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Item No. 4.33

UNIVERSITY OF MUMBAI



Revised Syllabus for the M.A. & M.Sc.

Program: M.A. & M.Sc.

Course: Geography

(Semester I & II)

(As per Credit Based Semester and Grading System
with effect from the academic year 2012–2013)

Credit Course Based Syllabus, 2012-13

- Total No. of Credits offered: 96
- Electives on offer in a particular academic year in each group could vary.
- Semester is 15 weeks duration. Credit is defined for a semester

Semester I

Subject Code (326)	Course Title	Credits	No. of Hours
101	Fundamentals in Geomorphology	4+2= 6	60+60+ 120
102	Principles of Climatology	4+2= 6	60+60+ 120
103	Geography of Socio-Cultural and Political Processes	4+2= 6	60+60+ 120
104	Spatial Organisation of Economic Activities	4+2= 6	60+60+ 120
105	Tools and Techniques of Spatial Analysis - I	*	60+60+ 120
106	Tools and Techniques of Spatial Analysis- II	*	60+60+ 120
	Total	24	720

* Credits included in 4 Theory Papers as the respective part of the practical component

Semester II

Subject Code	Course Title	Credits	No. of Hours
201	Advances in Geomorphology	4+2= 6	60+60+ 120
202	Bio-geography	4+2= 6	60+60+ 120
203	Contemporary Human Geography	4+2= 6	60+60+ 120
204	Geography of World Economy	4+2= 6	60+60+ 120
205	Tools and Techniques of Spatial Analysis - III	*	60+60+ 120
206	Tools and Techniques of Spatial Analysis- IV	*	60+60+ 120
	Total	24	720

* Credits included in 4 Theory Papers as the respective part of the practical component

Semester III

Subject Code	Course Title	Credits	
301	Geography of South Asia with Special Reference to India	4+2= 6	60+60+ 120
302	Geo-informatics	4+2= 6	60+60+ 120
303	Elective	4+2= 6	60+60+ 120
304	Elective	4+2= 6	60+60+ 120
305	Tools and Techniques of Spatial Analysis - V	*	60+60+ 120
306	Tools and Techniques of Spatial Analysis- VI	*	60+60+ 120
	Total	24	720

* Credits included in 4 Theory Papers as the respective part of the practical component

Semester IV

Subject Code	Course Title	Credits	No. of Hours
401	Spatial Dimensions of Development	4+2= 6	60+60+ 120
402	Ecology and Environment	4+2= 6	60+60+ 120
403	Elective	4+2= 6	60+60+ 120
404	Elective	4+2= 6	60+60+ 120
405	Tools and Techniques of Spatial Analysis - VII	*	60+60+ 120
406	Tools and Techniques of Spatial Analysis- VIII	*	60+60+ 120
	Total	24	720

* Credits included in 4 Theory Papers as the respective part of the practical component

Groups of Electives

Sr. No.	Group A Title of the Course
1	Tropical Geomorphology
2	Coastal Geomorphology
3	Fluvial Geomorphology
4	Geographical Dimensions of Hydrology
5	Climatology of the Tropics
6	Microclimatology
7	Plant Geography with special reference to Tropics
8	Geography of Soils with special reference to Tropics
9	Geographical Perspective on Ocean Development
10	Geography of Climate Change with special reference to India
Sr. No.	Group B Title of the Course
1	Regional Development and Planning
2	Urban Geography
3	Social Geography
4	Population Geography
5	Geography of Gender
6	Historical Geography
7	Political Geography
8	Cultural Geography
9	Industrial geography
10	Contemporary Agriculture in Global South with special reference to India
11	Geography of Trade
12	Geography of Transport
13	Geography of Tourism and Recreation
14	Geography of Work Spaces
15	Geography of Marketing and Consumption
16	Geography of Services with special Reference to India

17	Geography of Telecommunication and Media
18	Electoral Geography with special reference to India
19	Geography of Tribes with special reference to India
20	Geography of Crime
21	Geography of Knowledge and Power
Sr. No.	Group C Title of the Course
1	Development of Modern Geography
2	Theoretical Geography
3	Thematic Cartography
4	Computer Cartography
5	Application of Remote Sensing Techniques in Geographical Studies
6	Geography of Resources
7	Geography of Water Resource Management
8	Spatial Perspectives in Environmental Planning and Management
9	Geography of Energy Resources
10	Geography of Health
11	Dissertation
12	Geographical Information System in Urban Planning and Management
13	Geographical Information System and Geographic Knowledge Systems
14	Maritime Studies with special reference to India
15	Geo-informatics and Healthcare
16	Advanced Quantitative Geography
17	Geographies of Exclusion
18	Geospatial Technology and Management
19	Globalising Megacities: Geographical study of Mumbai and MMR
20	Geography of Hazard and Disaster
21	Regional Development in Maharashtra with Special Reference to Konkan

Semester I

101: Geomorphology I

No. of Credits: 4

Teaching Hours 60 + Notional Hours 60= Total hours 120

1. Basics of Geomorphology (15 hours)

- 1.1 Nature, scope and content of Geomorphology
- 1.2 Development of geomorphic thought
- 1.3 Catastrophism, Uniformitarianism, Neocatastrophism

2. Continents and Ocean Basins (Tectonic Dislocations) (15 hours)

- 2.1 Evolution of continents and ocean basins
- 2.2 Continental Drift Theory - Plate Tectonics
- 2.3 Earthquakes and Volcanoes – causes and consequences, associated features

3. Endogenetic Forces (15 hours)

- 3.1 Constitution of the earth's interior
- 3.2 Geosynclines: Geosynclinal Theory of Kobber
- 3.3 Holmes' Convection Current Theory
- 3.4 Theories of Isotasy

4. Cycle of Erosion (15 hours)

- 4.1 Landscape evolution – sequential development of landforms
- 4.2 Davisian Model of Cycle of Erosion
- 4.3 Penck's Morphological System
- 4.4 Comparative analysis of the two models – applications

References:

1. Anhert, F., (1996), 'Introduction to Geomorphology', Arnold, London, Sydney, Aukland
2. Bloom, A. L. (2002), 'Geomorphology : A Systematic Analysis of Late Cenozoic Landforms', Pearson Education Pvt. Ltd., Singapore.
3. Christopherson, R.W. (1994), 'Geosystems : An Introduction to Physical Geography', Macmillan College publishing Company, New York.
4. Dayal, P. (1990), 'A Textbook of Geomorphology', Shukla Book Depot, Patna.
5. Engeln, O. D. Von (1944), 'Geomorphology', The Macmillan Company, New York.
6. Fairbridge R. W. (1968) (ed.), 'Encyclopaedia of Geomorphology', Reinhold, New York.
7. Mitchell, C. E. (1973), 'Terrain Evaluation', Longmans, London.
8. Ritter, D.F., Kochel, R.C., Miller, J.R. (1995), 'Process Geomorphology', Wim. C. Brown Publishers, Chicago.
9. Sparks, B.W. (1988), 'An Introduction to Geomorphology', Longman, London.

