxford University Press, New York 1999.
8. Nye, P.H. and Greene, D.J.: The Soil under Shifting Cultivation Commonwealth Bureau of Soil Science, Technical Communication, No. 51; Harpenden, England,1960.
9. Raychoudhuri, S.P.: Soils of India, ICAR, New Delhi,1958.
10. Russell, Sir Edward J.: Soil Conditions and Plant Growth, Wiley, New York, 1961.

GEOGO521: GEOGRAPHY OF INDIA

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Physical background: <ul style="list-style-type: none">i. Origin of Indian sub-continentii. Physiographyiii. Location significanceiv. Climate, soil and vegetation
II	Peopling of India: <ul style="list-style-type: none">i. Origin and migrationii. Ethnic composition and distributioniii. Linguistic and Religious compositioniv. Population distribution and growth
III	Resources: <ul style="list-style-type: none">i. Land, surface and ground waterii. Minerals & Energy, Energy crisis.iii. Forest and wild life resources and their conservation;iv. Human resources
IV	Agriculture and Industry: <ul style="list-style-type: none">i. Agriculture types and characteristicsii. Agricultural regions of Indiaiii. Major types of Industriesiv. Industrial regions of India

Suggested Readings:

1. Deshpande C.D India: a Regional Interpretation ICSSR & Northern Book Centre.1992.
2. Dreze, Jean & Amartya Sen (ed.) India Economic Development and Social opportunity: Oxford University Press, New Delhi, 1996.
3. Kundu A. Raza Moonis: Indian Economy: the Regional Dimension. Spectrum Publishers, New Delhi, 1982.
4. Robinson, Francis : The Cambridge Encyclopaedia of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan & Maldives. Cambridge University Press, London, 1989.
5. Singh R.L. (ed.) : India-A Regional Geography. National Geographical Society, India, Varanasi, 1971.
6. Spate OHK & ATA Learmonth - India & Pakistan Methuen, London. 1967.

GEOGO522: GEOGRAPHY OF TOURISM

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Basics of tourism: i. Definition, nature, scope and historical development ii. Tourism as leisure & recreation iii. Elements, types and forms of tourism iv. Factor influencing tourism: historical, physical, socio-cultural and economic
II	Infrastructure and Support system: i. Transport and communication facilities ii. Accommodation and supplementary accommodation iii. Tourist circuits, travel agencies and tour operators iv. Tour planning and role of guides
III	Tourism in India: i. Tourism potentials in India ii. Places of tourist attraction in North East Region of India iii. Tourism as an Industry in India iv. Positive and negative impacts: Socio-economic, political and environmental
IV	Tourism Development: i. International tourism institutions and organizations ii. Sustainable tourism, problem and prospects iii. National Tourism Policy

Suggested Readings:

1. Bhatia A.K.: Tourism Development: Principles and Practices. Sterling Publishers, New Delhi 1996.
2. Bhatiya, A.K. International Tourism - Fundamentals and Practices, Sterling, New Delhi, (1991).
3. Chandra R.H.: Hill Tourism: Planning and Development, Kanishka Publishers, New Delhi, 1998.
4. Hunter C and Green H: Tourism and the Environment: A Sustainable Relationship, Routledge, London, 1995.
5. Inskeep. E : Tourism Planning: An Integrated and Sustainable Development Approach, Van Nostrand and Reinhold, New York, 1991.
6. Kaul R.K. Dynamics of Tourism & Recreation. Inter-India, New Delhi. (1985).
7. Robinson, H. A Geography of Tourism. Macdonald and Evans, London, 1996.
8. Sharma J.K. (ed.) : Tourism Planning and Development - A new perspective, Kanishka Publishers, New Delhi, 2000.
9. Shaw G. and Williams A.M. : Critical issues in Tourism-A Geographical Perspective, Oxford: Blackwell, 1994.
10. Sinha P. C. (ed.) : Tourism Impact Assessment, Anmol Publishers, New Delhi, 1998.
11. Voase R.: Tourism: The Human Perspective Hodder & Stoughton, London, 1995.

