UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg:101 **Title: Principles of Geomorphology**

No. of Credits: 04 **No. of Periods: 60**

No. of Credits:	Topic	Sub Unit	Learning points	No of Periods
1.	Fundamentals of Geomorphology	1. Nature and scope 2. Concepts	1. Definition and history of Geomorphology 1. Uniformaterianism and Catastrophism 2. Geomorphic (Cyclic, Graded and Steady) and Spatial Scale 3. Geological time scale 4. Process Geomorphology	6

2.	Tectonism and Geomorphology	1.Interior of the Earth. Sources of Knowledge	1. Inferred Knowledge (Density, Temperature, Pressure) 2. Surface Expressions (Seismic Wave Evidences) Holmes Convection Current Theory	
		2. Endogenic Forces	1. Epiorogenic and Orogenic Movements 2. Compression, Tension 3. Folds, Types and Landforms 4. Faults, Types and Landforms	04 02
		3. Isostasy	1. Views of Airy and Pratt 2. Gravity Anomalies 3. Global Isostatic adjustments	02
		4.Wegener's Continental Drift Theory	1. Theory, Supporting Evidences and Validity	04
		5. Sea Floor Spreading 6. Plate Tectonics	1. Palaeomagnetism 2. Oceanic Relief 3. Sea Floor Spreading 4. Plate Boundaries, 5. Mechanics and Movements of Plates 6. Zone of Collision and Associated Landforms	04

3.	Climatic Geomorphology	1.Denudational Processes 2.Weathering and Mass movement	1. Weathering 2. Mass Movement 3. Erosion 4. Definitions and Comparison of these processes 1. Types of Weathering- Physical, Chemical, Biotic 2. Types of Mass Movement – Slides, falls, flows and creep	06
4.	Fluvial Processes	Work of River	1. Drainage Basin and Drainage Patterns 2. Davisian Cycle of river erosion and Concept of Peneplanation	
			3. Mechanics of Erosion , Transportation and Deposition 4. Erosional Landforms	08
5.	Glacial Processes	Work of Glacier	1. Types of Glaciers 2. Mechanics of Erosion, Transportation and Deposition 3. Erosional Landforms 4. Depositional Landforms	06
6.	Arid and Semi Arid Processes	1. Work of Water in Desert 2. Work of Wind in Desert	1. Landforms produced by Water in the Desert 2. Concept of Pediplanation 3. Mechanics of Erosion , Transportation and Deposition	06

7.	Coastal Processes	Work of Waves and Tides	1. Mechanics of Erosion , Transportation and Deposition 2. Erosional Landforms 3. Depositional Landforms	06
8.	Hill slopes	Slope Profiles: Elements Facets and Segments	Models of Slope development 1.Evolution: Slope decline 2.Slope Replacement 3.Parallel Retreat	06

Reference Books:

1. Thornbury, W. D. (Rep.2011): Principles of Geomorphology, John Wiley and Sons, New York.
2. Chorley, R. J., Schumm, S. A. and Sugden, D. E. (1984): Geomorphology, Methuen, London.
3. Kale, V. S. and Gupta, A. (Rep.2011): Introduction to Geomorphology, Orient Longman, Calcutta.
4. Savindra Singh (Rep. 2011): Geomorphology, Prayag Pustak Bhawan, Allahabad
5. Spark B. W. (1972): Geomorphology, Longman, New York
6. Steers, A. (1958). The Unstable Earth, Methuen, London
7. Ollier, C. D. (1981) Tectonics and Landforms, Longman , London
8. Strahler A. H and Strahler, A. N. (1992) : Modern Physical Geography, John Wiley, New York
9. Wooldridge and Morgan: Geomorphology
10. Holmes: Physical Geology
11. Fairbridge, R. W. (1968): Encyclopedia of Geomorphology, Reinholdts, New York.

UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg: 102 **Title: Principles of Climatology**

No. of Credits: 04 **No. of Periods: 60**

Unit. No	Unit	Sub unit	Learning Points	No of periods
1.	Introduction	Nature and Scope	Weather, Climate, Subdivisions of Climatology. Development of Modern Climatology. Tropical Climatology	04
2.	Earth`s atmosphere	1.Composition 2. Vertical structure	Physical properties, Chemical composition Temperature changes, Vertical variations in the composition, Ionosphere and aurora	06
3.	Insolation and Heat Balance	1. Solar radiation 2. Distribution 3. Effect of Atmosphere 4.Terrestrial Radiation	Electromagnetic spectrum, Factors affecting insolation. Latitudinal and Seasonal, variation of insolation Scattering, Diffusion Absorption Reflection, Albedo Green House Effect. Heat Budget Latitudinal Heat Balance Atmospheric window.	07

4.	Temperature	Basic concepts	Difference between Heat and Temperature Controls of temperature Horizontal and Vertical distributions, Inversion of temperature	06
5.	Air pressure and wind	Basic concepts	Pressure measurement and Units, Factors affecting air pressure, Pressure changes with altitude, Observed distribution of surface pressure. Wind observation and measurement, Factors affecting wind. Geostrophic wind, Gradient wind	09
6.	Circulation of the Atmosphere	1.Scales of Atmospheric Motion 2. Models of general circulation	Primary, Secondary, Tertiary. Local winds, Idealized circulation, Observed global circulation. Tri-cellular theory, Eddy theory Jet stream and it's effect on the surface weather conditions.	08
7.	Humidity	1. Basic Concepts 2. Hydrological Cycle 3. Condensation 4. Evaporation	Humidity measurement Changes of state of water Factors affecting Condensation Factors affecting Evaporation	06
8.	Stable and unstable Atmosphere	1. Lapse rate 2. Stability	Normal, environmental, dry and wet adiabatic Absolute stability, Absolute instability, Conditional instability.	06

9.	Air masses and Fronts	Basic Concept	Source region ; classification of air masses Modifications: (a) Mechanical (b) Thermodynamic. Characteristics and Types of Fronts	06
10.	Weather Forecasting	Methods of Forecasting	Any Two Methods	04

Reference Books:

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. SINGH (SAVINDRA) (Rep.2011)Climatology
6. ROB VAN DEN BERG (2009) Evaluating Climate Change and Development

UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg: 103 **Title: Principles of Economic Geography**

No. of Credits: 04 **No. of Periods: 60**

Unit No	Unit	Sub unit	Learning points	No. of Periods
1.	Introduction	Nature and Scope	Definition, nature and scope, Recent trends in Economic Geography	06
2.	Hypotheses in Economic Geography	Types of Hypotheses	Formation and Testing of hypotheses	06
3.	Economic Landscape	1.Historical Evolution 2. Location of economic activity	Homestead, Tribal and Village economy, Modern economic landscape. Von Thunen and Weber's models.	10
4.	Resources	Natural and Human Resources	Significance of Natural and Human resources in Economic Development.	04
5.	Factors of Production and related aspects.	1.Land, Labor and Capital 2. Transportation Demand Economies of scale.	Significance of land, labor and capital in different economic activities, Spatial variation in the factor cost, Variation in cost of transportation, spatial variation in demand, Internal and external economies of scale.	10

6.	Economic Development	Spatial and Temporal aspects	Measures of economic development classification of countries. Rostow's and Myrdal's models	10
7.	International Trade	Spatial and Temporal aspects	Factors influencing the International trade, structure, problems and prospects. Ricardo's classical theory.	08
8.	Economic Development in India	1. Regional disparity 2. History of development	Natural and Cultural factors Pre and Post-independence. Impact of Green Revolution, Privatization, Globalization.	06

Reference Books:

1. Hartshorne, T.A. and J.W. Alexander (1988) –Economic Geography, Prentice Hall.
2. Janaki. V.A. (1985) –Economic Geography, Concept Publishing Co.
3. Lloyd, P.and P. Dicken (1972) –Location in space : A theoretical approach to Economic Geography, Harper and Row, New York.
4. McCarty, H.H. and J.B. Lindberg (1966) – A Preface to Economic Geography, Englewood Cliffs, N.J.Prentice.
5. Thomas, Conkling and Yeates (1974) – Geography of Economic Activity, Mc Graw Hill, New York..
6. Knox, P. and J. Agnew (1998) – The Geography of the World Economy. Arnold, London
7. Hanink, D. M. (1997). Principles and Applications of Economic Geography, Economy, Policy, Environment, John Wiley and Sons,New York.
8. Dreze, J. and Sen, A. (1996) – Economic Development and Social Opportunity. Oxford University Press, New Delhi.

UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg: 104 **Title: Principles of Population and Settlement Geography**

No. of Credits: 04 **No. of Periods: 60**

Unit No.	Unit	Sub Unit	Learning Points	No.of periods
1	Introduction	Evaluation of Settlement & Population Geography	1. Evaluation of Settlement Geography 2. Evaluation of Population Geography 3. Changes in the approaches to the study of Population and Settlement	04
2.	Man-environment Relationship	Factors influencing the growth and distribution of Settlements.	1. Physical 2. Economic 3. Societal	04
3.	Settlement Patterns	Changes in the Shelter and Patterns of Settlement.	1.Various patters of Settlement. 2. Effects of technology on shelter and pattern from Neolithic to Modern period.	06
4.	Dispersion and Nucleation	Factors influencing the dispersion and nucleation	1. Physical 2. Social 3. Economic 4. Method of Measuring degree of dispersion, Nearest Neighbors Method.	08

5.	Concepts related to Settlement	1. Various Concepts 2. Settlement Theory	1. Nodality 2. Centrality 3. Range 4. Threshold & Hierarchy 5. Rank-size distribution 1. Christaller and Losch's Model	08
6.	Concentration of Population and Levels of Urbanization	1. Urbanization 2. Factors of Urban Growth	Concept of Urbanization 1.Improvement in transportation & Communication. 2.Changes in Industrial Production. 3.Industrialization 4.Food supply and Public hygiene	08
7.	Population Distribution	Factors influencing the Distribution of Population	1. Physical 2. Economic 3. Social 4. Political	08
8.	Theories of Population Growth	1. Thomas Malthus 2. Ricardo 3. Demographic Transition Model	1. Concept 2. Scope 3. Applications 4. Relevance	08
9.	Population as a resource	Various aspects of population	1. Size 2. Growth 3. Age 4. Education	06

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
5. Michel Chisholm – Studies in Human Geography.
6. Hudson, Settlement Geography.
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.
10. Graham,(2005) Population Geography
11. Singh R.Y. (Rep. 2010)Geography of Settlements

UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg: 210 **Title: Coastal Geomorphology**

No. of Credits: 03 **Total No. of Periods: 45**

Unit Nooooo.	**Topic**	**Subtopics**	**Learning points**	Periods
1.	Introduction	Coastal systems	1. Components of coastal systems processes, sediment transport Morphology, Stratigraphy 2. Spatial and temporal scales in coastal Geomorphology 3. Coastal classification – Genetic and Morphological	3
2.	Coastal Processes	Waves	Definition, wave length, wave height, amplitude, depth, period , fetch, frequency Types of waves, sea waves, swell waves , capillary waves, gravity waves, long period tidal waves, storm waves, Standing waves, Process of shoaling, wave breakers – spilling, plunging and surging, reflection , diffraction and refraction of waves	12
		Currents	Currents – Wave induced shore normal and long shore currents, rip currents , beach drift , wind induced , river induced and tide induced currents, flood and ebb currents	
		Tides	Equilibrium Theory of tides, semidiurnal, diurnal, spring , and neap tides. Amphidromic point, co – tidal lines, coastal tides, tides in bays and estuaries Tides and coastal landforms	

3	Sea level Mechanism of	Mechanism of sea level changes	1.Transgression , Regression, Relative and eustatic sea level change 2.Causes and consequences sea level change Pleistocene sea levels, glacial eustasy, Staircase theory 3. Holocene transgression 4. Future sea levels 5. Indicators of former sea levels: Fossil beach ridges, beach rocks, abandoned cliffs, Caves , raised features , shore platforms	5
4	Coastal sediments	Properties, types and Movement	1.Clastic and biogenic sediments 2. Grain size characteristics 3. Sources sediments: Coastline erosion and sea floor 4. Pathways of sediments transport : Factors affecting Transport , sediments traps and sinks	5
5	Coastal environments	Fluvial-dominated	Coastal deltas: Classification , formation, morphology delta plain, delta front and pro delta Fan delta, Braid delta. Morphodynamics of deltas	5
		Wave-dominated	1.Introduction: Process of deposition 2.Beaches and spits: Profiles, types and sediments 3. Barrier islands 4. Coastal sand dunes, dune systems 5. Sea cliffs and caves- Formation and morphology 6. Shore platforms – Formation types and Morphology 7. Sea arches, stacks , stumps, geos and blow holes	5

