

DEPARTMENT OF GEOGRAPHY
RAJIV GANDHI UNIVERSITY



**Course Structure & Syllabus for
M A / M. Sc. Geography
w.e.f. 2020-21**

(Only For Deptt of Geography JNC, M. A. All Semesters)

**DEPARTMENT OF GEOGRAPHY
RAJIV GANDHI UNIVERSITY
SYLLABUS STRUCTURE FOR M.A. / M.Sc. GEOGRAPHY W.E.F. 2020-21**

Code	Title	Credit			Full Marks	Mid Term	End Term	Pass Marks 40% each
		L	P	T				
I SEMESTER								
GEOGC101	Geographic Thought	4			100	20	80	9+36
GEOGC102	Geomorphology	4			100	20	80	9+36
GEOGC103	Climatology	4			100	20	80	9+36
GEOGC104	Settlement Geography	4			100	20	80	9+36
GEOGC105	Geographical Analysis		4		100	20	80	9+36
II SEMESTER								
GEOGC201	Population Geography	4			100	20	80	9+36
GEOGC202	Economic Geography	4			100	20	80	9+36
GEOGC203	Social Geography	4			100	20	80	9+36
GEOGC204	Regional Planning	4			100	20	80	9+36
GEOGC205	Quantitative Techniques and Computer Application		4		100	20	80	9+36

GEOGC101: 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: a. Indian, b. Greek and c. 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: a. Humboldt b. 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 Post modernism

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 – NGSI, Varanasi
4. Dickinson, R.G. (1969): The Makers of Modern Geography, Routledge Kegan Paul, London
5. Hartshorne, 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
11. Peet, R. (1998). Modern geographic thought.

GEOGC102: 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	Major Thrust in Geomorphology: i. Quantitative geomorphology ii. Time in geomorphology iii. Threshold and equilibrium iv. Geomorphic system – open, closed and isolated
II	Geomorphological realms and tectonic geomorphology: i. Global tectonics and landform development ii. Geological structures and landforms iii. Continental Shield and Mountains iv. River Valleys and Planation surfaces
III	Process Geomorphology: i. Fluvial ii. Aeolian iii. Glacial iv. Coastal
IV	Rivers and River Basin: i. Processes of Channel initiation ii. Network development iii. Types and origin of River terraces iv. Delta formation

Suggested Readings:

1. Bloom, A.L. (1978) : A Systematic Analysis of late Cenozonic 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. Scheidegner, 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.

GEOGC103: 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. Stability and instability, Climatic Region (Koppen) 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. Theory of El-Nino and La-Nina
III	Classification of Climate and contemporary issues: i. Trewartha classification of world climate ii. Classification of climate in India iii. Global Warming, Ozone Depletion iv. Climate Change Theories
IV	Applied Climatology: Concepts and Application i. Weather forecasting ii. Agroclimatology iii. Hydrometeorology iv. Satellite meteorology

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.
6. Kidder, S. Q., KIDDER, R. M., & Haar, T. H. V. (1995). *Satellite meteorology: an introduction*. Gulf Professional Publishing.
7. Betts, A. K. (2004). Understanding hydrometeorology using global models. *Bulletin of the American Meteorological Society*, 85(11), 1673-1688.
8. Gibbons, G. (1993). *Weather forecasting*. Aladdin.
9. Hatfield, J. L., Sivakumar, M. V. K., & Prueger, J. H. (2017). Agroclimatology: linking agriculture to climate, agronomy monographs 60, 2017

GEOGC104: 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 to study Settlement Geography ii. Development of Settlement Geography iii. Theories of evolution of settlements and Geographical factors affecting growth of settlement distribution iv. Types of Settlement: Rural and Urban Rural-urban dichotomy and continuum
II	Rural settlement: i. Site, location, types and pattern ii. Morphology of rural settlement iii. Rural House types: planned and architectural style in different geographical environment iv. Types and pattern of rural settlements with reference to North East India
III	Urban Settlement: i. Origin of the cities: Ancient and Medieval ii. Industrial growth and urban expansion iii. Functional classification of urban centres: Harris and Nelson iv. Functional classification of Indian cities: Ashok Mitra and others
IV	Settlement Hierarchy and Policies: i. Rural service center ii. Central Place theory (Christaller) iii. Theory of Losch and its application iv. Issues and policies of Settlements, settlement planning

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.

