

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

PARVATIBAI CHOWGULE COLLEGE OF ARTS AND SCIENCE, MARGAO, GOA

DEPARTMENT OF GEOGRAPHY AND RESEARCH CENTER

SYLLABUS : M.A./M.Sc. GEOGRAPHY (w.e.f. 2014 – 2015)

Sem	Code	Compulsory Papers	Credits	Code	Optional Papers	Credits
I	GGC01	Principles of Geomorphology	3	GGO-01	Environmental Geography	4
	GGC02	Principles of Climatology	2	GGO-02	Fundamentals of Oceanography	4
	GGPC01	Practicals in Geomorphology & Climatology	3	GGO-03	Fundamentals of Soil Geography	2
	GGPC02	Field Techniques and Village Survey	2	GGO-04	Disaster Mitigation & Management	2
II	GGC03	Principles of Population Geography	3	GGO-05	Regional Geography of India	4
	GGC04	Principles of Economic Geography	2	GGO-06	Political Geography	4
	GGPC03	Practicals in Economic & Population Geography	3	GGO-07	Geography of Trade & Transport	2
	GGPC04	Practicals in Cartography	2	GGO-08	Urban Geography	2
III	GGC05	Development of Geographical Thought	3	GGO-09	Coastal Geomorphology	4
	GGC06	Fundamentals of Remote Sensing	2	GGO-10	Fluvial Geomorphology	4
	GGPC05	Practicals in Statistical Geography	3	GGO-11	Geography of Settlements	4
	GGPC06	Practicals in Remote Sensing	2	GGO-12	Industrial Geography	4
				GGO-13	Research Methodology	2
				GGO-14	Dissertation	4
IV	GGC07	Regional Planning & Development	3	GGO-15	Tropical Geomorphology	4
	GGC08	Fundamentals of Geographic Information System	2	GGO-16	Watershed Management	4
	GGCP07	Computer Applications in Geography (Practical)	3	GGO-17	Social and Cultural Geography	4
	GGPC08	Practicals in Geographic Information System	2	GGO-18	Economic Geography of Globalization	4
				GGO-19	Teaching Methodology	2
				GGO-14	Dissertation	4

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

SEMESTER I

Course Title: Principles of Geomorphology

Course Code: GGC-01

Credits: 03

Marks: 75

Unit	Topic	Subtopic
1	Geo tectonics	Origin of the Earth, Geological time scale and related topographic and structural evolution. Isostasy: Airy and Pratt Views. Folds and Faults-origin, types and their topographic expressions, Plate Tectonics: plate tectonic processes--sea floor spreading, subduction, orogenesis, earthquakes and volcanism, Geo-magnetism.
2	Historical Geomorphology	Definition and history of Geomorphology, Uniformitarianism and Catastrophism, Geomorphic (Cyclic, Graded and Steady) and Spatial Scale, Basic concepts of Geomorphology as postulated by Thornbury.
3	Process Geomorphology	General degradational processes: processes of rock weathering and their effects on landforms, Slope development and slope facets; Relationship between longitudinal and transverse slope recession; Geomorphological processes upon slopes. Evolution of landforms by the process – Fluvial, Glacial & Periglacial, Aeolian Karst and Coastal.
4	Theories of Geomorphology	Normal cycle of erosion by W.M.Davis, Views of W. Penk on normal cycle of erosion, Cycle of Pediplanation by L.C.King, Dynamic Equilibrium theory by J.T. Hack.
5	Applied Geomorphology	Application of geomorphology in planning and development.

References:

1. Kale, V. and Gupta, A. 2001: Introduction to Geomorphology, Orient Longman, Kolkata
2. Chorley, R.J. 1969: Introduction to Fluvial Processes, Methuen, London
3. Chorley, R.J., Schumm, S. A. and Sugden, D.E. 1984: Geomorphology, Methuen, London
4. Cooke, R.U. and Warren, 1973: Geomorphology in Deserts, Batsford, London
5. Dayal, P. 1996: Textbook of Geomorphology, Shukla Book Depot, Patna.
6. Hallam, A. 1973: A Revolution in Earth Science: From Continental Drift to Plate Tectonics, Oxford University Press, London.
7. McCullagh, P. 1978: Modern Concepts in Geomorphology, Oxford University Press, Oxford.
8. Morisowa, M. 1968: Streams, their Dynamics and Morphology, McGraw Hill, New York.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Principles of Climatology

Course Code: GGC-02

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Introduction	Weather & Climate, Subdivisions of Climatology, Earth's atmosphere: Physical properties, Chemical composition, Temperature changes, Vertical variations in the composition
2	Insolation and Heat Balance	Electromagnetic spectrum, Factors affecting Insolation, Latitudinal and Seasonal variation of Insolation, Albedo, Green House Effect, Heat Budget
3	Temperature, pressure, humidity and wind motion	Temperature: Difference between Heat and Temperature, Horizontal and Vertical distributions, Inversion of temperature, Measurement & units Pressure: Factors affecting air pressure, Pressure changes with altitude, distribution of surface pressure, Pressure measurement and Units Wind: Factors affecting wind, Geostrophic wind, Gradient wind, Wind observation and measurement Humidity: Humidity measurement, Changes of state of water, Factors affecting Condensation, Factors affecting Evaporation Relationship between Temperature, Pressure, Humidity and Wind
4	Circulation of the Atmosphere	Wind movement, Global circulation Model, Tri-cellular theory, and Eddy theory. Jet stream and its effect on the surface, Global & Local winds, Effect of wind on weather
5	Atmospheric Stability	Stable and Unstable Atmosphere, Factors affecting atmospheric stability, Normal, environmental, dry and wet adiabatic lapse rate, Absolute stability, Absolute instability, Conditional instability, Weather associated with stability an instability

References:

1. Frederick K. Lutgen, Edward Tar buck: "The Atmosphere An Introduction to Meteorology" Prentice Hall, Englewood Cliffs ,New Jersey 0762 ,1998
2. D. S. Lal: Climatology. Sharda Pustak Bhawan ,11 , University road Allahabad 211002 Edition 2003
3. Trewartha : Introduction to Weather and Climate.
4. H.J. Critchfield (Rep.2010): General Climatology. Prentice Hall, New Delhi
5. Savindra Singh (Rep.2011)Climatology

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Practicals in Geomorphology and Climatology

Course Code: GGPC-01

Credits: 03

Marks: 75

PART A: GEOMORPHOLOGY

Unit	Topic	Subtopic
1	Drainage basin and network morphometry	Preparation of contour and drainage map from toposheet, Morphometric analysis.
2	Slope analysis	Slope (isotan and isosin) and aspect maps & Hypsometric curve and integral.
3	Geomorphic mapping	Geomorphic mapping in the field-process and materials mapping. Size analysis of the sediment samples collected in the field (by sieving).
4	Sediment size and shape analysis	Plotting of the weights in different sieves on probability graph. Calculation of mean, median sorting index, skewness & kurtosis. Determination of silt and clay based on settling velocity. Shape analysis using sediment microscope.
5	Field work	Measurement of channel cross-sections in the field, Geomorphic map of channel bed, Study of erosional and depositional features in the field

PART B: CLIMATOLOGY

Unit	Topic	Subtopic
1	Temperature Analysis	Processing of observed data to derive maximum, minimum and daily range of temperature. Analysis of upper air data – Tephigram (Temperature-Height diagram) Calculation of relative humidity, dew point and vapor pressure from dry and wet bulb temperature data.
2	Rainfall Analysis	Classification of Koppen and Thornthwaite's Climate, Calculation of seasonal rainfall and annual variability of rainfall. Construction of crop-coefficient curve for any one crop.
3	Water Budget and Discomfort Index	Calculation of water surplus and water deficit amounts during crop growing season. Computation of Water Requirement Satisfaction index. Discomfort index by Thom's (1959) method. Identification and categorization of heat and cold waves.