10. Strahler A. (1996), 'Physical Geography : Science and System of the Human Environment', John Willey, New York.
11. Thornbury, W.D. (1998), 'Principles of Geomorphology', New Age International Press, New Delhi.

Further Readings:

1. Davis, W. M., 1909, 'Geographical Essays', Dover, Boston.
2. Holmes, A., 1968. 'Principles of Physical Geology', Nelson, London.
3. King, L.C., 1962, 'The Morphology of the Earth', Hafner, New York.
4. Penck, W., 1953, 'Morphologic Analysis of Landforms', St. Marisip Press, London.
5. Pitty, A. F., 1971, 'Introduction to Geomorphology, Methuen, London.
6. Singh, Savinder, 1998, 'Geomorphology', Prayag, Prakashan, Allahabad.
7. Small, R. J., 1970, 'The Study of Landforms', Cambridge University Press, Cambridge.
8. Twidale, C. R., 1976, 'Analysis of Landforms', John Wiley, London.
9. Twidale, C.R., 1971, 'Structural Landforms', A.N.U. Press, Canberra.
10. Cooke, R. U. and A., Warren, 1973, 'Geomorphology in Deserts', Batsford, London,
11. Embleton, C. and C. A. M., King, 1968, 'Glacial and Periglacial Geomorphology', Arnold, London,
12. Melhorn, W. N. and R. C., Flemal, 1976, 'Theories of Landform Development', State University of New York, Binghamton,

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Semester I
102: Climatology

No. of Credits: 4

Contact Hours 60 + Notional Hours 60= Total hours 120

1. Climate System

(12 hours)

- 1.1 Earth-atmospheric system: components, characteristics and interactions
- 1.2 Current trends in climatology
- 1.3 Recent concerns – climate change and its impact

2. Applied Climatology

(12 hours)

- 2.1 Microclimatology – influencing factors – forest and urban climates
- 2.2 Agroclimatology – soil-plant-climate relationship, weather and crop production, agro-climatic regions of India
- 2.3 Bioclimatology: climate and human health, comfort zones

3. Air Masses and Fronts (12 hours)

- 3.1 Air masses: origin, classification, types
- 3.2 Fronts: Frontogenesis and Frontolysis – classification of fronts
- 3.3 Extra-tropical cyclones: formation, impact
- 3.4 Weather forecasting: traditional and modern techniques

4. Classification of Climate (12 hours)

- 4.1 Basis of climatic classification
- 4.2 Koppen's system of climatic classification – salient features, distribution of types
- 4.3 Thornthwaite's scheme of climatic classification – application
- 4.4 Comparative analysis of Koppen and Thornthwaite classifications

5. The Monsoon (12 hours)

- 5.1 The Monsoon: characteristics, economic importance
- 5.2 A Origin of monsoon: classical and recent views
- 5.3 Prediction of monsoon: problems and prospects

References:

1. Barry, R.S. & Chorley, R.J. (1971): Atmosphere, Weather and Climate, ELBS, Methuen & Co. Ltd., U.S.A.
2. Griffiths, J.F.(1966): Applied Climatology-An Introduction, Oxford University Press, London.
3. Lal, D.S.(1997):Climatology, Sharda Pustak Bhawan, Allahabad.
4. Mather, J. R.(1974): Climatology: Fundamentals and Applications, McGraw Hill Book Co. New York.
5. McBoyle, G.(1973): Climate in Review, Houghton Mifflin Co., Boston.
6. Subrahmanyam, V.P.(ed)(1983):Contribution to Indian Geography, Heritage Publishers, New Delhi , a) Vol. III - General Climatology b) Vol. IV- Applied Climatology
7. Harp, H.J. and Trinidade, O.D. (eds) (1990): Climate and Development, Springer Verlag, U.S.A.
8. Oliver, J.E. and Hidose, J.J. (1984): Climatology - An Introduction, Charles and Merrill, U.S.A.
9. Robinson, P.J. and Hendersen-Sellers, A.(1999): Contemporary Climatology, Pearson Education, London

Further Reading:

1. Bhutani, Smita, Our Atmosphere, Kalyani Publishers, Ludhiana, 2000.
2. Critchfield, H.J., General Climatology, Prentice Hall, N.J., 1975.

3. Frederick K. and Edward J. Tarbuck, *The Atmosphere: An Introduction to Meteorology*, Prentice Hall of India Pvt. Ltd., New Delhi, 1995.
4. Strahler, A.N., *Modern Physical Geography*, John Wiley and Sons, New York, Singapore, 1987.
5. Trewartha, G.T., *An Introduction to Climate*, McGraw Hill, New York, 1980, Fifth Edition (International Student Edition).
6. Lydolph, P.E., *The Climate of the Earth*, Rowman Nad Allanheld, Totowa, New Jersey, 1985.
7. Rumney, G.R., *Climatology and the World Climates*, Macmillan, London, 1968.
8. Thompson Russell D., *Applied Climatology - Principles & Practice*, John Willey, New York, 1997.

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Semester I

103: Geography of Socio-Cultural and Political Processes

No. of Credits: 4

Contact Hours 60 + Notional Hours 60= Total hours 120

- 1. Changing Perspectives in Human geography (16)**
 - 1.1 Environmentalism- Possibilism- Areal differentiation school
 - 1.2 Post-fifty conceptualisation of Geographic Space- Classification of Environment- Perception studies- Locational analysis- Quantification- Theorisation and model building – types of models- General systems theory- appraisal-criticism
 - 1.3 Behaviouralism – Perception of environment- Humanistic Geography- Sense of place - Landscape studies
 - 3.4 Emergence of welfare approach- social relevance-spatio-social access to basic needs- levels of wellbeing- Gender dimensions.
- 2. Evolution of Human Societies (14)**
 - 2.1. Emerging economic, social and political organisations
 - 2.2. Major transformation of human society
 - 2.3. Role of technology- Information and network society
 - 2.4. Spatial organisation of tribal society –Indian examples
- 3. Dynamics of rural and urban societies (16)**
 - 3.1. Transition from Feudal to Mercantile Capitalist society - Industrial revolution and rise of urban society
 - 3.2. Rural society: caste hierarchy, segregation in rural settlement – rural social morphology – socio-petal and socio-fugal forces- Contemporary Indian rural society
 - 3.3. Contemporary urban society - stratification and occupational divergence- residential segregation- metropolitan consciousness and cosmopolitanism – heterogeneity and diversification – process of modernisation
 - 3.4 Hierarchy of urban settlements- Settlement system and primacy- Indian examples

