

GOA UNIVERSITY
POSTGRADUATE DEPARTMENT OF GEOGRAPHY(In Affiliated Colleges)
REVISED CURRICULUM : M.A./M.Sc. GEOGRAPHY (w.e.f. 2014 – 2015)
Credits Adjusted As per Circular No.2/498/2017-Legal(Vol.XIV)/1023 dated 03rd July 2018.

CORE COURSE OF MA GEOGRAPHY PROGRAMME

Semesters	Paper Code	Title of the Paper	Credits
Sem I	GEC001	Theory: Principles of Geomorphology Practical: Practicals in Geomorphology	3T+1P
	GEC002	Theory: Principles of Climatology Practical: Practicals in Climatology	3T+ 1P
Sem II	GEC003	Theory: Principles of Population Geography Practical: Practicals in Population Geography	3T+ 1P
	GEC004	Theory: Principles of Economic Geography Practical: Practicals in Economic Geography	3T+ 1P
Sem III	GEC005	Theory: Development of Geographical Thought Practical: Quatitative Approach & Practicals in Statistical Geography	3T+ 1P
	GEC006	Theory: Fundamentals of Remote Sensing Practical: Practicals in Remote Sensing	3T+ 1P
Sem IV	GEC007	Theory: Regional Planning & Development Practical: Computer Applications in Geography & Regional Planning	3T+ 1P
	GEC008	Theory: Fundamentals of Geographic Information System Practical: Practicals in Geographic Information System	3T+ 1P

OPTIONAL COURSE OF MA GEOGRAPHY PROGRAMME

Semesters	Paper Code	Title of the Paper	Credits
Sem I	GEO001	Environmental Geography	4T
	GEO002	Disaster Mitigation & Management	4T
	GEO003	Fundamentals of Oceanography	2T
	GEO004	Fundamentals of Soil Geography	2T
Sem II	GEO005	Geography of Trade & Transport	4T
	GEO006	Political Geography	4T
	GEO007	Regional Geography of India	2T
	GEO008	Urban Geography	2T
Sem III	GEO009	Coastal Geomorphology	4T
	GEO010	Fluvial Geomorphology	4T
	GEO011	Geography of Settlements	4T
	GEO012	Industrial Geography	2T
	GEO013	Research Methodology	2T
	GEO014	Practicals in Cartography Applications	2P
Sem IV	GEO015	Watershed Management	4T
	GEO016	Social and Cultural Geography	4T
	GEO017	Economic Geography of Globalization	4T
	GEO018	Tropical Geomorphology	2T
	GEO019	Teaching Methodology	2T
	GEO020	Field Techniques and Village Survey	2P

OPTIONAL COURSE OF MA GEOGRAPHY PROGRAMME

Semesters	Paper Code	Title of the Paper	Credits
Sem III	GED-001	Dissertation	4
Sem IV	GED-002	Dissertation	4

GOA UNIVERSITY
POSTGRADUATE DEPARTMENT OF GEOGRAPHY(IN AFFILIATED COLLEGES)
GEC001: PRINCIPLES OF GEOMORPHOLOGY

Units	Topic	Subtopic	Contact Hours
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.	12
	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.	
2	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.	12
3	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.	12
	Applied Geomorphology	Application of geomorphology in planning and development.	

Credits = 03

Each Credit consists of 12 Contact hours.

Total No of Contact hours 12 X 3= 36.

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.

GOA UNIVERSITY
POSTGRADUATE DEPARTMENT OF GEOGRAPHY(In Affiliated Colleges)
GEC001: PRACTICALS IN GEOMORPHOLOGY

Units	Topic	Subtopic	Contact Hours
1	Drainage basin and network morphometry Slope analysis Geomorphic mapping	Preparation of contour and drainage map from toposheet, Morphometric analysis. Slope (isotan and isosin) and aspect maps & Hypsometric curve and integral. Geomorphic mapping in the field-process and materials mapping. Size analysis of the sediment samples collected in the field (by sieving).	12
2	Sediment size and shape analysis Field work	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. Measurement of channel cross-sections in the field, Geomorphic map of channel bed, Study of erosional and depositional features in the field	12

Credits = 01

Each Credit consists of 24 Contact hours.

Total No of Contact hours 12 X 2= 24.