GEOGO523: APPLICATION OF REMOTE SENSING AND GIS IN ENVIRONMENTAL STUDIES

Total Marks : 100
 Internal Exam Marks : 20 Time: 1 hr
 End Term Exam Marks : 80 Time: 3 hrs
 Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Bases of Remote Sensing: <ul style="list-style-type: none"> iv. Definition and historical development v. Interaction of Electro-Magnetic Radiation (EMR) with atmosphere and earth surface. vi. Sensors and data products.
II	Digital Image Processing: <ul style="list-style-type: none"> iv. Restoration v. Enhancement vi. Classification: Supervised and unsupervised.
III	Geographical Information System and GPS: <ul style="list-style-type: none"> iv. Concepts and data capture v. Global Positioning Systems (GPS) vi. Data model and Topology vii. Spatial analysis
IV	Application of Remote Sensing and GIS: <ul style="list-style-type: none"> i. Forestry and Life Sciences ii. Planning and Development iii. Public Utility / Infrastructure iv. Disaster Management

Suggested Readings:

1. Barret, E.C. and Curtis, L.F. (1976): Introduction to Environmental Remote Sensing, John Wiley and Sons, New York.
2. Camphell, J.B. (1983): Mapping the land, American Association of Geographers, Reprint in India, Scientific Publisher, Jodhpur.
3. Hyatt E: Remote Sensing
4. Kathuria C.D.: Remote Sensing and Geographical Information System
5. Luder, D. (1959): Aerial Photography Interpretation: Principles and Applications, Mc Graw Hill, New York
6. Markandey K: Urban Environment and Geoinformatics
7. Nag P: Introduction to Geographical Information System.
8. Ramaswamy SM: Remote Sensing in Water Resources
9. Robert: Digital Cartography
10. Sabins Flyed, F. (1978): Remote Sensing: Principles and Interpretation, San Francisco, WH France

GEOGO524: GENDER GEOGRAPHY

Total Marks : 100
 Internal Exam Marks : 20 Time: 1 hr
 End Term Exam Marks : 80 Time: 3 hrs
 Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Conceptualizing Gender within Geography i. Origin, growth, nature, scope and approaches ii. Gender as a socio-spatial construct , gendered spaces and differentiation iii. Gender theories- Radical, Marxist, Post structural- iv. Review of Feminist geographies; diverse trends and Post-modern concepts v. Gender movements in India.
II	Status of Women in India: i. Traditional concept ii. Spatial variations, social assignments of work and work preferences iii. Contextualizing Gender in Geography: Various aspects, iv. Impact of Environmental changes on role of women.
III	Gender roles in Resource Management: i. Land, Water and Forest ii. Women in Formal and Informal sectors: Gender gaps and impacts iii. Gender and Society: Women in social movements iv. Role of women in Arunachal Pradesh: Changing dimensions.
IV	Methods and Scope: i. Recent trends; Global pattern and the Indian situation; ii. Gender identity, gender relationships, strategic and practical domains iii. Gender Policy measures and practice in India; iv. Problems of Women Empowerment and development v. Perspectives of change among the Rural, Tribal and Scheduled Caste women.

Suggested Readings:

1. Boserup, E.: Women's Role in Economic Development. Earthscan, London, 1989.
2. Dankelman, I. & Davidson, J. Women and Environment in the Third World Earthscan, London, 1989.
3. Deblich, H.J.: Human Geography-Culture, Society and Space (5th ed.), John Wiley, New York, 1996.
4. Haraway, D.: Simians, Cyborgs and Women-The Reinvention of Nature. Routledge, New York, 1991.
5. Koblinsky, M. et.al (eds.): The Health of Women-A Global Respective. Westview Press, Boulder, 1993.
6. Lee, D.: Women in Geography-A Comprehensive Bibliography. Boca Raton, Florida, 1988.
7. Momsen, J.H. & Townsend, J. (eds.): Geography of Gender in the Third World, Albany, New York, 1987.
8. Montagu, A.: Man's Most Dangerous Myth-the Fallacy of Race. Cleveland, 1964.
9. Reagent, A.C. & Monk J.J. (eds.): Women and Spatial change. Kendell & Hunt, Dubuque, Iowa, 1982.
10. Rhodda, A.: Women and Environment. Zed, London, 1991.
11. Seager, J. & Olson, A.: Women in the world - An International Atlas.
12. Sivant, R.L.: Women-A World Survey. World Priorities Washington, D.C., 1985.
13. United Nations: The World's Women, 1970-1990. United Nations, New York, 1991.
14. United Nations: World Resources 1994-95. Chapter 3: Women and Sustainable Development. United Nations, New York