References:

1. Doorenbos J.(1977) and Pruitt W.O. Crop water requirement, FAO irrigation and drainage.
2. Frere and Popov (1979)- Agro-Meteorological Crop monitoring and forecasting, FAO plant production Paper No. 17.
3. John F. Mather (1974) - Climatology Fundamentals and Application Oxford University Press.
4. Lawrence, G. R. P.: Cartographic Methods, Mathur Co. London
5. Mather J.R (1974) Climatology, Fundamentals and applications, Mc Graw Hill Book Co, New York.
6. Monkhouse, F. J. R and: Maps and Diagrams, Wilkinson, H.R. Methuen and Co., London.
7. R. L. Singh & Rana P. B. Singh: Element of Practical Geography, Kalyani Pub. New Delhi
8. (1999)
9. Trewartha G.T. : An Introduction to climate Mc-Graw- Hill Book Co. New York.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Field Techniques and Village Survey

Course Code: GGPC-02

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Introduction to Field Survey	Importance of field instrument survey - scope and purpose, principles and application of selected survey instruments.
2	Chain and Plane Table Survey	Chain survey: use of tapes-open traverse, triangulation survey; Plane table; plan preparation, resection -one point and two point problem; three point problem; tracing paper method.
3	Prismatic compass method	Prismatic compass: Open and closed traverse, elimination error, Bowditch method.
4	Dumpy level and Theodolite Survey	Dumpy level: traverse survey, contour plan preparation. Theodolite - horizontal, land vertical (height) measures, accessible and inaccessible method.
5	Village Survey	Fundamentals of Village survey, prerequisites of village survey, preparation of questionnaires, data entry, basic analysis in Microsoft excel

References:

1. Clendinning , J. Principles and use of Surveying Instruments. 2nd edition, Blockie. A 1958.
2. Clendinning ,J Principles of surveying 2nd edition 1960.
3. Hotine, Major M. The re-triangulation of Great Britain. Empire survey review 1935.
4. Mitra,R.P. and Ramesh A : Fundamentals of Cartography Revised Edition, Concept Publication, New Delhi.
5. Monkhouse - Maps and diagrams Methuen 1971.
6. Negi, Balbir Singh. Practical Geography Third revised Ed. Kedar Nath and Ram Nath, Meerut &Delhi, 1994-95.
7. Sandover,J.A. Plane Surveying. Arnold 1961.
8. Singh & Karanjta - Map work and Practical Geography Central Book Dept Allahabad 1972.
9. Singh, R.L.and Dutt, P.K. Elements of Practical Geography, Students Friends, Allahabad.1968.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Environmental Geography

Course Code: GGO-01

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction to Environmental Geography	Environmental Geography-meaning, nature, scope and fundamental concepts, approaches and methods in Environmental Geography, Concept of Ecology, subdivisions and approaches in Ecology
2	Ecosystem and Biodiversity	Ecosystem concept and components, Habitat and ecological niche, Spatial and temporal dimensions of ecosystem, Abiotic and biotic components, Biodiversity and its conservation
3	Environmental degradation	Nature types of degradation-Natural and Anthropogenic degradation, causes and effects of environmental degradation/problems with special reference to the Indian scenario.
4	Environmental Pollution	Air pollution, Water pollution, Land Pollution and Noise pollution and its effects. Case studies from India.
5	Global Warming and Its Impacts	Global Warming-Ozone layer depletion, and related causes, Green house effect, Impacts of Global warming and measures
6	Environmental Management	Environmental planning and policies Trends of environmental policies-Environmental Impact Assessment (EIA). Sustainable development, management of environmental quality.

References :

1. Bertalanffy, L. General Systems Theory, George Bragiller New York, 1958.
2. Bodkin, E.: Environmental Studies, Charles E. Merrill Pub. Co., Columbus, Ohio, 1982.
3. Manners, I.R. and Mikesell, M.W.(eds.), Perspectives on Environment, Commission on College Geography, Publ. No. 13, Washington, D.C., 1974.
4. Odum, E.P. : Fundamentals of Ecology, W.B. Saunders, Philadelphia, 1971.
5. Singh, S. : Environmental Geography, Prayag Publications, Allahabad, 1991.
6. Smith, R.L. : Man and his Environment: An Ecosystem Approach, Harper & Row, London, 1992.
7. Strahler, A. N., Geography of man's Environment, John Wiley & Sons Inc. New York
8. Noel Castree, David Demeritt, Diana Liverman & Bruce Rhoads . A Companion to Environmental Geography- A John Wiley & Sons, Ltd., Publication, 2009.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Fundamentals of Oceanography

Course Code: GGO-02

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction	Definition and Meaning of Oceanography, Foundation of Modern Oceanography, Contribution of Oceanographers in the subject, Post-war Oceanography, Modern Trends
2	Origin of the Ocean Basins and Ocean Floor	Continental Drift, Seafloor Spreading, Plate Tectonics, World Oceans and their formations, Continental Margin, Oceanic Ridges and Rises Abyssal Plains, Oceanic Trenches, Volcanoes, Coral Reefs and Atolls
3	Properties of Sea Water	Factors affect temperature on water and distribution, Factors affecting density, Origin and composition of sea salt and residence time, Carbon dioxide and carbonate cycles, Viscosity, Surface tension
4	Tides Tidal Currents	Tide generating forces, Equilibrium Theory of Tides, Dynamical Theory of Tides, Tides, Neap Tides, Tidal Currents and their Channels, Tidal Bores, Tidal effects in coastal areas
5	Ocean Currents	Types of Ocean Currents, geostrophic Currents, thermohaline circulation. Factors responsible for ocean currents, Ocean current in Pacific, Atlantic and Indian Ocean

References:

1. Basu S.K. (2003) (ed): Handbook of Oceanography, Global Vision, Delhi
2. Davis Richard A. (1972): Oceanography, Addition Wesley Publishing Co.
3. Garrison Tom (1999): Oceanography, Brooks/ Cole Wadsworth, New York
4. Garrison Tom (2004): Essentials of Oceanography. Thompson, Australia
5. Grant Gross M. (1982): Oceanography, Prentice hall, Ince, New Jersey
6. King Cuchlain A. M (1962): Oceanography for Geographers (ED) Edward Arnold
7. Sharma & Vatal (1962): Oceanography for Geographers. Chaitanya Publishing House, Allahabad
8. Thurman Harold V. (1985): Introductory Oceanography. Bell & Howell Co. London
9. Weisberg J. and Howard P. (1974): Introductory Oceanography. McGraw Hill, Kogakusha, Tokyo.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Fundamentals of Soil Geography

Course Code: GGO-03

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Introduction	Importance, Hydrology and soils, Soils and Agriculture, Problems related to soils, Types of soils
2	Soil Formation	Factors of soil formation (climate, topography, vegetation), Parent material and soil, Prerequisite for soil formation, Soil Horizons
3	Soil Properties & Quality	Soil Texture, Soil Structure, Soil Color, Bulk Density, Porosity, Pore Space, Soil Temperature, Permeability, Soil Water, Soil Moisture, USDA soil texture triangle, Acidity and Alkalinity, Soil pH, Soil Colloids, Redox Potential, Cation & Anion exchange, Soil reclamation
4	Soil degradation and conservation	Salinization, Acidification, Soil fertility decline, Soil contamination, Deforestation, Overgrazing, Incorrect methods of farming, methods of soil conservation
5	Soil Distribution	World soil distribution, Factors responsible to the distribution of soil

References:

1. Pitty A.F. (1978): Geography And Soil Properties, Methuen and Company Ltd., London.
2. White R.E. (1987): Introduction to The Principles And Practice of Soil Science, Blackwell Scientific Publications, London.
3. Fenwick I. M. and Knapp B.J. (1982): Soils - Process and Response, Unwin Brothers Ltd., The Greshman Press, Surrey.
4. Birkeland P.W. (1999): Soil And Geomorphology, Oxford University Press Inc., New York.
5. Brady N.C. (1984): The Nature And Properties of Soils. Macmillan Publishing Company, New York and Collier Macmillan Publishers, London.
6. Thomas J.B. and Brunnsden D (1977): Geomorphology And Time, Methuen and Company Ltd.
7. Bunting B.T. (1969): Geography of Soil, Hutchinson University Library, London.
8. Cruickshank J.G (1972): Soil Geography, David and Charles (publishers) Limited, Newton Abbot.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Disaster Mitigation and Management

Course Code: GGO-04

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Introduction hazard & disasters	Definition, types of hazards & disaster, Definition, Hazard, Risk and Vulnerability Assessment, Risk and risk assessment.
2	Disaster Zonation of the world	Disaster Zonation of the world in terms of Natural disasters like Earthquakes, Tropical Cyclones, Tsunamis, Avalanches, Mass movements and Landslides, Floods by severity scales, Disasters in India
3	Climatic, Geological & Geomorphic Disasters	Earthquakes and Tsunamis- Cause and effects and areas affected by earthquakes and tsunamis Land instability- Cause and affects and areas affected by landslides, subsidence, erosion, deposition
4	Man-made Hazards	Types of man induced hazards – physical, chemical, biological, and pollution. Factors contributing to man-made hazards. Physical Hazards - Cause and effects of Landslides, Soil erosion, forest fires, desertification etc. Impact of large river projects such as the Sardar Sarovar, the Tehri Dam etc., impact of excessive irrigation, effects of thermal and hydel power stations. Chemical Hazards -Nuclear Hazards, release of toxic elements in the air, soil and water, oil spills etc. Biological Hazards- Effects of Population growth – its impact on biodiversity, effects of over exploitation of resources, ecological disturbances – such as soil development, hydrological cycle, pollution etc.
5	Disaster Management and Measures	Structural and Nonstructural Measures, Disaster prevention, mitigation, preparedness, response, recovery and rehabilitation
6	Strategies of risk reduction	Strategies of risk reduction, disaster preparedness, support system, organizations, awareness programs, Disaster Policy and Planning in India, Disaster vulnerabilities of Sikkim: Earthquakes, Flooding and Landslides (to be based on Sikkim examples and Data)