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. Lawrence, G. R. P.: Cartographic Methods, Mathur Co. London
4. Monkhouse, F. J. R and: Maps and Diagrams, Wilkinson, H.R. Methuen and Co., London.
5. R. L. Singh & Rana P. B. Singh: Element of Practical Geography, Kalyani Pub. New Delhi (1999)

GOA UNIVERSITY
POSTGRADUATE DEPARTMENT OF GEOGRAPHY (In Affiliated Colleges)
GEC002: PRINCIPLES OF CLIMATOLOGY

Units	Topic	Subtopic	Contact Hours
1	Introduction Insolation and Heat Balance	Weather & Climate, Subdivisions of Climatology, Earth`s atmosphere: Physical properties, Chemical composition, Temperature changes, Vertical variations in the composition Electromagnetic spectrum, Factors affecting Insolation, Latitudinal and Seasonal variation of Insolation, Albedo, Green House Effect, Heat Budget	12
2	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	12
3	Circulation of the Atmosphere Atmospheric Stability	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 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	12

Credits = 03

Each credit consists of 12 Contact hours.

Total No of Contact hours 12X3= 36.

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

GOA UNIVERSITY
POSTGRADUATE DEPARTMENT OF GEOGRAPHY (In Affiliated Colleges)
GEC002: PRACTICALS IN CLIMATOLOGY

Units	Topic	Subtopic	Contact Hours
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.	12
2	Rainfall Analysis Water Budget and Discomfort Index	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. 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.	12

Credits = 01

Each Credit consists of 24 Contact hours.

Total No of Contact hours 12 X 2= 24.

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. Mather J.R (1974) Climatology, Fundamentals and applications, Mc Graw Hill Book Co, New York.
5. R. L. Singh & Rana P. B. Singh: Element of Practical Geography, Kalyani Pub. New Delhi (1999)
6. Trewartha G.T. : An Introduction to climate Mc-Graw- Hill Book Co. New York.

GOA UNIVERSITY
POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)
GEO001: ENVIRONMENTAL GEOGRAPHY

Units	Topic	Subtopic	Contact Hours
1	Introduction to Environmental Geography Ecosystem and Biodiversity	Environmental Geography-meaning, nature, scope and fundamental concepts, approaches and methods in Environmental Geography, Concept of Ecology, subdivisions and approaches in Ecology Ecosystem concept and components, Habitat and ecological niche, Spatial and temporal dimensions of ecosystem, Abiotic and biotic components, Biodiversity and its conservation	12
2	Environmental degradation	Nature types of degradation-Natural and Anthropogenic degradation, causes and effects of environmental degradation/problems with special reference to the Indian scenario.	12
3	Environmental Pollution Global Warming and Its Impacts	Air pollution, Water pollution, Land Pollution and Noise pollution and its effects. Case studies from India. Global Warming-Ozone layer depletion, and related causes, Green house effect, Impacts of Global warming and measures	12
4	Environmental Management	Environmental planning and policies Trends of environmental policies-Environmental Impact Assessment (EIA). Sustainable development, management of environmental quality.	12

Credits = 04

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 4= 48.

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.

GOA UNIVERSITY
POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)
GEO002: DISASTER MITIGATION & MANAGEMENT

Units	Topic	Subtopic	Contact Hours
1	Introduction hazard & disasters Disaster Zonation of the world	Definition, types of hazards & disaster, Definition, Hazard, Risk and Vulnerability Assessment, Risk and risk assessment. 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	12
2	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	12
3	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.	12
4	Disaster Management and Measures Strategies of risk reduction	Structural and Nonstructural Measures, Disaster prevention, mitigation, preparedness, response, recovery and rehabilitation 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)	12

Credits = 04

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 4= 48.

Reference Books :

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
7. Disasters, Routledge, London, 1994.
8. National Center for Disaster Management (NIDM), Atlas, South-East Asia.
9. 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,

GOA UNIVERSITY
POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY(In Affiliated Colleges)
GEO003: FUNDAMENTALS OF OCEANOGRAPHY

Units	Topic	Subtopic	Contact Hours
1	Introduction Origin of the Ocean Basins and Ocean Floor	Definition and Meaning of Oceanography, Foundation of Modern Oceanography, Contribution of Oceanographers in the subject, Post-war Oceanography, Modern Trends 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	12
2	Properties of Sea Water Tides Tidal Currents Ocean Currents	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 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 Types of Ocean Currents, geostrophic Currents, thermohaline circulation. Factors responsible for ocean currents, Ocean current in Pacific, Atlantic and Indian Ocean	12

Credits = 02

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 2= 24.