GEOGC551: MOUNTAIN ECOLOGY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Mountain Ecosystem: i. Distribution of major mountains of the world ii. Characteristics of mountain ecosystem: Topography, climate, soil and vegetation iii. Altitudinal / vertical zones iv. Bioclimatic belts
II	Case studies of Mountain Ecosystems: i. The Alps ii. The Andes iii. The Rockies iv. The Himalayas special reference to the Eastern Himalayas
III	Human Adaptation to Mountain Ecosystem: i. Physiological adaptation ii. Agriculture and pastoralism iii. Housing iv. Food habits and Dress
IV	Constraints of Mountain Ecosystem: i. Inaccessibility ii. Mountain hazards: Landslides and Avalanches iii. Deforestation, Soil erosion iv. Climate change and its impact

Suggested Readings:

1. A.S Rawat : Alternative Farming system in Dry Temperate Zone of Himachal: Study of Kinnaur District, Indus publishing.
2. Harish Kapadia : Across Peaks and Passes in Darjeeling & Sikim, , Indus publishing
3. Prem Singh Jina Ladakh : Land and people, Indus publishing .
4. H.C Pokhriyal : Agrarian Economy of Central Himalaya, Indus publishing .
5. P.N Pande : Drudgery of the Hill Women, Indus publishing company.
6. Vir Singh & M.L Sharma (Eds): Mountain Ecosystem: A scenario of Unsustainability, Indus publishing .
7. B.D Sharma & Tej Kumari Sharma (Eds) : Himalayan Natural Resources, Indus publishing.

GEOGC552: FIELD WORK AND PROJECT REPORT

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 0 Credits Practical: 4 Credits Tutorial: 0 Credits

Unit	Outline	
I	FIELD METHODS IN GEOGRAPHY i. Significance of Field work in Geography ii. Identification of Research Problem and Formulation of Research Design. iii. Types and Sources of Data iv. Preparation of Questionnaires	2 credits Compulsory
II	i. Sample Design ii. Collection of data iii. Retrieval and Analysis of Data iv. Format of Report Writing.	
III	Field visit and Project Report The project report is based on supervised field work for appropriate duration, which will be conducted in appropriate place. The Teacher in-charge is to select a suitable study area in advance and conduct the survey for the collection of primary / secondary data. As per the requirement Schedule and Questionnaire shall be used while collecting data in the field. The students are to submit project report one week before the commencement of the 4 th Semester examination.	2 credits Compulsory

Suggested Readings:

1. Har Prasad (1992): Research Methods and Techniques in Geography, Rawat Publishers, Jaipur.
2. Mishra, H.N. and Singh V.P. (ed.) (1998), Research Methodology: Social, Spatial and Policy Dimensions, Rawat Publishers, Jaipur.
3. Goode and Hat, Research Methodology in Social Sciences, Oxford University Press, New Delhi.
4. Black James A and D.J. champion (1976): Methods and Issues in social Research, New York, John Wiley and Sons, Inc.
5. Young, P.V. An introduction to research methodology.