References:

1. Turk J. (1985) : Introduction to Environmental Studies, Saunders, College Publication, Japan
2. Singh Savindra (2000) : Environmental Geography, Parag Pustak Bhavan, Allahabad
3. Morrisawa M (Ed) (1994) : Geomorphology and Natural Hazards, Elsevier, Amsterdam
4. Hart M. G. (1986) : Geomorphology, Pure and Applied, George Allen and Unwin, London
5. Valdiya K. S. (1987) : Environmental Geology, Tata McGraw Hill, New Delhi
6. Blaikie, P., Cannon, T., Davis, I., et al.: At Risk: Natural Hazards, People's Vulnerability, and Disasters, Routledge, London, 1994.
7. National Center for Disaster Management (NIDM), Atlas, South-East Asia.
8. Paraswamam, S. and Unikrishnan, P.V.: India Disaster Report, Oxford University Press, New Geography Syllabus Page 48 Delhi, 2000.
10. Quarantelli, E.L. (ed.): What is a Disaster? Perspective on the Question, Routledge,

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

SEMESTER II

Course Title: Principles of Population Geography

Course Code: GGC-03

Credits: 03

Marks: 75

Unit	Topic	Subtopic
1	Population as a Geographic Subject	Introduction to Population Geography: Development of population geography, population geography in India, contents of population geography, approaches of population geography and interdisciplinary approach, Population geography and demography.
2	Human Population over Time and Space, Determinants of population growth	World population growth and distribution, overview of population growth and distribution in India. Fertility and mortality: Determinants of Fertility and Mortality, Demographic Transition theory and its relevance. Case Study of India and one of its States.
3	Dynamics of Migration: trends and patterns	Importance of Migration, types of migration, cause – effect of migration, Indian migration abroad, recent trends and consequences. Migration theories – Lee, Ravenstein and Zelinsky.
4	Population and Resources	Population versus resources - Under population, overpopulation and optimum population, Malthus theory of population, Malthusian Analysis of Global Crises. Population and environment.
5	Population Issues - Global and India	China-Population control Policy and consequences, racism, population dynamics of western world, India Billion Plus and Consequences, Population policy, Indian Urbanization, declining gender ratio, women equity and empowerment in India. Changing age structure and Population ageing in India, Human development Index

References:

1. Bose Ashish , India's Billion Plus People -2001 Census Highlights, Methodology and Media Coverage, B R Publishing Corporation, New Delhi,2001
2. Bose, Ashish et. al.: Population in India's Development(1947-2000): Vikas Publishing House, New Delhi 1974.
3. Census of India, India : A State Profile, 2001.
4. Chandna, R.C.Geography of Population : Concept, Determinants and Patterns, Kalyani Publishers, New Delhi 2002.
5. Clarke, John I., Population Geography, Pergamon Press. Oxford 1973.6
6. Mamoria, C.B. India's Population Problem: Kitab Mahal New Delhi 1981
7. Daugherty, Helen Gin, Kenneth C.W. Kammeryir, An Introduction to Population (Second Edition). The Guilford Press, New York, London 1998.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Principles of Economic Geography

Course Code: GGC-04

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Introduction to Economic Activities	Scope, content and recent trends in economic geography, relation of economic geography with economics and other branches of social sciences, Location of economic activities and spatial organization of economics, Classification of economies; sectors of economy (primary, secondary and tertiary).
2	Agricultural regions	Factors of location of economic activities: physical, social, economic and cultural; Concept and techniques of delimitation of agricultural regions, crop combination and diversification-Von Thunen's model and its modifications.
3	Industries	Classification of industries; Resource based and footloose industries, Theories of industrial location-Weber, Losch and Isard; Case studies of selected industries; Iron and Steel, Aluminum, Chemical, Oil refining and Petrochemical, Engineering, Textile etc.
4	Transportation	Modes of transportation and transport cost; accessibility and connectivity: international, inter and intraregional; comparative cost advantages. Typology of markets, market network in rural societies, market system in urban economy, role of market in the development of trade and commerce.
5	Economic development of India	Regional disparities, Impact of green revolution on Indian economy, Globalization and Indian economy and its impact on environment.

References:

1. Berry J.L. Geography of Market Centres and Retail Distribution, Prentice Hall , New York, 1967.
2. Chatterjee, S.P. : Economic Geography of Asia, Allied Book Agency, Calcutta, 1984.
3. Chorley, R.J. and Haggett, P. (ed.): Network Analysis in Geography, Arnold, 1969.
4. Dreze, J. and Sen, A. : India-Economic Development and Social Opportunity, Oxford University Press, New Delhi, 1996.
5. Eckarsley, R.(ed.): Markets, the State and the Environment, McMillan, London, 1995.
6. Garnier. B.J. and Delobez, A Geography of Marketing, Longman, London, 1979.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Practicals in Economic and Population Geography

Course Code: GGPC-03

Credits: 03

Marks: 75

PART A: ECONOMIC GEOGRAPHY

Unit	Topic	Subtopic
1	Crop Concentration	a) Bhatia's method b) Jasbir Singh's modified method
2	Crop Diversification	a) Gibbs Martins Index b) Bhatia's method
3	Crop Combination	a) Maximum Positive Deviation method of Raffiullah(1956) b) Athawale's method of crop combination (1966) c) Aiyar's method
4	Agricultural efficiency	a) Sapre and Deshpande b) Calories per head c) Standard Nutritional Units per hectare
5	Lorenz Curve	a) Gini coefficient
6	Transport Network	I Graph Theoretical measures of whole transport network, a) Non-ratio measures cyclomatic number diameter b) Ratio measures : Eta, Theta, Iota, Pi c) Measurement of route II) Measures of Individual elements of transport a) Associated number b) Degree of connectivity network c) Dispersion or d) Accessibility Index
7	Models of Spatial Interaction	a) Gravity model b) Potential Population Surfaces c) Breaking Point Theory –Trade area delimitation. d) Law of retail trade gravitation.

PART B: POPULATION GEOGRAPHY

Unit	Topic	Subtopic
1	Methods of Population data collection	Basic sources of population data, collection and processing of demographic data: Census, sample survey and registration. Processes involved
2	Methods of Calculation of population data	Fertility, Mortality, Population growth and projections (semi average method, Least square method , Exponential population growth), construction of life Tables, population density and concentration index. Dependency ratio, calculation of human development Index.
3	Methods of representation of population data	Pie chart, Age and sex pyramid and types, Trilinear chart, Flow diagram, Choropleth, Proportional circles, Divided proportional circles, level of urbanization.
4	Model testing	Demographic Transition model, rank size rule, nearest neighbourhood index. Settlement Geography – Rural-urban composition and ratio, Gini's concentration, Primary Index and rank size rule,

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

References: Economic Geography

1. Hussain M. (1996): Systematic Agricultural Geography, Rawat Publication, Jaipur.
2. Singh Jasbir (1987): Agricultural Geography, Tata McGraw Publication New Delhi.
3. Yeats M.H(1978): An Introduction to Quantitative Analysis in Human Geography New York
4. Chorley R.J. and Hagget P(1971) : Models in Geography, Methuen Co. London.
5. Lloyd and Dickens(1972): Location in Space Theoretical Approach to Economic Geography, Harper and Raw Publication London.