4. Interaction of human societies-Socio-Cultural identities- patterns and landscapes (14)

- 4.1 Migration- early and subsequent migration – scales of migration – mechanism and laws – typology- migration, social change- majority-minority status- contested spaces
- 4.2 Racial groups– biological divergence-blending-process of assimilation – behavioural and structural- acculturation
- 4.3 Evolution of language – diffusion over space – evolution of linguistic provinces –relevant issues – language as basis of nation and states- Linguistic division in India
- 4.4 Religion– contemporary dynamics – spatial pattern of major religions- Role of religion in the formation of nation-states

References:

1. Aitken, S and Valentine, G. (2006), Approaches to Human geography, Sage.
2. Johnston, R.J., Gregory D. Pratt G. and Watts M., (2005, 5th ed.), the Dictionary of Human Geography, Blackwell.
3. Kitchin R., Thrift, N, (eds.) (2009), The International Encyclopedia of Human Geography, Elsevier.
4. Benko,G. and Strohmayer, U. (2004), Human Geography, a History for the 21st Century, Arnold, London.
5. Cloke, P., Crang, P., Goodwin, M., (2004), Envisioning Human Geographies, Arnold.
6. Cloke, P. and Johnston, R.,(eds.), (2005), Spaces of Geographical Thought, Deconstructing Human Geography's Binaries, Sage.
7. Atkinson, D., Jackson, P., Sibley, D. and Washbourne, N. (eds.) (2005), Cultural Geography, A Critical Geography of Key Concepts, Tauris, I.B.
8. Norton William, (2002), Human Geography, Oxford, 4th edition
9. Barnes, T. and Gregory, D., 1997, Reading Human geography, Arnold.
10. Smith, D. M. (1977): Human Geography, A Welfare Approach, Arnold
11. Peet, R. (ed) (1987): Radical Geography, Maroufa Press, Rawat, New Delhi, 2003
12. Ambrose, P. G. (1969): Analytical Human Geography, Longman, London
13. De Blij, H. J. (1986): Human Geography, John Wiley & Sons, New York.
14. Vivel, F. R. (1978): Cultural Anthropology, McGraw Hill, USA.
15. Peet R. and Thrift, N. (eds) (1989): New Models in Geography, Vol. I & II, Unwin Hyman.
16. Ahmed, A. (1999). Social Geography, Rawat Publication, New Delhi.
17. Massey, D, Alien, J, P, Jarre, P (eds) (1999): Human Geography Today, Cambridge Polity Press.

18. Fellman, J (1997): Landscape of Human Activities, Brown and Benchmark Pub.
19. Coates, B.E., Johnston, R.J. Knox, (1977): Geography and Inequality, Oxford University Press

Further Reading

1. Progress in Geography (1969-76): Volume 1 to 8, Arnold Edwards, London.
 2. Hagget, P. (1983), Geography a modern Synthesis, Harper and Row.
 3. Cloke, P., Cook, I, Crang, P., Goodwin, M., painter, J., Philo, C., (2004), Practising Human Geography, Sage.
 4. Banerjee-Guha, S. (2004), Space, Society and Geography, Rawat, New Delhi.
 5. Harvey, D. (1973): Explanation in Geography, Edward Arnold, (Paperback), London.
 6. Gregory, D. 1978, Ideology, Science and Geography, Cambridge University Press.
 7. Carlestein T., Parkes, D. and Thrift, N., (1978), Making Sense of Time, Edward Arnold.
 8. Gale S. and Olson G. (1979), Philosophy in Geography, D. Reidel Publishing co.
 9. Pretty, J., Ball, A., Benton, T., et. al. (2007), The Sage Handbook of Environment and Society, Sage.
 10. Taffe, E.J. (1970): Geography, Prentice Hall, Englewood Cliffs, New Jersey.
 11. Pickles, J. (1985), Phenomenology, Science and Geography, Cambridge University Press.
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Semester I

Paper 104: Spatial Organisation of Economic activities

Maximum No. of Credits: **4** Maximum no. of lectures including continuous assessment: **60**

1. Organisation of an economy as a dynamic spatio-social system: Basic concepts (15 hours)

- 1.1 Economic organization and spatial change- Spatial division of labour and interdependence
- 1.2 Geographic fixity and mobility- typology of distance-Spatial interaction and diffusion –
- 1.3 Time and space convergence- Production of economic space- absolute and relative
- 1.4 Geographies of inequities and uneven development
- 1.5 Structuration of world economy as core, periphery and semi-periphery

2. Thoughts and theoretical bases to economic geography- (15 hours)

- 2.1 Early foundations- idiographic traditions and the areal differentiation school.
- 2.2 Economic Geography as a spatial science- quantification- locational theory school of thought- Critic
- 2.3 Paradigm shifts in 1980s and post 1990s- Contemporary approaches
- 2.4 Major sub-fields and thrust areas of research.

3. Environment-Society and Economy Interface and Organisation of Production: Global Patterns and Trends (15 hours)

- 3.1 Demographic trends, migration of workers and remittances
- 3.2 Distribution and mobilization of resources-Cultivable land/ Water, Energy resources
Economic growth- environmental concerns and sustainability
- 3.3 Agricultural Patterns-Technology, modernization and structuring of agrarian regions: pre-colonial, colonial and neo-colonial.
- 3.4 Agricultural land-use models critical review- Contemporary perspective
- 3.5 Crisis of agriculture- Aspects of Food security and world patterns of hunger

4. Spatio-social organization of production –Transport and Industry, Trade and Services: Global Patterns and trends (15 hours)

- 4.1 Organisation of transport and telecommunication- Role of transport cost- nodes-places, networks and flows- spatio-social accessibility – hierarchies.
- 4.2 Location of plant- Critical review of industrial location theory- agglomeration economies and linkages
- 4.3 Industrial regions- Fordist and neo-Fordist forms of Organization
- 4.4 International trade theory- Critical review – trade barriers and Trade blocks, WTO.
- 4.5 Service sector- typology and theoretical bases- trade in services.