GEOGE561: SOCIAL GEOGRAPHY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Introduction: i. Philosophical bases and development of Social Geography ii. Positivists, Structuralism, Marxist and Radical theories iii. Social Geography in the realm of Social Sciences.
II	Space and Society: i. Geographical bases of social formations, the Core Periphery concept ii. Areas of Attraction, Isolation and Relative Isolation. iii. Concept of Social well-being and quality of life.
III	Social Geography of India: i. Social differentiation and region formation ii. Evolution of socio-cultural regions of India iii. Role of race, caste, religion and languages.
IV	Social transformation in India: i. Bases of social transformation ii. Health care, education, shelter and Rural depopulation iii. Public policy and social planning to improve social well-being in hill areas

Suggested Readings:

1. Ahmad, Aijazuddin, Social Geography, Rawat Publication, New Delhi, 1999.
2. De Blij. H.D. Human Geography. John Wiley and son, New York.
3. Dreze Jean, Amartya Sen, Economic Development and Social opportunity, Oxford University Press, New Delhi, 1996.
4. Dubey. S.C : Indian Society, National Book Trust, New Delhi, 1991.
5. Gregory, D and J. Larry, (eds.). Social relations and spatial structures, McMillan, 1985.
6. Haq. Mahbulul: Reflections on Human Development, Oxford University Press, New Delhi.
7. Maloney, Clarence: People of South Asia, Winston, New York, 1974. .
8. Planning Commission, Government of India; Report on development of Tribal areas, 1981.
9. Rao, M.S.A.: Urban Sociology in India. Orient longman, 1970.
10. Schwartzberg Joseph; An Historical Atlas of South Asia, University of Chicago Press, Chicago, 1978.
11. Sen, Amartya & Dreze Jean, Indian Development: Selected Regional Perspectives, Oxford University Press, 1996.
12. Smith, David: Geography: A Welfare Approach, Edward Arnold, London, 1977.
13. Sopher, David.: An Exploration of India, Cornell University Press, 1980.
14. Subba Rao. Personality of India; Pre and Proto Historic foundation of India and Pakistan. M.S. University Baroda, Vadodara, 1958.

GEOGE562: AGRICULTURAL GEOGRAPHY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Fundamentals: i. Origin and dispersal of Agriculture ii. Approaches: Commodity, systematic, regional, deterministic and ecological iii. Factors affecting Agriculture: a. Physical: Topography, climate and soil b. Socio-economic factors c. Infrastructural factors
II	Models in Agricultural Geography: i. Bases of classification: Normative and Descriptive models ii. Locational models: Jonasson's model iii. Diffusion model and Decision making model iv. Combinational and Land carrying capacity
III	Agricultural Regionalization: i. Statistical Analysis: Crop concentration, crop combination, crop diversification and agricultural productivity ii. Major Agricultural regions of the world iii. Agro-climatic regions of India
IV	New perspectives in Agriculture: i. Technological developments ii. Green revolution iii. Food security iv. Sustainable Agriculture

Suggested Reading:

1. Basu, D. N. and Guha, G. S. 1996: Agro-Climatic Regional Planning in India, Vol. I & II, Concept Publication, New Delhi.
2. Bryant, C.R., Johnston, T.R, 1992: Agriculture in the City Countryside, Belhaven Press, London.
3. Buller, N. and Hoggart, K. (eds.) 2001: Agricultural Transformation, Food and Environment, Vol. I, Ashgate Publishing Company, Burlington.
4. Burch, D., Gross, J. and Lawrence, G. (eds.) 1999: Restructuring Global and Regional Agriculture, Ashgate Publishing Company, Burlington.
5. Burger, A. 1994: Agriculture of the World, Aldershot, Avebury.
6. Grigg, D.B., 1984: Introduction to Agricultural Geography, Hutchinson, London.
7. Hussain, M. (2006): Systematic Agricultural Geography, Reprinted, Rawat Publications, Jaipur.
8. Singh, J. and Dhillon, S.S., 2004: Agricultural Geography, 3rd Edition, Tata McGraw Hill, New Delhi.

