

अंतरी पेटवू ज्ञानज्योत



NORTH MAHARASHTRA UNIVERSITY

JALGAON

Syllabus for

M.A. / M.Sc.

GEOGRAPHY

w.e.f. 2009

अंतरी पेटवू ज्ञानज्योत



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NORTH MAHARASHTRA UNIVERSITY

JALGAON

SEMESTAR III

Syllabus for

M.A./M.Sc.

GEOGRAPHY

w. e. f. June 2009

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 301 : Fluvial Geomorphology

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Hill slope fluvial processes	i) Introduction – concept of hill slope ii) Process – a) Through flow b) Overland flow (Definition, nature, type and Characteristics) iii) Hill slope profile	05
II	Stream flow	i) Introduction- a) Fluvial energy concept b) Energy ii) Mechanism of stream flow- Factors affecting stream flow and chezy's equation of stream flow velocity iii) Velocity distribution in stream channel (Isovel pattern) a) Velocity distribution in stream direction b) Velocity distribution across stream channel i) Symmetrical channel ii) Asymmetrical channel iv) Types of stream flow a) Quantitative measures of stream flow i) Reynolds number ii) Froude number. b) Types of stream flow i) Study and unsteady flow ii) Uniform and non-uniform flow iii) Laminar and turbulent flow iv) energy loss in stream flow	08
III	Sediment transportation	i) Introduction a) Stream power b) Stream competence ii) Mechanism of sediment transportation	05

		<ul style="list-style-type: none"> a) Critical tractate force b) Stoke's law iii) Types of sediments load transportation <ul style="list-style-type: none"> a) Solute load transportation b) Suspended load transportation c) Bed load transportation 	
IV	Hydraulic geometry	<ul style="list-style-type: none"> i) Introduction- concept of Hydraulic geometry ii) Variations in Hydraulic geometry at channel cross section <ul style="list-style-type: none"> a) Discharge & depth relationship b) Discharge & width relationship c) Discharge & velocity relationship d) Channel cross section types iii) Variations in hydraulic geometry along stream channel in downstream direction <ul style="list-style-type: none"> a) Discharge & depth relationship b) Discharge & width relationship c) Discharge & velocity relationship d) Channel patterns <ul style="list-style-type: none"> i) straight ii) Meandering iii) Braided 	06
V	Drainage composition	<ul style="list-style-type: none"> i) Introduction- Drainage hierarchy <ul style="list-style-type: none"> a) Horton`s system b) Stealer`s system ii) Laws of drainage composition <ul style="list-style-type: none"> a) Horton`s law of stream number & bifurcation ratio b) Horton`s law of average stream length & stream length ratio c) Horton`s law stream slope & slope ratio d) Horton`s law of stream area & area ratio iii) Drainage texture properties <ul style="list-style-type: none"> a) Drainage frequency 	07

		b) Drainage density iv) Law of geomorphic growth	
VI	Concept of grade	i) Introduction- general concept a) Machines concept of grade b) Gilberts dynamic equilibrium c) Longitudinal profile & grade d) Longitudinal profile below grade e) Longitudinal profile above grade	04
VII	River metamorphosis	i) Introduction- a) Concept of river metamorphism b) Short term river changes c) Long term river changes ii) River metamorphism phenomena a) Drainage network contraction & expansion b) River capturing phenomena c) Misfit & under fit stream d) Channel distortions	05
VIII	Quaternary fluvial changes	i) Concept of quaternary fluvial changes ii) Quaternary river terraces	05

Reference Books

1. Leopold L.B. Walman M.G. and Miller J.P. (1964) : Fluvial Processes in Geomorphology W. H. Freeman and company San Francisco
2. Gregory K.G. and Walling D. (1973) ; Drainage basin forms and processes. Edward Arnold
3. Morrisawa (1985) : Stream
4. Richards K. (1982) River; form and processes in alluvial channels Matheu London
5. Schumm S.A. (1977) Fluvial system John Wiley & Co.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 301 : Synoptic climatology