Reference: Population Geography

1. Bose, Ashish et. al.: Population in India's Development(1947-2000): Vikas Publishing House, New Delhi 1974.
2. Census of India, India : A State Profile, 2001.
3. Chandna, R.C. Geography of Population : Concept, Determinants and Patterns, Kalyani Publishers, New York 2000.
4. Clarke, John I., Population Geography, Pergamon Press. Oxford 1973.
5. Garnier, B.J. Geography of Population Longman, London 1970.
6. Mitra, Asok, India's Population. Aspects of quality and Control Vol. I & II. Abhinav Publication. New Delhi 1978.
7. Premi, M.K. India's Population: Heading Towards a Billion, B.R. Publishing Corporation, 1991.
8. Srinivasan, K. Basic Demographic Techniques and Applications Sage Publications, New Delhi 1998.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Practicals in Cartography

Course Code: GGPC-04

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Fundamentals of Cartography	Introduction to Cartography, Basics of Map, Fundamentals of direction, scale, types, sources. Elementary Geodesy: Coordinate systems and transformations. Spheroid and Geoid. Geocentric Datum, datum and map projections. 3D coordinates transformations
2	Map Reading	Elements of map reading and Interpretation of Toposheets, Relief features and profiles. Reduction and enlargement of maps
3	Thematic Cartography	Characteristics of geographical phenomena –Symbolizing spatial data, Visual Graphics and thematic maps, Principles of color perception, models and methods. Color scheme for Univariate choropleth and chorochromatic and choroschematic maps, proportional symbol mapping
4	Interpolation	Interpolation methods for smooth continuous phenomena, Isopleth Mapping
5	Computer Cartography	Map making using computer graphics programs, Using Google Earth for mapping geographical features, Map Layouts

References:

1. ESRI. 2004. ESRI Cartography: Capabilities and Trends. Redlands, CA. White Paper
2. Imus, D. and Dunlavy, P. 2002. Back to the Drawing Board: Cartography vs the Digital Workflow. MT. Hood, Oregon.
3. Kraak, Menno-Jan and Allan Brown (2001): Web Cartography – Developments and prospects, Taylor & Francis, New York, ISBN 0-7484-0869-X.
4. MacEachren, A.M. (1994). Some Truth with Maps: A Primer on Symbolization & Design. University Park: The Pennsylvania State University. ISBN.
5. Slocum, T. (2003). Thematic Cartography and Geographic Visualization. Upper Saddle River, New Jersey: Prentice Hall. ISBN 0-130-35123-7. Wilford, John Noble (2000). The Mapmakers. Vintage Books. ISBN 0-375-70850-2.
6. Terry A. Slocum (1999): Thematic Cartography and Visualization, Prentice Hall, New Jersey

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Regional Geography of India

Course Code: GGO-05

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Concept and Bases of regionalization	Concept of region, regionalization, Basis of regionalization: Geo-political, Physiographic, Climatic, Socio-economic regionalization. Formal and functional region.
2	Regional study:	Natural and Human resources, Resource utilization and developmental disparities, Formal and functional linkages, Environmental perspectives, Problems, Policies and Programmes (Case studies of Macro region: Northern plains, Meso region: Maharashtra plateau and Micro region: West coastal plain).
3	Systematic Study	Natural region: Sundarban delta, Political region: North east and Jammu and Kashmir, Cultural region: Goa, Metropolitan region: Delhi and NCR.
4	Regional Development and Planning	Regions and regional development-Goals and objectives, Green Revolution and its impact, Natural hazards and current issues, River basin linkages, River water dispute, Golden quadrilateral, Gender planning.
5	Contemporary Issues	Indian federalism, Secularism, Contentious borders, Tourism, Food security, Metropolitization in India, (Note: The suggested readings for selected regions maybe given in the class)

References:

1. Centre for Science & Environment (1988) State of India's, Environment, New Delhi.
2. Deshpande C.D. - India ; a regional interpretation ICSSR and Northern book center – 1992..
3. Dreze, Jean & Amartya Sen(ed.) India Economic Development and Social opportunity: Oxford University Press, New Delhi, 1996.
4. Kundu A., Raza Moonis; Indian Economy; the regional Dimension. Spectrum Publisher, New Delhi (1982).
5. Robinson, Francis : The Cambridge Encyclopaedia of India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan & Maldives, Cambridge University Press, London, 1989.
6. Singh R.L.(ed.) : India-A Regional Geography. National Geographical Society, India, Varanasi,1971.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Political Geography

Course Code: GGO-06

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction to Political Geography	Definition, Geography & Politics, History & Development of Political Geography
2	Approaches of Political Geography	Whittlesey's landscape approach, Functional approach, Centrifugal & centripetal forces, analysis of external functions, Unified Field Theory
3	Concept Nation & State Frontiers & Boundaries	Territoriality, State & Nation, State formation. Nation building / Nationalism, Definition of frontiers & boundaries, Distinction between frontiers & boundaries, Genetic, functional & morphological classification of boundaries, Global geostrategic view
4	Resource Development & Power	Classification of resources, Resources & National strategy, Resource management & power of Nation
5	Geopolitics	Significance of Indian ocean, Geopolitics of border nations, SAARC, Strategic significance of India
6	Political Geography of India	Changing political map of India, Unity in diversity. Stability & instability in state, politics Interstate water & language, Disputes, Problems of border states of India, Emergence of new states.

Reference Books :

- i. Alexander L.M (1963): World Political Patterns, Ram McNally, Chicago.
- ii. Political Geography By Sudeepta Adhikari, Rawat Publication.
- iii. Dikshit R.D (1996): Political Geography: A Contemporary Perspective, Tata McGraw Hill, Delhi.
- iv. Dikshit R.D (1999): Political Geography: A Century of Progress, Sage, New Delhi.
- v. De Blij. H. J And Glassner, M. (1968) Systematic political Geography, John Wiley, New York.
- vi. Pounds N.J.G (1972): Political Geography, McGraw, New York.
- vii. Taylor, R.J.(1989) Political Geography, Longman UK.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Geography of Trade and Transport

Course Code: GGO-07

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	History of Development Approaches & Development and distribution of different modes	Functional Approach, Significance of transportation in world and regional economies, Land ways: Roadways, railways and Pipeline, Waterways: Ocean and inland, Airways Factors associated with their growth, Characteristics and relative significance of different modes of transport
2	Transport network	Nodes and routes: Hierarchies, Hinterlands, Models of network changes, Graph theoretic measures, Traffic flow, Gravity models. Transport network and economic development
3	Urban transport	Growth of urban transportation in developing countries, Transport and environmental degradation, Vehicular pollution and congestion. Alternative transport system in mega cities of India, National highway development and planning in India
4	Trade	Growth of urban transportation in developing countries. Transport and environmental degradation. Vehicular pollution and congestion. Alternative transport system in mega cities of India. National highway development and planning in India
5	Trade Theories	Theory of comparative advantage-Neo-classical theory, Modern theory
6	International trade	Trade areas and economic blocks, Various treaties of trade at international level, History and development of International trade. Geographical factors influencing, international trade. Problems and prospects of international trade in globalization

Reference Books:

1. Chorley R. J. and Haggett P. (1968): Network Analysis Edward Arnold, London
2. Taffe, E. J. and Gauthier H. L. (1973): Geography of Transportation, Prentice-Hall
3. Sealy (1968): Geography of Air Transportation. Hutchinson University
4. Singh K N (1990): Transport network in Rural Development, Institute of Rural Economic Development, Varanasi.
5. Tolley R. S. and Turton B. J. (1989): Transport system, Policy and Planning Longman Group, Singapore
6. White H.P. and Senior M.L. (1989): Transport Geography, Longman Group, Hongking
7. Bhandari S (1992): Transport and Regional Development, Concept Publication, New Delhi
8. Pande (1991): Transport Geography, Concept Publication, New Delhi
9. Vaidya B C (eds) (1998): Reading in Transport Geography: A Regional Perspective, Devika Publications, New Delhi

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Urban Geography

Course Code: GGO-08

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Urbanization	Meaning of Urban settlement and urbanization. Criteria used to distinguish urban settlements, Behavioral, structural and demographic concept of urbanization. Brief review of spatial- temporal variations in urbanization in the world, Urbanization curve, Contemporary factors of urbanization.
2	Urban Morphology	Park and Burgess Model, Homer Hoyt Model. Harris and Ullman Model, and demarcation of CBD.
3	Urban Classification	Various approaches to classification, Urban function, Functional classification of towns and cities by C.D. Harris and H. J. Nelson
4	Urban Demography	Growth of urban population, Urban explosion in developing countries. Density of population in cities. Age, sex and occupational structure.
5	Rural-Urban Fringe & City and its Region	Concepts of city region and various synonymous terms used. Criteria used to demarcate the city region, Nature of urban influence.
6	Contemporary Urban issues & Urban policy and planning	Price of land and vertical and horizontal growth of cities, Urban sprawl, Scarcity of housing and growth of Slums, Problems of civic amenities, Urban transport problem, Environmental pollution. Policies of Urban development, Need of city planning, Elements of city plan, Master plan of towns, New towns.