References:

1. Knox Paul, Agnew John and McCarthy Linda, (2008): The Geography of the World Economy, Hodder Education, UK.
2. Sheppard Eric and Barnes Trevor J., (eds.) (2000): A Companion to Economic Geography, Blackwell, Massachusetts.
3. Wood Andrew and Roberts Susan, (2011): Economic Geography- Places, network and flows, Routledge, London and New York.
4. Bryson John, Henry Nick, Keeble David and Martin Ron, (eds.) (1999): The Economic Geography Reader- Producing and Consuming Global Capitalism, John Wiley and Sons Ltd., New York.
5. Hartshorn A. Truman and Alexander W. John, Third edition, (2010): Economic Geography, PHI Learning Private Ltd., New Delhi
4. Liemt van Gijbert, (eds.) (1992): Industry on the move- Causes and consequences of International Relocation in the Manufacturing Industry, International Labour Office, Geneva.
5. Harrington J.W. and Warf Barney, (1995): Industrial Location- Principle, Practice and Policy, Routledge, London and New York.
6. Rodrigue Jean-Paul, Comtois Claude and Slack Brian, (2006): The Geography of Transport System, Routledge, London and New York.
7. Harrington J.W. and Warf Barney, (1995): Industrial Location- Principle, Practice and Policy, Routledge, London and New York.

8. Berry, B. J. L. et. Al. (1976): Geography of Economic Systems, Prentice Hall, Englewood Cliff.
9. Boyce, R. D. (1974): Bases of Economic Geography, Holt, Rinehart and Winston, New York
10. Conkling, E. C. & Yeates, M. (1976): Man's Economic Environment, McGraw Hill, London.
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13. Cole, J. P., (1983): Geography of World Affairs, Butterworths, London.
14. Lloyd, P. E. and Dicken, P. (1972): Location in Space, Harper & Row, San Francisco.
15. Lowe Moryadas, (1975): The Geography of Movement, Houghton Mifflin & Co.
16. Smith, D. M (1971): Industrial Geography: An Economic Geographic Analysis, John Wiley & Sons.
17. Tarrant, J. R. (1974): Agricultural Geography, Problems in Modern Geography Series, John Wiley & Sons.
18. Willbanks, Thomas J (1980): Location and Well- Being, An Introduction to Economic Geography, Harper & Row, San Francisco.

Further Reading:

1. Lee Roger and Wills Jane, (eds.) (1997): Geographies of Economies, Arnold, New York.
2. Scott J. Allen, (2006): Geography and Economy- The Clarendon Lecture in Geography and Environmental Studies, Clarendon Press, Oxford, New York.
3. Castree Noel, Coe M. Neil, Ward Kevin and Samers Michael, (2004): Spaces of Work: Global Capitalism and the Geographies of Labour, Sage, London.
4. Banerjee- Guha Swapna , (eds.) (2004): Space, Society and Geography, Rawat Publication, Jaipur and New Delhi.
5. Brakman Steven, Garretsen Harry and Marrewijk van Charles, (2009): The New Introduction to Geographical Economics, Cambridge University Press, UK.
6. Desai Vandana and Potter B. Robert, (eds.) (2011): The Companion to Development Studies, A Hodder – Viva Edition, London.

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Semester I
Tools and Techniques of Spatial Analysis I
(Based on Theory Papers: 101 -104)

No. of Credits **4**

Hours of Practical experience **60+** Notional Hours **60**

1. Nature of spatial data: (20 hours)

- i) Data types – qualitative and quantitative
- ii) Aspatial and spatial -
- iii) Sources of data: primary and secondary: Types –Visuals- topographical maps, thematic maps, naval charts, aerial photographs, satellite imagery. Documents, Tabulated data- census, –
- iii) Scales of measurement of data: nominal, ordinal, interval and ratio – symbolization and representation – interpretation and relationships.

2. Advanced Topographical Map Interpretation: (20 hours)

Indian and foreign related to diverse types of natural and cultural environment

3. General Techniques of Primary Data Collection: (20 hours)

- i) Sampling: typology and methods of sampling –
- ii) Sampling frame – systematic and random sampling.

References :

1. Robinson, A. H. and Others (1995): Elements of Cartography, VI Edition, John Wiley & Sons, New York.
2. Anson, R. W. and Ormeling, F. J., (Ed.) (1993): Basic Cartography for Students and Technicians, Vol.I, International Cartographic Association and Elsevier Applied Science Publishers, London.
3. Dickinson, G. C., (1977), Statistical Mapping and the Presentation of Statistics, Edward Arnold, London
4. Monkhouse, F. J. and H. R. Wilkinson, (1971): Maps and Diagrams, Methuen & Co. Ltd., London.
5. Hodgkiss, A. G. (1970): Maps for Books and Theses, David and Charles Publishers Ltd., London.
6. Misra R. P. and A. Ramesh, (1969) : Fundamentals of Cartography, Prasaranga, University of Mysore
7. Ramamurthy, K. (1982): Map Interpretation: Indian Landscapes through S.O.I. Topographical Maps, Madras.
8. Brown, Martin F. and Thompson, Ray W. (1970): Map Reading and Interpretation, Longman, London.
9. Speak, P. & Carter, A.H.C. (1970): Topographic Maps for Earth Science, Selva Bundett Co., New Jersey.
10. Dickinson, G. C. (1969): Maps and Air Photographs, Edward Arnold, London.
11. Snobble, John K.(1970): Stereoscopic Aerial Photographs for Earth Science, Selve Bundett Co., New Jersey
12. Sully, G.B.(1970): Aerial Photo Interpretation, Bellhaven House Limited, Ontario.
13. Young, P. V. and Schmid, C. F. (1979) : Scientific Social Surveys and Research, Prentice Hall, New Delhi..

Semester I
Tools and Techniques of Spatial Analysis II
 (Based on Theory Papers: 101 -104)

No. of Credits: 4

Practical Hours 60 + Notional Hours 60= Total hours 120

1. Measures of Central Tendency: (20 hours)

- i) Properties of normal curve,
- ii) Measures of central tendency: mean centre, weighted mean centre, median centre
- iii) Spatial measures of dispersion – standard distance and quartile rectangle
- iv) Z score – different applications and interpretations.

2. Application of Statistical and Cartographic technique for representation of the data: (20 hours)

- i) Isopleth, choropleth and dot maps: Cartographic appreciation, 14eminization14
- ii) Topological graphs and maps –applicability
- iii) Diagrammatic representation: one, two and three dimensional- Construction

3. Computer processing of geographical data (20 hours)

- i) Symbolisation, Preparation of matrix
- ii) Diagrammatic Representation.
- iii) Compilation of data
- iv) Computation of data: qualitative and quantitative data based on descriptive statistical measures application of computer programmes.

References:

1. Robinson, A. H. and Others (1995): Elements of Cartography, VI Edition, John Wiley & Sons, New York.
2. Anson, R. W. and Ormeling, F. J., (Ed.) (1993): Basic Cartography for Students and Technicians, Vol.I, International Cartographic Association and Elseiver Applied Science Publishers, London.
3. Dickinson, G. C. (1977) Statistical Mapping and the Presentation of Statistics, Edward Arnold Ltd., London.
4. Monkhouse, F. J. and H. R. Wilkinson, (1971): Maps and Diagrams, Methuen & Co. Ltd., London.
5. Hodgkiss, A. G. (1970): Maps for Books and Theses, David and Charles Publishers Ltd., London.