GEOGE563: GEOGRAPHY OF DEVELOPMENT (Japan and Bangladesh)

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Units	Outline
I	Fundamentals of development: i. Nature, Concept and meaning ii. Indicators of Development iii. Concept of sustainable development a. Natural Resources b. Technology c. Economic d. Environment
II	Dimensions and Concept of Human Development: i. Dimensions of Development a. Demographic b. Infrastructure c. Economic Development d. Social Development ii. Concept of Human Development
III	Geography of Development of Japan: i. Location advantage of the country ii. Management of Natural resources and Agriculture iii. Life style and Culture, management of Human resources iv. Management of Natural Disasters v. Rural Depopulation and other related social problems
IV	Geography of Development of Bangladesh: i. Location perspective in Asian Context ii. Natural Disaster and its management iii. Natural resources and its management iv. Agriculture and Industries v. Population growth and related problems.

Suggested Readings:

1. G. Devee, P. Das, K. Das Japan: A comprehensive Geography: Eastern Book House.
2. Peter J. Woolley : 2005, Geography and Japan's Strategic Choices.
3. A.M Gorrie : 1969 : A geography of Japan
4. Hugh Brammer : (2012) : The Physical Geography of Bangladesh
5. Hugh Brammer : (1996) : The Geography of the Soils of Bangladesh
6. Harun er Rashid : (1977) : Geography of Bangladesh
7. Jerry Aten : Geography...USA : Published 1995 by Frank Schaffer Publications, Inc. .
8. John C. Hudson (2002): Across This Land: A Regional Geography of the United States:
9. Edward C. Steward (2005): American cultural Patterns: Across Cultural Perspective.
10. H. J. De Blij, P. O.Muller, E. M. Hames (2001): Geography : realms, regions and concepts.
11. Jean –Marc Zaninetti (2010) : Sustainable Development in the USA : John Wiley & Sons.
12. Robert MacKenie (2009) : The United State of America : Biblio Bazaar.
13. John Agnew (1987) : The USA in the World Economy : A Regional Geography:CUP Archive.

GEOGE564: URBAN GEOGRAPHY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Introduction: i. Nature, scope, approaches and recent trends ii. Origin and growth of Urban settlements during ancient, medieval and modern period iii. Economic bases of cities: Concept and employment ratio
II	Functional classification of cities: i. Concepts and scheme of classification ii. Rural-urban fringe: Structural characteristics and its development iii. City and region: Concept of influence and dominance iv. Method of delimitation of area of influence and area of dominance
III	Urban Morphology and Land use structure: i. City core, commercial, industrial and residential area ii. Models of internal city structure: Concentric Model, Sectoral Model and Multiple Nuclei Model iii. Problems of Urban Planning: evolution of slums and City Blights
IV	Theories of Urban Growth: i. Central Place Theory of Christaller and Losch ii. Rank-size rule and Law of Primate city iii. Social area analysis

Selected Readings:

1. Berry, B.J.L. and Horton F.F. Geographic Perspectives on Urban Systems, Prentice Hall, Englewood Cliffs, New Jersey, 1970.
2. Carter: The Study of Urban Geography, Edward Arnold Publishers, London, 1972.
3. Chorley, R.J.O., Haggett P. (ed.) : Models in Geography, Methuen, London, 1966.
4. Dickinson, R.E.: City and Region, Routledge, London, 1964.
5. Dwyer, D.J. (ed.) The City as a Centre of Change in Asia, University of Hong Kong Press, Hongkong, 1971.
6. Gibbs J.P.: Urban Research Methods D. Van Nostrand Co. Inc. Princeton, New Jersey, 1961.
7. Hauser, Philip M. and Schnore Leo F. (ed.) : The Study of Urbanisation, Wiley, 1965.
8. James, P.E. and Jones C.F. (eds.) : American Geography, Inventory and Prospect, Syracuse University Press, Syracuse, 1954.
9. Kundu, A. : Urban Development and Urban Research in India, Khanna Publication, 1992.
10. Meyor, H.M. Kohn C.F. (eds.) : Readings in Urban Geography, University of Chicago Press, 1955.
11. Nangia, Sudesh Delhi Metropolitan Region: A study in settlement geography, Rajesh Publication, 1976.
12. Rao V.L.S.P. :Urbanisation in India: Spaial Dimensions. Concept Publishing Co. New Delhi
13. Rao VL.S.P.: The Structure of an Indian Metropolis: A study of Bangalore
14. Singh K and Steinberg F. (eds.) : Urban India in Crisis, New Age Interns, New Delhi, 1998.