Reference Books :

1. Carter (1972) : The Study of Urban Geography, Edward Arnold, London.
2. Hall P. (1992) Urban and Regional Planning, Routledge, London
3. Kundu, A. (1992) : Urban Development and Urban Research in India, Khanna Publication.
4. Singh. K. and Steinberg. F.(eds) (1998) : Urban India in Crisis. New Age Interns,
5. Brian.R.K. (1996) : Landscape of Settlement Prehistory to the present, Routledge, London
6. K. Siddharth and S. Mukherji : Cities,. Urbanizations and Urban Systems.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

SEMESTER III

Course Title: Development of Geographical Thought

Course Code: GGC-05

Credits: 03

Marks: 75

Unit	Topic	Subtopic
1	Development of Geography: Ancient Period	Geography as a science of synthesis, Greek, Roman and Indian Schools of Thought, Contribution of Herodotus, Eratosthenes, Strabo, Ptolemy etc.
2	Development of Geography: Medieval Period	Scientific explanations: routes to scientific explanations Arab School of thought, Dark age, Age of Discovery, Contribution of Marco Polo, Columbus, Vasco-De-Gama and Captain Cook etc.
3	Development of Geography: Modern Period	Foundations of modern geography, German, French, British and American schools of thought, Contributions of Kant, Humboldt, Ritter, W. M. Davis, Charles Darwin etc.
4	Dualism in Geography	Systematic & regional geography; physical & human geography, the myth and reality about dualisms, Determinism and possibilism, Neo-determinism, Positivism, behaviourism, postmodernism.
5	Geography in 21 st Century	Conceptual and methodological developments and changing paradigms, Scientific methods, Quantitative revolution, Quantification and application of statistical techniques in Geography, Computer applications in geography.
6	Applied Geography	Definition, Need and Significance, Applications in Landuse, regional, Rural & urban Planning, Management of resources and Assessment.

Reference Books :

1. Hershner, R. (1959) : Perspectives of Nature of Geography, Rand MacNally and Co.
2. Frazier, J. W. (1982) : Applied Geography, Prentice Hall, Englewood Cliffs.
3. Hussain, M. (1995) : Evolution of Geographical Thought, Rawat Pub., Jaipur
4. Coffey, W. J. (1981) : Geography : Towards a general spatial systems approach, Methuen, London
5. Cooke, R. U. and Doornkamp, J. C. (1974) : Geomorphology in Environmental Management, Clarendon Press, Oxford.
6. Singh I. (2006) : Diverse aspect of Geographical Thought, ALFA Publications, New Delhi.
7. Dikshit, R. D. (1997) : Geographical Thought : A Contextual History of Ideas, Pub. By A. K. Ghosh,
8. Prentice – Hall of India Pvt. M 97, New Delhi.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Fundamentals of Remote Sensing

Course Code: GGC-06

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Introduction to Remote Sensing & Satellites	Concept of Remote Sensing, Types of Remote Sensing, Advantage & Disadvantage, Applications in Geography, Polar orbital & Geostationary satellites, Sensors and platforms
2	Electro-magnetic Radiation	Electro-magnetic Radiation (EMR) Concept, Electro-magnetic spectrum and its components, EMR Interactions with Earth's Atmosphere and Surface features.
3	Resolution and Spectral Signatures	Concept of Resolution, swath and Image Pixel, Types of Resolution, Spectral information in satellite image, Spectral Signature Curve
4	Satellite Data Products & Image Interpretation	Concept of False Color Composite (FCC) and True Color Composite Satellite Data Products of Indian Remote Sensing, National Aeronautics and Space Administration and European Space Agency, Digital Height Products, Elements of Image Interpretation
5	Introduction Aerial photography	Aerial photography & types of aerial photos, Concept of Anaglyph & Stereo imaging spectroscopy, Aerial survey planning,
6	Introduction to Photogrammetry	Concept of 3D vision, Digital and traditional Photogrammetry, Types of Photogrammetry, Photogrammetric Measurements

Reference Books:

A. Mandatory: Thomas M. Lillesand and Ralph W. Kefer, Remote Sensing and Image Interpretation, John Wiley & sons, New York, 1994.

B. References:

1. Barrett E.C. and L.F. Curtis : Fundamentals of Remote Sensing and Air Photo Interpretation, Mcmillan, New York, 1992.
2. Compbell J. : Introduction to Remote Sensing, Guilford, New York, 1989.
3. Curran, Paul J : Principles of Remote Sensing, Longman, London, 1985.
4. Luder D: Aerial Photography Interpretation : Principles and Application, McGraw Hill, New York, 1959.
5. Pratt W.K. Digital Image Processing. Wiley, New York, 1978.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Practicals in Statistical Geography

Course Code: GGPC-05

Credits: 03

Marks: 75

Unit	Topic	Subtopic
1	Frequency Distribution & Sampling and data collection:	Introduction to statistics, frequency & cumulative frequency distribution, Graphical & Diagrammatic representation. Census, sample, advantages of sampling, sampling methods, random numbers.
2	Measures of Central Tendency:	Concept, Requisites, Mean, median & mode, merits and demerits. Quartiles, deciles and percentiles. (for grouped and ungrouped data)
3	Measures of Dispersions & Skewness and Kurtosis	Concept, Requisites, absolute and relative measures of dispersion, properties, consistency, combined variance. Moments, Concept, measures of skewness and kurtosis
4	Correlation and Regression Analysis (Properties and Interpretation)	Bivariate Data, Cause and relation, Scatter diagram, Karl Pearson's correlation coefficient. Rank correlation: Spearman's and Kendal's rank correlation coefficient
5	Introduction to probability :	Sample space, event, set, random experiment, and concept of probability, addition & multiplication theorem.

References:

1. David Unwin, Introductory Spatial Analysis, Methuen, London, 1981.
2. Gregory, S. Statistical Methods and the Geographer, Longman, London, 1978.
3. Hammond R and P. S. McCullagh Quantitative Techniques in Geography : An Introduction, Clarendon Press, Oxford, 1974.
4. John P.cole and Cuchlaine A. M. King: Quantitative Geography, John Wiley, London, 1968.
5. Johnston R.J. : Multivariate Statistical Analysis in Geography, Longman, London, 1973.
6. Koutsoyiannis :Theory of Econometrics, Macmillan, London, 1973.
7. Maurice Yeats :An introduction to Quantitative Analysis in Human Geography, MacGraw Hill, New York, 1974.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Practicals in Remote Sensing

Course Code: GGPC-06

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Data Representation	Representation of Raster and Vector format, Band combinations , Color Composites, Identification of features using False Color Composite
2	Spectral Signatures	Representation of pixel data in the form of spectral signature curve, Identification of features using spectral differences
3	Image Interpretation	Interpretation of satellite image: Landsat TM, Resourcesat, Quickbird, Landsat Thermal Band
4	Image Classification & Change Detection	Generating landuse map using satellite image classification techniques, Accuracy Assessment, Area calculations, Change Detection in landuse pattern
5	Aerial Stereoscopy	Arrangement of stereo pairs, Feature identification and interpretation
6	Accessing Web Resources	Downloading free satellite data: Landsat TM, ASTER, SRTM

Reference Books:

1. **Mandatory:** Thomas M. Lillesand and Ralph W. Kefer, Remote Sensing and Image Interpretation, John Wiley & sons, New York, 1994.
2. **Reference:**
 - i. American Society of Photogrammetry : Manual of Remote Sensing. ASP Falls Church, V.A. 1983.
 - ii. Barrett E.C. and L.F. Curtis : Fundamentals of Remote Sensing and Air Photo Interpretation, Mcmillan, New York, 1992.
 - iii. Compbell J. : Introduction to Remote Sensing, Guilford, New York, 1989.
 - iv. Curran, Paul J : Principles of Remote Sensing, Longman, London, 1985.
 - v. Hord R.M. : Digital Image Processing of Remotely Sensed Data, Academic, New York, 1989.
 - vi. Luder D: Aerial Photography Interpretation : Principles and Application, McGraw Hill, New York, 1959.
 - vii. Pratt W.K. Digital Image Processing. Wiley, New York,1978.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Coastal Geomorphology

