



**Master of Arts in Geography**  
*“New” Scheme of Examination:*  
*Course Outline and Selected Readings*

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PART I – FIRST YEAR

SEMESTER 1

- 101 Geographical Thought
- 102 Environment and Ecology
- 103 Fundamentals of Remote Sensing and GIS
- 104 Statistical Techniques in Spatial Analysis

SEMESTER 2

- 201 Advanced Physical Geography
- 202 Contemporary Human Geography
- 203 Computer Aided Mapping and Thematic Atlas
- 204 Spatial Economic Systems

PART II – SECOND YEAR

SEMESTER 3

- 301 Advanced Remote Sensing and GIS
- 302 Natural Resource Management
- 303 Principles of political Geography
- 304 Systematic Agricultural Geography
- 305 Social Geography of India
- 306 Urban Settlement System
- 307 Regional Development
- 308 Cultural Geography
- 309 Geomorphologic Analysis
- 310 Rural Development Planning and Policy

SEMESTER 4

Course 401 – Project report on a theme related to the area of specialization is compulsory and will carry 100 marks (25 internal assessment and 75 for the Project Report/Viva-voce). The students have to opt three courses of which at least two will be from the specialization of their choice.

**402 Regional Development in India**

ENVIRONMENT AND RESOURCE

- 411 Hydrology and Water Resource Management
- 412 Geography of Energy
- 413 Environmental Impact Assessment
- 414 Natural Hazards and Disaster Management
- 415 Urban Impacts on Natural Resources and Environment



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**SOCIAL DIMENSIONS IN GEOGRAPHY**

- 421. Historical Geography
- 422. Geography of Landscape
- 423. Demography and Population Policy
- 424. Health, Environment and Society
- 425. Geography of Social Well-Being
- 426. Gender and Space with Special Reference to India

**URBAN AND REGIONAL STUDIES**

- 431. Techniques and Methods of Regional Analysis
- 432. Transport Network and Flows
- 433. Urban Development Management and Policy
- 434. Social Impact Assessment

**PHYSICAL GEOGRAPHY**

- 441. Analytical Physical Geography
- 442. Biogeography
- 443. Geography of Himalayas
- 444. Terrain Analysis and Evaluation

**POLITICAL GEOGRAPHY AND AREA STUDIES**

- 451. Political Geography of India
- 452. Geography of Federalism
- 453. Electoral Geography
- 454. Political Geography of Central Asia
- 456. Political Geography of Middle-East

**RURAL AND AGRICULTURAL STUDIES**

- 461. Agricultural Development and Environmental Degradation
- 462. Landuse and Planning
- 463. Dryland Farming
- 464. Food Security System



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**Course 101: Geographical Thought**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Evolution of Geographic Thought: Changing paradigms – Environmentalism, Possibilism, areal differentiation, spatial organisation
2. Theory in Geography: structure, nature, type and applications in geography; human-environment interactions and social theory.
3. Philosophical debates in Contemporary Geography: Critical understanding of positivism, behaviouralism, realism, Marxism, Structuralism, post-structuralism and postmodernism.
4. Methods in Geographical Analysis: Epistemology of geography, critical assessment and debates on quantitative, qualitative, field and cartographic methods in geography
5. Future of Geography: changing nature, concepts, approaches and methodologies of geography in a Globalising World
6. Progress and Contributions in Indian Geography

**Recommended Readings:**

1. Bhaskar, R (1978) *A Realist Theory of Science*, Hassocks, Sussex
2. Bhaskar, R (1989) *Reclaiming Reality: A Critical Introduction to Contemporary Philosophy*, London, Verso.
3. Bunge, W (1966) *Theoretical Geography*. 2<sup>nd</sup> Edn. Lund Studies in Geography Series C. no.1, Lund: C.W.K. Gleerlup
4. Buttner, A and D.Seamon (eds) (1980); *The Human Experience of Space and Place*, London, Croonhelm
5. Castells, M (1978) *City, Class and Power*, New York, St. Martins Press
7. Castree, R, A. Rogers and D. Sherman (2005) *Questioning Geography. Fundamental Debates*. Oxford:Blackwell.
8. Clifford, N.J. (2002) *The Future of Geography: when the whole is less than the sum of its parts*. *Geoforum*, Vol 33 431-436.
9. Cloke, Philo and Sadler
10. Haggett, P and A.D Cliff and A Frey (1977) *Locational Analysis in Human Geography*. London: Arnold
11. Hartshorne R (1939) *The Nature of Geography*. Association of American Geographers
12. Harvey, D (1969) *Explanation in Geography*. London:Arnold.
13. Harvey, D (1973) *Social Justice and the City*, Baltimore, John Hopkins University, Baltimore
14. Holt- Jensen Arild (1999), *Geography -History and Concepts* , Sage Publications, London, Thousand Oaks, Delhi



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**Course 102: Environment and Ecology**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Geography, Environment and Ecosystem: Population, Resources, Environment and Development; Concepts and Approaches; Sustainability and sustainable development; Global Environmental Problems.
2. Urban Ecosystem: Environmental Problems and their Management-Air, Water, Noise and Solid Waste.
3. Forest Ecosystem: Processes and Patterns; Problems and Management; Biodiversity.
4. Desert Ecosystem: Desertification - Process and Patterns; Management Strategies.
5. Mountain Ecosystem: Theory of Mountain Environment Degradation; Highland-Lowland Interactive Systems; Sustainable Mountain Development.
6. Coastal Ecosystem: Issues and Problems- Mangroves, Coastal pollution, Cyclone, Tsunami.
7. National Environmental Policies and Programmes.

**Recommended Readings :**

1. Balakrishnan, M., 1998 : *Environmental Problems and Prospects in India*, Oxford & IBH Pub., New Delhi.
2. Das, R.C., et. al., 1998 : *The Environmental Divide : The Dilemma of Developing Countries*, A.P.H. Pub., New Delhi.
3. Goel R.S., 2000: *Environment Impacts Assessment of Water Resources Projects-Concerns, Policy Issues Perceptions and Scientific Analysis*, Oxford & IBH Publishing Co. Pvt. Ltd, New Delhi.
4. Gole, P., 2001: *Nature Conservation and Sustainable Development in India*, Rawat Pub., Jaipur.
5. Hussain, M., (ed.) 1996: *Environmental Management in India*, Rawat Pub., Jaipur.
6. Hooja, R., et. al., (ed.) 1999: *Desert, Drought and Development: Studies in Resource Management and Sustainability*, Rawat Pub, Jaipur.
7. Munn, T., (ed.) 2001: *Encyclopedia of Global Environmental Change*, John Wiley & Sons, West Sussex
8. Ramakrishnan, P.S., 1998: *Conservation and Management of Biological Resources in Himalaya*, Oxford & IBH Pub., New Delhi.
9. Sapru, R.K., 1987 : *Environmental Management in India*, A.P.H. Pub., New Delhi.
10. Saxena, H.M., 1999 : *Environmental Geography*, Rawat Pub., Jaipur.
11. Singh, R.B., (ed.) 1990 : *Environmental Geography*, Heritage Pub., New Delhi.
12. Singh, R.B., (ed.) 1996 : *Disasters, Environment and Development*, Oxford & IBH Pub., New Delhi.
13. Singh R.B., (ed.) 2001 : *Urban Sustainability in the Context of Global Change*, Science Pub., Inc., Enfield (NH), USA
14. Singh, S., 1997 : *Environmental Geography*, Prayag Pustak Bhawan, Allahabad.
15. Verma, C.V.J., 1998: *Water Quality and its Management*, Oxford & IBH Pub., New Delhi



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**Course 103: Fundamentals of Remote Sensing and GIS**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Remote Sensing: Historical development; components, types and various platforms; Global Positioning System.
2. Aerial Photography: Stereoscopy, Principles of Photo Interpretation.
3. Principles of Remote Sensing; Electromagnetic Energy; Interaction mechanism with atmosphere and earth surfaces; Photography vs. Image; Concept of resolution; Satellite and Sensors. Spectral responses of earth surface features, Visual interpretation of satellite images.
4. Applications of remote sensing for landuse/landcover mapping and change detection, Environmental Studies, Urban, Hazard and Disaster, Water Resources, Agriculture etc.
5. GIS: Definition and Applications; Components and Elements of GIS; Development of GIS technology; Geographic objects: point, line and area; analog and digital maps; theoretical models and framework for GIS, representation of geographic data-base; coordinate systems and map projections.
6. Data Input, Storage and Editing: Nature of geographic
7. data: Spatial and Attribute Data, Concept of vector and raster based models; data input devices: Digitization; external data bases; storage and manipulation of GIS data bases;
8. GIS and Spatial Analysis: Neighbourhood analysis; Proximity analysis and buffers; Overlays Analysis – raster and vector based overlay and their applications; Presentation of GIS output.

**Recommended Readings:**

1. Curran, Paul J., 1985: *Principles of Remote Sensing*, Longman, London & New York.
2. Gupta, R. P., 2003 : *Remote Sensing Geology*, Springer-Verlag.
3. Jensen, J.R., 2004 : *Remote Sensing of the Environment : An Earth Resource Perspective*, Pearson Education.
4. Joseph, G., 2003: *Fundamentals of Remote Sensing*, University Press, Hyderabad.
5. Lillesand, T. and Kiefer, R., 1999 : *Remote Sensing and Image Interpretation*, Wiley, London.
6. Sabins, Floyd F. Jr., 1997: *Remote Sensing: Principles and Interpretation*, W.H. Freeman, New York.
7. Singh, R.B. (ed.), 1991: *Environmental Monitoring: Application of Remote Sensing and GIS*, Geocarto Int. Centre, Hong Kong.
8. Singh, R.B. and Murai, S. (eds.), 1998 : *Space Informatics for Sustainable Development*, Oxford & IBH Pub., New Delhi.
9. Burrough, P.A. and McDonnell, R.A., 1998 : *Principles of Geographic Information Systems*, Oxford University Press, Oxford.
10. Chang, K-t., 2006 : *Introduction to Geographic Information Systems*, Tata McGraw-Hill.
11. De Mers, Michael N., 1999 : *Fundamentals of Geographic Information Systems*, John Wiley & Sons, New York.
12. Environmental Systems Research Institute (ESRI), 1997 : *Getting to know Arc View GIS*, Cambridge : Geoinformation International.
13. Heywood, I. et al. 2004 : *An Introduction to Geographic Information Systems*, Pearson Education.
14. Longley, P.A., Goodchild, M.F., Maguire, D.J. and Rhind, D.W., 2001, *Geographic Information Systems and Science*, Wiley, Chichester.
15. Maguire, D.J., M.F. Goodchild and D.W. Rhind, 1991 : *Geographic Information Systems*, Longman Scientific and Technical, Harlow.



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**Course: 104 Statistical Techniques in Spatial Analysis**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Statistics and Statistical Data: Spatial and non-spatial; centographic measures in geography.
2. Probability theory, probability density functions with respect to Normal, Binomial and Poisson distributions and their geographical applications.
3. Sampling: Sampling plans for spatial and non-spatial data, sampling distributions; sampling estimates for large and small samples tests involving means and proportions.
4. “F” Distribution and Analysis of Variance –“one-way” and “two-way” analysis.
5. Non-parametric Tests: Chi-Square, Kolmogorov-Smirnov, Mann-Whitney and Kruskal-Wallis.
6. Correlation and Regression Analysis: Rank order correlation and product moment correlation; linear regression, residuals from regression, and simple curvilinear regression; Introduction to multi-variate analysis.
7. Time Series Analysis: Time Series processes; Smoothing time series; Time series components.

**Recommended Readings:**

1. Bart James E and Gerld M.Barber, 1996: Elementary Statistics for Geographers, The Guieford Press, London.
  2. Eldon, D., 1983: Statistics in Geography: A Practical Approach, Blackwell, London.
  3. Cressie, N.A.C., 1991: Statistics for Spatial Analysis, Wiley, New York.
  4. Gregory, S., 1978: Statistical Methods and the Geographer (4<sup>th</sup> Edition), Longman, London.
  5. Haining, R.P., 1990: Spatial Data Analysis in the Social and Environmental Science, Cambridge University Press, Cambridge.
  6. Khan Najma.,1998: Quantitative Methods in Geographical Research , Concept Publishing Company, New Delhi
  7. Mc Grew, Jr. and Cahrls, B. M., 1993: An Introduction to Statistical Problem Solving in Geography, W.C. Brocan Publishers, New Jersey.
  8. Mathews, J.A., 1987: Quantitative and Statistical Approaches to Geography: A Practical Manual Pergamon, Oxford.
  9. Pal, S. K., 1982: Statistical Techniques: A Basic Approach to Geography, Tata Mc-Graw Hill, New Delhi.
  10. Pal, S.K., 1998: Statistics for Geoscientists : Techniques and Applications, Concept Publishing Company, New Delhi.
  11. Wei, W.S.,1990: Time Series Analysis: Variate and Multivariate Methods , Addison Wesley Publishing.
  12. Yeates, Mauris, 1974: An Introduction to Quantitative Analysis in Human Geography, Mc Grawhill, New York.
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**Course 201: Advanced Physical Geography**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Earth System: Physical processes, the interaction and linkages.
2. Landscape ecology: mountains, deserts, and coasts.
3. The Climate System and Climate Change: Paleoclimate; Climate variability; EL Nino Southern Oscillation; Climate change and its impact on environment.
4. The Ocean System: Ocean topography; The Global Carbon Cycle; Sea surface temperature and sea-level fluctuation; Land – ocean interactions in the coastal zone.
5. Soils: Nature, colour, texture; parent material and composition, soil moisture, pH factor, soil structure and mineral content
6. Soil Development: Soil Horizon, soil profile, soil forming processes, temperature, soil classification and major soil types; the global scope of soils-soil order, desert and Tundra soil.
7. The Hydrological System: Components of hydrological system-ecohydrology, mountain hydrology, arid hydrology, urban hydrology and ground water system; Biospheric aspects of the Hydrological cycle.

**Recommended Readings:**

1. Benston, M., (ed.), 1994 : *Mountain Environment in Changing Climates*, Routledge, London.
2. Bary, R.G., 1992 : *Mountain Weather and Climate*, 2<sup>nd</sup> Edition, Routledge, London.
3. Brandy, N.C. (1990), *The Nature and Property of Soils*, 10<sup>th</sup> Edition, Macmillan, N.Y.
4. Christopherson, R.W., 1998 : *Elemental Geosystems: A Foundation in Physical Geography*, Prentice Hall, Englewood Cliffs, N.J.
5. Garrison, T., (1995): *Essentials of Oceanography*, Wadsworth, Pub. Co., New York.
6. Hamblin, W.K., (1995): *Earth's Dynamic Systems*, Prentice Hall, N.J.
7. Miller, C.E. et al., (1990): *Fundamentals of Soil Science*, 8<sup>th</sup> edition, John Wiley and Sons, N.Y.
8. National Aeronautics and Space Administration, 1988: *Earth System Science*, Washington, DC,.
9. Schumann, A.H., (ed) 2001: *Regional Management of Water Resources*, IAHS Pub. No. 268, IAHS Press, Wallingford.
10. Singer, M.J. & Donald, N.M. (1987): *Soils: An Introduction*, 2<sup>nd</sup> edition, Macmillan, N.Y.
11. Stern, P.C. and Easterling, W. E. (ed.) (1999) : *Making Climate Forecasts Matter*, National Academy of Sciences, Washington, DC.
12. Strahler, A., et al., 1996 : *Elements of Physical Geography*, John Wiley & Sons, New York.
13. Yeung, Yue-Man (ed) 1996 : *Global Change and The Common Wealth*, Chinese University of Hongkong, Hongkong.
14. Whittow, J., 1984 : *The Penguin Dictionary of Physical Geography*, Penguin Books.