6. Misra R. P. and A. Ramesh, (1969): Fundamentals of Cartography, Prasaranga, University of Mysore
7. Young, P. V. and Schmid, C. F. (1979) : Scientific Social Surveys and Research, ntice Hall, New Delhi.
8. Mahmood Aslam(1977), Statistical Methods in Geographical Studies, Rajesh Publication, New Delhi.
9. Hammond,R. and McCullagh,P.S. (1974), Quantitative Techniques in Geography: An Introduction, Oxford University Press, London.
10. Yeates, M (1974), An Introduction to Quantitative Analysis in Human Geography, McGraw Hill Book Co., New York.
11. Cole, J. P. and King, C. A. M., (1968), Quantitative Geography, John Wiley and Sons, London.
12. Fotheringham,A.S., Brunsdon, C., Charlton,M ,(2000) Quantitative Geography: Perspectives on Spatial Data Analysis, Sage Publication Ltd, London,
13. Baily,T.C., and Gatrell, A. C, (1995), Interactive Spatial Data Analysis, Prentice Hall, London
14. Griffith ,D. A. , Layne, L.J.,(2002) A Casebook for Spatial Statistical Data Analysis: A Compilation of Analyses of Different Thematic Data Sets , Amazon.com
15. Wicox, P.R. (2003), Applying Contemporary Statistical Techniques, Academic Press, Amsterdam
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Semester II

201: Geomorphology II

No. of Credits: **4**

Teaching Hours **60** + Notional Hours **60**= Total hours **120**

1. Earth movements

(15 hours)

- 1.1 Endogenetic movements – causes
- 1.2 Types of endogenetic movements – diastrophism: epeirogenetic and orogenetic
- 1.3 Resulting landforms

(15 hours)

2. Exogenetic geomorphic processes

- 2.1 Weathering: controlling factors, processes, types, geomorphic significance of Weathering
- 2.2 Erosion: causes and processes, landforms.
- 2.3 Mass-wasting – Factors affecting, classification
- 2.4 Slope development and related theories

3. Geomorphic systems **(15 hours)**

- 3.1 Fluvial: processes and resulting landforms
- 3.2 Glacial: geomorphic processes and features
- 3.3 Karst landscape: development and processes
- 3.4 Aeolian processes and landforms

4. Coastal Geomorphology **(15 hours)**

- 4.1 Coastal evolution – physical factors and processes
- 4.2 Erosional coastal landforms – types
- 4.3 Depositional landforms – types
- 4.4 Emergent and submergent shorelines

References:

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2. Bloom, A. L. (2002), ‘Geomorphology : A Systematic Analysis of Late Cenozoic Landforms’, Pearson Education Pvt. Ltd., Singapore.
3. Christopherson, R.W. (1994), ‘Geosystems : An Introduction to Physical Geography’, Macmillan College publishing Company, New York.
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1. Davis, W. M., 1909, ‘Geographical Essays’, Dover, Boston.
2. Holmes, A., 1968. ‘Principles of Physical Geology’, Nelson, London.
3. King, L.C., 1962, ‘The Morphology of the Earth’, Hafner, New York.
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8. Twidale, C. R., 1976, 'Analysis of Landforms', John Wiley, London.
9. Twidale, C.R., 1971, 'Structural Landforms', A.N.U. Press, Canberra.
10. Cooke, R. U. and A., Warren, 1973, 'Geomorphology in Deserts', Batsford, London,
11. Embleton, C. and C. A. M., King, 1968, 'Glacial and Periglacial Geomorphology', Arnold, London,
12. Melhorn, W. N. and R. C., Flemal, 1976, 'Theories of Landform Development', State University of New York, Binghamton,

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Semester II

202: Biogeography

No. of Credits: **4** Teaching Hours **60** + Notional Hours **60**= Total hours **120**

1. Essentials of Biogeography **(10 Lectures)**

- 1.1 Biogeography: nature, scope and content
- 1.2 Approaches to the study of biogeography
- 1.3 Significance of biogeography and its relation to other disciplines
- 1.4 Recent trends and relevance in the present day situation

2. Spatial Dimensions in Biogeography **(10 Lectures)**

- 2.1 Factors influencing distribution of flora and fauna
- 2.2 Concept of biogeographic regions and realms; biomes
- 2.3 Patterns of distribution of world vegetation

3. Dynamic biogeography **(12 Lectures)**

- 3.1 Dispersal and migration in plants
- 3.2 Migration of animals: types and causes – case studies
- 3.3 Concept of areas – types
- 3.4 Concept of succession and climax
- 3.5 Theory of Island Biogeography

4. Soils **(10 Lectures)**

- 4.1 Soil forming processes and soil properties, global distribution of soils
- 4.2 Soil profile – its relation to climate and vegetation
- 4.3 Vegetation and soils of India

5. Biomes**(18 Lectures)**

- 5.1 Major biomes of the world – Tropical and Temperate Forests and Grasslands, Hot and Cold Deserts, Mediterranean, Montane, Mangroves
- 5.2 Salient and distinguishing characteristics
- 5.3 Changes over time – contemporary issues

References:

1. Akin, W.E. (1991), 'Global patterns – Climate, Vegetation and Soils', University of Oklahoma Press, U.S. A.
2. Bharucha, F. R. (1983), 'A Textbook of Plant Geography of India', Oxford University press, Bombay.
3. Brown, J. H., & A. C. Gibson, (1983), 'Biogeography', St. Louis, Mosby, MO.
4. Brown, J.H. and Lomolino, M.V. (1998): Biogeography, Second Edition, Sinauer Associates, Inc. Sunderland, Massachusetts.
5. Collinson, A. S. (1972): Introduction to World Vegetation, George Allen and Unwin.
6. Cox, C.B., Moore, P.D. (2010): Biogeography – An Ecological and Evolutionary Approach, 8th ed., John Wiley and Sons, USA.
7. Dikshit, K. R. (1991): Environment, Forest Ecology and Man in the Western Ghats – The Case of Mahabaleshwar Plateau, Rawat Publ., New Delhi.
8. Furley, P. A. and Newey, W. W. (1983); Geography of the Biosphere, Butterworth and Co. Ltd., London
9. Ladle, R. J. and Whittaker, R. J. (2011): Conservation biology, Blackwell Publ. Co., USA.
10. MacDonald, Glen (2002): Biogeography: Introduction to Space, Time and Life, John Wiley, New York.
11. Robinson, H. (1982): Biogeography, The English Language Book Society and Macdonald and Evans, London.
12. Tivy, Joy (1993): Biogeography, A Study of Plants in the Ecosphere, Longman Scientific & Technical, UK.
13. Mani, M.S. (ed.) (1974): Ecology and Biogeography in India, Dr. W. JUNK b.v. Publishers, The Hague.
14. MacArthur, R. H. and Wilson, E. O. (1967): The Theory of Island Biogeography, Princeton, N.J.: Princeton University Press.
15. Mathur, H.S. (1988): Essentials of Biogeography, Pointer Publishers, Jaipur.