Reference Books:

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.

GOA UNIVERSITY
POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)
GEO004: FUNDAMENTALS OF SOIL GEOGRAPHY

Units	Topic	Subtopic	Period
1	Introduction Soil Formation	Importance, Hydrology and soils, Soils and Agriculture, Problems related to soils, Types of soils Factors of soil formation (climate, topography, vegetation), Parent material and soil, Prerequisite for soil formation, Soil Horizons	12
2	Soil Properties & Quality Soil degradation and conservation Soil Distribution	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 Salinization, Acidification, Soil fertility decline, Soil contamination, Deforestation, Overgrazing, Incorrect methods of farming, methods of soil conservation World soil distribution, Factors responsible to the distribution of soil	12

Credits = 02

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 2= 24.

Reference Books :

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 Brunsden 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.

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY(In Affiliated Colleges)

GEC003: PRINCIPLES OF POPULATION GEOGRAPHY

Units	Topic	Subtopic	Contact Hours
1	Population as a Geographic Subject Human Population over Time and Space, Determinants of population growth	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. 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.	12
2	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.	12
3	Population and Resources Population Issues - Global and India	Population versus resources - Under population, overpopulation and optimum population, Malthus theory of population, Malthusian Analysis of Global Crises. Population and environment. 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.	12

Credits = 03

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 3= 36.

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.

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEC003: PRACTICALS IN POPULATION GEOGRAPHY

Units	Topic	Subtopic	Period
1	Methods of Population data collection Methods of Calculation of population data	Basic sources of population data, collection and processing of demographic data: Census, sample survey and registration. Processes involved 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.	12
2	Methods of representation of population data Model testing	Pie chart, Age and sex pyramid and types, Trilinear chart, Flow diagram, Choropleth, Proportional circles, Divided proportional circles, level of urbanization. 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.	12

Credits = 01

Each Credit consists of 24 Contact hours.

Total No of Contact hours 12 X 2= 24.

Reference Books:

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.

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEC004: PRINCIPLES OF ECONOMIC GEOGRAPHY

Units	Topic	Subtopic	Contact Hours
1	Introduction to Economic Activities Agricultural regions	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). 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.	12
2	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.	12
3	Transportation Economic development of India	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. Regional disparities, Impact of green revolution on Indian economy, Globalization and Indian economy and its impact on environment.	12

Credits = 03

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 3= 36.

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.

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY(IN AFFILIATED COLLEGES)

GEC004: PRACTICALS IN ECONOMIC GEOGRAPHY

Units	Topic	Subtopic	Contact Hours
1	Crop Concentration Crop Diversification Crop Combination Agricultural efficiency	a) Bhatia's method b) Jasbir Singh's modified method a) Gibbs Martins Index b) Bhatia's method a) Maximum Positive Deviation method of Raffiullah(1956) b) Athawale's method of crop combination (1966) c) Aiyar's method a) Sapre and Deshpande b) Calories per head c) Standard Nutritional Units per hectare	12
2	Lorenz Curve Transport Network Models of Spatial Interaction	a) Gini coefficient 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 a) Gravity model b) Potential Population Surfaces c) Breaking Point Theory –Trade area delimitation. d) Law of retail trade gravitation.	12

Credits = 01

Each Credit consists of 24 Contact hours.

Total No of Contact hours 12 X 2= 24.

Reference Books: 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.

Units	Topic	Subtopic	Contact Hours
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.	12
2	Transport network Urban transport	Nodes and routes: Hierarchies, Hinterlands, Models of network changes, Graph theoretic measures, Traffic flow, Gravity models. Transport network and economic development. 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.	12
3	Trade Trade Theories	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. Theory of comparative advantage-Neo-classical theory, Modern theory	12
4	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	12

Credits = 04

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 4= 48.

Reference Books:

1. Chorely 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

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEO006: POLITICAL GEOGRAPHY

Units	Topic	Subtopic	Contact Hours
1	Introduction to political Geography Approaches of Political Geography	Definition, Geography & Politics, History & Development of Political Geography. Whittlesey's landscape approach, Functional approach, Centrifugal & centripetal forces, analysis of external functions, Unified Field Theory	12
2	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	12
3	Resource Development & Power Geopolitics	Classification of resources, Resources & National strategy, Resource management & power of Nation. Significance of Indian ocean, Geopolitics of border nations, SAARC, Strategic significance of India	12
4	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.	12

Credits = 04

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 4= 48.