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**Course 202: Contemporary Human Geography**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Human Geography: changing nature or perspectives, issues and debates.
2. Human Geography and Social Sciences: Critical understanding of social theory and human Geography
3. Conceptualizing space and place: Structure and dynamics of space; relational framework of space and place; social construction of space and time; ethics of space and place
4. Geography of difference and exclusion: Geographies of identity and difference related to class, religion, caste, gender and location; social justice and political geography of difference.
5. Geographical organisation of power: Spatial meaning and definitions of power; dynamics of spatio-social interactions and power; geopolitics of power-territoriality and globalization.
6. Geography of development: meaning, definitions and approaches; construction of development indicators; linking globalisation and new forms of development; local initiatives towards development.
7. Geography of social action and movements: reasons and approaches to social movements; aspects of social security; social-environmental movements in India.

**Recommended Readings:**

1. Agnew, J.A and Corbridge, S. 1995 : *Mastering Space: Hegemony, Territory and International Political Economy*, Routledge , London.
  2. Benko, G. and Strohmayr, U. 1997 : *Space and Social Theory : Interpreting Modernity and Postmodernity* , London : Blackwell Publishers, Oxford, London.
  3. Bhabha, H., 1994 : *The Location of Culture*, Routledge, London and New York.
  4. Corbridge, S., Martin, R. and Thrift, N., 1997 : *Money, Power and Space*, Blackwell, Oxford.
  5. Derek, G., Martin, R., and Smith, G., 1994 : *Human Geography: Society, Space and Social Science*. Macmillan publishers, Cambridge.
  6. Johnston, R.J., 1991 : *A Question of Place: Exploring the Practice of Human Geography*. Blackwell Publishers, Cambridge.
  7. Harvey, D., 1996 : *Justice, Nature and Geography of Difference*, Blackwell Publishers, Cambridge.
  8. Massey, D., 1998 : *Space, Place and Gender*, Polity Press, Cambridge.
  9. Massey, D., Allen, J., and Sarre, P., 1999 : *Human Geography today* , Blackwell Publishers, Cambridge.
  10. Morley, D. and Robins, K., 1995 : *Spaces of Identity: Global Media, Electronic landscapes and Cultural Boundaries*, Routledge , London.
  11. Redcliff, M., and Benton, T., 1994 : *Social Theory and Global Environment*, Routledge , London and New York.
  12. Rogers, A. and Vertovec, S., 1995 : *The Urban Context*. Berg, Oxford.
  13. Sack, R.D., 1997: *Homo Geographicus : A framework for Action, Awareness, and Moral Concern*. The John Hopkins University Press, London.
  14. Sibley, D., 1995 : *Geographies of Exclusion : Society, and Difference in the West*, Routledge , London.
  15. Werlen, B., 1993 : *Society, Action and Space : An alternative Human Geography* , Routledge , London.
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**Course: 203 Computer Aided Mapping and Thematic Atlas**

**Internal Assessment: 25**

**Thematic Atlas: 75**

**Course Outline:**

Each candidate shall be required to prepare a Thematic Atlas using suitable cartographic techniques of designing and mapping. Thematic Atlas focusing on any specific theme of interest will cover any region or area for purpose of mapping. All plates of the Atlas will be prepared with computers. The Thematic Atlas (Project Report) complete in all respects and duly signed by the teacher-in-charge, as having been prepared by the candidate-himself/herself, shall be submitted in duplicate on or before a date to be fixed by the department each year.

**Recommended Readings:**

1. Date, C.J., 1995 : *An Introduction to Data Base System*, 6<sup>th</sup> edition, Reading Massachusetts; Addison Werley.
2. Dickinson, G.C., 1973 : *Statistical Mapping and Presentation of Statistics*, Edward Arnold, London.
3. Fraser Taylor, D.R., (ed.), 1980 : *Progress in Contemporary Cartography*, John Wiley, Chichester U.K.
4. Fraser Taylor, D.R., (ed.), 1983 : *Graphic Communication and Design in Contemporary Cartography*, John Wiley & Sons Ltd. New York.
5. Hodykess, A.G., 1970 : *Maps for Books and Theses*, David and Charles, New York.
6. Jones, C., 1997 : *Geographic Information Systems and Computer Cartography*, Longman, London.
7. Keats, J.S., 1973 : *Cartographic Design and Production*, Longman, London.
8. Kingsbury, R.C., 1969 : *Creative Cartography: An Introduction to Effective Thematic Map Design*, Indiana University, Indiana.
9. Kraak, M-J., and Ormeling, F., 2004: *Cartography: Visualization of Geospatial Data*, Pearson Education.
10. Misra, R.P., 1986: *Fundamentals of Cartography*, Concept Publishers, Delhi.
11. Monkhouse, F.J., and Wilkinson, H.R., 1973: *Maps and Diagrams*, Methuen, London.
12. Rhind, D.W. and Taylor, D.R.F., (eds.) 1989: *Cartography: Past, Present and Future*, Elsevier Applied Science Publisher, London.
13. Robenhorst, T.D. and McDermatt, P.D., 1989: *Applied Cartography Source Materials for Mapping*, Merrill Pub. Co. London.
14. Robinson A. et.al., 1978 : *Elements of Cartography*, John Wiley, New York.
15. Tombin, C.D., 1990: *Geographic Information System and Cartographic Modelling*, Englewood Cluff, New Jersey.



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**Course 204 : Spatial Economic Systems**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Economic geographic space: Economic grouping and typology of countries, stages of development of productive forces, the post colonial states, international détente.
2. Socio-economic spatial relations: Territorial division of labour, location of productive forces, socio-economic complementarities, economico-geographic links, economic gravitations.
3. Geospatial paradigms: Historical materialism, dialectics of nature, instruments of productions, relations of productions, types of economic systems.
4. Geography of the world economy: World capitalist and socialist economy, scientific and technological revolution and the world economy.
5. Spatial Economic Structures: United States of America, People’s Republic of China and the Republic of India.
6. Development through cooperation: European Union, Central American Common Market, South Asian Association of Regional Cooperation.
7. System Growth and Spatial Dynamics: Types of growth and change, patterns of growth, development of spatial organizations, limits to growth.

**Recommended Readings:**

1. Bryson, J., et al, 1999: *The Economic Geography Reader*, John Wiley, Chichester.
2. Dodgshon, R.A., 1998: *Society in Time and Space*, Cambridge University Press, Cambridge.
3. Grossman, G., 1984: *Economic Systems*, Prentice Hall, New Jersey.
4. Hanink, D. M., 1997: *Principles and Applications of Economic Geography*, John Wiley, New York.
5. Knox, P. and Agnew, J., 1998: *The Geography of the World Economy* 3<sup>rd</sup> Edition, Arnold, London.
6. Krugman, P., 1995: *Development, Geography and Economic Theory*, MIT Press, Massachusetts.
7. Lee, R. and Wills, J., (eds.) 1997: *Geography of Economics*, Arnold, New York.
8. Sachar, A. and Oberg, S. (eds.), 1990: *The World Economy and the Spatial Organisation of Power*, E.S.F. Publication, Srasbourg.
9. Sheppard, E. and Barnes, T. J., 1984: *The Capitalist Space Economy: Geographical Analysis after Ricardo Marx and Strafa*, Unwin Hyman, London.
10. Taylor, M. and Conti, S., 1997: *Interdependent and Uneven Development*, Ashgate, Vermont.



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**Course 301: Advanced Remote Sensing and Geographical Information System**

**Internal Assessment: 25**

**End Semester Examination: 75**

1. Digital Image Processing: Digital image, storage and supply of digital data, radiometric and geometric correction, image registration, enhancement, filtering, transformation, color enhancement, image fusion, perspective visualization
2. Digital Image Classification: Image segmentation, Supervised and unsupervised classification; advanced classification methods, accuracy assessment; Digital change detection
3. Principles of Thermal, Hyperspectral and Microwave remote sensing
4. Terrain Modeling: Spatial interpolation techniques - types, uses and problems. Digital elevation / terrain model; Triangulated Irregular Networks (TIN); Watershed analysis.
5. Attribute Data Management : DBMS – Hierarchical, Network and Relational
6. Network Analysis; Analytical Modeling in GIS: Binary, Index, Regression and Process Based Modeling; Web-GIS; Errors in GIS
7. Integration of Remote Sensing and GIS : applications to geosciences

**Recommended Readings:**

1. Curran, Paul J., (1985): *Principles of Remote Sensing*, Longman, London & New York.
2. Gupta, R. P., (2003) : *Remote Sensing Geology*, Springer-Verlag.
3. Jensen, J.R., (2004) : *Remote Sensing of the Environment : An Earth Resource Perspective*, Pearson Education.
4. Jensen, J.R., *Introductory Digital Image Processing: A Remote Sensing Perspective* (New Jersey: Prentice-Hall).
5. Lillesand, T. and Kiefer, R., (1999) : *Remote Sensing and Image Interpretation*, Wiley, London.
6. Mather, P M. (1999). *Computer processing of remotely sensed images: an introduction*, Wiley, Chichester.
7. Sabins, Floyd F. Jr., (1997): *Remote Sensing: Principles and Interpretation*, W.H. Freeman, New York.
8. Burrough, P.A. and McDonnell, R.A., (1998) : *Principles of Geographic Information Systems*, Oxford University Press, Oxford.
9. De Mers, Michael N., (1999) : *Fundamentals of Geographic Information Systems*, John Wiley & Sons, New York.
10. Heywood, I. et al. (2004) : *An Introduction to Geographic Information Systems*, Pearson Education.
11. Longley, P.A., Goodchild, M.F., Maguire, D.J. and Rhind, D.W., (2001), *Geographic Information Systems and Science*, Wiley, Chichester.
12. Reeves, Robert, G., (ed.), (1975): *Manual of Remote Sensing* (2 Volumes), The American Society of Photogrammetry, Falls Church, Virginia.



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**Course : 302 Natural Resource Management**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Concept, models and approaches to natural resource management.
2. Utilisation, Conservation and Management of Resources
3. Problems of Resource Utilization
4. Resource Appraisal: Ground, remote sensing and G.I.S.
5. Sustainable Resource Development: Concept, method and dimensions, creating sustainable systems.
6. Integrated Resource Development: Ecological, economic and social aspects; problems of river basin development.
7. Institutions and Policy Making : Institutional arrangements; policy models; policy making and resource management.
8. Utilization, management problems and policies of natural resources in India.

**Recommended Readings:**

1. Adams, W.M., 1990 : Green Development: Environment and Sustainability in the Third World, Routledge and Chapman Hall, New York.
2. Berkes, F.,(ed.),1989 : Common Property Resources: Ecology and Community Based Sustainable Development, Belhaven Press London.
3. Mather, A.S. and Chapman, K.,1995 : Environmental Resources, Longman, Harlow, England.
4. McClay, K.R., 1995 : Resource Management Information System : Process & Practice, Taylor Francis, London.
5. Mitchell B., 1988 : Geography and Resources Analysis, 2<sup>nd</sup> edition, Longman, London.
6. Mitchell,B., 1997 : Resource and Environmental Management, Longman, Harlow, England.
7. Newson, M.D., 1991 : Land, Water and Development: River Basin Systems and Management, Routledge,London.
8. Owen, S. and Owens, P.L.,1991: Environment ,Resources and Conservation, Cambridge University Press, New York.
9. Redclift, M., 1987 : Sustainable Development: Exploring the Contradictions, Methuen, London.
10. Rees, J.,1990 : Natural Resources: Allocation, Economics and Policy, Routledge, London.
11. Saha, S.K., and Barrow, C.J., (ed.), 1981 : River Basin Planning : Theory and Practice, John Wiley and Sons, New York.



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**Course 303: Principles of Political Geography**

Internal Assessment: 25

End Semester Examination: 75

**Course Outline:**

1. Ideas in Political Geography, Geography and its relationship with political economy and political sociology.
2. Theoretical contributions to political geography: Ratzel, Hartshorne, Taylor and Harvey.
3. Political Geography of Ocean: Maritime Boundaries, delimitations: principles and problems, international law of the sea.
4. Electoral Geography: electoral systems, methods of studying electoral geography, geographical influence in voting.
5. Geo-strategic views: Mahan, Mackinder, Spikeman, conflict between states and conflict resolutions, supra-national organisations and their geographical significance.
6. Political Geography of the world order: Theories of international systems, evolution of contemporary world order, alternate models of development for the future.
7. Administrative organisation of space: Methods of administrative organisation, territory, public administrations and landscape formation, polity as an agent of landscape change.

**Recommended Readings:**

1. Agnew, J. (ed.), 1997: *Political Geography*, Arnold, London
2. Bryant, R. L. and Bailey, S., 1997: *Third World Political Ecology*, Routledge, London.
3. Blake, G. (ed.), 1987: *Maritime Boundaries and Ocean Resources*, Croom Helm, London.
4. Dikshit, R. D., 1997: *Developments in Political Geography: A Century of Progress*, Sage Publications, New Delhi.
5. Dodds, K., 2000: *Geopolitics in a Changing World*, Prentice Hall, Essex.
6. Elliott, L., 1998: *Global Politics of the Environment*, Macmillan Press Ltd., London.
7. Gottman, J., (ed.), 1980: *Centre and Periphery: Spatial Variations in Politics*, Sage, London.
8. O'Tuathail, G. and Simon, D., 1998: *Rethinking Geopolitics*, Routledge, London.
9. Parker, G., 1998: *Geopolitics: Past Present and Future*, Printer, London.
10. Taylor, P.J., 2000: *Political Geography: World Economy, Nation-State and Locality*, Longman, London.
11. Taylor, P.J. and Johnston, R.J., 1979: *Geography of Elections*, Croom Helm, London.