		Tide-dominated	1.Introduction 2.Estuaries and mud flats: morphology and Hydrodynamics	3
		Biotic environments	1.Mangroove swamps and salt marshes 2.Corals and coral reefs	2
6.	Applied coastal Geomorphology	Current coastal issues	1. Sea level rise 2. Storm hazard management 3. Coastal erosion 4. Wetlands, Kharlands, Estuarine reclamation 5. Salt intrusion and subsidence of coastal aquifers	5

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

8. Bird, E. (2000): Coastal Geomorphology. An Introduction, John Wiley and Sons , Chichester.

9. Kale, V.S. and Gupta, A. (2001): Introduction to Geomorphology, Orient Longman, Calcutta.

10. Jog S. R. and Suryawanshi R.S. (2004): Costal Landscape, Global Scientific, Pune

11. Karlekar Shrikant (2009) : Coastal processes and landforms, Diamond publication, Pune

12. BIRD (2009) Coastal Geomorphology: An Introduction

UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg: 220 **Title: Fluvial Geomorphology**

No. of Credits: 03 **Total No. of Periods: 45**

Sr. No	Topic	Subtopics	Learning Points	Periods
1.	Introduction to Fluvial Geomorphology	1. Fluvial geomorphology 2. Drainage basin and stream network	1. Definition and scope 1.The Drainage basin as a geomorphic unit 2. Glock's model 3. Horton's laws of drainage composition 4. Laws of allometric growth	4
2.	Mechanics of Fluvial Erosion	Overland flow, Through flow and Channel flow	1. Surface and subsurface wash 2. Horton overland flow 3. Belt-of-no-erosion	5
3.	Open channel Hydraulics	1. Types of flows; Regimes of flow; Stream energy	1. Laminar and turbulent 2. Uniform and non-uniform 3. Steady and unsteady 4. Isovels 5. Shear stress and stream power	4
4.	Hydraulic Geometry	1. At-a-station 2. Downstream	1. Relation of discharge with width, depth, velocity and gradient	4

5.	Sediment Transport	1. Entrainment 2. Model of sediment transport 3. Sediment load and yield	1. Capacity and Competence 2. Tractive force 3. Suspended and bedload	3
6.	Channel Morphology	1. Cross section morphology and Reach morphology 2. Channel patterns 3. Channel types 5. Concept of Grade	1. Form ratio, channel capacity, wetted perimeter, hydraulic radius, gradient 2. Meandering, braided and anabranching channel patterns 3. Gradient and variation in bed and bank material and discharge 4. Sand bed, gravel bed and bedrock channels 5. Long profile: below, near and above grade conditions	07
7.	Fluvial Erosion	1. Types of erosion and erosive Processes; factors 2. Erosional features	1. Vertical, lateral and headword erosion 2. Abrasion, cavitations and attrition 3. Erosional features : gorges, canyon waterfalls, potholes, etc.	05
8.	Fluvial Deposition	1. Fluvial landforms 2. River terraces	1. Alluvial fans, flood plains and associated features 2. Terraces : types and combinations	05
9.	River vegetation	Bed and bank vegetation	1. Types and locations of bed vegetation 2. Riparian vegetation	03

10.	River Metamorphosis	Definition, environmental change	1. Long-term and Short-term adjustments 2. Quaternary fluvial systems	5

Reference Books:

1. Leopold, L. B., Wolman, M. G. and Miller, P. (1954) Fluvial processes in Geomorphology, Freeman and Co. San Francisco.
2. Schumm, S. A. (1977). Fluvial Systems. Wiley, New York.
3. Richards, K. (1982). River: Forms and processes in alluvial channels. Methuen and Co. London
4. Morisawa, M. (1985). Rivers: Forms and Processes, Longman
5. Dr. Kale, V. S. and Gupta, A. (2001). Introduction to Geomorphology, Orient Longman, Kolkata.