Reference Books :

1. Alexander L.M (1963): World Political Patterns, Ram McNally, Chicago.
2. Political Geography By Sudepta Adhikari, Rawat Publication.
3. Dikshit R.D (1996): Political Geography: A Contemporary Perspective, Tata McGraw Hill, Delhi.
4. Dikshit R.D (1999): Political Geography: A Century of Progress, Sage, New Delhi.
5. De Blij. H. J And Glassner, M. (1968) Systematic political Geography, John Wiley, New York.
6. Pounds N.J.G (1972): Political Geography, McGraw, New York.
7. Taylor, R.J.(1989) Political Geography, Longman UK.

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEO007: REGIONAL GEOGRAPHY OF INDIA

Units	Topic	Subtopic	Contact Hours
1	Concept and Bases of regionalization Regional study	Concept of region, regionalization, Basis of regionalization: Geo-political, Physiographic, Climatic, Socio-economic regionalization. Formal and functional region. 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).	12
2	Systematic Study Regional Development and Planning Contemporary Issues	Natural region: Sundarban delta, Political region: North east and Jammu and Kashmir , Cultural region: Goa, Metropolitan region: Delhi and NCR. 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. Indian federalism, Secularism, Contentious borders, Tourism, Food security, Metropolitization in India, (Note: The suggested readings for selected regions maybe given in the class)	12

Credits = 02

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 2= 24.

Reference Books :

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.

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY(In Affiliated Colleges)

GEO008: URBAN GEOGRAPHY

Units	Topic	Subtopic	Contact Hours
1	Urbanization Urban Morphology Urban Classification	<p>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.</p> <p>Park and Burgess Model, Homer Hoyt Model. Harris and Ullman Model, and demarcation of CBD.</p> <p>Various approaches to classification, Urban function, Functional classification of towns and cities by C.D. Harris and H. J. Nelson</p>	12
2	Urban Demography Rural-Urban Fringe & City and its Region Contemporary Urban issues & Urban policy and planning	<p>Growth of urban population, Urban explosion in developing countries. Density of population in cities. Age, sex and occupational structure.</p> <p>Concepts of city region and various synonymous terms used. Criteria used to demarcate the city region, Nature of urban influence.</p> <p>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.</p> <p>Policies of Urban development, Need of city planning, Elements of city plan, Master plan of towns, New towns.</p>	12

Credits = 02**Each credit consists of 12 Contact hours.****Total No of Contact hours 12 X 2= 24****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
9. K. Siddharth and S. Mukherji : Cities,. Urbanizations and Urban Systems.

GOA UNIVERSITY**POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)**

GEC005: DEVELOPMENT OF GEOGRAPHICAL THOUGHT

Units	Topic	Subtopic	Contact Hours
1	Development of Geography: Ancient Period Development of Geography: Medieval Period	Geography as a science of synthesis, Greek, Roman and Indian Schools of Thought, Contribution of Herodotus, Eratosthenes, Strabo, Ptolemy etc. 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.	12
2	Development of Geography: Modern Period Dualism in Geography	Foundations of modern geography, German, French, British and American schools of thought, Contributions of Kant, Humboldt, Ritter, W. M. Davis, Charles Darwin etc. Systematic & regional geography; physical & human geography, the myth and reality about dualisms, Determinism and possibilism, Neo-determinism, Positivism, behaviourism, postmodernism.	12
3	Geography in 21 st Century Applied Geography	Conceptual and methodological developments and changing paradigms, Scientific methods, Quantitative revolution, Quantification and application of statistical techniques in Geography, Computer applications in geography. Definition, Need and Significance, Applications in Landuse, regional, Rural & urban Planning, Management of resources and Assessment.	12

Credits = 03**Each credit consists of 12 Contact hours.****Total No of Contact hours 12 X 3= 36.****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.