GEOGC105: GEOGRAPHICAL ANALYSIS

Total Marks : 100
Internal Exam Marks : 20 Time: 2 hrs
End Term Exam Marks : 80 Time: 4 hrs
Lecture : 0 Credits Practical: 4 Credits Tutorial: 0 Credits

Unit	Outline
I	Morphometric Analysis: i. Geological cross section ii. Slope & curvature iii. Stream ordering and bifurcation ratio iv. Circulatory and elongation ratio
II	Representation of Climatic data: i. Hythergraph & Ergograph ii. Trend analysis: Rainfall and temperature iii. Water Balance graph iv. Length of growing period
III	Representation of Population and Economic data: i. Population growth ii. Population distribution iii. Population composition iv. Production and distribution of economic data
IV	Settlement analysis i. Rank-size rule ii. Nearest neighbor analysis iii. Network analysis iv. Gravity model and Central place model

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.
7. Chorley, R. J., & Haggett, P. (2013). Integrated Models in Geography (Routledge Revivals). Routledge.

GEOGC201: 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 and Approaches ii. Relationship with Demography and other social sciences iii. Types and Sources of data iv. Population – Resources Relationship
II	Population Growth and Distribution: i. Population growth trend and distribution ii. Determinants of Population Change: fertility, mortality and migration iii. Population growth and associated issues in Developed and Developing Countries. iv. Depopulation, displacement.
III	Population Theories: i. Malthus ii. Marx iii. Boserup iv. Demographic Transition Model
IV	Population Composition: i. Age and Sex composition ii. Occupational structure iii. Rural – Urban Composition iv. Concept of Ageing

Suggested Readings:

1. Boserup, E. (1965): The conditions of Agricultural Growth, G. Allen and Unwin, London
2. Bhendea, A and Kanitkar, T. (1985): Principles of Population Studies, Himalayan Publishing House, Mumbai.
3. Chandana, R. C. and Sidhu, M. S. (1980): Introduction to Population Geography, Kalyani Publishers, Ludhiana.
4. Clarke, J. L. (1992): Population Geography, Pergamon Press, Oxford.
5. Demko, G. J., Rose, H. M. and Schnell, G. A. (1979): Population Geography: A Reader, Mc Graw Hill, New York.
6. Dubey, R. M. (1981): Population Dynamics in India, Chugh Publications, Allahabad.
7. Mandal, R. B., Uyanga, J and Prasad, H. (1989): Introductory Methods in Population Analysis, Concept Publishing, New Delhi.
8. Sundaram, K. V. and Nangia, S. (1985): Population Geography, Heritage, New Delhi.
9. Samuel H. Preston (2000). Demography: Measuring and modeling population processes, Willey – Blackwell.
10. Thomas Robert Malthus and Geoffrey Gilbert (1999). An Essay on the principles of Population, Oxford University Press, USA.

GEOGC202: 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. Concept of resources and classification iii. Mineral and Energy resources: Global perspectives iv. 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. Modernization of transport and its impact on economy iii. Significance of trade in global and national economy iv. Major trading blocks of the world

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

GEOGE203: 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	Evolution and relevance: i. Emergence of Social Geography, meaning, scope ii. Significance of social geography iii. Approaches to study of social geography: Positivism, Marxism and post-structuralism iv. Social Geography as an applied branch of human geography
II	Space and Society: i. Concept of social space, social group, social structure, social differentiation, social diversity, and plurality, ii. Social well-being and its indicators, iii. Social segregation, Social Pathology, (caste division of India) iv. Social Action (Indian context)
III	Social problems and Spatial inequalities: i. Patterns in developed and under developed countries ii. Social Space, Social exclusion and Social Justice iii. Social well-being of disadvantaged groups iv. Gender inequality and Social Change (Indian context)
IV	Geographical basis of Social region Formation in India: i. Social diversity and spatial distribution: Tribes, Castes and Linguistic groups ii. Health care, Education and social security iii. Rural-urban divide, rural-urban interaction and social transformation iv. Public Policy and planning

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.