10.	Forecasting	Different time scales	1. Historical perspective 2. Features of the predictors 3. Regional conditions 4.ENSO Indicators 5.Cross equatorial flow 6. Global/hemispheric conditions 7.Parametric and Multiple power regression model	4

Reference Books :

1. G.B.Pant and Rupa Kumar (1997) -Climates of South Asia
2. Y.P.Rao (1976) -Meteorological Monograph Synoptic Meteorology No- 1 Southwest Monsoon.
3. P.K.Das (1968) - The Monsoon.
4. K.N.Keshavamurthy (1992) - The Physics of Monsoon
5. Jay S. Fein Pamela - Monsoon

UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June, 2013)

Code No. Gg: 222 **Title: Industrial Geography**

No. of Credits: 03 **Total No. of Periods: 45**

Unit No	Unit	Subunit	Learning points	Periods
1	Introduction	Basic concepts	1.Definition, Nature, Scope 2. Manufacturing and Regional economics	3
2.	Industrial Location	1. Location factors 2. Centralization and Decentralization	1. Geographical 2. Economical 3. Political 4. Socio-cultural 1. Characteristics of centralization 2. Characteristics of decentralization	5
3.	Models and concept	1. Application of models	1. Weber's model 2. Losch's model 3.Greenhut's model 4. Israd's model 5. Agglomeration of industries 6.Industrial Linkages	10
4.	Locational Analysis and distribution	Changing pattern and Distribution of industries	1. Iron and steel 2. Cotton textile 3. Automobile 4. Chemical	10

5.	Industrial regions	Definition, problems and prospects	Study of two industrial regions in 1. Western Europe 2. Anglo-America 3. Japan	8
6.	Industrial regions of India	Definition, problems and prospects	1. Nature of industrial regions in India 2. Regional development of Industries 3. Locational factors for industries 4. Characteristics of industrial regions	5
7.	Recent trends in manufacturing	IT industries	1. Nature of software industry 2. Role of software industry in India 3. Problems and Prospects	4

Reference Books:

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
9. Carlo Ghezzi, Mehdi Jazayeri and Dino Mandriali (2003) : Fundamentals of Software Engineering” , Pearson Edu. Pte. Ltd. New Delhi
10. Richard, E. Fairley ( ) : “Software Engineering- Concepts” Tata Mc-Graw Hill Publishing Company, New Delhi.

UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg: 223 **Title: Geography of Rural Settlement**

No. of Credits: 03 **Total No. of Periods: 45**

Unit No	Unit	Subunits	Learning points	Periods
1.	Introduction	1.Definition and Evolution of settlements 2. Place names	1 Definition in different parts of the world 2 Sequence of occupancy from Neolithic 3. Modern periods. 1. Historical 2. Cultural and Geographical aspects of settlements reflected in place names.	2
2.	Growth and Distribution	1. Site, situation, location 2. Growth of Settlements	1. Various factors affecting settlement site and distribution 2. Depression and nucleation, factors affecting dispersion and nucleation- Methods of the measuring degree of dispersion. 1. Factors affecting growth of settlements- 2.System of land division, water rights system of agriculture, land tenancy system	4
3.	Theories of Rural Land Use	1. Factors Affecting 2.Theories	1.Intensity of Land use 2. Labour cost 3. Marketing of product 1.Von Thunen 2. Ricardo	6

4.	Rural Economic Activities	Rural Service Centers	1.Functional analysis of service village and Trading Center 2. Centrality and Hierarchy of Rural Service centers 3. Central Place Theory.	8
5	Morphogenesis of Rural Settlements and Transformation	1. Morphogenesis 2. Functional growth	1. Social 2. Cultural 3. Economic organization within villages. 1. Functional growth 2. Socio-economic transformation in rural areas.	6
6.	Demographic Characteristics of Rural Settlement	1.Demographic aspects 2. Migration	1. Age-Sex, Education, Occupation, Caste 1. Causes & Consequence of migration in rural areas 2. Seasonal migration. 3. Commuting patterns	6
7.	Rural House Types	Analysis of rural house types	1. Primitive, Vernacular and Modern high rise 2. Physical, Social, Cultural and Economic factors affecting rural house types. 3. Size, functional use and architectural style. 4. Building material	6
8.	Rural Settlements in Maharashtra	1. Patterns 2. House types 3. Rural transformation	1. Various patterns 2. House types and Settlement patterns in Maharashtra 3. Modern forms of rural settlements	4

9.	Rural Development Planning	Various aspects of rural planning	1. Land use 2. Transport 3. Amenities 4. Population 5. Environment and water	3

Reference Books:

1. Alam S.M. et.al. :Settlement System of India Oxford and IBH PublicationCo., New Delhi 1982.
2. Chisholm M. : Rural Settlement and Land use. John Wiley, New York , 1967
3. Clout H.D.: Rural Geography , Pergamon , Oxford, 1977.
4. Doniel P and Hopkinson M : The Geography of settlement Oliver & Byod, Edinburgh, 1986.
5. Grover N. Rural Settlement – A Cultural Geographical Analysis. Inter India Publication, Delhi, 1985
6. Hudson F.S. :A Geography of Settlements. Macdonald and Evans, New York, 1976.
7. Ramchandran H.: Village clusters and Rural Development. Concept Publication, New Delhi, 1985
8. Rao R.N.. Strategy for Integrated Rural Development. B.R. Publication, Delhi, 1986.
9. Rapoport A. House Form and Culture, Prentice Hall, New Jersey, 1969
10. Sen L.K.(ed) Readings in Micro-level Planning and Rural Growth Centers, National Institute of Community Development, Hyderabad. 1972.
11. Srinivas M.N: Village India, Asia Publication House, Bombay,1968.
12. Wanmati S.: Service Centers in Rural India, B.R. Publication Corporation , Delhi, 1983.

UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg: 202 **Title: Practicals in Cartography**

No. of Credits: 02 **Total No. of Practicals: 15**

Sr. No.	Topic	Subtopics	Learning Points	Practicals (2 hours duration)
1.	Data	Types	Scales of Data Measurement	1
2.	Data representation by various techniques **-I**	Maps Diagrams	Choropleth, Isopleth, Dot 2 & 3 Dimensional diagrams: Circle, Square, Pie chart Sphere, Cube	1 2
3.	Data representation by various techniques **-II**	Plots	Semi log and log on X, Y axis X Y Z plots with Whisker & Box method Scatter diagram, Residual from regression, mapping of residuals	2
4.	Map projections	Fundamental concepts	1.Definition and necessity of projections 2. Developable and non - developable surfaces 3. Types- Perspective and non- perspective, conventional 4. Classification based on i) Developable surfaces used ii) Position of source of light iii) Properties	1

UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg: 205 **Title: Geography of Disaster Management**

No. of Credits: 03 **Total No. of Periods: 45**

Sr. No	Topic	Subtopics	Learning Points	Periods
1.	Introduction	Concepts and definitions	Disaster, Hazard, Vulnerability, Resilience, Risks	5
2.	Classification of Disasters	Causes and types	Natural Disasters Earth quakes, Volcano, Landslide, Tsunami, Cyclones, Floods, Droughts Man-made disaster Fire, Terrorism, Food poisoning, strike and lockouts, accidents, fair and festivals, stampedes.	8
3.	Impacts of Disasters	Impacts	Social, Economic, political, environmental, health, psychological Differential impacts: Caste, class, gender, age, location, disability	6

4.	Trends	Global	Urban disasters, Pandemics, complex emergencies, Climate change	6
5.	Disaster management	Disaster cycle Preparedness & Mitigation	Phases of disaster cycle i. Factors of Disaster Management. ii. First Aid. iii. Role of Civilians and NGO'S in Natural & man- made Calamities. iv. Home guard. v. Role of Armed forces in Natural man- made Calamities. vi. Role of Para-Military forces in Natural man- made Calamities. vii. Role of Police forces in Natural man- made Calamities	10
6.	Technologies for Disaster Management	Technologies	Role of IT in Disaster Preparedness Remote Sensing, GIS and GPS Use and Application of Emerging Technologies Application of Modern Technologies for the Emergency communication. · Application and use of ICST for different disasters.	8
7.	Disasters in India	Disasters and management	Various disasters in India and their management issues	2

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. Bryant Edward (2000) : Natural Hazards, Cambridge University Press
7. Daly Herman E. (1996) : Beyond Growth, Beacon Press, Boston
8. Daly Herman E and Twonseed Keneth N (Ed) (1993) : Valuing the earth – Economics, Ecology and Ethics, MIT Press, London
9. Agarwal Anil and Narain Sunita (Ed) (1999) : State of India's Environment The Citizens Report, Centre for Science and Environment, New Delhi
10. Rangachari R, Sengupta Nirmal, et al (2000) : WCD Case Study Large Dams : India's Experience Final Report, Secretariate of World Commission on Dams
11. Dupont, R.R. Baxter, T.E. and Theodore, L. (1998) : Environmental Management :- Problems and Solutions, CRC Press
12. Smith, K. (2001) : Environmental Hazards : Assessing Risk and Reducing Disaster, Routledge

UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)
Revised Syllabus (from June,2013)

Code No. Gg: 206 **Title: Geography of Energy Resources**
No. of Credits: 03 **Total No. of Periods: 45**

Sr. No.	Topic	Subtopics	Learning Points	Periods
1.	Energy Resources: an introduction	Energy for livelihood and energy for activity Concept of primary and secondary energy sources	Definitions ,Types and Forms of energy material based and process based energy resources.	04
2.	Energy development and environment	historical background of energy use and development;	global scenario of energy requirement since Industrial revolution period to the present: Issue related to energy use and environment, case studies of developed and developing countries	05
3.	Geopolitics of Energy:-	Reserves, production and consumption patterns of coal, natural gas, oil, nuclear, hydroelectricity and other renewable energy resources	Issues related to trade, energy crises and various related treatise and agreements.	06
4.	Energy in India:-	Sectoral and temporal pattern of energy consumption	in agriculture, transport and industries; Spatial pattern of energy use with reference to different States and rural and urban areas, metropolitan cities; energy needs.	10

5.	Planning of energy requirement in the country and mitigation of energy crises	Various energy related agreements of India with other countries. Present status	Institutional arrangements, policy models and energy management process in India.	10
6.	Energy Conservation:-	Future prospects and protections of global energy trends and problems;	methods of energy conservation; traditional vs. modern, energy management and sustainable development; potential zones of energy conservation.	10

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UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg: 207 **Title: Practicals in Terrain Analysis**

No. of Credits: 03 **Total No. of Periods: 45**

Sr. No	Topic	Subtopics	Learning Points	Periods
1.	Data sources	Topographic Map Aerial Photographs Satellite images	Construction of Superimposed ,Projected and Composite profiled from contours –its interpretation and preparation of elevation map of the area Stereoscope view and calculation of % overlapped area- Measurements with parallax bar of same area IRS data products, mapping and interpretation	10
2.	Spatial Terrain maps	Slope, Relative relief and %dissection Index	Preparation of Slope, Relative relief and %dissection Index and area measurement under each category	10
3.	Relationship between terrain parameters	Slope, Relative relief and %dissection Index	Matrix calculation of area under Slope, Relative relief and %dissection Index And preparation of observation table	08
4	Thalweg Analysis	Long profiles	Construction and interpretation of long profiles of rivers	02
5.	Digital Terrain analysis I	Preparation of DEM from contours and point elevation data	Preparation of Grid elevation data TIN model and interpolation of Grid 3 D perspective views and view shed analysis	05

6.	Digital Terrain analysis II	Digital Terrain analysis using GIS softwares	Determination of Primary attributes any 4	05
7.	Digital Terrain analysis III	Digital Terrain analysis using GIS softwares	Determination of Secondary attributes any 4	05

References

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2. Burrough, P. A., McDonnell, R. A., 1998. Principles of Geographical Information Systems. New York: Oxford University Press.
3. Chilès, J., Delfiner, P., 1999. Geostatistics: Modeling Spatial Uncertainty. New York: John Wiley and Sons.
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UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June, 2013)

Code No. Gg: 208 **Title: Geoinformatics - I**

No. of Credits: 03 **Total No. of Periods: 45**

Sr. No	Topic	Subtopics	Learning Points	Periods
1.	Introduction to GIS	Basics of GIS	Definition, Potential of GIS, Concept of space & time, Spatial Information Theory, History of GIS, Objectives of GIS, Elements of GIS, Hardware & software requirements, GIS applications, GIS tasks – Input, Manipulation, Management, Query & Analysis, Visualization	10
2.	Database	Spatial Non-spatial	Spatial relationship, Functional Relationship, Logical relationship Nominal, Ordinal, Ratio and Cyclic	5
3.	Data Models	Spatial Non-spatial	Geometric primitives, Raster, Vector, Quadtree Tessellation, Comparative overview of raster and vector models, Layers and Coverage DBMS: Advantages, Conceptual models, Implementational models – Hierarchical, Network and Relational	10
4.	Structuring of spatial data	Digitizing	Digitizers: Manual, Semi-automatic & Automatic Editing: Error Detection & Correction Topology Building	8
5.	Data Analysis (I)	Attribute databases	Operations from Algebraic Theory, Operations from Set Theory SQL: Attribute Query	6