GOA UNIVERSITY**POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY(IN AFFILIATED COLLEGES)**

GEC005: QUATITATIVE APPROACH & PRACTICALS IN STATISTICAL GEOGRAPHY

Units	Topic	Subtopic	Contact Hours
1	Frequency Distribution & Sampling and data collection: Measures of Central Tendency:	Introduction to statistics, frequency & cumulative frequency distribution, Graphical & Diagrammatic representation. Census, sample, advantages of sampling, sampling methods, random numbers. Concept, Requisites, Mean, median & mode, merits and demerits. Quartiles, deciles and percentiles. (for grouped and ungrouped data)	12
2	Measures of Dispersions & Skewness and Kurtosis Correlation and Regression Analysis (Properties and Interpretation) Introduction to probability :	Concept, Requisites, absolute and relative measures of dispersion, properties, consistency, combined variance. Moments, Concept, measures of skewness and kurtosis Bivariate Data, Cause and relation, Scatter diagram, Karl Pearson's correlation coefficient. Rank correlation: Spearman's and Kendal's rank correlation coefficient Sample space, event, set, random experiment, and concept of probability, addition & multiplication theorem.	12

Credits = 01**Each Credit consists of 24 Contact hours.****Total No of Contact hours 12 X 2= 24.****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, Clarendan 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.

GOA UNIVERSITY**POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY(In Affiliated Colleges)**

GEC006: FUNDAMENTALS OF REMOTE SENSING

Units	Topic	Subtopic	Contact Hours
1	Introduction to Remote Sensing & Satellites Electro-magnetic Radiation	Concept of Remote Sensing, Types of Remote Sensing, Advantage & Disadvantage, Applications in Geography, Polar orbital & Geostationary satellites, Sensors and platforms Electro-magnetic Radiation (EMR) Concept, Electro-magnetic spectrum and its components, EMR Interactions with Earth's Atmosphere and Surface features.	12
2	Resolution and Spectral Signatures Satellite Data Products & Image Interpretation	Concept of Resolution, swath and Image Pixel, Types of Resolution, Spectral information in satellite image, Spectral Signature Curve 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	12
3	Introduction Aerial photography Introduction to Photogrammetry	Aerial photography & types of aerial photos, Concept of Anaglyph & Stereo imaging spectroscopy, Aerial survey planning. Concept of 3D vision, Digital and traditional Photogrammetry, Types of Photogrammetry, Photogrammetric Measurements	12

Credits = 03

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 3= 36.

Reference Books:

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

Reference:

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

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEC006: PRACTICALS IN REMOTE SENSING

Units	Topic	Subtopic	Contact Hours
1	Data Representation	Representation of Raster and Vector format, Band combinations , Color Composites, Identification of features using False Color Composite.	12
	Spectral Signatures	Representation of pixel data in the form of spectral signature curve, Identification of features using spectral differences	
	Image Interpretation	Interpretation of satellite image: Landsat TM, Resourcesat, Quickbird, Landsat Thermal Band	
2	Image Classification & Change Detection	Generating landuse map using satellite image classification techniques, Accuracy Assessment, Area calculations, Change Detection in landuse pattern.	12
	Aerial Stereoscopy	Arrangement of stereo pairs, Feature identification and interpretation	
	Accessing Web Resources	Downloading free satellite data: Landsat TM, ASTER, SRTM	

Credits = 01**Each Credit consists of 24 Contact hours.****Total No of Contact hours 12 X 2= 24.****Reference Books:**

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

Reference:

1. American Society of Photogrammetry : Manual of Remote Sensing. ASP Falls Church, V.A. 1983.
2. Barrett E.C. and L.F. Curtis : Fundamentals of Remote Sensing and Air Photo Interpretation, Mcmillan, New York, 1992.
3. Compbell J. : Introduction to Remote Sensing, Guilford, New York, 1989.
4. Curran, Paul J : Principles of Remote Sensing, Longman, London, 1985.
5. Hord R.M. : Digital Image Processing of Remotely Sensed Data, Academic, New York, 1989.
6. Luder D: Aerial Photography Interpretation : Principles and Application, McGraw Hill, New York, 1959.
7. Pratt W.K. Digital Image Processing. Wiley, New York,1978.