16. Myers, A. A. & P. S. Giller (ed.) (1989): Analytical Biogeography : An Integrated Approach to the Study of Animal and Plant Distributions, Chapman & Hall, London.

Books for Further Reading:

1. Allan A. Schoenherr, C. Robert Feldmeth, Michael J. Emerson, (2003): Natural History of the Islands of California, University of California Press.
2. David Quammen (1997): The Song of the Dodo: Island Biogeography in an Age of Extinctions, Scribner.
3. Quammen, David (1996): The Song of the Dodo : Island Biogeography in an Age of Extinction, Simon & Schuster.
4. Tivy, Joy and Greg O'Hare (1981): Human Impact on the Ecosystem, Oliver & Boyd, Edinburgh.
5. Spellerberg, Ian F. and John, W.D. Sawyer (1999): An Introduction to Applied Biogeography, Cambridge University Press, Cambridge.

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Semester II

203: Contemporary Human Geography

No. of Credits: 4 Contact Hours 60 + Notional Hours 60= Total hours 120

1. Social processes and spatial relations: the post 1980 trends. (15) Hours

- a. Radicalizing process in Geography- neo-Marxist interpretations and extensions- Radical theory- Radical practice.
- b. Space- spatiality and spatial structures- Socio-spatial dialectic- - Human agency and social structure- various models- Post structuralism
- c. Production of social space- from Fordism to flexible accumulation- Conceptualising Time and space compression- Spatial fixity
- d. Critical perspective and contemporary human geography- relevance of political economy approach.

2. Geography and difference: marginalization and exclusion (15) Hours

- a. Place and space as difference-placement- displacement and the production of cultural space and differences.
- b. Imagining culture- Imageability and production of spatio-social identities- implications of race, religion, language and ethnicity- Contestation, conflicts and negotiations.
- c. Imagining local, regional and national identities- multicultural spaces – cultural pluralism and identity politics in India.
- d. Urban and rural places and their local and global context-- Poverty and Living in Ghettos and slums in globalizing cities- Gentrification, displacement and right to city – SEZ s in India- Issues of right to livelihood.

3. Gender and Geography (15) Hours

- a. Place- order and categorization: Body as place- private and public domains- Role of Patriarchy – State – Capitalist production.
- b.Space-society perspective- Structuring of sexuality and construction of gender identity and gendered spaces- Indian examples.
- c.Spatiality of sex ratios, 20eminization of labour and status of women workers experiences from the global periphery.
- d.Women and human development status – Human rights and legal space for women- Indian context.

4. Spatial Dynamics of Political Processes (15) Hours

- a. Concepts and images of territoriality and nation- state- colonialism and post-colonial context Relevance of World Systems approach- Core-periphery structure.
- b. Boundary and Frontier concepts- Terrestrial and maritime context- Processes of boundary formation- cultural and ethnic identities.
- c. Dynamics of electoral politics- Indian context.
- d. Globalisation and contemporary geopolitics- Identity and citizenship- Environmental politics

References:

1. Peet, R. (1998), Modern Geographical Thought, Blackwell
2. Peet, R. and Thrift, N. (eds.) (2002), New Models in Geography, Unwin Hyman.
3. Barnes Trevor and Gregory Derek, (eds.) (1997): Reading Human Geography- The Poetic and Politics of Inquiry, Arnold, London.
4. Daniels Stephen and Lee Roger, (eds.) (1996): Exploring Human Geography- A Reader, Arnold, London.
5. Cloke, P. and Johnston, R., (eds.), (2005), Spaces of Geographical Thought, Deconstructing Human Geography's Binaries, Sage.
5. Aitken, S and Valentine, G. (2006), Approaches to Human geography, Sage.
6. Soja E., (1997), Postmodern Geographies- The Reassertion in Critical Theory, Rawat, New Delhi.
7. Johnston, R.J., Gregory D. Pratt G. and Watts M., (2005, 5th ed.), the Dictionary of Human Geography, Blackwell.
8. Kitchin R., Thrift, N, (eds.) (2009), The International Encyclopedia of Human Geography, Elsevier.
10. Dear J. Michael and Flusty Steven, (eds.) (2002): The Spaces of Post Modernity, Blackwell, Massachusetts.
11. Benko Georges and Strohmayr Ulf, (eds.) (2004): Human Geography- A History for the 21st Century, Arnold, London.

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13. Cloke, P., Crang, P., Goodwin, M.,(2004), *Envisioning Human Geographies*, Arnold.
14. Cloke Paul, Crang Philip and Goodwin Mark, (eds.) (1999): *Introducing Human Geographies*, Arnold, London.
15. Banerjee-Guha, S. (2004), *Space, Society and Geography*, Rawat, New Delhi.
16. Banerjee- Guha Swapna: *Space, Spatiality, Human Geography and Social Science: Politics of the production of Space*, Published in *Transaction Institute of Indian Geographers*, Vol.33, No.1, Winter 2011, pp 3-22, Pune.
17. Cloke Paul, Cook Ian, Crang Philp, Goodwin Mark, Painter Joe and Philo Chris, (2004): *Practising Human Geography*, Sage, London.
18. Glassner, M L, De Blij, H, J, Yacher, L. (1980): *Systematic Political Geography*, John Wiley.
19. Hanson, J and Pratt, G. (1995) *Gender, Work and Space*, Routledge, New York.
20. Massey, D., Allen, J., Sarre, P. (eds.), (1999), *Human Geography Today*, Polity Press.
21. Massey, D (1994): *Space Place and Gender*, University of Minnesota Press, Minneapolis.
22. Moss, P., (2002), *Feminist Geography in Practice: Research and Methods*, Blackwell.
23. Agnew John A., Livingstone, David, J., Rogers Alisdair, (1996): *Human Geography: An Essential Anthology*, Wiley-Blackwell, ISBN: 978-0-631-19461-3
24. Benko Georges and Strohmayr Ulf, (Edts.), (1997): *Space and Social Theory: Interpreting Modernity and Postmodernity*, Wiley-Blackwell, ISBN: 978-0-631-19466-8.
25. Cresswell Tim, (2004): *Place: A Short Introduction*, Wiley-Blackwell.
26. Cox Kevin, (2002): *Political Geography: Territory, State and Society*, Wiley-Blackwell, ISBN: 978-0-631-22678-9

Further Reading:

1. *Progress in Geography (1969-76): Volume 1 to 8*, Arnold Edwards, London.
2. Taffe, E.J. (1970): *Geography*, Prentice Hall, Englewood Cliffs, New Jersey.
3. Harvey, D. (1973): *Explanation in Geography*, Edward Arnold, (Paperback), London.
4. Gregory, D. 1978, *Ideology, Science and Geography*, Cambridge University Press.
5. Carlestein T., Parkes, D. and Thrift, N., (1978), *Making Sense of Time*, Edward Arnold.
6. Gale S. and Olson G. (1979), *Philosophy in Geography*, D. Reidel Publishing co.

