

M.A (GEOGRAPHY) – FIRST SEMESTER

First Semester			
S. No.	Name of Subject	Credits	Total Marks
1	Geographical Thought	6	100
2	Environment and Ecology	6	100
3	Fundamentals of Remote Sensing and GIS	5	100
4	Statistical Techniques in Spatial Analysis	5	100
Total		22	

Subject Name: GEOGRAPHICAL THOUGHT

Unit 1: Evolution of Geographic Thought: Changing paradigms – Environmentalism, Possibilism, area differentiation, spatial organization

Unit 2: Theory in Geography: structure, nature, type and applications in geography; human-environment interactions and social theory

Unit 3: Philosophical debates in Contemporary Geography: Critical understanding of positivism, behaviouralism, realism, Marxism, Structuralism, post-structuralism and postmodernism.

Unit 4: Methods in Geographical Analysis: Epistemology of geography, critical assessment and debates on quantitative, qualitative, field and cartographic methods in geography

Unit 5: Future of Geography: changing nature, concepts, approaches and methodologies of geography in a Globalising World

Unit 6: Progress and Contributions in Indian Geography

Recommended Readings:

1. Bhaskar, R (1989) Reclaiming Reality: A Critical Introduction to Contemporary Philosophy, London, Verso.
2. Bunge, W (1966) Theoretical Geography. 2ndEd. Lund Studies in Geography Series C. no.1, Lund: C.W.K. Gleerlup
3. Buttimer, A and D.Seamon (ed) (1980); The Human Experience of Space and Place, London, Croonhelm
4. Castells, M (1978) City, Class and Power, New York, St. Martin's Press
5. Castree, R, A. Rogers and D. Sherman (2005) Questioning Geography. Fundamental Debates Oxford: Blackwell
6. Clifford, N.J. (2002) The Future of Geography: when the whole is less than the sum of its parts Geoforum, Vol. 33 431-436
7. Haggett, P and A.D Cliff and A. Frey (1977) Locational Analysis in Human Geography London: Arnold
8. Hartshorne R (1939) the Nature of Geography Association of American Geographers

9. Harvey, D (1969) Explanation in Geography. London: Arnold
10. Harvey, D (1973) Social Justice and the City, Baltimore, John Hopkins University, Baltimore
11. Holt-Jensen Arild (1999), Geography -History and Concepts, Sage Publications, London, Thousand Oaks, Delhi

Subject Name: ENVIRONMENT AND ECOLOGY

Unit 1: Geography, Environment and Ecosystem: Population, Resources, Environment and Development; Concepts and Approaches; Sustainability and sustainable development; Global Environmental Problems

Unit 2: Urban Ecosystem: Environmental Problems and their Management-Air, Water, Noise and Solid Waste

Unit 3: Forest Ecosystem: Processes and Patterns; Problems and Management; Biodiversity

Unit 4: Desert Ecosystem: Desertification - Process and Patterns; Management Strategies

Unit 5: Mountain Ecosystem: Theory of Mountain Environment Degradation; Highland-Lowland Interactive Systems; Sustainable Mountain Development

Unit 6: Coastal Ecosystem: Issues and Problems- Mangroves, Coastal pollution, Cyclone, Tsunami

Unit 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: Encyclopaedia 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.) 2001: Urban Sustainability in the Context of Global Change, Science Pub., Inc., Enfield (NH), USA
13. Singh, S., 1997: Environmental Geography, Prayag Pustak Bhawan, Allahabad.
14. Verma, C.V.J., 1998: Water Quality and its Management, Oxford & IBH Pub., New Delhi

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Subject Name: FUNDAMENTALS OF REMOTE SENSING AND GIS

Unit 1: Remote Sensing: Historical development; components, types and various platforms; Global Positioning System.

Unit 2: Aerial Photography: Stereoscopy, Principles of Photo Interpretation.

Unit 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.

Unit 4: Applications of remote sensing for land use/land cover mapping and change detection, Environmental Studies, Urban, Hazard and Disaster, Water Resources, Agriculture etc.

Unit 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.

Unit 6: Data Input, Storage and Editing: Nature of geographic data: Spatial and Attribute Data, Concept of vector and raster based models; data input devices: Digitization; external databases; storage and manipulation of GIS data bases;

Unit 7: GIS and Spatial Analysis: Neighborhood 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.

Subject Name: STATISTICAL TECHNIQUES IN SPATIAL ANALYSIS

Unit 1: Statistics and Statistical Data: Spatial and non-spatial; indices of inequality and disparity.

Unit 2: Probability theory, probability density functions with respect to Normal, Binomial and Poisson distributions and their geographical applications.

Unit 3: Sampling: Sampling plans for spatial and non-spatial data, sampling distributions; sampling estimates for large and small samples tests involving means and proportions.

Unit 4: “F” Distribution and Analysis of Variance – “one-way” and “two-way” analysis.

Unit 5: Non-parametric Tests: Chi-Square, Kolmogorov-Smirnov, Mann-Whitney and Kruskal-Wallis.

Unit 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.

Unit 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, And London.
3. Cressie, N.A.C., 1991: Statistics for Spatial Analysis, Wiley, New York.
4. Gregory, S., 1978: Statistical Methods and the Geographer (4thEdition), Longman, London.
5. Haining, R.P., 1990: Spatial Data Analysis in the Social and Environmental Science, Cambridge University Press, Cambridge.
6. Mc Grew, Jr. and Charles, B. M., 1993: An Introduction to Statistical Problem Solving in Geography, W.C. Brocan Publishers, New Jersey.
7. Mathews, J.A., 1987: Quantitative and Statistical Approaches to Geography: A Practical Manual Pergamon, Oxford.
8. S.K., 1998: Statistics for Geoscientists: Techniques and Applications, Concept Publishing Company, New Delhi.
9. Wei, W.S., 1990: Time Series Analysis: Variate and Multivariate Methods, Addison Wesley Publishing.
10. Yeates, Mauris, 1974: An Introduction to Quantitative Analysis in Human Geography, McGraw-Hill, New York.