GOA UNIVERSITY**POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY(In Affiliated Colleges)**

GEO009: COASTAL GEOMORPHOLOGY

Units	Topic	Subtopic	Contact Hours
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.	12
2	Coastal Processes Sea level	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. Mechanism of Transgression, Regression, Relative and eustatic sea level changes sea level change, Causes and consequences Coastal Fluvial-dominated.	12
3	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	12
4	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.	12

Credits = 04**Each credit consists of 12 Contact hours.****Total No of Contact hours 12 X 4= 48.****Reference Books:**

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

GOA UNIVERSITY**POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)**

GEO010: FLUVIAL GEOMORPHOLOGY

Units	Topic	Subtopic	Contact Hours
1	Introduction to Fluvial Geomorphology Fundamentals of river mechanics	Fluvial Geomorphology and Geography; hydrological cycle and sub cycle, drainage pattern evolution; limits of drainage development; channel changes with time. 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.	12
2	Hydraulic geometry	Hydraulic geometry of streams at a station and downstream; channel thalweg; causes of concavity; channel patterns, equilibrium profile - straight, meandering and braided.	12
3	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	12
4	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	12

Credits = 04**Each credit consists of 12 Contact hours.****Total No of Contact hours 12 X 4= 48.****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.

GOA UNIVERSITY**POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)****GEO011: GEOGRAPHY OF SETTLEMENTS**

Units	Topic	Subtopic	Contact Hours
1	Introduction Settlement Patterns	Evaluation of Settlement Geography, Evaluation of Population Geography, Changes in the approaches to the study of Settlement. Various patters of Settlement. Effects of technology on shelter and pattern from Neolithic to Modern period.	12
2	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	12
3	Morphogenesis of Rural Settlements And Transformation	Social, Cultural, Economic organization within villages. Functional growth, Socio-economic transformation in rural areas.	12
4	Rural House Types Settlement Patterns	Primitive, Vernacular and Modern high rise, Physical, Social, Cultural and Economic factors affecting rural house types. Size, functional use and architectural style. Building material Various patters of Settlement. Effects of technology on shelter and pattern from. Neolithic to Modern period	12

Credits = 04

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 4= 48.

Reference Books:

1. Beaujeu Garnier J. – Geography of Poluation, 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
7. Mishra, R.S.: Economics of Growth and Development , Somaiya Publication Pvt. Ltd.
8. Bhende Asha and Kanitkar T. – Principles of Population Studies, Himalaya Publishing House, Bombay.993
9. Singh R. L. – Readings in Settlement Geography. The National Geographical Society of India.

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEO012: INDUSTRIAL GEOGRAPHY

Units	Topic	Subtopic	Contact Hours
1	Introduction Industrial Location Models and concept	Definition, Nature, Scope, Manufacturing and Regional economics. Geographical, Economical, Political, Socio-cultural, Characteristics of centralization, Characteristics of decentralization Weber's model, Losch's model, Greenhut's model, Israd's model, Agglomeration of industries, Industrial Linkages	12
2	Locational Analysis and distribution Industrial regions of India	Iron and steel, Cotton textile, Automobile, Chemical industries Nature of industrial regions in, India, Regional development of, Industries, Locational factors for industries, Characteristics of industrial regions	12

Credits = 02

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 2= 24

Reference Books:

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

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEO013: RESEARCH METHODOLOGY

Units	Topic	Subtopic	Contact Hours
1	Introduction to Research Methods of Data Collection Sampling Methods	Research and its types, Research process and steps, Essential components of Literature Review, definition of problem, Objectives & strategies of research Types of data collection and classification, designing questionnaires and schedules, digital organization of data, preprocessing Probability sampling, random sampling, systematic sampling, stratified sampling and cluster sampling Non-probability sampling, quota sampling	12
2	Data Analysis Multivariate Analysis Report writing	Statistical measures and their significance: Central tendencies, variation, skewness, Kurtosis, time series analysis, correlation and regression, Testing of Hypotheses: Chi Square, ANOVA Multiple Regression, Factor Analysis, Multi-Criteria Analysis Pre writing considerations, Format of report writing, Abstract Writing, Synopsis Writing, Thesis writing, Chapterization, Format of publications in research journals.	12

Credits = 02

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 2= 24

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 Mathiranjani 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 Dehli

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY(In Affiliated Colleges)

GEO014: PRACTICALS IN CARTOGRAPHY APPLICATIONS

Units	Topic	Subtopic	Contact Hours
1	Fundamentals of Cartography Map Reading	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 Elements of map reading and Interpretation of Toposheets, Relief features and profiles. Reduction and enlargement of maps	12
2	Thematic Cartography Interpolation Computer 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 Interpolation methods for smooth continuous phenomena, Isoleth Mapping Map making using computer graphics programs, Using Google Earth for mapping geographical features, Map Layouts	

Credits = 02

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 2= 24

References

1. ESRI. 2004. ESRI Cartography: Capabilities and Trends. Redlands, CA. White Paper
2. Imus, D. and Dunlavey, 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

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEC007: REGIONAL PLANNING & DEVELOPMENT

Units	Topic	Subtopic	Contact Hours
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.	12
2	Regional study: Systematic 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. 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.	12
3	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.	12
4	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).	12

Credits = 03

Each Credit consists of 12 Contact hours.