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**Course 304: Systematic Agricultural Geography**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Agricultural Geography: Origin and dispersal of agriculture - major theories of origin of agriculture; gene-centres of agriculture - New World and Old World.
2. Agricultural Regionalisation: Concept and criteria, Whittlesey's agricultural regions; agricultural typology-concept and criteria, hierarchy of world type of agriculture; agricultural regions of India.
3. Models in Agricultural Geography : Bases of classification; normative models - locational model, diffusion model, and decision making models; combinational models.
4. Agricultural Productivity: Concept, determinants and methods of its measurement; regional imbalances in agricultural productivity in India.
5. Agricultural problems and strategies for agricultural developments; agricultural planning regions.
6. New Perspectives in Agriculture: Urban agriculture; agri-business; food security, Sustainable Agricultural Development.

**Recommended Readings:**

1. Atkin's, P., and Bowler, L., 2001 : *Food in Society - Economy, Culture and Geography*, Oxford University Press, Oxford.
2. Basu, D.N., and Guha, G.S., 1996 : *Agro-Climatic Regional Planning in India*, Vol.I & II, Concept Publication, New Delhi.
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. Bryant, C.R., Johnston, T.R, 1992 : *Agriculture in the City Countryside*, Belhaven Press, London.
7. Grigg, D.B., 1984 : *Introduction to Agricultural Geography*, Hutchinson, London.
8. Grossman, D., VanDen Berg, L.M., and Ajaegbu, H., 1999 : *Urban and Peri-Urban Agriculture in Africa*, Ashgate, Publishing Company, Brookfield.
9. Ilbery, B.W., (ed.) 1998 : *Geography of Rural Change*, Addison Wesley Longman, London.
10. Mohammad, N., 1992 : *New Dimension in Agriculture Geography*, Vol. I to VIII, Concept Pub., New Delhi.
11. Obosu-Mensah, K., 1999 : *Food Production in Urban Areas: A Study of Urban Agriculture in Accra, Ghana*, Ashgate publishing Co., Brookfield.
12. Roling, N.G., and Wagerutgers, M.A.E.,(ed.) 1998 : *Facilitating Sustainable Agriculture*, Cambridge University Press, Cambridge.
13. Singh, J., and Dhillon, S.S., 1994: *Agricultural Geography*, Tata McGraw Hill, New Delhi.
14. Srivastava, H.C.(ed.) 1993 : *Biotechnological Applications for Food Security in Developing Countries*, Oxford & IBH Publishing Company, New Delhi.





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**Course 305: Social Geography of India**

**Internal assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Social Geography of India: Nature and Scope, Indian society - a study in unity and diversity: Centripetal and centrifugal forces, regional identities, modernization and role of media and new communication technology in shaping identities.
2. Historical Bases of Socio cultural regionalization of India: Elements in the development of socio cultural regions; continuity and change in the historically evolved regional structure; implications of emerging regional structure since independence.
3. Religion and Region in India: Religion and regional culture; Religious diversity and regional identity, Geographical factors explaining the distribution of the tribal religions, Hindus, Muslims, Christian, Buddhist, Jain and Sikh communities.
4. Geographic analysis of Caste and Tribe: *varna* and *jati*-pan Indian structure and regional specificity, Caste Regions, caste and settlement morphology, distribution of SC population, Tribes in India, dominance and dispersion of Tribal population, penetration of tribal regions.
5. Spatial Patterning of Language in India: linguistic diversity, Geographic patterning of languages, stability and fluidity of language returns; language loss, language retention and language shift.

**Reading List**

1. Ahmed A (1999) Social Geography, Rawat publications, Jaipur.
2. Ahmad A (1993) (ed) Social Structure and regional Development: A Social Geography Perspective, Rawat Publications, Jaipur.
3. Crane Robert I (1973), Regions and Regionalism in South Asian Studies: An Exploratory Study, Duke University Durham.
4. Dutt NK.,(1986), *Origin and Growth of Caste in India*, Firma Kin, Calcutta
5. Khubchandani ML, (1988) *Language in a Plural Society*, Indian Institute of Advanced Study, Shimla.
6. Kosambi DD (1962) *Myth and Reality: Studies in the Formation of Indian Culture*, Popular Prakashan, Bombay.
7. Pain R, M. Barke, D Fuller, J Gough, R MacFarlane, G Mowl, (2001), *Introducing Social Geographies*, Arnold Publishers, London.
8. Pannikar K.M. (1959) '*Geographical Factors in Indian History*', Bharatiya Vidya Bhavan, Bombay.
9. Singh K.S.(1993) *People of India Vol I to XI*, Oxford University Press, New Delhi.
10. Raza M and Ahmad A (1990) *An Atlas of Tribal India*, Concept Publishing Co, Delhi.
11. Registrar General of India, (1972), *Economic and Socio cultural Dimensions of Regionalization of India*, Census Centenary Monograph No 7, New Delhi
12. Schwartzberg J.(1978), *A Historical Atlas of South Asia*, University of Chicago Press, Chicago.
13. Sopher D. (1980) (ed) '*An Exploration of India: Geographical Perspectives on Society and Culture*', Cornell Press, New York.
14. Subba Rao B. (1958), '*Personality of India*', MS University Press, Baroda.



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**Course 306: Urban Settlement Systems**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Growth of Towns and Cities – First Urban Revolution: Earliest Towns, Greek and Roman Towns, Urbanism during Dark Ages, Medieval Period and Renaissance; Second Urban Revolution: Industrial and Modern Towns; Urbanization
2. The process and the patterns of the urbanisation in the developed and the developing countries; the process in India: colonial legacy, the post-independence characteristics.
3. Influence of Sites and Functions; Distribution and Spacing of Towns, Actual vs. Optimum Size, and Concept of Hierarchy, The concept of urban primacy and over urbanization, rank-size rule, urban-rural continuum.
4. The analysis of urban systems: structuralist perspectives, the systems approach
5. Classification of Towns – Criteria, Age and Function; Political and Regional Capitals; Inland Trading Centers; Ports; Mining and Industrial Towns; Towns with Miscellaneous Functions; Million Cities, Conurbations and Megalopolises.
6. Urban Systems and the Regional Economy: Illustrations from India

**Recommended Readings:**

1. Beaujeu-Garnier J. and Chabot G. (1967): *Urban Geography*, Longman.
2. Christaller W. (1933): *Central Places in Southern Germany*, Prentice-Hall International. (*in German*)
3. Dickinson R. E. (1964): *City and Region*, Routledge and Kegan Paul.
4. Geddes P. (1949): *Cities in Evolution*, Benn.
5. Gottman J. (1961): *Megalopolis*, Twentieth Century Fund, New York.
6. Hudson F. S. (1970): *A Geography of Settlements*, Macdonald & Evans, London.
7. Johnson J. H. (1967): *Urban Geography*, Pergamon.
8. Mayer H. M. and Kohn C. F. (1959): *Readings in Urban Geography*, University of Chicago.
9. Smailes A. E. (1953): *The Geography of Towns*, Hutchinson.
10. Taylor Griffith (1949): *Urban Geography*, Methuen.



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**Course : 307 Regional Development**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Regional Imbalance as a Policy Problem – General Spatial Equilibrium by *Ohlin* and *Losch*; Cumulative Causation by *Myrdal*; Spatial Equilibrium and Spatial Integration by *Friedmann (1966)*
2. Growth, Income Distribution and Spatial Inequality – Aggregate Efficiency vs. Interregional Equity; Large City Problem and Urban Bias; Spatial Reorganization
3. Urban-Industrial Growth Pole Strategies and the Diffusion of Modernization - Original Growth Pole Concept by *Perroux*; Transformation into Regional Theory; Two False Starts by *Boudeville* and *Hirschman*; USA as an Ideal Case Type: *Williamson, North, Perloff, Schultz, Friedmann, and Berry*; Dualistic Perspective and Geography of Modernization
4. Polarization and the Development of Underdevelopment: An Anti-Thesis – Failure of Growth Pole Strategies; Polarized Development by *Friedmann (1973)*, World Capitalist System by *Frank*, Colonialism and Spatial Structure of underdevelopment by *Slater*; Shared Space by *Santos*
5. Neo-Populist Regional Development Strategies – National Development Strategy; Urbanization Policies for Rural Development by *Johnson*, and *Rondinelli & Ruddle*; Selective Spatial Closure by *Stohr & Todtling*; Territorial Regional Planning and Development from Below by *Friedmann (1979)*; Agropolitan Development by *Friedmann (1978)*
6. Space and Explanation in Regional Development Theory – Conceptions of Space by *Perroux*, and *Friedmann & Alonso (1964)*; Spatial Analysis of Polarized Development: Spatial Centre-Periphery Model, Spatial Diffusion Analysis, Spatial Dependency Analysis; Functional Analysis by *Hempel*; Analysis of Locational Behaviour by *Massey*
7. Limits of Spatial Policy & Territorial Regional Planning and State, Development and Regional Planning Practice – Territorial Regional Planning as an Alternative; Territorial Interests; Organic Conception of Region; Development and Regional Planning; Policy Formation & Objectives and Planning Strategies & Practices in Developmentalist States

**Recommended Readings:**

1. Boudeville J. R. (1966): *Problems of Regional Economic Planning*, Edinburgh Univ. Press, Edinburgh.
2. Friedmann J. (1966): *Regional Development Policy: A Case Study of Venezuela*, MIT Press, Massachusetts.
3. Friedmann J. (1973): *Urbanization, Planning and National Development*, Sage Pub., London.
4. Friedmann J. and Alonso W. (1966): *Regional Development and Planning: A Reader*, MIT Press, Massachusetts.
5. Friedmann J. and Alonso W. (1975): *Regional Policy: Readings in Theory and Applications*, MIT Press, Massachusetts.
6. Friedmann J. and Weaver C. (1979): *Territory and Function: The Evolution of Regional Planning*, Edward Arnold, London.
7. Hirschman A. O. (1958): *The Strategy of Economic Development*, Yale Univ. Press, New Haven.
8. Johnson E. A. J. (1970): *The Organization of Space in Developing Countries*, MIT Press, Massachusetts.
9. Kuklinski A. (ed) (1970): *Regional Development and Planning: International Perspectives*, Sifhoff, Leiden.
10. Lo Fu-chen and Salih K. (1978): *Growth Pole Strategy and Regional Development Policy: Asian Experiences and Alternative Approaches*, Pergamon, Oxford.
11. Myrdal G. (1957): *Economic Theory and Underdeveloped Regions*, Duckworth, London.
12. Ohlin B. (1933): *Interregional and International Trade*, Harvard Univ. Press, Massachusetts.
13. Richardson H. W. (1978): *Regional and Urban Economics*, Penguin, Harmondsworth.
14. Rondinelli D. A. and Ruddle K. (1978): *Urbanization and Rural Development: A Spatial Policy for Equitable Growth*, Praeger
15. Rostow W. (1960): *The Stages of Economic Growth: A Non-Communist Manifesto*, Cambridge Univ. Press, Cambridge.
16. Stohr W. B. and Taylor D. R. F. (1981): *Development from Above or Below? The Dialectics of Regional Planning in Developing Countries*, John Wiley, Chichester.



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**308: Cultural Geography**

**Internal Assessment: 25**

**End-Semester Examination: 75**

1. Nature of Cultural Geography: Environmental Determinism; Carl Sauer and the Cultural Theory; the Morphology of Landscape; Superorganicism, its critique and the birth of New Cultural Geography; Post Modernism and the Cultural Turn.
2. Reading Culture: Meaning, Sign, Reading, Textuality, Aesthetics, Ideology and Representation and the Production of Cultural Spaces.
3. Cultural Politics of Spatial Dominance: Creating Hegemonic Cultures and Stereotypes- Mediums, Tactics and Strategies.
4. Cultural Politics of Spatial Resistance: Reassertion of Marginal Groups in everyday life Worlds, the emergence of Alternative and Resistant Cultures.
5. Globalisation of Cultures: Deterritorialisation of Spaces and Cultures, Role of Global Capital and Media in Hybridization of the World.

**Recommended Readings:**

1. Baker Alan and C, Biger (1992) Eds. *Ideology and Landscape in Historical Perspective*, Cambridge University Press, Cambridge.
2. Blunt, Alison and C. McEwan (2002) *Post Colonial Geographies*, Continuum, London.
3. Castells, Manuel (1996) *The Network Society*, Blackwell, Oxford
4. Cavallaro Davi (2001) *Critical and Cultural Theory: Thematic Variations*, Athlone Press, London and New Brunswick, NJ.
5. Cosgrove Denis (1984) *Social Transformation and Symbolic Landscape*, Croom Helen, London.
6. Crang, Mike (1998) *Cultural Geography*, Routledge, London.
7. Cresswell, Tim (1996) *In Place / Out of Place: Geography, Ideology and Transgression*, University of Minnesota press, Minneapolis.
8. Donald, James (1999) *Imagining the Modern City*, Athlone Press, London.
9. Duncan, James and Duncan, N (1988) “(Re) Reading the landscape”, *Environment and Planning D: society and Space*, 6, 117-26.
10. Glenn, Jordon (1995) *Cultural Politics*, Blackwell Oxford (UK) and Cambridge (USA).
11. Highmore Ben (2002) *Everyday Life and Cultural Theory*, Routledge, London and New York.
12. \_\_\_\_\_ (2005) *Cityscapes*, Palgrave Macmillan, New York.
13. Hubbard, Phil et.al (2005) *Key Thinkers on Space and Place*, Sage Publications, London, Thousand Oaks, New Delhi.
14. Leighly, John. (1963) Eds. *Land and Life: a Selection of writings of Carl Ortwin Sauer*, University of California, Berkeley.
15. Massey, Doreen (1994) *Space, Place and Gender*, University of Minnesota Press, Minneapolis.
16. Miller, Daniel et.al. (1998) *Shopping, Place and Identity*, Routledge, London and New York.
17. Nelson and Seager. (2005) *A Companion to Feminist Geography*, Blackwell Publishing Ltd, Oxford.
18. Robertson Iaian and Penny Richards, (2003) *Studying Cultural Landscapes*, Oxford University Press, London and New York.
19. Said, E. (1993) *Culture and Imperialism*, Alfred Knopf, New York.
20. Zukin Shawn (1995) *The Cultures of Cities*, Blackwell, Oxford.



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**Course 309: Geomorphologic Analysis**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Approaches in Analysis of Geomorphological Forms and Processes : A state of art.
2. Major Erosion Surfaces : Peneplains, pediplains, periglacial and exhumed surfaces; their identities, forms and models of evolutions.
3. Mega-geomorphology: Plate tectonics and sea-floor spreading, modes of landform development and morpho-genetic regions.
4. Analysis of Tectonic, Structural Landforms: Vertical movements and horizontal displacements rates of geomorphological subsidence, glacial eustasy and deltaic loading.
5. Depositional Landforms and their Processes : Alluvial channel - its hydraulic geometry; forms of drainage patterns and systems; typology of river deposition.
6. Microforms and Processes : Analysis of slopes, their classification and slope mapping; analysis of sediments in geomorphology, particle size classification; their distribution and analysis.