Course Code: GGO-09

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction Coastal systems	Components of coastal systems processes, sediment transport Morphology, Stratigraphy, Spatial and temporal scales in coastal Geomorphology, Coastal classification – Genetic and Morphological.
2	Coastal Processes	Waves: Definition, wave length, wave height, amplitude, depth, period, fetch, frequency, Types of waves, Process of shoaling, wave breakers Currents: Currents – and its types Tides: Equilibrium Theory of tides, semidiurnal, diurnal, spring, and neap tides. Amphidromic point, co – tidal lines, coastal tides, tides in bays and estuaries.
3	Sea level	Mechanism of Transgression, Regression, Relative and eustatic sea level changes sea level change, Causes and consequences Coastal Fluvial-dominated.
4	Coastal environments	Fluvial dominated: Coastal deltas: Classification, formation, Environments morphology delta plain, Wave-dominated: Process, Formation and morphology of erosional and depositional landforms. Tide-dominated: Introduction: Estuaries and mud flats: morphology and Hydrodynamics Biotic environments: Mangroove swamps and salt marshes, Corals and coral reefs
5	Applied Coastal Geomorphology	Current coastal issues: Sea level rise, Storm hazard management, Coastal erosion Wetlands, Kharlands, Estuarine reclamation, Salt intrusion and subsidence of coastal aquifers

References:

1. Davis J L (1980): Geographical variation in coastal development, Longman, New York
2. Embelton and Thornes (1979): Process in geomorphology, Arnold, London
3. Hails J and Carr A (1975): Nearshore sediment dynamics and sedimentation, Wiley, London
4. Karlekar Shrikant (1993): Coastal geomorphology of Konkan, Aparna Publication, Pune
5. Masselink G, Hughes M G (2003): Introduction to coastal processes and geomorphology, Arnold, London
6. Pethick John (1984): An Introduction to coastal geomorphology, Arnold Heinemann, London
7. Tooley M M and Shennan I (1987): Sea level changes, Basil Blackwell, Oxford, U K

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Fluvial Geomorphology

Course Code: GGO-10

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction to Fluvial Geomorphology	Fluvial Geomorphology and Geography; hydrological cycle and sub cycle, drainage pattern evolution; limits of drainage development; channel changes with time.
2	Fundamentals of river mechanics	Types of flow and flow discrimination; forces acting in channels; Low regimes; sediment load of streams. Sediment transport; competent velocity; lift force; critical tractive force.
3	Hydraulic geometry	Hydraulic geometry of streams at a station and downstream; channel thalweg; causes of concavity; channel patterns, equilibrium profile - straight, meandering and braided.
4	Channel Morphology	Drainage basin - form and process; drainage basin morphometry; Morphometric interrelations. Denudation Concept of grade - graded profile, dynamic equilibrium Landforms of fluvial erosion - erosional processes Landforms of fluvial deposition - depositional processes, Bedrock and alluvial, Channel cross section, patterns, gradient
5	Applied Fluvial Geomorphology	Human adjustment to flood plain, alluvial fans and deltaic environments (case studies). Effects of reservoirs on fluvial systems. Remote sensing and GIS application to fluvial environments

References:

1. Chorley R.J. (ed) Introduction of Fluvial Processes Methuen & Co., London, 1973.
2. Coates D.R. and Vitek J.I. Thresholds in Geomorphology. George Allen Unwin, London 1980.
3. Gregory K.J. 'River Channel Changes' John Wiley & Sons, New York, 1977.
4. Kingston D. Fluvial Forms and Processes Edward Arnold, London, 1984.
5. Leopold C.B. et.al.: Fluvial Processes in Geomorphology; Freeman, London 1964.
6. Morisawa M.(ed.) Fluvial Geomorphology. George Allen & Unwin, 1981.
7. Gleick, P.H. (ed.): Water in Crisis Oxford University Press, New York 1993.
8. Morisawa M: 'Streams - Their Dynamics and Morphology' McGraw Hill, New York, 1968.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Geography of Settlements

Course Code: GGO-11

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction	Evaluation of Settlement Geography, Evaluation of Population Geography, Changes in the approaches to the study of Settlement
2	Settlement Patterns	Various patters of Settlement. Effects of technology on shelter and pattern from Neolithic to Modern period
3	Growth and Distribution	Various factors affecting settlement site, size, distribution, Depression and nucleation, factors affecting dispersion and nucleation- Methods of the measuring, degree of dispersion. Factors affecting growth of settlements-System of land division, water rights system of agriculture, land tenancy system
4	Morphogenesis of Rural Settlements And Transformation	Social, Cultural, Economic organization within villages. Functional growth, Socio-economic transformation in rural areas.
5	Rural House Types	Primitive, Vernacular and Modern high rise, Physical, Social, Cultural and Economic factors affecting rural house types. Size, functional use and architectural style. Building material

References:

1. Beaujeu Garnier J. – Geography of Population, Longman Group Ltd.
2. Chandna R. C. (Rep.2010) – A Geography of Population, Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi
3. Clark J. I. (1973) – Population Geography, Pergamon Press Ltd., Oxford
4. Clark J. I. Geography of Population Approaches and Applications, Pergamon Press Ltd., Oxford
5. Mishra, R.S.: Economics of Growth and Development , Somaiya Publication Pvt. Ltd.
6. Bhende Asha and Kanitkar T. – Principles of Population Studies, Himalaya Publishing House, Bombay.993
7. Singh R. L. – Readings in Settlement Geography. The National Geographical Society of India.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Industrial Geography

Course Code: GGO-12

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction	Definition, Nature, Scope, Manufacturing and Regional economics.
2	Industrial Location	Geographical, Economical, Political, Socio-cultural, Characteristics of centralization, Characteristics of decentralization
3	Models and concept	Weber's model, Losch's model, Greenhut's model, Israd's model, Agglomeration of industries, Industrial Linkages
4	Locational Analysis and distribution	Iron and steel, Cotton textile, Automobile, Chemical industries
5	Industrial regions of India	Nature of industrial regions in, India, Regional development of, Industries, Locational factors for industries, Characteristics of industrial regions

References:

1. Alexaderson, G. (1967): "Geography of Manufacturing", Prentice Hall, New Jersey
2. Alexander, J.W. (1973): " Economic Geography", Prentice Hall, New Jersey
3. Estall and Buchanan (1969): "Industrial Activity and Economic Geography"
4. Smith, David, M, (1971): "Industrial Location- An Economic Geographical Analysis", John Wiley and Son, New York.
5. Miller, E.C. (1977): "Manufacturing-A study of Industrial Location", Penn State University, University Park, U.S.A.
6. Shaw, E.B. (1979): "An Anglo-America- A Regional Geography"
7. Riley, R.C. (1973: Industrial Geography, Progress Publication, Moscow
8. Watts, H.D. (1989): Industrial Geography, Longman Group Ltd. Hong Kong
1. 9. Carlo Ghezzi, Mehdi Jazayeri and Dino Mandriali (2003) : Fundamentals of Software Engineering", Pearson Edu. Pte. Ltd. New Delhi
9. Richard, E. Fairley (): "Software Engineering- Concepts" Tata Mc-Graw Hill Publishing Company, New Delhi.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Research Methodology

Course Code: GGO-13

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Introduction to Research	Research and its types, Research process and steps, Essential components of Literature Review, definition of problem, Objectives & strategies of research
2	Methods of Data Collection	Types of data collection and classification, designing questionnaires and schedules, digital organization of data, preprocessing
3	Sampling Methods	Probability sampling, random sampling, systematic sampling, stratified sampling and cluster sampling Non-probability sampling, quota sampling
4	Data Analysis	Statistical measures and their significance: Central tendencies, variation, skewness, Kurtosis, time series analysis, correlation and regression, Testing of Hypotheses: Chi Square, ANOVA
5	Multivariate Analysis	Multiple Regression, Factor Analysis, Multi-Criteria Analysis
6	Report writing	Pre writing considerations, Format of report writing, Abstract Writing, Synopsis Writing, Thesis writing, Chapterization, Format of publications in research journals.

References

1. Montgomery, Douglas C. (2007), 5/e, Design and Analysis of Experiments, (Wiley India)
2. Montgomery, Douglas C. & Runger, George C. (2007), 3/e, Applied Statistics & Probability for Engineers (Wiley India)
3. Kothari C.K. (2004), 2/e, Research Methodology- Methods and Techniques (New Age International, New Delhi)
4. Krishnaswamy, K.N., Sivakumar, Appa Iyer and Mathiranjana M. (2006), Management Research Methodology; Integration of Principles, Methods and Techniques (Pearson Education, New Delhi)
5. Hira, D.S. System Simulation, S. Chand of Co., New Delhi

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

SEMSTER IV

Course Title: Regional Planning and Development

Course Code: GGC-07

Credits: 03

Marks: 75

Unit	Topic	Subtopic
1	Concept and Types of regions	Regional concept in geography, conceptual and theoretical framework, merits and limitations for application to regional planning and development; changing concept of the region from an inter-disciplinary view-point, concept of space, area and locational attributes. Types of regions, Formal and functional, uniform and nodal,, regional hierarchy; special purpose region, in the context of planning.
2	Regional study:	Physical regions, resource regions, regional divisions according to variations in levels of socio-economic development; Special purpose regions: river valley regions, metropolitan regions, Problem regions-hilly regions, tribal regions, regions of drought and floods.
3	Systematic Study	Approaches to delineation of different types of regions and their utility in planning. Planning process – sectoral, temporal and spatial dimensions; short-term and long term perspectives of planning. Planning for a region's development and multi-regional planning in a national context. Indicators of development and their data sources, measuring levels of regional development and disparities – case study of India.
4	Regional Development and Planning	Regional Policies in the Indian Five Year Plans, experience of Regional Planning in India Regional Development and Planning Strategies – Concentration versus dispersal (growth versus development)- case studies for plans of developed and developing countries, Regional development in India-problems and prospects.
5	Concept of Multi-level planning & decentralized planning	Concept of Multi-level planning; decentralized planning; peoples participation in the planning process; Panchayati Raj system; role and relationship of Panchayati Raj Institutions(Village Panchayat, Panchayat Samithi and Zilla Parishad) and administrative structure(Village, Block and District).