GEOGC204: 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: i. Concept of Region; nature and scope of Regional Planning ii. Types of Regional Planning iii. Role of Regional Planning in National Development iv. Planning regions of India
II	Strategies of Regional Planning: i. Growth Pole, Growth Centres, service centre ii. Economic development and regional development iii. Regional Economic complexes iv. Regional imbalances and inequalities in India
III	Approaches: 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: i. Shifting paradigms from Five Year plans to NITI Ayog 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.

GEOGC205: QUANTITATIVE TECHNIQUES AND COMPUTER APPLICATION

Total Marks : 100
Internal Exam Marks : 20 Time: 2 hrs
End Term Exam Marks : 80 Time: 4 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 iv. Coefficient of Skewness and Quartiles
II	i. Measures of Bivariate: Correlation coefficient ii. Regression and Residuals iii. Time series analysis: Moving average method and Least square method iv. Measures of Inequality: Lorenz curve and Gini's Coefficient
III	i. Chi square (X^2) test ii. 't' test iii. 'f' test iv. ANOVA
IV	i. Basics of Computer ii. Access to open source data and information: Internet/Inflibnet iii. Presentation (PowerPoint) iv. Data Analysis and graphics using Excel, SPSS for statistics

Suggested Readings:

1. Alvi Z. : Statistical Geography, Rawat Bookseller
2. Burt, J. E., Barber, G. M., & Rigby, D. L. (2009). *Elementary statistics for geographers*. Guilford Press.
3. J. Chapman McGrew, Charle: An Introduction to Statistical Problem solving in Geography
4. Mahmood, Aslam (1977): Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi
5. Peter A. Rogerson: Statistical Methods for Geography: A Student's Guide

DEPARTMENT OF GEOGRAPHY
SYLLABUS FOR M.A./M.Sc IN GEOGRAPHY
(CHOICE BASED CREDIT SYSTEM)
W.e.f. 2015-16



RAJIV GANDHI UNIVERSITY
RONO HILLS::DOIMUKH

DEPARTMENT OF GEOGRAPHY
RAJIV GANDHI UNIVERSITY
SYLLABUS STRUCTURE FOR M.A./ M.Sc. GEOGRAPHY W.E.F. 2015-16

Code	Title	Credit			Full Marks	Mid Term	End Term	Pass Marks 40% each
		L	P	T				
I SEMESTER								
GEOGC401	Geographic Thought	4			100	20	80	8+32
GEOGC402	Geomorphology	4			100	20	80	8+32
GEOGC403	Climatology	4			100	20	80	8+32
GEOGC404	Biogeography	4			100	20	80	8+32
GEOGC405	Cartographic Techniques		4		100	20	80	8+32
II SEMESTER								
GEOGC451	Population Geography	4			100	20	80	8+32
GEOGC452	Economic Geography	4			100	20	80	8+32
GEOGC453	Cultural Geography	4			100	20	80	8+32
GEOGC454	Regional Planning	4			100	20	80	8+32
GEOGC455	Quantitative Techniques and Computer Application		4		100	20	80	8+32
III SEMESTER								
GEOGC501	Remote Sensing and Geographical Information System	4			100	20	80	8+32
GEOGC502	Application of Remote Sensing and GIS		4		100	20	80	8+32
	Department Elective (any <u>two</u> from the list of options to be notified by the Department depending upon feasibility)							
GEOGE511	Rural Development	4			100	20	80	8+32
GEOGE512	Geography of North-East India	4			100	20	80	8+32
GEOGE513	Settlement Geography	4			100	20	80	8+32
GEOGE514	Soil Geography	4			100	20	80	8+32
	Open Elective (any <u>one</u> from the list of options to be notified by the Department depending upon feasibility)							
GEOGO521	Geography of India <i>(open elective)</i>	4			100	20	80	8+32
GEOGO522	Geography of Tourism	4			100	20	80	8+32
GEOGO523	Application of Remote Sensing and GIS in Environmental Studies (excluding students from Geography Department)	4			100	20	80	8+32
GEOGO524	Gender Geography	4			100	20	80	8+32
IV SEMESTER								
GEOGC551	Mountain Ecology	4			100	20	80	8+32
GEOGC552	Field Work and Project Report		4		100	20	80	8+32
	Department Elective (any <u>three</u> from the list of options to be notified by the Department depending upon feasibility)							
GEOGE561	Social Geography	4			100	20	80	8+32
GEOGE561	Agricultural Geography	4			100	20	80	8+32
GEOGE563	Geography of Development (Japan and Bangladesh)	4			100	20	80	8+32
GEOGE564	Urban Geography	4			100	20	80	8+32
GEOGE565	Hydrology	4			100	20	80	8+32
GEOGE566	Geography of Landforms	4			100	20	80	8+32