GEOGE565: HYDROLOGY

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Bases of Hydrology: i. Concepts and scope of hydrology ii. Hydrological cycle iii. Water balance concept and equation iv. Hydrology in relation to water resources development
II	Surface water hydrology: i. Hydrological cycle in drainage basin ii. Channel flow measurement iii. Surface runoff generation iv. Surface water resources of India
III	Ground water hydrology: i. Hydrological properties ii. Recharge and discharge of groundwater iii. Type of aquifers iv. Ground water movement
IV	Problems and Conservation of Water Resources: i. Conjunctive of ground water ii. Impact of climate change on water resources iii. Water Conservation strategies – traditional and modern iv. National Water Policy

Suggested Readings:

1. Addison, H. Land Water and Flood, Chapman and Hall, London 1961.
2. Chorley, R.J. (ed) : Introduction to Physical Hydrology, Methuen, London.1969
3. Chorley,R.J.: Water, Earth and Man,methuen,London,1967.
4. Dakshinamurthy, C .et al., Water Resources of India and Their utilisation in Agriculture, Indian Agriculture Research Institute, New Delhi,1973.
5. Jones, J.A.A : Global Hydrology: Processes, Resources and Environmental Management, Longman,London,1997.
6. Matter , J.R., Water Resources. Distribution, Use and Management, John Wiley, Marylane,1984.
7. Singh, R.A. and Singh, S.R.: Water Management: Principles and Practices. Tara Publication, Varanasi, 1972.
8. Todd, D.K.: Ground Water Hydrology, John Wiley, New York,1959.

GEOGE565: GEOGRAPHY OF LANDFORMS

Total Marks : 100
Internal Exam Marks : 20 Time: 1 hr
End Term Exam Marks : 80 Time: 3 hrs
Lecture : 4 Credits Practical: 0 Credits Tutorial: 0 Credits

Unit	Outline
I	Bases of Geography of Landform i. Nature and scope ii. Geomorphic Concepts: process - response, feedback mechanism iii. Landform in relation to endogenetic and exogenetic processes iv. Landform classification
II	Weathering processes: i. Factors influencing weathering processes ii. Weathering and landform development iii. Weathering front, profile, depth and water table
III	Surface material and landform: i. Rocks and landforms ii. Relationship between landform and soil iii. Soil landscape mapping
IV	Applied Landform Geography i. Planning and management of land resources ii. Terrain evaluation: concepts and application iii. Geomorphic hazards

Suggested Readings:

1. Bloom, A.L. (1978) : A Systematic Analysis of late Cenozoic Landforms, Englewood Cliffs, M.J. Prentice Hall.
2. Embleton, C. and J. Thornes : Processes in Geomorphology, London, Edward Arnold.
3. Goudie, A. (ed.) (1990): Geomorphological Techniques. London, George Unwin and Hyman.
4. Hart, M.G. (1986) : Geomorphology : Pure and Applied, George Allen and Unwin, London.
5. Holmes, A. : Principles of Physical Geology, 3rd Edn. London . Nelson. 1978.
6. King, C.A. M. : Techniques in Geomorphology : London : Edward Arnold.
7. Leopold, L.B. : Fluvial Processes in Geomorphology.
8. Pitty, A.F. : Geomorphology and Rural Settlement in India.
9. Scheidegger, A.E. : Theoretical Geomorphology. Berlin : Springer – Verlag.
10. Sharma, V.K. : Process in Geomorphology (Mc Graw Hill).
11. Thorn, C.E. : Introduction to Theoretical Geomorphology.
12. Thornbury, W.D. : Principles of Geomorphology. New York : Wiley (1969).