**Recommended Readings**

1. Allison, Robert (ed.) (2002): *Applied Geomorphology: Theory and Practice*, John Wiley and Sons.
2. Bridges, E.M. (1990): *World Geomorphology*, Cambridge University Press.
3. Goudie, A., (1995) : *The Changing Earth: Rates of Geomorphological Processes*, Blackwell, Oxford.
4. Hugget, Richard, J., (2003), *Fundamentals of Geomorphology*, Routledge (UK).
5. Johathan, P., (1999) : *Earth Surface Systems: Complexity Order and Scale*, New York.
6. Kale, V. S., and Gupta A., (2001): *Introduction to Geomorphology*, Orient Longman, Hyderabad.
7. Luna Bergere Leopold (1995): *Fluvial Process in Geomorphology*, Courier Dover Publications.
8. Thorn, Collin, E., (1988): *Introduction to Theoretical Geomorphology* , Unwin Hyman, Boston
9. Vitek, J.D., and Gardino, J.R. (eds.), (1993): *Geomorphology - The Research Frontier and Beyond*; Elsevier, Amsterdam.





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**Course 310: Rural Development – Planning and Policy**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Concept of Rural Development: Development theories and rural development in underdeveloped countries; Macro processes and micro-level development issues.
2. Rural Development Processes in India: Major features of pre-colonial, colonial, and post-independence periods.
3. Rural-Urban Relations: Rural Urban disparities, regional dimensions of migration, occupational patterns, levels of living and poverty.
4. Area Approach to Rural Development: Services provision, settlement systems, growth centre approach, issues of spatial equity and efficiency in the provision of rural services.
5. Target-group Approach to Rural Development: Review of development programmes for rural development.
6. Technology and Rural Development: Economic and ecological impact of green revolution, technology of dry land farming, rural industrialisation, rural energy, technology and resource recycling.
7. Institutional Aspects of Rural Development: Review of role of Decentralization, District Planning and Panchayats, Co-operatives, Land Reforms, Non-governmental Organizations in Rural Development.

**Recommended Readings:**

1. Gilg, A.W.: An Introduction to Rural Geography Edward Arnold, London, 1985.
2. International Labour Organization: Poverty and Landlessness in Rural Asia, Geneva, 1977.
3. Lee, D.A. and Chaudhri, D.P. (eds.): Rural Development and State, Methuen, London, 1983.
4. Lipton, M.: Why Poor People Stay Poor: A Study of Urban Bias in World Development, Maurice Temple Smith, London.
5. Misra, R.P. (ed): Rural Development: Capitalist and Socialist Paths, Vol. 1 An Overview, M.Raza et.al. Vol. 4. India and Bangladesh, K.V.Sundaram et.al. New Delhi, Concept Pub., 1985.
6. Misra R.P. and Sundaram, K.V. (eds.): Rural Area Development: Perspectives and Approaches, Sterling Pub;l New Delhi, 1979.
7. Palione, M.: Rural Geography, Harper and Row, London, 1984.
8. Ramachandran, H.: Village Clusters and Rural Development, Concept, New Delhi, 1980.
9. Ramachandran, H and J.P.C. Guimaraes, Integrated Rural Development in Asia-Learning from Recent Experience Concept, New Delhi, 1991.
10. Robb, Peter (ed.): Rural South Asia: Linkages, Change and Development, Curzon Press, 1983.
11. Wanmali, S.: Service Provision and Rural Development in India: A Study of Miryalguda Taluka, Int. Food Policy Res. Inst.
12. Wanmali, S.: Rural Infrastructure Settlement Systems and Development of the Regional Economy in South India, International Food Policy Research Institute, Washington, D.C., 1992.





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**Semester IV**

**Course 401 : Project Report**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course 402 : Regional Development in India**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Changing Paradigms of Development – Economic , social , political , ecological regional policy and regional development plans , need for sustainable regional development.
2. Models and Approaches to Development : Ideological approaches – capitalist, socialistic and Gandhian; spatial and non- – spatial models , sustainable development approaches .
3. Measuring Sustainability in a Region :Problems of measurement – indicators , scale, data availability, composite sustainability index, Human Development Index , Index of Governance.
4. Identification of Regional Disparities – Spatial patterns and temporal trends at macro , meso and micro scales .
5. Regionalisation for Sustainable Development : Agro climatic regions, metropolitan regions , ecological regions .
6. Sustainability of selected regions – Industrially backward area , flood prone area, drought prone area , tribal area, hill area , desert area and border areas.
7. Sustainable development strategies: Centre-state relations, administrative restructuring, watershed approach, urban management, microlevel planning.

**Recommended Readings:**

1. Bardhan, P., 1984 : *The Political Economy of Development in India* , Oxford , Blackwell.
2. Beck, T., 1994 : *The Experience of Poverty : Fighting for Respect and Resources in Village India* , London : Intermediate Technology Publications.
3. Bhalla, A.S., 1992 : *Uneven Development in the Third World : A Study of India and China* , London, Macmillan.
4. Centre for Science and Environment . 2000. *The Citizens Fifth Report Vol 1 and 11 : States of Environment* . Center for Science and Environment.
5. Dreze, J. and Sen, A.,1996 : *Indian Development : Select Regional Perspectives*, Oxford University Press.
6. Misra, R.P., ed *Regional Planning Concepts , Techniques ,Policies and Case Studies*
7. Concept Publishing Pvt Ltd , Delhi.
8. Narayan, D. and Patti Petesch (ed), 2001 : *Voices of the Poor : From Many Lands* A co-publication of the World Bank and Oxford University Press.
9. Ramachandran, N., 2000 : *Monitoring Sustainability : Indices and Techniques of Analysis*, Concept Publishing, Delhi.
10. Sharma, H.S and Chattopadhyaya, S., 1998 : *Sustainable Development : Issues and Case Studies* , Concept Publishing , Delhi.
11. Sunderam K.V . *Decentralised Multilevel Planning : Principles , Practices ( Asian and African Experiences )* , Concept Publishing, Delhi.
12. World Bank , *World Development Report 2000/2001 : Attacking Poverty* . A copublication of the World Bank and Oxford University Press 2000.
13. World Bank ; *World Development Indicators 2001* .World Bank 2000.



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**Environment and Resource**

**Course 411: Hydrology and Water Resource Management**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Hydrological Cycle: Systems approach in hydrology, human impact on the hydrological cycle; Precipitation, interception, evaporation, evapo-transpiration, infiltration, ground-water, run off and over land flow; Hydrological input and output.
2. River Basin and Problems of Regional Hydrology: Characteristics of river basins, basin surface run-off, measurement of river discharge; floods and droughts.
3. Water Balance Pattern: Measurement of water balance; time-space characteristics of water balance, assessment of water requirement.
4. Groundwater: Assessment and development, depletion and water quality parameters.
5. Water Resource Problems: water demand and supply, water quality, interstate water dispute, water Rights, institutional and financial constraints, ecohydrological consequences of environmental degradation.
6. Water Management: Water Management in disaster areas, water quality management and Pollution control, water management in urban areas, watershed management, integrated use of surface and ground water, Water Policy.

**Recommended Readings :**

1. Abbas, B.M., 1982 : The Ganges Water Dispute, Vikas Publishing House Pvt. Ltd., New Delhi.
2. Aggarwal, A., 1991 : Floods, Floodplains and Environmental Myths, Centre for Science and Environment, New Delhi.
3. Andrew. D. ward and Stanley, Trimble (2004): Environmental Hydrology, 2<sup>nd</sup> edition, Lewis Publishers, CRC Press.
4. Bhattacharya, S.K., 1988 : Urban Domestic Water Supply in Developing Countries, CBS Publishers and Distributors, Delhi.
5. Karanth, K.R., 1988 : Ground Water: Exploration, Assessment and Development, Tata-McGraw Hill, New Delhi.
6. Mahajan, G., 1989 : Evaluation and Development of Groundwater, Ashish Publishing House, New Delhi.
7. Palanisami, K, 1984 : Integrated Water Management: The Determinants of Canal Water Distribution in India: A Micro Analysis, Aricole, New Delhi.
8. Ramaswamy, C. (1985): Review of floods in India during the past 75 years: A Perspective. Indian National Science Academy, New Delhi.
9. Rao, K.L., 1982 : India's Water Wealth 2<sup>nd</sup> edition, Orient Longman, Delhi,.
10. Singh, Vijay P. (1995): Environmental Hydrology. Kluwar Academic Publications, The Netherlands.
11. Todd, D.K. (1980): Groundwater Hydrology. John Wiley, New York.



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**Course 412 : Geography of Energy**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Importance of Energy: Energy and Economic Development; Energy and Environment; Historical Development of Energy: the Global pattern.
2. Energy resources of the World: Conventional and Non Conventional Sources, New Discoveries and Inventions; Production and Consumption, the World Patterns; Oil Prices and the International Economy, the Nuclear Debate.
3. Energy in Developing and Developed Countries: Characteristics and Consumption Patterns.
4. Energy Resources Of India: Conventional and Non Conventional Sources: Potential, Production and Consumption: Sectoral and Regional patterns of Energy Use, New alternatives and Inventions, Rural Energy in India, Energy policies.
5. Contemporary Issues: Energy Security, Energy Efficiency, Energy Auditing, Conservation of Energy and Sustainable Development, the Geo-Politics of Energy; Emerging Issues in Energy sector.

**Recommended Readings:**

1. Chaturvedi, Pradeep (1998) *Rural Energy for Sustainable Development- Technology and Environmental Issues*, Bio Energy Society of India.
2. \_\_\_\_\_ (2003) *Energy, Environment and Sustainable Development*, Publishing Co, New Delhi.
3. Hannesson, R. (1998) *Petroleum Economics: Issues and Strategies of Oil and Natural gas Production*, Quorum Books, West Port ,USA.
4. Heal, Geoffery and G. Chichilnisky (1991) *Oil and the International Economy*, Clarendon Press, Oxford.
5. Meier, Peter and M, Munasinghe (2005) *Sustainable Energy in Developing Countries- Policy Analysis and Case Studies*, Edward Elgan Publishing Ltd, UK.
6. Nakicenovic, N. et al (1998) *Global Energy perspectives*, Cambridge University Press, Cambridge, New York, Melbourne.
7. Nooij, Michael and others, International Comparisons of Domestic energy Consumption, *Energy Economics*, 25 94) 2003 (July) 359-73.
8. Ramesh Babu, M. et.al.(1997) *Energy for Better Tomorrow: Renewable and Non Renewable Energy Sources*, Allied Publishers Ltd.
9. Reliance Industries Ltd. (2003) *Reliance Review of Energy Markets*, Corporate Communications, Mumbai.
10. Suludhi, R.N. (1993) *Energy Options for the 21<sup>st</sup> Century*, Ashish Publishing House.
11. World Energy Council, (1993) *Energy for Tomorrow's World*, Kogan Page.
12. World Energy Council, (1994) *New Renewable Energy Resources- a Guide to Future*, Kogan page.



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**Course 413 : Environmental Impact Assessment**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Environmental Impact Assessment: Principles of EIA, Concepts and approaches, historical development of impact assessment process, methods and procedure and current issues in EIA.
2. Environmental Impact Assessment: Stages, Screening and scoping, baseline data, Impact identification, Impact prediction, evaluation and mitigation, criteria and standards for assessing significant impact, cost-benefit analysis and valuation of environmental impacts, public participation, presentation and review and preparation of environmental Impact action plan.
3. Selected National Procedures of EIA: The USA model of EIA; EIA in Canada and other countries model.
4. Case Studies of Environmental Impact Assessment: Water Impact Assessment; Hydro-electric power Impact Assessment; Ecological Impact Assessment; Social Impact Assessment; Mining Impact Assessment; Cumulative effects Assessments.
5. Environmental Impact Assessment regulations and policies in India.

**Recommended Readings:**

1. Betty Bowers Marriott (1997): *Environmental Impact Assessment*, Mc Graw Hill Professional Bookstore.
2. Goel, R.S. (2000) : *Environmental Impacts Assessment of water Resources Projects -concerns, Policy Issues Perceptions and Scientific Analysis*, Oxford Publishing Co. Pvt. Ltd.
3. Goel R.S. and R.N.Srivastava, (1999): *Hydropower and River valley Development -Environment Management, Case Studies and Policy Issues* .Oxford & IBH Publishing Co.Pvt.,New Delhi.
4. Goudie,A., (2000) : *The Human Impact on the Natural Environment*, Blackwell, Publishers,Oxford.
5. J. Glasson, R. Therivel and A. Chadwick (1994): *Introduction to Environmental Impact Assessment: Principles and Procedures, Process, Practice and Prospects*, Research Press, Delhi.
6. Judith, Petts (eds.) (1999) *Handbook of Environmental Impact Assessment*, Blackwell Science Publication.
7. Prasad, K. and Goel, R. S., (2000) : *Environmental Management in Hydro Electric Projects*, Concept Pub., New Delhi.
8. Richard, K. Morgan (1999): *Environmental Impact Assessment: A Methodological Perspective*, Springer.
9. Sinclair, J., (2000) : *Canadian Environmental Assessment in Transition*, University of Waterloo Press, Waterloo.
10. Smith, L.G., (1993) : *Impact Assessment and Sustainable Resource Management*, Longman, Harlow.
11. Subramanian, V., (2001) : *Text Book on Environmental Sciences*, Narosa Publishing House., N. Delhi.



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**Course 414: Natural Hazards and Disaster Management**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Concept of Hazards, Risk, Vulnerability and Disaster.
2. Types of Hazards: Natural, man-made.
3. Regional Dimension of hazard: Occurrence and trends, methods of identifying hazard prone regions.
4. Disaster Losses and Impact – Displacements, livelihood, economy and infrastructure, health.
5. Response to Disasters: International, national, government, non government, community and individual, media and education.
6. Mitigation and Management: Plans and policies; engineering, economic, social, political and policy initiatives.