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	Suggested Readings:
I	Bases of Remote Sensing: i. Definition and historical development ii. Interaction of Electro-Magnetic Radiation (EMR) with atmosphere and earth surface. iii. Sensors and Remote Sensing data products.	I. B arret, E.C. and Curtis , L.F. (1976): Introd uction to Envir
II	Aerial Photographs and Photogrammetry: i. Types of Aerial photos ii. Fundamentals of air photographs interpretation iii. Geometry of aerial photographs: tilt and relief displacement.	
III	Digital Image Processing: i. Restoration ii. Enhancement iii. Classification: supervised and unsupervised.	
IV	Geographical Information System and GPS: i. Concepts and data capture ii. Global Positioning Systems (GPS) iii. Data model and Topology	

1. Environmental Remote Sensing, John Wiley and Sons, New York.
2. Campbell, 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

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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

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. 1 & 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

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, Pralash, 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 Place 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., Delhi 1983. *[Used B2030,] Amazon.*
8. Ramachandran, R., Urbanisation and Urban Systems in India, Oxford University Press, 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 in 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.

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: i. Origin of Indian sub-continent ii. Physiography iii. Location significance iv. Climate, soil and vegetation
II	Peopling of India: i. Origin and migration ii. Ethnic composition and distribution iii. Linguistic and Religious composition iv. Population distribution and growth
III	Resources: i. Land, surface and ground water ii. Minerals & Energy, Energy crisis. iii. Forest and wild life resources and their conservation; iv. Human resources
IV	Agriculture and Industry: i. Agriculture types and characteristics ii. Agricultural regions of India iii. Major types of Industries iv. 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.

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

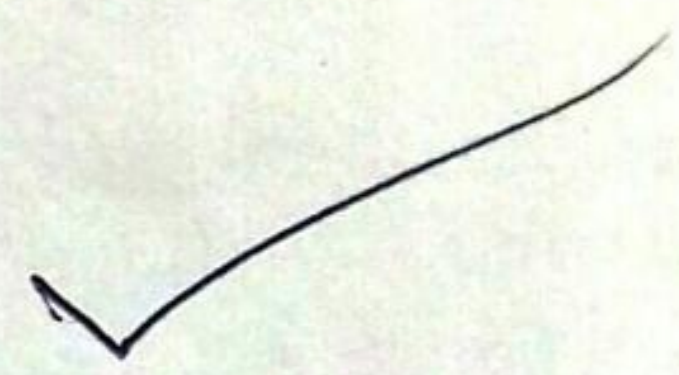
Unit	Outline
I	Introduction: i. Philosophical bases and development of Social Geography ii. Positivists, Structuralism, Marxist and Radical theories iii. Social Geography in the realm of Social Sciences.
II	Space and Society: i. Geographical bases of social formations, the Core Periphery concept ii. 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. [Rs 1305] Amazon
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. Mahbubul: 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 [Used 3450]
13. Sopher, David.: An Exploration of India, Cornell University Press, 1980. (\$45)
14. Subba Rao. Personality of India; Pre and Proto Historic foundation of India and Pakistan.

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: <ol style="list-style-type: none"> i. Origin and dispersal of Agriculture ii. Approaches: Commodity, systematic, regional, deterministic and ecological iii. Factors affecting Agriculture: <ol style="list-style-type: none"> a. Physical: Topography, climate and soil b. Socio-economic factors c. Infrastructural factors
II	Models in Agricultural Geography: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 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.

② Ellington Lucien: Japan: A Global Studies Handbook (Global Studies - A) Publisher: ABC-CLIO Ltd Price 6944

Brammer Hugh: The physical geography of Bangladesh Publisher: Shows Rajib: Disaster Risk Reduction Approaches in Bangladesh 155 Publisher: Springer Price 920

Suggested Readings:

1. G. Deves, P. Das, K. Das Japan: A comprehensive Geography: Eastern Book House.
2. Peter J. Woolley : 2005, Geography and Japan's Strategic Choices. Price 1629.50 Publisher Potomac
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