Total No of Contact hours 12 X 3= 36.

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.

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges) GEC007: COMPUTER APPLICATIONS IN GEOGRAPHY & REGIONAL PLANNING

Units	Topic	Subtopic	Contact Hours
1	Introduction to Computer System Geographic Data Management Geographic Data Analysis	Concept of Computer, Software & Hardware, System and Application Software, Current generation computers and their configuration Concept of Database & Relationships, Database Management System, Queries and Report generation, Database organization rules Geographic Data analysis with Microsoft Excel : Central Tendency, Deviation, Data Skewness, Correlation analysis and Trends, Estimation using regression analysis, Time Series Analysis	12
4	Geographic Data Representation Presenting Geographic Analysis Internet applications in geography	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 Using Microsoft PowerPoint to present geographic analysis, Adding graphs, maps, animation & videos to presentation, managing presentation time Finding Geographic data on internet: Tabular data, graphs & charts, Maps and Toposheets, Working with Google earth maps and annotations	12

Credits = 01

Each Credit consists of 12 Contact hours.

Total No of Contact hours 12 X 2= 24.

Mandatory Reference Books:

1. D.J.Unnwin & J.A. Dawson(1987): Computer Programming for Geographers, Longman, London.
2. Monmonier, M.S.(1982) : Computer Assisted cartography, Prentice Hall.
3. David J. Maguire (1989) : Computers in Geography, Longman scientific & Technical,London.
4. Paul M.mather (1993): Computer application in geography John Wiley & Sons, New York U.S.A.
5. Cole & King (1968): Quantitative Geography.

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEC008: FUNDAMENTALS OF GEOGRAPHIC INFORMATION SYSTEM

Units	Topic	Subtopic	Contact Hours
1	Introduction to GIS Geospatial Data	Definition, Components of GIS, Advantage over traditional map making, Interdisciplinary approach of GIS Sources of Geographical data, Storage formats for geospatial data (Raster & Vector), Advantages and disadvantages of using raster and vector formats, other formats	12
2	Types of GIS & GIS software Data visualization & Integration	Types: Desktop GIS, Web GIS, Mobile GIS Softwares: Proprietary GIS (ESRI ArcGIS, Map Info, and Global Mapper) and Open source GIS (Quantum GIS, Grass and Saga GIS) Representation of Geospatial data, Layout formats, Color Combination & Standardizations, Visualizing data on: GIS portal and Google Earth, Integrating GIS and Google Earth.	12
3	Applications of GIS Global Positioning System (GPS)	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 Introduction to GPS, GPS receivers, Handheld GPS receivers, DGPS, GPS Accuracy and applications of global positioning system	12

Credits = 03

Each Credit consists of 12 Contact hours.

Total No of Contact hours 12 X 3= 36.

Mandatory Reference Books:

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

Reference

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

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEC008: PRACTICALS IN GEOGRAPHIC INFORMATION SYSTEM

Units	Topic	Subtopic	Contact Hours
1	Geospatial Data Access Digitization Attribution	Accessing existing data into GIS, Creating multiple copies, re-projecting vector and raster files, Saving Projects, Symbology Creating vector layers in GIS, Basic and Advanced editing, Topology building, Correction methods Creating and modifying tables, attaching attribute information to vector layers, using field calculators, calculating ratios	12
2	Data Retrieval Vector Operations GPS Survey	Querying: Attribute Queries and Location Queries, Saving query outputs and preparation of maps Basic vector operations: Merge, Dissolve, Intersect, union, Clip, Erase and spatial join Handling GPS receiver, taking waypoints, Importing GPS points in GIS software, attribute attachment	12

Credits = 01

Each Credit consists of 24 Contact hours.

Total No of Contact hours 24 X 1= 24.

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.

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEO015: WATERSHED MANAGEMENT

Unit	Topic	Subtopic	Contact Hours
1	Introduction to Watershed Management Groundwater	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 Movement of Groundwater, Factors affecting movement of groundwater, aquifers, Aquitard porosity, permeability, and sources of ground water, Ground water recharge	12
2	Issues related to watershed	Soil Erosion, Soil Salinity, Siltation, Runoff, Deforestation, Water Scarcity, Groundwater depletion, Flooding etc.	12
3	Watershed Management Practices Water conservation and harvesting	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 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	12
4	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.	12

Credits = 04

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 4= 48.