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

References:

1. Bhat, L.S. : Regional Planning in India, Statistical Publishing Society, Calcutta, 1973.
2. Bhat, L.S. et al : Micro-Level Planning: A Case Study of Karnal Area, Haryana, K. B. Publications, New Delhi, 1976.
3. Christaller, W.: Central Places in Southern Germany, Translated by C.W. Baskin, Prentice Hall, Englewood Cliffs, New Jersey, 1966.
4. Friedmann, J and Alonso, W. : Regional Development Policy – A case Study of Venezuela, M.I.T. Press Cambridge, Mass, 1966.
5. Glikson, Arthur: Regional Planning and Development, Netherlands Universities foundation for International Co-operation, London, 1955.
6. Gosal, G.S. and Krishan, G. : Regional Disparities in Levels of Socio-Economic Development in Punjab, Vishal Publications, Kurukshetra, 1984.
7. Government of India, Planning Commission: Third Five Year Plan, Chapter on Regional Imbalances in Development, New Delhi, 1961.
8. Johnson, E.A.J. : The Organisation of Space in Developing Countries, Harvard University Press, Cambridge, 1970.
9. Kuklinski, A.R. (ed.): Growth Poles and Growth Centres in Regional Planning, Mouton, The Hague. 1972.
10. Kundu, A. and Raza, Moonis: Indian Economy-The Regional Dimension, Spectrum Publishers, New Delhi, 1982.
11. Losch, A.: The Economics of Location, University Press, Yale, New Haven, 1954.
12. Misra, R.P. : Regional Planning: Concepts, Techniques and Policies, University of Mysore, Mysore, 1969.
13. Misra, R.P. and Others (editors) : Regional Development Planning in India-A Strategy, Institute of Development Studies, Mysore, 1974.
14. Myrdal, G.: Economic Theory and Under-Development Regions, Gerald Duckworth, London, 1957.
15. Richardson, H.W. : Regional Economics, Weidenfeld and Nicolson, London, 1969.
16. Sundaram, K.V.(ed.): Geography and Planning, Essays in Honour of V.L.S. Prakasa Rao. Concept Publishing Co. New Delhi, 1985.
17. Glasson : Introduction to regional planning.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Fundamentals of Geographic Information System

Course Code: GGC-08

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Introduction to GIS	Definition, Components of GIS, Advantage over traditional map making, Interdisciplinary approach of GIS
2	Geospatial Data	Sources of Geographical data, Storage formats for geospatial data (Raster & Vector), Advantages and disadvantages of using raster and vector formats, other formats
3	Types of GIS & GIS software	Types: Desktop GIS, Web GIS, Mobile GIS Software: Proprietary GIS (ESRI ArcGIS, Map Info, and Global Mapper) and Open source GIS (Quantum GIS, Grass and Saga GIS)
4	Data visualization & Integration	Representation of Geospatial data, Layout formats, Color Combination & Standardizations, Visualizing data on: GIS portal and Google Earth, Integrating GIS and Google Earth.
5	Applications of GIS	Case studies on the use of GIS in following fields; Watershed management, Land cover dynamics, socio-cultural settings, Transportation, mining, Environmental Impact Assessment, Land capability & suitability study
6	Global Positioning System (GPS)	Introduction to GPS, GPS receivers, Handheld GPS receivers, DGPS, GPS Accuracy and applications of global positioning system

Reference Books:

1. Mandatory: Burrough P.A. Principles of Geographic information Systems for Land Resource Assessment Oxford University Press, New York, 1986.

2. Reference

- i. Fraser Taylor D.R. Geographic information Systems Pergamon Press, Oxford, 1991.
- ii. Maquire D.J.M.F. Goodchild and D.W. Rhind(eds.) Geographic information Systems: Principles and Application. Taylor & Francis, Washington. 1991.
- iii. Mark S.Monmonier. Computer-assisted Cartography. Prentice-Hall, Englewood Cliff, New Jersey, 1982.
- iv. Peuquet D.J. and D.F. Marble, Introductory Reading in Geographic Information Systems. Taylor & Francis, Washington, 1990.
- v. Star J and J. Estes, Geographic Information Systems: An Introduction, Prentice Hall, Englewood Cliff, New Jersey, 1994.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Computer Applications in Geography

Course Code: GGPC-07

Credits: 03

Marks: 75

Unit	Topic	Subtopic
1	Introduction to Computer System	Concept of Computer, Software & Hardware, System and Application Software, Current generation computers and their configuration
2	Geographic Data Management	Concept of Database & Relationships, Database Management System, Queries and Report generation, Database organization rules
3	Geographic Data Analysis	Geographic Data analysis with Microsoft Excel : Central Tendency, Deviation, Data Skewness, Correlation analysis and Trends, Estimation using regression analysis, Time Series Analysis
4	Geographic Data Representation	Representation of Geographic Data in chart or graph form: Histogram, Bar and line graphs, Pie charts, Scatter Plots, scatter grams, Trend lines, Representation of Geographic Data in map form: Using windows paint brush to make 2D maps using tabular data
5	Presenting Geographic Analysis	Using Microsoft PowerPoint to present geographic analysis, Adding graphs, maps, animation & videos to presentation, managing presentation time
6	Internet applications in geography	Finding Geographic data on internet: Tabular data, graphs & charts, Maps and Toposheets, Working with Google earth maps and annotations

Reference Books:

1. Mandatory: D.J. Unwin & J.A. Dawson(1987): Computer Programming for Geographers, Longman, London.

2. Reference

- i. Monmonier, M.S.(1982) : Computer Assisted cartography, Prentice Hall.
- ii. David J. Maguire (1989) : Computers in Geography, Longman scientific & Technical, London.
- iii. Paul M. Mather (1993): Computer application in geography John Wiley & Sons, New York U.S.A.
- iv. Cole & King (1968): Quantitative Geography.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Practicals in Geographic Information System

Course Code: GGPC-08

Credits: 02

Marks: 50

Unit	Topic	Subtopic
1	Geospatial Data Access	Accessing existing data into GIS, Creating multiple copies, re-projecting vector and raster files, Saving Projects, Symbology
2	Digitization	Creating vector layers in GIS, Basic and Advanced editing, Topology building, Correction methods
3	Attribution	Creating and modifying tables, attaching attribute information to vector layers, using field calculators, calculating ratios
4	Data Retrieval	Querying: Attribute Queries and Location Queries, Saving query outputs and preparation of maps
5	Vector Operations	Basic vector operations: Merge, Dissolve, Intersect, union, Clip, Erase and spatial join
6	GPS Survey	Handling GPS receiver, taking waypoints, Importing GPS points in GIS software, attribute attachment

Reference Books:

1. Mandatory: Burrough P.A. Principles of Geographic information Systems for Land Resource

Assessment Oxford University Press, New York, 1986.