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Nature & scope ii) approaches a) analytical b) Synoptic	04
II	Weather Analysis	Weather data collection and displaying systems by Indian Meteorological services	05
III	Tropical weather systems	i) Types of tropical disturbances – Easterly waves, Cyclones. ii) Easterly waves- Formation & characteristics. iii) Tropical cyclones- formation, life cycle, structure & dissipation.	05
IV	Severe Tropical Weather system	i) Thunderstorms- origin, structure & stages of development. ii)Tornadoes –development & occurrence, prediction. iii) Environmental impact of severe weather system.	05
V	Extra- Tropical weather systems	i) wave cyclones a) Rossby waves b) Life cycle of wave cyclone c) Idealized weather of wave cyclone. ii) Western disturbances	04
VI	Airmasses & fronts	i) Airmasses of North America, Asia & Europe. ii) Types of fronts- warm, cold stationary & occluded. iii) Frontogenesis & frontolysis, principle zones of frontogenesis.	04
VII	Weather pattern	i) Clouds- classification & formation. ii) Precipitation- a) Theories of rain formation b) Types- convective frontal &	06

		orographic.	
VIII	Weather forecasting	i) Types of weather forecasting – Short, medium, long. ii) Methods of forecasting- Analogue, synoptic, numerical. iii) Role of satellite in weather forecasting.	06
IX	Application of systematic climatology	i) Benefits of weather forecasting. ii) Pollution- Meteorological factors & pollutant distribution. iii) Aviation & navigation. iv) Agriculture.	06

Reference Books

1. Barry and Petty : Systematic climatology.
2. Fredrick K. Lutgens and Edward J. Tarbuck (1979) : The Atmosphere.
3. A.A.Rama Sastry (1984) : Weather and weather forecasting.
4. Lestie F.Musk (1989) : Weather systems.
5. Marris Neiburger (1971) Understanding our atmosphere.
6. James G. Edinger : Environment.
7. Stringer : Foundation of climatology.
8. Stringer : Techniques in climatology.
9. Patterson : Introduction to Meteorology.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 301 : Agricultural Geography

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Definition & nature. ii) Scope & significance. iii) Approaches to the study of Agricultural in Geography.	06
II	Determinants of Agricultural patterns	i) Physical determinants of Agricultural patterns. a) terrain b) Climate. c) Soil d) Water resources ii) Non physical determinants of Agricultural patterns. a) Technological factors. b) Demographic factors. c) Cultural factors. d) Infrastructural services.	06
III	Regionalization of agricultural patterns	i) Agricultural region concept & techniques a) Concept b) Techniques i) Normative Technique. ii) Impirical Technique. iii) Single element technique. iv) Statistical technique.	05
IV	Agricultural systems of the world	i) Nomatic herding. ii) Livestock ranking iii) Commercial grazing. iv) Shifting cultivation. v) Sedentary agricultural. vi) Intensive subsistence agricultural. vii) Intensive & Extensive agricultural viii) Plantation agricultural ix) Mixed farming. x) dairy farming. xi) Horticultural.	06
V	Agricultural statistics & sampling	i) Land utilization statistics a) Crop statistics b) Irrigation statistics.	05

		<ul style="list-style-type: none"> c) World agricultural statistics. d) Collection of primary data. ii) Landuse survey techniques. <ul style="list-style-type: none"> a) Proximate sensing technique. b) Remote sensing technique. 	
VI	Food nutrition & health	<ul style="list-style-type: none"> i) Causes & spatial pattern of hunger. <ul style="list-style-type: none"> a) Harvest failure. b) Climate change. c) Costly inputs. d) The failure of alternative sources. e) Inadequacy of social reforms. f) Slow pace of innovation diffusion in agricultural. 	05
VII	Indian agricultural	<ul style="list-style-type: none"> i) Characteristics of Indian agricultural. <ul style="list-style-type: none"> a) Diversity in agricultural systems. b) Dualistic in character c) Low productivity. d) Diversity in agricultural technology. e) Absentee landlords. f) Poor linkage with industrial sector. 	06
VIII	Green revolution in India	<ul style="list-style-type: none"> i) socio- economic constraints in the adoption of high-yielding varieties. <ul style="list-style-type: none"> a) Irrigation b) Availability of chemical fertilizers. c) Plant protection chemicals. d) Capital constraints. e) Mechanization. f) Transportation, marketing & storage facilities. g) Extension service. ii) Green revolution problems & prospects. iii) Green revolution & social tension. iv) Ecological implications of the green revolution. 	06