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

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEO016: SOCIAL AND CULTURAL GEOGRAPHY

Unit	Topic	Subtopic	Contact Hours
1	Introduction Philosophical Bases and Concepts	Definitions, Early Contributions, Subject Matter, Conceptual and Methodological approaches, Trends and Development Positivism, Humanism, Idealism, Phenomenalism, Existentialism, Structuralism and Radicalism, Origin and diffusion of Culture	12
2	Space and Society	Individual's space, Intimate, Personal, Social and Public Space, Theoretical space – organic, perceptive and symbolic space, Interaction and social relations	12
3	Social Groups	Primary and Secondary Groups, Group in Society, Social Structure, Models of Assimilation and Segregation, Industrialization, Migration, Urbanization, Modernization, Globalization and Sanskritization	12
4	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	12

Credits = 04

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 4= 48.

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

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEO017: ECONOMIC GEOGRAPHY OF GLOBALIZATION

Unit	Topic	Subtopic	Contact Hours
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	12
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	12
3	Geographies of New service Economy The changing global economic geography	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. The rise of Asia: China, India, Regional Developments and Economic- political implications. Impact of Globalization on Developing Countries.	12
4	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	12

Credits = 04

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 4= 48.

References:

- i. Danny MacKinnon & Andrew Cumbers (2007) An introduction to Economic Geography Globalization, Uneven Development and Space. Persons Education Ltd. England.
- ii. Dilip SaikiaVachaspati ShuklaKiran Kumar Kakarlapudi (Edited) (2013) India's Economy in the Globalized Era. BOOKWELL, New Delhi.
- iii. 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)
- iv. Giovanna Vertova (ed) (2006) The Changing Economic Geography of Globalization, Routledge, 2006,

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY (In Affiliated Colleges)

GEO018: TROPICAL GEOMORPHOLOGY

Unit	Topic	Subtopic	Contact Hours
1	Introduction Tropical Terrain and Weathering	Definition of Tropics: Peculiar features of tropical climate; intensity and erosivity of rainfall, role of vegetation, Morphogenetic classification 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	12
2	Denudation Quaternary in the tropics Anthropogenic changes	Mass movement, chemical and mechanical, denudation, Fluvial processes in tropics Surface processes, pipe flows, gully erosion, fluvial erosion. Quaternary glaciations in the tropics, Climate change Sea-level change, The Ganga River system: Quaternary, adjustments, Quaternary changes around the Sunda Shelf Anthropogenic alteration of geomorphic processes in the tropics Urban geomorphology in the tropics The future with climate change	12

Credits = 02

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 2= 24

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.

Unit	Topic	Subtopic	Contact Hours
1	Introduction to teaching methodology Methods of teaching geography Planning and designing for effective instruction in geography	Aims and Objectives of teaching Geography, Importance of teaching Geography , Correlation of geography with other subjects Methods : Lecture, Project, Discussion, Assignment, Problems solving, Demonstration, Inductive and Deductive, Regional, Case study methods Field trip, observation, questioning techniques 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	12
2	Media/materials in geography teaching Evaluations in geography	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 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.	12

Credits = 02

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 2= 24

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

GOA UNIVERSITY

POST GRADUATE SYLLABUS FOR M.A DEGREE IN GEOGRAPHY(In Affiliated Colleges)

GEO020: FIELD TECHNIQUES AND VILLAGE SURVEY

Unit	Topic	Subtopic	Contact Hours
1	Introduction to Field Survey Chain and Plane Table Survey	Importance of field instrument survey - scope and purpose, principles and application of selected survey instruments. 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.	12
2	Prismatic compass method Dumpy level and Theodolite Survey Village Survey	Prismatic compass: Open and closed traverse, elimination error, Bowditch method. Dumpy level: traverse survey, contour plan preparation. Theodolite - horizontal, land vertical (height) measures, accessible and inaccessible method. Fundamentals of Village survey, prerequisites of village survey, preparation of questionnaires, data entry, basic analysis in Microsoft excel	12

Credits = 02

Each credit consists of 12 Contact hours.

Total No of Contact hours 12 X 2= 24

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.