6.	Data Analysis (II)	Spatial databases	Map Algebra, Grid Operations: Local, Focal SQL: Spatial Query	6

Reference Books:

1. P. A. Burrough and R. A. McDonnell, Principles of Geographical Information System, 2000, Oxford University Press.
2. C.P.Lo and AlbertK. W. Yeung, Concepts and Techniques of Geographic Information System, 2002Prentice –Hall, India.
3. Paul A. Lonfley, Michel F. Goodchild, D J. Maguire and D.W. Rhind, Introduction to Geographic Information Systems and Science, 2002, John Wiley and Sons Ltd.
4. Kang – tsung – Chang, Introduction to Geographical Information System, 2002, McGraw Hill.
5. George Joseph, Fundamentals of Remote Sensing, 2004, Universities Press Pvt. Ltd., Hyderabad.
6. J.R. Jensen, Remote Sensing of Environment, An Earth Resource Perspective, 2003, Pearson Education Pvt. Ltd., New Delhi.
7. Lillesand T.M. and Kiefer R.W., 2002, Remote Sensing and Image Interpretation, John Wiley and Sons, New Delhi.
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UNIVERSITY OF PUNE

MA/MSC Syllabus in Geography (credit system)

Revised Syllabus (from June,2013)

Code No. Gg: 209 **Title: Geoinformatics II**

No. of Credits: 03 **Total No. of Periods: 45**

Sr No.	Topics	Sub Topics	Learning Points	Periods
1.	Data sources	1. Primary and Secondary	1. Fieldwork and Surveys 2. Published data and Reports and maps 3. Remotely sensed data 4. GPS coordinates	2
2.	Introduction to Remote Sensing (RS)	Principles of RS EMR	1. Definition, Historical Perspective-National & International Scenario 2. Spectrum, Spectral Quantities, Theories of EMR, Laws of Radiation, Concept of Blackbody radiation , Spectral Signatures	5
3.	Interaction of EMR	Atmosphere and Surface	1. Scattering, Absorption, Refraction, Path Radiance Reflection, Transmission, Absorption Scattering 2. Surfaces, Atmospheric Windows and Types of RS	6
4.	Aerial Photography	Basics of Aerial Photography Ariel Camera	1. Scale, Resolution, Projection, Flight Planning, Overlaps 2. Optical accepts – Spherical Aberrations, Astigmation, Chromatic Aberrations Components of camera	8
5.	Aerial Photography (AP)	Measurement	1. Geometric characteristics of AP, Measurement of scale and height on AP	5

6.	Satellite RS	Platforms Orbits Scanning Sensors	1. Group – base , Air-borne, Space- borne 2. Geosynchronous, Sun synchronous 3. Across- track and Along –track 4. Spectral, Spatial, Radiometric and Temporal characteristics, Types of Sensor – LANDSAT: MSS, TM, ETM, SPOT,: HRV, IRS : LISS,PAN, WiFS, OCM	8
7.	Data Products	Types	1. Reference Scheme, Photographic Products, 2. Digital Products: Data Formats	4
8.	Visual Interpretation	Elements	1. Factors governing the interpretability 2. Elements of Interpretation of satellite images and aerial photographs	3
9.	GPS	1. Fundamental Concepts 2. Receivers	1. Space Segment, Control segment and User Segment 1. Components and Types, GSP Signals	4

Reference Books:

1 P.A. Burroughs and R.A. McDonnell, Principles of Geographical Information System, 2002, Oxford University Press.
2 C.P.Lo and AlbertK. W. Yeung, Concepts and Techniques of Geographic Information System, 2002Prentice Hall, India
3 Paul A. Lonfley, Michel F. Goodchild, D J. Maguire and D W. Rhind, Introduction to Geographic Information Systems and Science, 2002, John Wiley and Sons Ltd.
4 Kang- tsung-Chang, Introduction to Geographical Information System, 2002, McGraw Hill.
5 George Joseph, Fundamentals of Remote Sensing, 2004, Universities Press Pvt. Ltd., Hyderabad.
6 J. R. Jensen, Remote Sensing of Environment, An Earth Resource Perspective, 2003, Pearson Education Pvt. Ltd., New Delhi.
7 Lillesand T.M. and Kiefer R. W., 2002, Remote Sensing and Image Interpretation, John Wiley and Sons, New Delhi.