**Recommended Readings:**

1. Allan,S., Adam,B. and Carter,C., (eds.), (2000) : *Environmental Risks and the Media*, Routledge,London.
  2. Ambala-Bertrand, J.M., (1993): *Political Economy of Large Natural Disasters: With Special Reference to Developing Countries*, Clarendon Press, Oxford.
  3. Blaikie,P., Cannon,T., Davis,I.,(et.al.), (1994) : *At Risk: Natural Hazards, People's Vulnerability, and Disasters*, Routledge, London.
  4. Burton,I., Kates,R.W. and White,G.F., (1993) : *Environment as Hazard*, 2<sup>nd</sup> edition, Guilford Press, New York.
  5. Hewitt,K., 1997 : *Regions of Risk: A Geographical Introduction to Disasters*, Longman, London.
  6. Hood, C. and Jones, D.K.C. (eds.), (1996) : *Accident and Design : Contemporary Debates in Risk Management*, UCL Press, London.
  7. Kasperson,J.X., Kasperson, R.E. and Turner, B. L., (1995) : *Regions at Risk: Comparisons of Threatened Environments*, United Nation University Press,Tokyo.
  8. Mitchell,J.K., (ed.) (1999) : *Crucibles of Hazard: Mega-Cities and Disasters in Transition*, United Nations University Press, New York
  9. Schneider,S.K., (1995) : *Flirting with Disaster: Public Management in Crisis Situations*,M.E.Sharpe, New York
  10. Quarantelli,E.L.(ed.)(1998): *What is a Disaster? Perspective on the Question*, Routledge, London.
  11. Schneid,T.and Collins,L. (1998): *Disaster Management and Preparedness*, Lewis Publishers,Washington, D.C.
  12. Godschalk,D.R.et.al. (1999): *Natural Hazard Mitigation Recasting Disaster Policy and Planning*, Island Press, Washington,D.C.
  13. Paraswamam,S.and Umikrishnan, P.V. (2000): *India Disaster Report* , Oxford University Press, New Delhi.
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Department of Geography  
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**Course : 415 Urban Impacts on Natural Resources and Environment**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Urban Dynamic and resource use: driving forces of urban growth and changing resource use.
2. Consumption of natural resources in city systems: water, energy, land, soil, biofuels, vegetation and other minerals.
3. Ecological foot prints of mega cities in resource – source regions.
4. Production of resource – waste in urban areas: Production system and generation of wastes, levels and trends in air pollution, water pollution, degeneration of land and soils and solid waste.
5. Issues related to disposal of wastes within peri-urban settings: Impact of air, water and solid waste disposal beyond city boundaries.
6. Hazards and disasters in the cities: Issues of impacts, vulnerability, risks, exposure and mitigation.
7. Climate change and impact on water resources in the cities.

**Recommended readings**

National Research Council. 2003. *Cities transformed: Demographic change and its implications in the developing world*. M.R. Montgomery, R. Stern, B. Cohen & H. Reed (Eds.), Panel on urban population dynamics. Committee on Population. Washington DC, National Academy Press.

United Nations Centre for Human Settlements. 2002. *The state of the world cities report 2001*. New York: United Nations.

United Nations Environment Program. 2002. *State of environment and policy retrospective: 1972-2002*. Ch. 2 in *Global Environmental Outlook-3*. London: Earthsan.

United Nations Population Division. 2002. *World urbanization prospects: The 2001 revision*. New York: United Nations.





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**Social Dimensions in Geography**

**Course 421 Historical Geography**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

8. Approaches and contribution to the study of historical geography: over view of European and American contributions to historical geography.
9. The study of historical geography in India – critical evaluation of methodologies and approaches.
10. Evolution of the cultural landscape of India from pre- historic times to the present
11. Resources, environment, settlements, territorial organization, economy and trade routes in early historic India.
12. Centres of pilgrimage and geography of sacred places
13. Economic activities, settlement patterns, forest and trade routes, territorial political divisions in the medieval period.
14. Role of coastal and interior centres, developments in resource use, settlements, and transportation and their effects in the colonial period.
15. Urbanisation, migrations, famines, diffusion of land grant settlements, deforestation in the post colonial India.

**Recommended Readings:**

1. Ali, S.M. 1966 : The Geography of the Puranas, People’s Publishing House, Delhi.
2. Baker, A.R.H ( ed.) 1972 : Progress in Historical Geography. David and Charles.
3. Baker, A.R.H., Hamshere, J.D., Langton, J., 1972 : Geographical Interpretation of historical Sources, David and Charles.
4. Bhardwaj, S.M., 1973 : Hindu Places of Pilgrimage in India: A Study in Cultural Geography, University of California Press, Berkley.
5. Bharadwaj, O.P., 1986 : Studies in the Historical Geography of Ancient India, Sundeep Prakashan, Delhi.
6. Butin, R.A., 1993 : Historical Geography: Through the Gates of Space and Time, Edward Arnold, London.
7. Dey, N.L., 1971 : The Geographical Dictionary of Ancient and Medieval India, New Delhi.
8. Guelke, L., 1982 : Historical Understanding in Geography : An idealist approach, Cambridge University Press, Cambridge.
9. Habib, I., : An Atlas of Mughal Empire, Oxford University Press, Delhi.
10. Law, B., 1968 : Historical Geography of Ancient India, Societe Asiatique deiParis, Paris.
11. Pacione, M., 1987 : Historical Geography: Progress and Prospect, Croom Helm, London.
12. Roberts, P.E., 1995 : Historical Geography of India, Vol. I & II, Printwell, Jaipur.
13. Schwartzberg, J.E., 1978 : A Historical Atlas of South Asia, University of Chicago Press, Chicago.
14. Sircar, D.C., 1971 : Studies in the Geography of Ancient and Medieval India, Motilal banarasi Dass, India.
15. Subba Rao, B. : The Personality of India, Baroda.
16. Tamaskar, B.G., 1985 : Contributions to Historical Geography of India, Inter-India Publications, New Delhi.



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**COURSE 422: GEOGRAPHY OF LANDSCAPES**

**Internal Assessment 25**

**End Semester Examination 75**

1. Landscapes in Geography and beyond: Defining space and place, theoretical approaches in understanding landscapes.
2. Spatial thinking and spatial behaviour in Landscapes: Spatial boundaries and socio-spatial construction of landscapes, mental maps and landscape imagery, psycho-social geographies.
3. Politics of Landscapes: Insider and outsider view of landscapes – colonial, indigenous landscapes, contested landscapes, landscapes and memory.
4. Representation of landscapes: Articulation and re-articulation of landscapes in literature, films, art, music and popular media with particular reference to India.
5. Built environment and landscapes: Cityscapes and houses, street scenes, multiplexes and malls.

**Recommended Readings**

1. Barrell, J. 1980 *The Dark Side of Landscape: the Rural Poor in English Painting 1730-1840*. Cambridge: Cambridge University Press.
2. Bender, B (ed) 1993 *Landscape: Politics and Perspectives*
3. Cosgrove, D. 1984 *Social Formation and Symbolic Landscape*. London: CroomHelm.
4. Cresswell, T. 1996 *In Place/Out of Place: Geography, Ideology and Transgression*. Minneapolis: University of Minnesota Press.
5. Daniels, S. 1993 *Fields of Vision: Landscape Imagery and National Identity in England and United States*. Princeton: Princeton University Press.
6. Dear, M.J and S. Flusty (eds) 2002 *The Spaces of Modernity. Readings in Human Geography*. Oxford: Blackwell.
7. Duncan, J. and N. Duncan. 1988 (Re)reading the Landscape. *Environment and Planning D: Society and Space*, 6: 117-126.
8. Elden, S. 2001 *Mapping the Present: Heidegger, Foucault and the Project of Spatial History*. London: Continuum.
9. Entrikin, J.N. 1991 *The Betweenness of Place: Towards a geography of Modernity*. Baltimore: Johns Hopkins University Press.
10. Gold J. and G Revill (eds) 2000 *Landscapes of Defense*. London: Prentice-Hall.
11. Gregory, D and J Urry (eds) 1985 *Social Relations and Spatial Structures*. London: Macmillan
12. Hardt, M A Negri 2000 *Empire* Cambridge: Harvard University Press.
13. Helsinger, E. 1994 *Turner and the Representation of England in W.J.T. Mitchell ed. Power and Landscape*. Chicago: University of Chicago Press.
14. Highmore, B (2005) *Cityscapes. Cultural Readings in the material and symbolic city*. New York: Palgrave.
15. Lefebvre, H. 1991 *the Production of Space* (trans by D. Nicholson-Smith) Oxford: Blackwell.
16. Matless, D. 1998 *Landscape and Englishness*. London: Reaktion.
17. Prazniak, R and A Dirlik (eds) 2001 *Places and Politics in an Age of Globalisation*. Lanham:



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**COURSE 423: Demography and Population Policy**

**Internal Assessment: 25**

**End Semester Examination: 75**

1. Population Geography: Nature, Scope, Development, Sources of Population Data (Census, Registration Systems, Population tables).
2. Theories of Population: Malthus and his Critique; the Demographic Transition Theory.
3. Population Composition: Age, Sex, Literacy, Rural- Urban.
4. Fertility and Mortality: Measurements, Theories, Regional Patterns.
5. Migration: Theories, Typologies, Patterns and Flows; Causes and Consequences
6. Human Development: Concept, Construction of HDI, Regional patterns.
7. Political Economy of Population and the Politics of Population Control.

**Recommended Readings.**

1. Bandarage, Asoka. (1998) *Women, Population and Global Crises: A Political Economic Analysis*, Zed Books, London.
2. Cadwell, John. (1982) *Theory of Fertility Decline*, Academic Press, New York.
3. Crook, Nigel.(1997) *Principles of Population and Development*, oxford university Press ,oxford.
4. Davis, Kinsley. (1949) *Human Society*, Macmillan. Co, New York.
5. Ehrlich Paul R.(1968) *The Population Bomb*, Ballentine Books, New York.
6. Ehrlich and Ehrlich. (1990) *The Population Explosion*, Simon and Schuster,New York.
7. Guilmoto, C.Z and Alian Vagnet. (2000) *Essays on Population and Space in India*, Institut de Pondichery, Pondicherry.
8. Herdt, Gilbert and Shirley Lindenbaum. (1992) Eds *The Time of AIDS: Social Analysis, Theory and Method*, Sage Publications, Newbury Park C A.
9. Johnson, Stanley, P. (1994) *World Population- Turning the Tide- Three Decades of Progress*, Kluwer Academic Publishers Group.
10. Mamdani, Mahmood. (1972) *The Myth of Population Control: Family, Caste and Class in an Indian Village*, Monthly Review Press, New York.
11. Parret, H.R., (1997) *Population Geography*, Oxford and Boyd, Oxford.
12. Preston, Samuel. et al. (2001) *Demography*, Blackwell publishers Inc, Massachusetts, USA.
13. Rao, Mohan. (2004) *From Population Control to Reproductive Health- the Malthusian Arithmetic*.\_\_\_\_\_.
14. Ramachandralu, G and M.Prasada Rao. (2004) *Census 2001 and Human Development in India*, Serials Publication, New Delhi.
15. Siegal, Jacob,S. (2002) *Applied Demography*, Academic Press, New York.



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**COURSE 424: Health, Environment and Society**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Perspectives on Health: Definitions; linking environment, development and health; driving forces in health and environmental trends- population dynamics, urbanization, poverty and inequality, science and technology and life styles.
2. Pressure on Environmental Quality and Health : Human activities and environmental pressure- landuse and agricultural development; industrialisation; transport and energy.
3. Exposure and Health Risks: Air pollution; household wastes; water; housing; workplace; global environment change; multiple challenges for health protection.
4. Health and Disease in Environmental Context with special reference to India: Estimating the burden of disease- acute respiratory infections, diarrhoeal diseases , tropical vector-born and newly emerging diseases, injuries and poisoning; mental health conditions, cardiovascular diseases and cancer.
5. Climate Change and Human Health: Changes in climate system - heat, cold and air pollution; extreme weather events; sea level fluctuation; ozone depletion; effects on biological disease agents; food production and nutrition.
6. Linkage Methods for Environment, Development and Health Analysis: Approaches to linkage analysis; health and environmental analysis for decision making; development of environmental health indicators; assessment of health effects.
7. Promotion of environmentally sound healthy settings in India - Districts; cities, neighbourhoods, institutions, markets.

**Recommended Readings :**

1. Akhtar Rais (Ed.), 1990 : Environment and Health Themes in Medical Geography, Ashish Publishing House, New Delhi.
2. Avon Joan L. and Jonathan A Patzed.2001 : Ecosystem Changes and Public Health,Baltimin, John Hopling Unit Press(ed).
3. Bradley,D.,1977: Water, Wastes and Health in Hot Climates, John Wiley Chichesten.
4. Christaler George and Hristopoles Dionissios, 1998: Spatio Temporal Environment Health Modelling , Boston Kluwer Academic Press.
5. Cliff, A.D. and Peter,H., 1988 : Atlas of Disease Distributions, Blackwell Publishers, Oxford.
6. Gatrell, A.,and Loytonen, 1998 : GIS and Health, Taylor and Francis Ltd, London.
7. Elliot P.J., et al (ed.),1992 : Geographical and Environmental Epidemeology Methods for Small Area Studies, Oxford University Press.
8. Hardham T. and Tannav M.,(eds): Urban Health in Developing Countries; Progress, Projects, Earthgoan, London.
9. Herman Koreri and Michael Biseri : Environmental Health : Lewis Publishers, New York.
10. Kay, Brian H.,(ed),1999: Water Resource Health , Environment and Development, E& FN Spon
11. Murray C. and A. Lopez, 1996 : The Global Burden of Disease, Harvard University Press.
12. Moeller Dade wed., 1993: Environmental Health, Cambridge, Harward Univ. Press.
13. Phillips, D.and Verhasselt, Y., 1994: Health and Development, Routledge, London.
14. Price - Smith, Andrew T., 2000: The Health of Nations, The MIT Press, Cambridge.
15. Stephen T.Holgate ed. 1999: Air Pollution and Health, Academic Press, London.
16. Tromp, S., 1980: Biometeorology: The Impact of Weather and Climate on Humans and their Environment, Heydon and Son.



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**COURSE 425: GEOGRAPHY OF SOCIAL WELL BEING**

**Internal assessment: 25**

End Semester Examination: 75

**Course Outline:**

1. Welfare Geography and Social Well Being: Theoretical approaches and Development; Human needs and wants; State of Well being and Level of Living, Welfare as the focal theme in human geography.
2. Discrimination, Deprivation and Poverty: Concept of absolute and relative deprivation; Discrimination and Deprivation, place and people's poverty, geographic patterns of rural and urban poverty.
3. Regional Inequalities in Social Well Being: Key indicators of well being, Assessing social well being- choice of indicators , Inter regional differences in levels of social well being; implications for human resource development.
4. Access, Empowerment and Political Participation: Common property resources and access, participation of marginalized groups in decision making, 73 and 74 amendments to constitution, caste succession and rise of regional aspirations.
5. Well Being in a globalizing world: India shining and India invisible, Privatization of welfare sectors, conspicuous consumerism and relative deprivation

**Recommended Readings:**

1. Carley, M., (1982), *Social Measurement and Social Indicators*, London: Allen and Unwin
  2. Dasgupta, P, (1993) *An Enquiry into Well-being and Destitution*, Oxford Univ.Press
  3. \_\_\_\_\_, (2001) *Human Well-being and the Natural Environment*, Oxford Univ. Press
  4. Dreze, Jean & Amartya Sen (2002), *India: Development and Participation*, Oxford Univ Press.
  5. Miles, I (1985) *Social Indicators for Human Development*, : Frances Pinter, London.
  6. Morris D. Morris (1979) *Measuring the Condition of World Poor*, New York: Pergamon Press
  7. Smith, David (1973), *A Geography of Social Well-Being in the United States*, McGraw-Hill, New York.
  8. Smith D, 1977, *Human Geography- A Welfare Approach*, Edward Arnold, London.
  9. UNDP, *Human Development Reports 1990 to 2002*, Oxford University Press also HDR for some states of India.
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**COURSE 426 : GENDER AND SPACE WITH SPECIAL REFERENCE TO INDIA**

**Internal assessment: 25**

**End Semester Examination :75**

**Course Outline:**

1. Conceptualising Gender within Geography: Social construction of the feminine and masculine, Development of and theoretical approaches to the study of Gender in geography; Analysing gender and space in India.
2. Examining Gender in relation to space: Division of space in to private and public spaces, Gendered environments, gendered access to and experience of space; Spatial variations in the construction of gender.
3. Spatial Patterns and Bases of Gender inequalities: Patriarchy, son preference, social value; new reproductive technology, skewed sex ratios, gender disparities in social wellbeing, gendered patterns of crime and violence.
4. Gender and “other spaces”: Representations of gender in media space, the commodification of feminine and masculine- reassertion of indigenous gender identities.
5. Gender, Power and Policy: Concept of gender relations, strategic and practical needs; Gender and Development-issues and concerns, Policy analysis from a gendered perspective.