7. Mitchell, B. and Draper, T. (1982), *Relevance and Ethics in Geography*, Longman.
8. Hagget, P. (1983), *Geography a modern Synthesis*, Harper and Row.
9. Pickles, J. (1985), *Phenomenology, Science and Geography*, Cambridge University Press.
10. Paterson, J.L. (1984), *David Harvey's Geography*, Croom Helm.
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13. Harvey D. (1989), *The Condition of Postmodernity*, Blackwell.
15. Unwin, T. (1992), *The Place of Geography*, Longman.
16. Livingstone D. N. (1992), *The Geographical Tradition*, Oxford: Basil Blackwell.
17. Husain, M. (ed.), (1993), *Perspectives and Nature of Geography*, Vol.1-5, Anmol.
18. Harvey D., (2001), *Spaces of Capital, Towards a Critical Geography*, Edinburgh University Press.
19. Johnston R.J., Taylor, P.J. and Watts, M.J. (2002), *Geographies of Change, Remapping the World*, Blackwell.
20. Hoggart, K., Lorretta Lees and davies, A., (2002), *Researching Human Geography*, Arnold.
21. Pretty, J., Ball, A., Benton, T., et. al. (2007), *The Sage Handbook of Environment and Society*, Sage.

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Semester II

Paper 204: Geography of World Economy

No. of Credits: 4

Contact Hours 60 + Notional Hours 60= Total hours 120

1. Historical Evolution and Geographical Dynamics

(15 Hours)

- 1.1 Economic organization of the pre-colonial world
- 1.2 Rise of the Core Economies
- 1.3 Pre Industrial Foundations
- 1.4 Evolution of the Industrial Core Regions

2 Globalisation of Production Systems

(15 Hours)

- 2.1 Crisis of capital- flexibalisation of production-
- 2.2 Evolution of Transnational Corporations
- 2.3 Patterns and Processes of Globalisation
- 2.4 Spatial organization of Finance-
- 2.5 Global office and Informational Economy

3. Spatial Transformation of Core and Periphery (15 Hours)

- 3.1 Spatial reorganization of core economies
- 3.2 Transformation of the Periphery
- 3.3 Forms of Agricultural Reorganisation in the periphery- Agribusiness and agromarketing
- 3.4 New Industrial Regions- EPZs and SEZs- South east and East Asian economies
- 3.5 Globalisation of Service Industry- Placement of Indian economy

4 International and supranational Institutional integration- Geopolitics and spatial outcomes. (15 Hours)

- 4.1 Logic of integrations- Types and levels
- 4.2 Significance of regional integration as a strategy for the periphery
- 4.3 GATT rounds and Role of WTO
- 4.4 Spatial outcomes of economic integration
- 4.5 Regions and localities in the world economy

References:

1. Knox Paul, Agnew John and McCarthy Linda, (2008): The Geography of the World Economy, Hodder Education, UK.
2. Bryson John, Henry Nick, Keeble David and Martin Ron, (eds.) (1999): The Economic Geography Reader- Producing and Consuming Global Capitalism, John Wiley and Sons Ltd., New York.
3. Sheppard Eric and Barnes Trevor J., (eds.) (2000): A Companion to Economic Geography, Blackwell, Massachusetts.
4. Wood Andrew and Roberts Susan, (2011): Economic Geography- Places, network and flows, Routledge, London and New York.
5. Lee Roger and Wills Jane, (eds.) (1997): Geographies of Economies, Arnold, New York.
6. Scott J. Allen, (2006): Geography and Economy- The Clarendon Lecture in Geography and Environmental Studies, Clarendon Press, Oxford, New York.
7. Castree Noel, Coe M. Neil, Ward Kevin and Samers Michael, (2004): Spaces of Work: Global Capitalism and the Geographies of Labour, Sage, London.
8. Liemt van Gijsbert, (eds.) (1992): Industry on the move- Causes and consequences of International Relocation in the Manufacturing Industry, International Labour Office, Geneva.
9. Banerjee- Guha Swapna , (eds.) (2004): Space, Society and Geography, Rawat Publication, Jaipur and New Delhi.
10. Brakman Steven, Garretsen Harry and Marrewijk van Charles, (2009): The New Introduction to Geographical Economics, Cambridge University Press, UK.

11. Desai Vandana and Potter B. Robert, (eds.) (2011): The Companion to Development Studies, A Hodder – Viva Edition, London.
12. Schulz Michael, Soderbaum Fredrik and Ojendal Joakim, (eds.) (2001): Regionalization in a Globalizing World, Zed Books, London and New York.
13. Benko,G. and Strohmayer, U. (2004), Human Geography, a History for the 21st Century, Arnold,
14. Harvey D., (2001), Spaces of Capital, Towards a Critical Geography, Edinburgh University Press.
15. Johnston R.J., Taylor, P.J. and Watts, M.J. (2002), Geographies of Change, Remapping the World, Blackwell.
16. Hagget, P. (1983), Geography a modern Synthesis, Harper and Row.
17. Power Marcus, (2003) , Rethinking Development geographies, Routledge, London

Further Reading

1. Banerjee- Guha, Swapna, (1997), Spatial Dynamics of International Capital, Orient Longman
2. Banerjee- Guha, Swapna, (2010), Accumulation by Dispossession- Tranformative Cities in the New Global Order, Sage, New Delhi.
3. Banerjee-Guha, S. (2004), Space, Society and Geography, Rawat, New Delhi.
4. Harvey D., (2001), Spaces of Capital, Towards a Critical Geography, Edinburgh University Press.
5. Cloke, P., Cook, I, Crang, P., Goodwin, M., painter, J., Philo, C., (2004), Practising Human Geography, Sage.
6. Kitchin R., Thrift, N, (eds.) (2009), The International Encyclopedia of Human Geography, Elsvier.
7. Cloke, Paul, Crang Philip, Goodwin Mark, (1999): Introducing Human Geographies, Arnold
8. Raju Saraswati, Satishkumar M., Corbridge Stuart, (2006), colonial and Post-colonial Geographies of India, Sage, New Delhi

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Semester II

Tools and Techniques of Spatial Analysis III

Based on Theory Papers: (201-202)

No. of Credits: **4**

(Practical Hours **60+** Notional Hours **60**)

1. Techniques of Geomorphic analysis: (20 Hours)

- a) Profiles: Analysis from contour- maps - transverse and longitudinal profiles – multiple section method – inter-visibility.
- b) Altimetric Analysis: Ring contour, highest grid-cell elevation methods.
- c) Drainage basin analysis: Law of stream numbers - Stream ordering: Horton’s, Strahler’s method - bifurcation ratio and applications.
- d) Slope Analysis: Wentworth’s, Smith’s, Robinson’s Methods – construction of block diagram.