2. Reference

- i. Fraser Taylor D.R. Geographic information Systems Pergamon Press, Oxford, 1991.
- ii. Maquire D.J.M.F. Goodchild and D.W. Rhind(eds.) Geographic information Systems: Principles and Application. Taylor & Francis, Washington. 1991.
- iii. Mark S. Monmonier. Computer-assisted Cartography. Prentice-Hall, Englewood Cliff, New Jersey, 1982.
- iv. Peuquet D.J. and D.F. Marble, Introductory Reading in Geographic Information Systems. Taylor & Francis, Washington, 1990.
- v. Star J and J. Estes, Geographic Information Systems: An Introduction, Prentice Hall, Englewood Cliff, New Jersey, 1994.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Tropical Geomorphology

Course Code: GGO-15

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction	Definition of Tropics: Peculiar features of tropical climate; intensity and erosivity of rainfall, role of vegetation, Morphogenetic classification
2	Tropical Terrain and Weathering	Processes and products. Weathering profiles, tropical soils and clay minerals, Relief, drainage and landforms-slopes, valleys, domes, inselbergs, tors and ventifacts-pediments; characters, distribution and origin and theories of development-plane surfaces in tropical region, Duricrusts: Definition and Types
3	Denudation	Mass movement, chemical and mechanical, denudation, Fluvial processes in tropics Surface processes, pipe flows, gully erosion, fluvial erosion
4	Quaternary in the tropics	Quaternary glaciations in the tropics, Climate change Sea-level change, The Ganga River system: Quaternary, adjustments, Quaternary changes around the Sunda Shelf
5	Anthropogenic changes	Anthropogenic alteration of geomorphic processes in the tropics Urban geomorphology in the tropics The future with climate change

References:

1. Faniran, A. and Jeje, L. K. (1983): Humid Tropical Geomorphology, Longman, London.
2. Thomas, M. F. (1994): Geomorphology in the Tropics: A study of weathering and denudation in low latitudes. John Wiley and Sons, Chichester.
3. Kale, V. S. and Gupta, A. (2001): Introduction to Geomorphology, Orient Longman, Calcutta.
4. Goudie, A. (1985): Duricrusts in tropical and sub-tropical landscapes. Alien Unwin
5. Savindra Singh (2002): Geomorphology, Prayag Pustak Bhawan, Allahabad
6. Bloom, A. L. (2002). Geomorphology: A systematic analysis of late Cenozoic landforms. Prentice-Hall of India, New Delhi
7. Avijit Gupta (2011) "Tropical Geomorphology" - Cambridge University press Cambridge, UK.

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Watershed Management

Course Code: GGO-16

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction to Watershed Management	Concept of watershed, watershed delineation, size and shape, Physical parameters of watershed – stream order, slope, length, a real landuse measurement and data source, Terrain analysis
2	Groundwater	Movement of Groundwater, Factors affecting movement of groundwater, aquifers, Aquitard porosity, permeability, and sources of ground water, Ground water recharge
3	Issues related to watershed	Soil Erosion, Soil Salinity, Siltation, Runoff, Deforestation, Water Scarcity, Groundwater depletion, Flooding etc.
4	Watershed Management Practices	Erosion control measures for non-agricultural lands, Contour and Staggered Trenching, Gully Control Structures, Sediment Retention Structures, Gully and Ravine Reclamation, Bunding, Check Dams, Loose boulder Dams
5	Water conservation and harvesting	Methods, Potential, Assessment. Treatment of Catchments, Small Storage Structures, Planning Earth Dams, Agronomic measures in soil and water conservation problem and techniques of soil water conservation, Rainwater Harvesting, Rooftop Harvesting
6	Watershed Management using GIS	GIS as a Watershed Tool, Water supply, water quality Assessment, Groundwater assessment, drought management issues and problems. Floodplain, Flood inundation mapping etc.

References:

1. Mutreja K.N. (1987) – Applied Hydrology, Tata Mckraw Hill.
2. Tideman E.M. (1996) – Watershed Management : Guidelines for Indian conditions, Omega, N. Delhi 1996.
3. Todd D.K.(1959) - Ground Water Hydrology, John wiley, New York.
4. Pereira H.C. (1973) – Land use and water Resources Cambridge University Press, Cambridge

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Social and Cultural Geography

Course Code: GGO-17

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction	Definitions, Early Contributions, Subject Matter, Conceptual and Methodological approaches, Trends and Development
2	Philosophical Bases and Concepts	Positivism, Humanism, Idealism, Phenomenalism, Existentialism, Structuralism and Radicalism, Origin and diffusion of Culture
3	Space and Society	Individual's space, Intimate, Personal, Social and Public Space, Theoretical space – organic, perceptive and symbolic space, Interaction and social relations
4	Social Groups	Primary and Secondary Groups, Group in Society, Social Structure, Models of Assimilation and Segregation, Industrialization, Migration, Urbanization, Modernization, Globalization and Sanskritization
5	Social – Culture Regions	Cultural Diversities, Role of Race, Religion, Cast, Ethnicity, Tribe and Language and Dialect, Level of Education, Economic Activity, Class, Power, Transformation and Change, Cultural regions of the World and India

References:

1. Anand Aijazuddin (1999) : Social Geography, Rawat Publications, New Delhi
2. Bulsara, J. F. (1970) : Patterns of Social Life in Metropolitan Areas, Popular Prakashan, Bombay
3. Censys of India (1974) : Economic and Socio-Cultural Dimensions of Rationalization Census Centenary, Monograph No. 7, Govt. of India, New Delhi
4. Coates, B. E. et. al. (1977) : Geography and Inequality, Oxford University Press, London
5. Jordon and Lester, G. (1995) : The Human Mosaic, Harper and Row, New York
6. Orang, Mike (1998) : Cultural Geography. Routledge Publication, London
7. Dubey, S. C. (1991) : Indian Society, national Book Trust, New Delhi

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Economic Geography of Globalization

Course Code: GGO-18

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Changing Economic Geography	The uneven geographies of globalization, Perspectives of globalization, Globalization and the development of the world economy, Contemporary processes of economic globalization, Patterns of global inequality
2	Changing geographies of multinational Corporation (MNC)	Changing geography of FDI, Understanding the emergence of MNC, The embedded geographies of MNCs: the continuous influence of home countries on MNCs strategies, The impact of MNCs on Host region
3	Geographies of New service Economy	The nature and scope of service sector, Growth of services, Global patterns of trade and investment services, Business and financial services and world cities, Digitization and the internet economy, Globalization and the geographical dispersal of services.
4	The changing global economic geography	The rise of Asia: China, India, Regional Developments and Economic- political implications. Impact of Globalization on Developing Countries.
5	Globalization and India	The Impact of Trade Liberalization on Employment: Performance of India's Manufacturing Sector in the Post-reform Period. Pattern of Industry Location under Liberalization. Banking Sector Reform, Flow of Foreign Direct Investment to India, Export Composition in the Liberalized Era, Flow, International Integration and Financial Crisis

References:

1. Danny MacKinnon & Andrew Cumbers (2007) An introduction to Economic Geography Globalization, Uneven Development and Space. Persons Education Ltd. England.
2. Dilip Saikia Vachaspati Shukla Kiran Kumar Kakarlapudi (Edited) (2013) India's Economy in the Globalized Era. BOOKWELL, New Delhi.
3. Masahisa Fujita, & Paul Krugman (2004) The new economic geography: Past, present and the future. Regional Science (RSAI 2004) Papers Reg. Sci. 83, 139-164 (2004)
4. Giovanna Vertova (ed) (2006) The Changing Economic Geography of Globalization, Routledge, 2006,

POSTGRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY

Course Title: Teaching Methodology

Course Code: GGO-19

Credits: 04

Marks: 100

Unit	Topic	Subtopic
1	Introduction to teaching methodology	Aims and Objectives of teaching Geography, Importance of teaching Geography , Correlation of geography with other subjects
2	Methods of teaching geography	Methods : Lecture, Project, Discussion, Assignment, Problems solving, Demonstration, Inductive and Deductive, Regional, Case study methods Field trip, observation, questioning techniques
3	Planning and designing for effective instruction in geography	Design of Lesson planning, Approaches to Lesson Planning, Writing the lesson plan. Geography room and Geography Museum. Instructional materials used in the teaching of geography- maps, globes, atlas, films, pictures, specimens, models, simple meteorological equipments. Field work and excursions
4	Media/materials in geography teaching	Projected Media:- Overhead projector with transparencies; Films and slides Non-projected :- Pictures and charts; Chalk board Printed :- Text and reference books Newspapers and magazine Mass media :- Television ,Radio ,Audio, Computer
5	Evaluations in geography	Construction of tests in geography – designing Of tests, Blueprint of tests, framing the questions, assembling the questions and preparing the instructions, administration of tests, Diagnostic tests and remedial measures in geography.

Reference Books:

1. M.S Rao, Teaching of geography (2009), Anmol Publication
2. Norman J Graves, Source book for Geography teaching (1982), Unesco Press
3. Ratho & Prakash, Emerging Trends in the Teaching of Geography (1995), Kanishka Publishers & Distributors
4. Fien, John et al The Geography Teachers' Guide to the classroom
5. Varma & Vedanayagam ,Geography Teaching
6. Arora, K.L., BhugolShikshan: The Teaching of Geography, Ludhiana; Parkash Brothers. 1983