**Reading List**

1. Agarwal B. (1994) '*A Field of One's Own: Gender and Land Rights in South Asia*', Cambridge University Press.
2. Boserup E.(1970) '*Women's Role in Economic Development*', George Allen and Unwin, London.
3. Dube L. (2001) '*Anthropological Explorations in Gender: Intersecting Fields*', Sage Publications, New Delhi, Thousand Oaks, London.
4. Hanson S. and G. Pratt (1995), '*Gender, Work and Space*', Routledge, London and New York.
5. Karve I. (1968), '*Kinship Organisation in India*', Asia Publishing House, Bombay.
6. Kolenda P. (1987), '*Regional Differences in Indian Family Structure*', Rawat Publications, Jaipur.
7. Krishnaraj M, R Sudarshan and A Shariff(1998) '*Gender, Population and Development*', Oxford University Press New Delhi.
8. Lund R,1993, '*Gender and Place : Towards a Geography Sensitive to Gender, Place and Social Change-Vols I and II*', Department of Geography, University of Trondheim, Norway.
9. Mackenzie S. (1989) 'Women in the City' in Peet R. and N.Thrift (eds) '*New Models in Geography*', volume II, Unwin, London.
10. March C, I. Smyth and M. Mukhopadyay (1999) '*A Guide to Gender Analysis Frameworks*', Oxfam, Great Britain.
11. Massey D. (1994) '*Space, Place and Gender*', University of Minnesota Press, Minneapolis.
12. Mazumdar V and N Krishnaji (eds) (2001) '*Enduring Conundrum: India's Sex Ratio*', Centre for Women's Development Studies, Rainbow Publishers, Delhi.
13. Mc Dowell L, 1999, '*Gender, Identity and Place: Understanding Feminist Geographies*', Blackwell Publishers, Oxford.
14. McDowell, L. and Sharp, J., eds. 1999. '*A Feminist Glossary of Human Geography*'. London: Arnold.
15. McDowell, L. and Sharp, J, eds. 1997 '*Space/Gender/Knowledge: Feminist Readings*'. London: Arnold.





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**URBAN AND REGIONAL STUDIES**

**Course 431: Techniques and Methods of Regional Analysis**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Population Projection and Migration Estimation – Comparative Forecasting, Extrapolation, Ratio & Correlation Methods, and Growth Composition Analysis; Past Interregional, Rural-Urban and Future Migrations
2. Regional Income Estimation and Social Accounting – National Income Accounts, Regional Income Measurements, and Regional Social Accounting
3. Interregional Flow Analysis and Balance of Payment Statements – Location Quotient, Commodity Flow Analysis, Money Flow, and Balance of Payment Statements
4. Regional Cycle and Multiplier Analysis – Industrial Composition & Regional Cycles, Regional Multipliers, Interregional Trade Multiplier, Regional & National Cycles
5. Regional Industrial Location and Composition Analysis – Comparative Cost Approach, Labor Coefficients, Coefficient of Localization and Localization Curves & Ratios, and Coefficient of Specialization & Diversification Index; Modern Weberian Framework, Location Quotient and Shift-Share Analysis
6. Interregional and Regional Input-Output Techniques – Statistical Framework, Basic Problems, Projection, Final Demand Sectors, and Constant Coefficients; Interregional Linear Programming
7. Decision Analysis – Optimization Techniques, Value Tradeoffs and Risk Aversion; Project Evaluation – Aggregative (Benefit-Cost) & Disaggregate Approaches; Welfare and Inequality Analysis

**Recommended Readings:**

1. Armstrong Harvey and Taylor Jim (2000): *Regional Economics and Policy*, Philip Allan Publishers, England.
2. **Bendavid A.** (1991): *Regional and Local Economic Analysis for Practitioners*, Praeger, New York.
3. Brian Field and MacGregor Bryan (1987): *Forecasting Techniques for Urban and Regional Planning*, Univ. College London.
4. Chatterji Manas and Kaizhong Yang (eds.) (1997): *Regional Science in Developing Countries*, St. Martin's Press. New York.
5. **Chiang, A.** (1984): **Fundamental Methods of Mathematical Economics**
6. **Davis H. Craig** (1990): *Regional Economic Analysis and Project Evaluation*, UBC Press.
7. Friedmann John and Alonso William (1975): *Regional Policy, Readings in Theory and Applications*, MIT Press, Boston.
8. Higgins Benjamin and Savoie Donald (1995): *Regional Development Theories & Their Application*, Transaction Pub., London.
9. Huriot Jean-Marie and Thiss Jacques-Francois (eds) (2000): *Economics of Cities*, Cambridge University Press.
10. **Isard Walter, et. al.** (1998): *Methods of Interregional and Regional Analysis*, Aldershot, Ashgate.
11. Johansson, B., Karlsson C., and Stough R. R. (eds) (2001): *Theories of Endogenous Regional Growth: Lessons for Regional Policies*, Springer.
12. **Klosterman, R. E.** (1990): *Community Analysis and Planning Techniques*, Rowman & Littlefield Savage, Maryland.
13. **Krueckeberg, Donald A. and Silvers Arthur L.** (1974): *Urban Planning Analysis: Methods and Models*, John Wiley, NY.
14. Maki, Wilbur and Lichty Richard (2000): *Urban Regional Economics: Concepts, Tools, Applications*, Iowa State Univ. Press.
15. Meier Gerald M. and Stiglitz Joseph E. (eds): *Frontiers of Development Economics: The Future in Perspective*, Washington and New York.
16. Oppenheim, Norbet (1980): *Applied Models in Urban and Regional Analysis*, Prentice-Hall, New Jersey.
17. **Richardson Harry W.** (1979): *Regional Economics*, Univ. of Illinois Press, Chicago.
18. Schofield J. (1987): *Cost-Benefit Analysis in Urban & Regional Planning*, Allen & Unwin, London.
19. Treyz George I. (1993): *Regional Economic Modeling: A Systematic Approach to Economic Forecasting and Policy Analysis*, Academic Publishers, Boston.
20. Yin Robert K. (1984): *Case Study Research: Design and Methods*, Sage Publications, Beverly Hills.



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**Course 432: Transport Network and Flows**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Transport for spatial interaction: Spatial interaction and time-space convergence, enlarging the catmint area of markets, dynamic relationship between transport and spatial readjustment---Role of transport as a lead sector.
2. Problem of accessibility: The transport network; Network shape and location; Regional variations in its density; Methods of measurement, transport and spatial processes; Traffic flow and regional interaction.
3. Graph theory and Network Geometry; Concept of topology, topological measurement of network efficiency
4. Urban Transport: Profile of urban transport facilities; Traffic in towns; Transport services and urban land use pattern, role of intermediary transport modes; modal split.
5. Regional Transport Planning: The framework of regional transport Planning traffic generation; methods of forecasting;zonal interchange of traffic; mode and route assignment methods.
6. Indian Transport: Transport development during colonial and plan periods; transport and regional structure of Indian Economy.

**Recommended Readings**

Ashton, W.D., (1966): *The Theory of Traffic Flow*, Methuen , London

Berry, B.J.L *et al.*(1966): *Essays on Commodity Flow and Spatial Structure of Indian Economy*, Department of Geography, Chicago.

Berry, B.L.J. and Marble, D.F. (eds.) (1971): *Spatial Analysis: A Reader In Statistical Geography*, Prentice Hall.

Brooks, P.W., (1994): The Development of Air Transport Hurst, M.E. (ed.) *Transportation geography: Comments and Reading*, Mc Graw Hill, 256-273

Cooley, C.H. (1994): The Theory of Transportation, in Hurst, M.E. (ed.) *Transportation geography: Comments and Reading*, Mc Graw Hill, 15-29.

Fleming, D.K. and Hayuth, Y. (1994): Spatial Characteristics of Transportation Hubs: Centrality and Intermediacy, *Journal of Transport Geography*, 2 (1), 3-18.

Gautam, P.S. (1992): *Transport Geography of India: A Study of Chambal Division, M.P.*, Mittal Publications, New Delhi

Haggett, P. (1965): *Locational Analysis in Human Geography*, London.

Haggett, P. and Chorley, R.J. (1969), *Networks in Geography*, London.

Kansky, K.J., (1963): *Structure of Transportation Networks: Relationships between Network Geometry and Regional Characteristics*, University of Chicago, Department of Geography, Research Paper, Chicago, 84.

Nagar, V.D. and Gautam S. (1964): *Principles and Problems of Indian Transport*, Kailash Pustak Sadan, Gwalior.

Owen, W. (1968): *Distance and Development: Transport and Communications in India*, Washhington.

Raza, M. and Aggarwal, Y., (1986): *Transport Geography of India*, Concept Publishing Company, New Delhi.

Taaffe, E.J.*et al.*(1963): *Transport Expansion in Underdeveloped Countries:A Comparative Analysis*, Geographical Review, 53:503-29.

White, H. P. and Senior, M.L. (1983): *Transportation Geography*, Longman Inc. New York.



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**Course 433: Urban Development – Management and Policy**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Urban Issues: Problems and challenges of urbanization; urbanization trends, patterns and impacts; urban economy; urban poverty; social & physical infrastructure; urban environment
2. Components of Urban Management: Scope for urban management decentralization and local autonomy; intersectoral linkages; public-private partnership; capacity building - resource mobilization and institutional strengthening; civic engagement; information base and governance.
3. Environmental Planning and Management: Environmental indicators and mapping; wastewater management; solid waste management; control of air pollution; planning for disaster mitigation.
4. Land Management : Importance of land in urban development; land use and planning ; land regulation and policies; land values and prices ; land market assessment; land development strategies.
5. Slum Improvement and Upgradation: Evaluation of slum improvement programmes and schemes; resettlement and rehabilitation actions; slum development through participation of slum dwellers; security of land tenure; infrastructure development in slums.
6. Infrastructure Management: Traffic and transport management; healthcare services; water resources and supply management; power supply, financing urban services; integrated infrastructure development planning.
7. Urban Poverty Alleviation: City as an economic space; urban basic services for the poor; participation of poor in governance of poverty; access to urban land; expanded employment opportunities; environmentally sound shelter ; supportive government policies.
8. Management Towards Sustainable and Safer Cities

**Recommended Readings:**

1. Atkinson, A. et. al., 1999 : The Challenges of Environmental Management in Urban Areas, Ashgate pub. Co., Sydney.
2. Centre for Policy Research. The Future of Urbanization. New Delhi June 2000.
3. Gilbert, R., Stevenson, G. H. and Stren, R., 1996 : Making Cities Work, Earthscan Publications, London.
4. Hardoy, J.E., Mitlin, D. and Satterthwaite, D., 1992 : Environmental Problems in Third World Cities, Earthscan, London.
5. India Human Settlement Program .Integrated Urban Infrastructure Development, Seminar Papers. Human settlement Management Institute ,New 1995
6. Maitra, A. K., 2000 : Urban Environment in Crisis, New Age International Publishers, New Delhi.
7. Pugh C., 1996 : Sustainability, the Environment and Urbanization, Earthscan Publications , London.
8. Ronald, J. F., et.al. 1994: Mega City Growth and the Future, United Nations University Press, New York.
9. School of Planning and Architecture, 1993: Managing Our Metropolises: New Directions for 21<sup>st</sup> Century,
10. Singh, K. and Steinberg, F.M., 1996: Urban India in Crisis. New Age International Limited Publications, New Delhi.
11. Sivaramkrishnan, K.C., 2001: Problems of Governance in South Asia. Centre for Policy Research, New Delhi .



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## Course 434: Social Impact Assessment

**Internal Assessment: 25**

**End Semester Examination: 75**

### Course Outline:

1. Fundamentals of Social Impact Assessment : Concept; scope and need: goals, evolution; typology.
2. Development, process and Social Impacts: Process of socio-economic development; major development types, transport and communication, river valley projects; irrigation projects; industrial development, urban development; social risks in development projects.
3. Displacement and Resettlement Planning : Relocation, resettlement and involuntary migration; resettlement area development planning; project management; resettlement monitoring and evaluation; development of Management Information System (MIS) for resettlement.
4. Techniques and Methods of SIA : Delphi technique, Cost-benefit analysis, Checklist methods, matrix method, linear graphs and network analysis, GIS, Expert system.
5. Social Impact Assessment (SIA) : SIA process-screening, scoping, base-line and census surveys; identification and measurement of impacts; public consultation process; mitigation and avoidance of impacts; preparation of resettlement action plan.
6. Case Studies on SIA : Road construction, dams, irrigation projects, new town development; industrial relocation; urban development projects; hazards and disasters.
7. Social Impact Assessment and related policies and legislation in India

### Recommended Readings :

1. Asian Development Bank, 1991 : Guidelines for Social Analysis of Development Projects, Asian Development Bank, Manila.
2. Becker Henk 1997 : Social Impact Assessment: Method and experience in Europe, North America and the Developing World. UCL Press, London.
3. Blaikie P. et al. 1994 : Natural Hazards, People's Vulnerability and Disasters. Rutledge, London.
4. Cernea, M.M. 1988 : Involuntary Resettlement in Development Projects. World Bank Technical Paper 80. World Bank, Washington D.C.
5. Dreze Jean, Meera samon and Satyajit Singh, 1997 : The Dam and the Nation: Displacement and Resettlement in the Narmada Valley. Oxford University Press, New Delhi.
6. Graham S., 1994 : Impact Assessment and Sustainable Resource Management. Longman, Harlow.
7. Hansen A. and Oliver-Smith A. 1982 : Involuntary Migration and Resettlement: The Problems and Responses of Displaced People, Westview, Colorado.
8. Horlick-Jones et al. 1995 : Natural Risk and Civil Perception, Chapman and Hall, London.
9. Hough Michael. 1990: Out of Place; Restoring Identity to the Regional Landscape. Yale University Press, Princeton.
10. Kumar, K. 1993 : Rapid Appraisal Methods. World Bank Regional and Sectoral Studies Series. World Bank, Washington D.C.
11. Thukral E. G., 1992: Big Dams, Displaced People: Rivers of Sorrow, Rivers of Change. Sage Publication , New Delhi.
12. Vanclay, F. and Bronstein, D.A., 1995 : Environmental and Social Impact Assessment. Wiley, New York.
13. World Bank. 1995 : Resettlement and Development: the Bankwide Review of Projects Involving Resettlement 1986-1993. World Bank, Washington D.C.
14. World Bank. 1994 : Resettlement and Rehabilitation in India (2 Volumes) World Bank, Washington D.C.