2. Techniques of Climate and hydrological data analysis: (10 Hours)

Classification of climate:

- a) Application of Koppen's method of climatic classification
- b) Application of Thornthwaite's scheme of classification of climates -- water budget, moisture index.

3. Techniques of Soil Analysis (10 Hours)

Determination of moisture, pH and texture.

4. Study of Vegetation: (20 Hours)

- a) Maps - Vegetation maps, forest maps: Reading and Interpretation
- b) Study of vegetation in field - Quadrat and transect methods

References:

1. King, C. A. M. (1978): Techniques in Geomorphology, Edward Arnold, London.
2. Miller, A.A. (1966): The Skin of the Earth, Methuen, London.
3. Monkhouse, F.J. and Wilkinson, H.R. (1971): Maps and Diagrams, Methuen, London.
4. Cole, J.R and King , C.A.M. (1968): Quantitative Geography, John Wiley And Sons, London.
5. Goudie, A. (1981): Geomorphological Techniques, George Alien And Unwin, London.
6. Hammond, R. And McCullagh, P.S. (1974): Quantitative Techniques in Geography: An Introduction, Oxford University Press, London.
7. Mahmood Aslam (1977): Statistical Methods in Geographical Studies, Rejesh Publication, New Delhi.

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Semester II**Tools and Techniques of Spatial Analysis IV**

Based on Theory Papers: (201-202):

No. of Credits: 4 (Hours of doing Practicals 60+ Notional Hours 60)

1. Techniques of Socio- economic data analysis: (20 Hours)**1. Design of questionnaire (Field based):**

2. i) Types: closed and open-ended
3. ii) Planning, designing and constructing questionnaire for field work- quantifiable data based and perceptual qualitative data based, ethnographic survey method.
4. iii) Data recording – codification for computer based analysis
5. iv) Data compilation and analysis.

- 2. Settlement Hierarchy: (10 Hours)**
 a. Population and functional – rank-size and primacy: distinction- Construction- Interpretation
 b. Use of NATMO maps for understanding settlement hierarchy – applications.

- 3. Network Analysis: (8 Hours)**
 a. Topological graphs -Connectivity- Calculations of Alpha, beta and gamma indices.
 b. Mapping of relative accessibility and connectivity – Matrices- point of minimum aggregate travel distance.

- 4. Mental Maps and diagrams (8 Hours)**
 a. Typology of distance and direction of space- Construction of Maps
 b. Imagining Place and space: Perception – mapping and interpretation.
 c. Interpreting political context of maps, cartographic techniques, diagrams, pictures and cartoons.

- 5. Techniques Regionalization and Patterns (14 Hours)**
 a. Identification of regional boundaries
 b. Boundary girdle technique and synthetic mapping.
 c. Index of concentration: location quotient and concentration.
 d. Index of similarity and dissimilarity and inequality- Construction and applicability of Lorenz curve- Interpretations – Calculation of Ginni's co-efficient of concentration -

References:

1. Gregory, S. (1971): Statistical Methods and Geographer, Longman, London.
2. King, C. A. M. (1978): Techniques in Geomorphology, Edward Arnold, London.
3. Taylor, Peter J. (1977): Quantitative Methods in Geography, Houghton and Mifflin co., Boston
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9. Yeates, M, (1974): An Introduction to Quantitative Analysis in Human Geography, McGraw Hill Book Co., New York.
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11. Rogerson P.A. (2010), 3rd Ed. Statistical Methods for Geography, a Students Guide, Sage.
12. Ebdon, David, (1985): Statistics in Geography: A Practical Approach , Wiley-Blackwell, New York.

13. Fotheringham, A.S., Brunson, C., Charlton, M. : (2000) *Quantitative Geography: Perspectives on Spatial Data Analysis*, Sage Publication Ltd, London,
14. Baily, T.C., and Gatrell, A. C, (1995): *Interactive Spatial Data Analysis*, Prentice Hall, London
15. Griffith, D. A. , Layne, L.J.,(2002): *A Casebook for Spatial Statistical Data Analysis: A Compilation of Analyses of Different Thematic Data Sets* , Amazon.com
16. Chen, Y.Q. and Lee Y.C., (ed.) (2003): *Geographical Data Acquisition* , New York
17. Vallentine G. Clifford N. (2010), *Key Methods in Geography*, Sage.
- 18.. Delyser D., Herbert S., Aitken S. (eds.) (2010), *The Sage Handbook of Qualitative Research*, Sage.
19. Cloke, P., Cook, I, Crang, P., et.al. (2004), *Practising Human Geography*, Sage.

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Annexure I
 Department of Geography
 University of Mumbai
 Two Year Degree Course of M. A. and M.Sc. in Geography
 Under Credit based Semester System
Question Paper Pattern for Semester I and II

I End Semester Question Paper in Theory -

1. Total Marks- 100 (to be converted to 60)

2. Total no. of questions to be framed are, **7 of 20 marks each.**

- i) Of these 7 questions, **one is compulsory** and would be framed by drawing questions from all the major modules of the given syllabus.
- ii) Out of the remaining 6 questions, students are required to attempt **any four** questions of **20 marks** each.
- iii) A student therefore, is expected to attempt total 5 questions of 20 marks each including one compulsory question.

Practical Paper: 100 marks

I End Semester Question Paper in Practicals-

A: External (to be converted to 60)

1. Total Marks- **100**

- i) Students are expected to attempt **total four** questions of **20 marks** each i.e. **80 marks**
- ii) Marks for Journal – **10**
- iii) Marks for Viva-voice - **10**
- iv) **All questions are compulsory**
- v) No of questions would correspond with number of major modules in the respective practical course syllabus.

B: Internal: Total marks 40

- i) Marks for Field work and Report writing: **20** marks
- ii) Marks of the Mid-semester: **20** marks

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