## **PHYSICAL GEOGRAPHY**

### **Course 441: Analytical Physical Geography**

**Internal Assessment: 25**

**End Semester Examination: 75**

#### **Course Outline:**

1. Humidity and Aridity Indices: Koeppen, Bailey and Thornthwaite classification; soil-water balance determining climatic comfortability.
2. Extreme value distribution for river discharges leading to flooding; Waybill's plotting position, Gumbel and Log Pearson Type III distributions.
3. Surface Soil Loss Equations of Watersheds.
4. Aerial Platforms and aerial photography, photoscales and stereoscopy; Aerial photo interpretation keys; identifying salient structures and landforms for given stereo-pair.
5. Rock and mineral identification.
6. Topographic Map Reading and Landform Mapping.
7. Interpretation of Geological Maps.
8. Quantitative Analysis of Morphometric data.

#### **Recommended Readings:**

1. Chorley R.J., (Ed.), (1972) : *Spatial Analysis in Geomorphology*, Harper and Row.
  2. Doornkamp. J.C. and King, C.A.M. , (1971) : *Numerical Analysis in Geomorphology : An Introduction*, Arnold, London.
  3. Eugene, A.T., (1977) : *Interpretation of Aerial Photographs*, Burgess Publishing Co., Minneapolis.
  4. John, E. Oliver and John, J. Hidore (2003) : *Climatology: An Atmospheric Science*, Pearson Education Pvt. Ltd. Delhi.
  5. Mayer, L., (1990): *Introduction to Quantitative Geomorphology*, Prentice Hall, New Jersey.
  6. Morisawa, M. (1983): *Geomorphological Laboratory Manual*, John Wiley & Sons, New York.
  7. Pal , S K.,(1998) : *Statistics for Geoscientists: Techniques and Application* , Concept Pub. Co. New Delhi.
  8. Upton, W. B. (1970): *Landforms and Topographic Maps*, John Wiley & Sons, New York.
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**Course 442: Biogeography**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Biogeography: Concept, approaches and relevance.
2. Evolution of Plants and Animals: Theories, classification and characteristics.
3. Community Dynamics and Energy Flow: Food webs, biogeochemical pathways, ecological succession, climax concept, and ecosystem balance.
4. Factors Influencing the Community: Physical, biological and human.
5. Floristic and Zoogeographic Division with special reference to India: Migration and dispersal, barriers and disjunctions; latitudinal and altitudinal distribution, realms, regions and provinces.
6. Major Ecological Communities: Composition and Structure - forest, grassland, desert, island, mountain and aquatic.
7. Adaptations of Plants and Animals to the Environment : Classification and characteristics.
8. Biodiversity in India: Concept, distribution, legislation, conservation and institutions.

**Recommended Readings :**

1. Cox, C.B. and Moore, P.D., (1993): *Biogeography: An Ecological and Evolutionary Approach*, 5<sup>th</sup> Edition, Blackwell, Oxford.
2. Dansereau, P., (1957) : *Biogeography : An Ecological Perspective*, Ronald Press, New York.
3. Good, R., (1953) : *Geography of the Flowering Plants*, Longman, Green & Co.London.
4. Haggett, R.J., (1998) : *Fundamentals of Biogeography*, Routledge, London.
5. Illies, J., (1974) : *Introduction to Zoogeography*, translated by W.D.Williams, Macmillan, London.
6. Jeffries, M.J., (1997) : *Biodiversity and Conservation*, Routledge, London.
7. Pielou, E.C.,(1979) : *Biogeography*, John Wiley and Sons, New York.
8. Pimm,S.L., (1991) : *Balance of Nature-Ecological Issues in the Conservation of Species and Communities*, University Press, Chicago.
9. Shimvell, D.W., (1971): *Description and Classification of Vegetation*, University of Washington Press, Seattle.
10. Walter, H., (1993) : *Vegetation of the Earth in Relation to Climate and the Ecophysiological Conditions*, English University Press Limited, London.
11. Wilson, E.O., (1992) : *Diversity of Life*, Massachusetts Harvard University Press, Cambridge.





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**Course 443: Geography of Himalayas**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Origin of Himalayas: Himalayas as a regional entity – physical, historical, social -cultural, ecological, sustainable regional development.
2. Development Process – Pre-colonial, colonial, independence and post war period and present trends
3. Sectoral Development – agriculture, horticulture, forestry, animal husbandry, mining, tourism.
4. Resilience and vulnerability - environmental and political.
5. Approaches to Development - hill area region development, highland – lowland development, watershed approach, integrated resource management.
6. Spatial Characteristics of Development – indicators of development, regional disparities, regions at risk.
7. Search for a Sustainable Himalayas – movements and identity, non – government organizations, decentralization and panchayati raj institution and laws.

**Recommended Readings:**

1. Bose, S.C., (1976) : *Geography of the Himalaya*, National Book Trust, New Delhi.
2. Chaube, S.K. (ed.), (1985) : *The Himalayas: Profiles of Modernization and Adaptation*, Sterling Publishers Private Limited, New Delhi.
3. Gupta. K.M. (ed.), (1990) : *Himalaya: Man and Nature*, Lancer Books, New Delhi.
4. Joshi, M.P., Fanger, A.C. and Brown, C.W. (eds.), (1981) : *Himalaya: Past and Present*, Shree Almora Book Depot, Almora.
5. Joshi, S.C. (ed.), (1984) : *Rural Development in the Himalaya: Prospects and Problems*, Gyanodaya Prakashan, Nainital.
6. Kapur, A., (1995) : *Paradise in Peril – An Ecological Profile of the Kashmir valley*, Allied publishers, Delhi.
7. Lall, J.S. (ed.), (1981) : *The Himalaya: Aspects of Change*, Oxford university Press, Delhi.
8. Pangtey, Y.P.S. and Joshi, S.C. (eds.), (1987) : *Western Himalaya, Volume 1 Environment*, Gyanodaya Prakashan, Nainital.
9. Randhawa, M.S. , (1970) : *The Kumaon Himalayas*, Oxford and IBH Publishing Company, New Delhi.
10. Sah, N.K., Bhatt,S.D., Pande,R.K. (eds.), (1990) : *Himalaya: Environment, Resources and Development*, Shree Almora Book Depot, Almora.
11. Valdiya, K.S. (ed.), (1988) : *Kumaon: Land and People*, Gyanodaya Prakashan, Nainital.



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**Course 444: Terrain Modelling and Evaluation**

**Internal Assessment 25**

**End Semester Examination 75**

1. Principles of Photogrammetry: Stereoscope Parallax and height determination; Orthorectification; Global Positioning System based altitude determination; contouring.
2. Digital Terrain Model: Contour/point interpolation – IDW, Spline, Krigging etc.; SAR Interferometry; Laser Scanning; Quality assessment of DTM.
3. Terrain Analysis on grided DEM: slope, aspect, curvature, flow direction, watershed delineation etc.; Terrain classification; Secondary topography attributes-wetness indices, stream-power indices, radiation indices, temperature indices etc.
4. Geomorphological, Hydrological and Biological applications of Digital Terrain Model.
5. 3-D visualization of the terrain and identification of landform and land cover features.

**Recommended Readings**

1. Bell, S. (1999): *Landscape: Pattern, Perception and Process*, E&FN Spon, NY.
2. Burrough, P.A. and McDonnell, R.A., (1998): *Principles of Geographic Information Systems*, Oxford University Press, Oxford.
3. Clifford, N., (2003): *Key Methods in Geography*, Sage Publications Inc.
4. Davis, J.C., (1986): *Statistics and Data Analysis*, 2<sup>nd</sup> edition, Wiley.
5. De Mers, Michael N., (1999): *Fundamentals of Geographic Information Systems*, John Wiley & Sons, New York.
6. El-Rabbany, A., (2002): *Introduction to GPS*, Artech House.
7. Jensen, J.R., (2004): *Remote Sensing of the Environment: An Earth Resource Perspective*, Pearson Education.
8. Henderson, F.M. and Lewis. A.J. (eds), 1998, *Manual of Remote Sensing, Vol.2, Principles and Application of Imaging Radar*, 3<sup>rd</sup> edition, Wiley.
9. Lawrence, C.J., Byard, R.J. and Beaven, P.J., 1993, *Terrain Evaluation Manual*, HMSO Publications, London.
10. Lyon, J., (2003), *GIS for water Resources and Watershed Management*, Taylor & Francis.
11. Sabins, Floyd F. Jr., (1997): *Remote Sensing: Principles and Interpretation*, W.H. Freeman, New York.
12. Wilson, J.P. and Gallant, J.C. (eds), 2000, *Terrain Analysis: Principles and Applications*, John Wiley & Sons.



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**POLITICAL GEOGRAPHY AND AREA STUDIES**

**Course: 451 POLITICAL GEOGRAPHY OF INDIA**

**Internal Assessment 25**

**End Semester Examination 75**

1. Geographical Bases of the Indian State: Territoriality, Location and size; Population: Distribution, ethnic and religious composition, quality; Implications in the current geopolitical context.
2. Geographical Factors in India's Political History: Centripetal and centrifugal forces; Role of terrain, Rivers and sea coasts in shaping political history;
3. Geography of internal conflicts and problems of Nation Building: Religious conflicts: Linguistic conflicts, separatist movements, terrorism; environmental movements, river water disputes.
4. Geography of Electoral support and Representation: Constituencies and their evolution, Redistricting: Issues and concerns; Patterns of electoral support and representation; politico electoral regions of India
5. Geography of International Relations: India's bilateral relations with SAARC nations; India's position in the Indian ocean region; Between two worlds India's position in world politics.

**Recommended Readings:**

1. Adhikari S, 1997, Political Geography, Rawat publications, Jaipur and Delhi
2. Bandhopadhyaya J, 1991 'The Making of India's Foreign Policy, Allied Pub, Delhi
3. Bhambri, C.P.: 1991 : Political Process in India, Vikas, New Delhi
4. Brass, P.R., 1990 : The Political Economy of India Since Independence, Cambridge University Press, New Delhi.
5. Brass P.R, 1983, Caste, Faction and Party in Indian Politics, Vol I and II, chankya Pub, Vdelhi
6. Brass P R 2003 The production of Hindu Muslim Violence in Contemporary India, Oxford University Press, Delhil
7. Basu, S., 1992: Regional movement: Ethnicity identity, IIAS, Simla.
8. Deshpande, C.D., 1992 : India: A Regional Interpretation, I.C.S.S.R, New Delhi.
9. Harrisson S et al(eds) 1999, India and Pakistan: the first fifty years, Woodrow Wilson Centre and Cambridge Univ Press
10. Oommen T.K., 1990 : Protest and Change Studies in Social Movements, Sage, New Delhi
11. Pannikar KN, 1955, Geographical Factors in India's History, Bharatiya Vidya Bhavan, Bombay
12. Rudo0lph and Rudolph 1987, In pursuit of Lakshmi
13. Schwartzberg J, 1989, A Historical Atlas of South Asia
14. Weiner M and J Osgoodfield (eds) 1975 and various years, Electoral Politics in the Indian States, Centre for International Studies, MIT
15. Varshney A, 2002, Ethnic Conflict and Civic Life: Hindus and Muslims in India, Yale Univ Press, New Haven



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**Course 452: Geography of Federalism**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. The State: Concept and evolution; Nation, and the nation-states, types of states, shape and location of state.
2. Definition of Federalism: Concept, approaches and types, geography and federalism.
3. A Spatio-temporal analysis of the classical federation of Switzerland.
4. Evolution of Indian Federation: Pre-colonial period, colonial period, post-colonial period and state reorganisation.
5. Centre-State Relations: Spatial nature of administrative, judiciary and financial relations.
6. Government's Policies: Development planning, agricultural policies, industrial policies, land reforms and Panchayati Raj.
7. Regionalism and its Manifestations: Types of movements, Inter-State river water disputes, Inter-State boundary disputes.

**Recommended Readings:**

1. Bajpai A., 1997 : Panchayati Raj and Rural Development, Sahitya Prakashan, Delhi.
  2. Bhambri, C.P.: 1991 : Political Process in India, Vikas, New Delhi.
  3. Brass, P.R., 1997 : The Political Economy of India Since Independence, Cambridge University Press, New Delhi.
  4. Basu, S., 1992: Regional movement: Ethnicity identity, IIAS, Simla.
  5. Dandekar, V.M., 1996 : Indian Economy : 1947-92, Sage, New Delhi.
  6. Deshpande, C.D., 1992 : India: A Regional Interpretation, I.C.S.S.R, New Delhi.
  7. Dikshit, R.D, 1975 : The Political Geography of Federalism, Macmillan, New Delhi.
  8. Gopalkrishan, R., 1991: Political Geography of India's North-East, Har-Anand Publications, Delhi.
  9. Inamdar, N.R., 1992 : Development Administration in India, Rawat, Jaipur.
  10. Kothari, R., 1970 : Politics in India, Oriental and Longman, New Delhi.
  11. Oommen T.K., 1990 : Protest and Change Studies in Social Movements, Sage, New Delhi
  12. Singh, R., 1991: Social Movements, Old and New: A Post Modernist Critique, Sage publications, New Delhi.
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**Course 453: Electoral Geography**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Scope and Contents of Electoral Geography: Evolution of electoral geography in different phases: Review and understanding of work done in electoral geography with special reference to India: Scope of Electoral Geography.
2. Types of Electoral Systems
3. Source Material, techniques and approaches in electoral geography.
4. The Geography of Power through Elections.
5. Case Studies of Indian Elections.

**Recommended Readings**

1. Busteed, M. A. (ed.), (1983) : *Development in Political Geography*, Academic Press, London.
2. Tayler, P.J. and House, J. (1984): *Political Geography: Recent Advance and Future Direction*, Crom Helm, Kent.
3. Burnett, A.D. and Taylor, P.J. (1981): *Political Studies from Spatial Perspectives*, John Wiley and Sons, New York.
4. Pacione, M. (ed.), (1985): *Progress in Political Geography*, Crom Helm, U.K.
5. Gudgin, G. and Taylor, P.J. (1979): *Seats, Votes and the Spatial Organisation of Elections*, London, Pion Ltd.
6. Taylor, P.J. and Johnston R.J. (1979): *Geography of Elections*, Crom Helm, U.K.



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**Course 454: Political Geography of Central Asia**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Central Asia in Global Perspectives: Central Asia and the world, external links, political alignment and geopolitics.
2. Physical Environment: Relief, landscape, temperature, pressures and winds directions, water balance and environmental hazards.
3. Economic Structure: Natural resources, livestock, crops, agricultural regions and evolution of economic regions.
4. Cultural Landscape: Ethno-linguistic region, human development, rise of great powers, region in the period of Bolshevik revolution.
5. Political Systems: Political parties, extremist politics, radical movements and foreign policy.
6. Transport and Communication: Railways, roads, airways and international tourism.
7. Perspective and Linkages of the Region with Russia and its Southern Neighbours.

**Recommended Readings:**

1. Adshead, S.A.M., 1993 : Central Asia in World History, Macmillan, London.
2. Allworth, E., (ed.), 1994 : Central Asia : 130 Years of Russian Dominance : A Historical Overview, University Press, Durham.
3. Anderson, J., 1997 : The International Politics of Central Asia, University Press, Manchester.
4. Banuazizi, A. and Weiner M., (eds.), 1994 : The New Geopolitics of Central Asia and its Borderlands, I.B. Tauris, London.
5. Capisani, G.R., 2000 : The Handbook of Central Asia : A Comprehensive Survey of the New Republics, I.B. Tauris, London.
6. Ferdinana, P., (ed.), 1994 : The New Central Asia and its Neighbours, Pinter, London.
7. Gleason, G., 1997 : The Central Asia States : Discovery Independence, Westview press, Boulder.
8. Hunter, S., 1996 : Central Asia Since Independence, Praeger, Westport.
9. Pomfret, R.W.T., 1995 : The Economics of Central Asia, Princeton University Press, Princeton.
10. Ruffin, M.H., and Waugh, 1999 : Civil Society in Central Asia, University of Washington Press, Seattle.





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**Course 455: POLITICAL GEOGRAPHY OF MIDDLE EAST**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline**

1. Middle East as a region: Territorial Evolution, space relationship and interdependencies.
2. Political history and administrative structure: Evolution of national boundaries and administrative structures.
3. Geographical bases of geo-ethnic regions: Relief, climate, language, migration, types of geo-ethnic regions.
4. Economic structure: Agriculture, mineral oil, industry, role of petroleum in regional economies.
5. Conflict resolution: Economic, social, political, centripetal and centrifugal forces.
6. Foreign Policy: Spatial Problems, linkages with developing and developed countries.
7. Middle East and the global economy.

**Recommended Readings**

1. Ayubi, N. N. 1995: *Over- Stating the Arab State: Politics and Society in the Middle East*, I.B. Tauris, London.
2. Barkley, H., 1993: *The Politics of Economic Reform in the Middle East*, MacMillan, London.
3. Beinlin, J., and Stork, J., 1997: *Political Islam*, I.B. Tauris, London.
4. Cleveland, W.L., 1994: *A History of the Modern Middle East*, Westview Press, Oxford.
5. Findlay, A.M., 1996: *The Arab World*, Routledge, London.
6. Fisher, W.B., 1985: *Middle East: A Physical, Social and Regional Geography*, Cambridge University Press, Cambridge (7<sup>th</sup> edition).
7. Owen, R., 1992: *State, Power and Politics in the making of the Modern Middle East*, Routledge, London.
8. Richard, A. and Waterbury, J.A., 1996: *A Political Economy of the Middle East*, Westview Press, Colorado, (Revised).
9. Shamim A. and Sayigh Y., (eds) 1998: *The Cold War and The Middle East*, Oxford University Press, Oxford.
10. Wilson, R., 1995: *Economic Development in the Middle East*, Routledge, London.



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## **AGRICULTURAL AND RURAL STUDIES**

### **Course 461: Agricultural Development and Land Degradation**

**Internal Assessment: 25**

**End Semester Examination: 75**

#### **Course Outline:**

1. Agricultural Development: Concept, criteria and historical perspective of agricultural development
2. Determinants of agricultural development: Physical; techno-economic; cultural and socio-institutional
3. Agricultural Development in India: Pre-Independence period; Post-independence period; dynamics of agricultural land use; agricultural productivity; socio-economic and ecological consequences of agricultural development.
4. Land Degradation: Concept, process and approaches, Regional pattern and consequences of: ground water depletion and contamination; salinity and alkalinity ; deteriorating soil fertility and soil erosion.
5. Land Degradation in India: Identification and delimitation based on NWDB; classification and their spatial distribution; regeneration of degraded land and its sustainability; Case Studies
6. Sustainable Agricultural Development: Concept and methods; issues and strategies of sustainable agricultural development.

#### **Recommended Readings:**

1. Adams, W.M., 1990 : Green Development : Environment and Sustainability in the Third World, Routledge, London.
2. Blaikie, P. and Brookfield, H., 1987: Land Degradation and Society, Methuen, London.
3. Boels, D.,1982 : Proceeding of Soil Degradation, Ratterdon.
4. Chisholm, A and Dumsday, R. (eds.), 1987 : Land Degradation, Problem and Policies, Cambridge.
5. Davidson, D.A., 1992 : Evaluation of Land Resources, Longman, Essex.
6. D'Souza G.E. and Gebremedhin T.G., (ed) 1998: Sustainability in Agriculture and Rural Development, Ashgate Publishing Co., Aldershot.
7. Eden, M.J. and Parry, J.T.,1996: Land Degradation in the Tropics: Environmental and Policy Issues, Printer Pub., Lon.
8. Fabos,J.G. , 1985 : Landuse Planning : From Global to Local Challenge, Bowden and Culver, NY.
9. Johson, D.L. and Lewis,L.A.,1995 : Land Degradation: Creation and Destruction, Blackwell, Oxford.
10. Matlock,W.O.,1998 : Realistic Planning for Arid Lands: Natural Resource Limitation to Agricultural Development, Horward Academy Press, London.
11. Mc.Rabie, G. (ed ), 1990 : Tools for Organic Farming : A Manual of Appropriate Equipments and Treatments, Bootscap press, New York.
12. Rattan, L., 1995 : Sustainable Development of Soil Resources in the Humid Tropics, U.N.University Press, Tokyo.
13. Wong, M.H., et al.1999 : Remediation and Management of Degraded Land, Lewis Pub. Boca Raton.
14. Young, A., 1998 : Landuse Resources : Now and for the Future, Cambridge University Press, Cambridge.



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**Course 462: Landuse Planning**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Approaches to Landuse Surveys: Census approach, Unit area approach; sampling approach; Remote sensing approach; review of landuse surveys in India.
2. Determinants of Landuse: Physical, techno-economic, institutional, and socio-cultural.
3. Models and Theories of Landuse: General landuse model, Diagrammatic model, Category model of NRSA, Physical Optima, Economic Optima, Model of Landuse Competition Locational model.
4. Dynamics of Landuse and Land Cover: Past trends and emerging patterns; analysis of landuse change; monitoring rural landuse change.
5. Land Capability Classification: Concept and criteria; land capability classification in U.S.A., China, U.K. and India; land capability and landuse planning in India.
6. Land use Planning: Agro-climatic region, agricultural planning region, landuse policy and planning.

**Recommended Readings:**

1. Adams, W.M., 1990 : Green Development : Environment and Sustainability in the Third World, Routledge, London.
2. Blaikie, P. and Brookfield, H., 1987: Land Degradation and Society, Methuen, London.
3. Basu, D.N. and Guha, G.S., (1996): Agro-Climatic Regional Planning in India, vol I and II, Concept Publications, New Delhi.
4. Davidson, D.A., 1980 : Soil and Landuse Planning, Longman, New York.
5. Davidson, D.A., 1992 : Evaluation of Land Resources, Longman, Essex.
6. D'Souza G.E. and Gebremedhin T.G., (ed) 1998: Sustainability in Agriculture and Rural Development, Ashgate Publishing Co., Aldershot.
7. Eden, M.J. and Parry, J.T., 1996: Land Degradation in the Tropics: Environmental and Policy Issues, Printer Pub., Lon.
8. Fabos, J.G. , 1985 : Landuse Planning : From Global to Local Challenge, Bowden and Culver, NY.
9. Johson, D.L. and Lewis, L.A., 1995 : Land Degradation: Creation and Destruction, Blackwell, Oxford.
10. Matlock, W.O., 1998 : Realistic Planning for Arid Lands: Natural Resource Limitation to Agricultural Development , Horward Academy Press, London.
11. Misra, S.G. , Mani, D., (1991): Soil Pollution, Ashgate Publishing Co. Aldershot
12. Mc.Rabie, G. (ed ), 1990 : Tools for Organic Farming : A Manual of Appropriate Equipments and Treatments, Bootscap press, New York.
13. Rattan, L., 1995 : Sustainable Development of Soil Resources in the Humid Tropics, U.N. University Press, Tokyo.
14. Wong, M.H., et al. 1999 : Remediation and Management of Degraded Land, Lewis Pub. Boca Raton.
15. Young, A., 1998 : Landuse Resources : Now and for the Future, Cambridge University Press, Cambridge.



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**Course 463: Dryland Farming**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Dryland farming: Concept, nature and scope; methods of identification and delimitation
2. Dryland characteristics and degradation process: Physical, biological, social and institutional
3. Models of Dryland Development and management: Risk and uncertainty model
4. Land Capability Classification in Dryland: Concept, criteria and capability classes, patterns of general land use
5. Dryland Farming Technology and Cultivation Practices: Absorption of rainwater in the soil, soil moisture conservation, and erosion control; availability and potential of irrigation; patterns of crop land use and crop combination; agricultural productivity.
6. Problems and Prospects of Dryland Agriculture: Alternate mode of land use opportunities: Animal Husbandry, forestry, horticulture and pisciculture.

**Recommended Readings:**

1. Beaumont, P., (1989): *Environmental Management and Development in Drylands*, Routledge, London.
2. Bruins H.I., Lithwick H. (eds) (1998): *The Arid Frontier Interactive Management of Environmental Development*, Academic publishers, Netherland.
3. Dixon, J.A., James, D.E. and Sherman, P.B., (1989): *Economics of Dryland Management*, Earthscan Pub., London.
4. Doi, R.D., (1991): *Semi-arid Land System: Use and capability*, Pointer, Jaipur.
5. Glantz, M.H., (ed) (1994): *Drought Follows the Plan*, Cambridge University Press, Cambridge.
6. Gliessman, S.R., (ed) (2001): *Agroecosystem Sustainability: Developing Practical Strategies*, CRC Press, Boca Raton, New York.
7. Louise, E., et al. (2001): *Agroforestry in Sustainable Agriculture*, CRC Press, Boca Raton, New York.
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10. Moellering, H. (ed.) (1992): *Spatial Data Transfer Standards: Current International Status*, Elsevier Applied Sciences, London.
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12. Purandar, A.P. and Jaiswal, A.K., (1993): *Transfer of Integrated Land Use Technology Under Dryland Farming*, National Institute of Rural Development, Hyderabad.
13. Quershi, S. (1989): *Regional Perspective on Dry Farming: Tribal Societies and Development through Environmental Regeneration*, Oxford, New Delhi.
14. Reeve, P.E. et al (1999): *GIS, Organisation and People: A Socio-Technical Approach*, Taylor and Francis, London.
15. Shafi, M. et al., (1998): *India's Drylands: Tribal Societies and Development through Environmental Regeneration*, Oxford, New Delhi.
16. Singh, S.D. (ed.), (1997): *Water Harvesting in Desert*, Manak Publications, New Delhi.
17. Tomlin, C. Dana, (1990): *Geographic Information Systems and Cartographic Modeling*, Prentice Hall, Englewood cliffs, New York
18. Walker, B.H. (ed.), (1997): *Management of Semi-Arid Ecosystem*, Amsterdam, Elsevier.



**Master of Arts in Geography**  
**“New” Scheme of Examination:**  
**Course Outline and Selected Readings**

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**Course 464: Food Security System**

**Internal Assessment: 25**

**End Semester Examination: 75**

**Course Outline:**

1. Food Security : Concept, approaches, indicators and methods of measurement..
2. Distributional Patterns of Food Resources: Agriculture, animal husbandry, inland fisheries, forest, horticulture and marine.
3. Factors and Patterns of Food Resources Consumers : Population, density and distribution, age, sex and occupation.
4. Food Resources and Human Consumer Interface: Demand and availability of food resources in calorific and monetary value, poverty, hunger and vulnerability.
5. Regional Pattern of Food Security : Bases of measurements, comparison of relations with developed countries and developing countries on selected parameters of food security.
6. Regional Dimensions of Food Security in India: Distributional pattern of consumers - total population and agricultural population; food availability - calorific and monetary value, food security and insecurity regions, food consumption and nutritional status, problem of malnutrition.
7. Public Distribution System and Food Security: Structure and Policy of P.D.S; Regional Variation, Transport Network and P.D.S, Impact of P.D.S. on food security with special reference to non-food crop regions of India.
8. Food Security through Sustainable Agriculture.Global environmental change and food security and other mitigation strategies.

**Recommended Readings:**

1. Barun, J. et al. 1992 : Improving Food Security of the Poor: Concept Policy and Programme, International Food Policy Research Institute, Washington.
2. Chakravarty, A. K. 1970 : Food Sufficiency Patterns in India, Geographical Review, Vol. LX, New York.
3. Chopra, et al.(eds), 1998 : Crop Productivity and Sustainability – Shaping the Future, Oxford and IBH Pub. Co. New Delhi
4. Chung, K, et al. 1997 : Identifying the Food Insecure: The Application of Mixed Method Approaches in India; International Food Policy Research Institute, Washington.
5. George,P.S., 1994 : Food Security in South Asia : Performance and Prospects Economic and Political Weekly, Vol.29, No.15 April 30
6. Minhas, B.S., 1976 : Towards National Food Security, Indian Journal of Agricultural Economics, Vol. 31, No. 4.
7. Mohammad,N., 2002 : Regional Patterns Of Food Security In India , Annals, NAGI, Vol.21, Delhi
8. Radhakrishna, R., 1991 : Food and Nutrition: Challenge for Policy, Journal of the Indian Society of Agricultural Statistics, Vol. 53, No.3, December.
9. Reutlinger, S., 1977 : Food Insecurity: Magnitudes and Remedies, Washington, U.S.A.
10. Sen, A.K., 1981: Poverty and Famines : An essay in entitlement and Deprivation, Oxford University Press, Delhi.
11. Shafi, M and Aziz, A. (eds), 1989 : Food Systems of the World, Rawat Pub., Jaipur.
12. Srivastava, H. C. (ed), 1993 : Biotechnological Applications for Food Security in Developing Countries, Oxford and IBH Pub. Co., New Delhi
13. Valdes, A.(ed), 1981 : Food Security for Developing Countries, Westview Press, Colorado.