Reference Books

1. L .J. Symons : Agricultural Geography, Bell and Hyman Ltd. London.
2. Majid Hussain : Agricultural Geography , (Edited) Anmol Publication pvt. Ltd.
New
Delhi.
3. Jasbirsing and S.S.Dhillon : Agricultural Geography , Tata Mc Graw Hill
Publishing
Co. New Delhi.
4. Majid Hussain : Systimatic Agricultural Geography, Rawat Publication Jaipur and
New Delhi.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 301 : Population Geography

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction to Population Geography	i) Definition. ii) Nature & Scope. iii) It's relation to the other disciplines. iv) Approaches to the study of population Geography. v) Source of population data.	04
II	History of World Population Growth	i) Population of the ancient world. ii) Population of palaeolithic to early historic period. iii) Population growth in the modern period.	04
III	Distribution of Population	i) Factors influencing distribution of population. ii) Densely & sparsely populated regions of the world. iii) Types of population density	04
IV	Fertility	i) Definition of fertility. ii) Meaning of the following: a) Crude birth rate. b) Age specific birth rate. c) Total birth rate. d) Facundity & Fertility. iii) Factors influencing fertility. iv) Causes for high birth rate in India.	06
V	Mortality	i) Definition of mortality. ii) Meaning of the following; a) Crude death rate. b) Age specific death rate. c) Infant mortality rate. iii) Sex and mortality. iv) Age and mortality.	06

		v) Mortality levels & trends. vi) Factors influencing mortality. vii) Mortality in India.	
VI	Migration	i) Definition. ii) Types of migration. iii) History of migration. iv) Characteristics of migration. v) Causes of migration. vi) Consequences of migration.	06
VII	Population Theories	i) Demographic Transition. ii) Optimum Population Theory. iii) Karl Marx Theory.	06
VIII	Composition of Population	i) Age composition. a) Factors influencing age-composition. b) World age-composition. c) Dependency ratio. ii) Sex ratio. a) Factors affecting sex composition. b) Sex ratio in developed & developing countries. c) Sex ratio for population of India. iii) Material status. iv) Religion composition. v) Economic composition.	06
IX	Population and Resources	i) Growth of population & development of resources. a) Optimum population. b) Over population & it's problems. c) Under population: Advantages & Disadvantages.	06

Reference Books

1. Agrawal : India's Population.
2. Aasha Bhende Tara Kanitkar: Demographic Studies,
3. Beaujeu Garnier : Geography of Population.
4. Chandana R.C. : Introduction to Population Geography,
5. Dr. S.B.Sawant, Prof. A.S.Athawale : Population Geography.

6. Thompson W.S. and Lewis D.T. (1965) : Population Problems , Tata MaGrw Hill Publishing Co. Ltd. New Delhi.
7. United Nations (1982) : Population of India, Country series No. 10 New York.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 302 : Coastal Geomorphology

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction to Coastal Geomorphology	i) Introduction a) Definition b) Nature. c) Scope. d) Significance ii) Coastline shoreline & Hinterland..	05
II	Shore zone processes	i) Waves a) Definition. b) Morphology. c) Types. i) Sea waves- shallow & deep water waves. ii) Capillary waves- Gravity waves & tidal waves. iii) Wind wave- Storm wave & Tsunamis. ii) Wave phenomena- a) Swells & breaking of waves. b) Wave refraction, deflection & reflection	06
III	Shore zone processes	i) Currents- a) Definition b) Types i) Wave induced shore, normal current, long shore current, rip current & beach drift. ii) Wind induced currents. iii) River induced currents. ii) Tides- a) Definition b) Tide generating force. c) Equilibrium theory of tide. d) Types of tides. i) Diurnal & semidiurnal. ii) Spring & neap tide.	06
IV	Shore line changes	i) Concept of shoreline changes. ii) Quaternary eustatic changes. a) Evidences. b) causes. c) effects.	05

V	Coastal erosional process & landforms	i) Concept of coastal erosion. ii) Processes of coastal erosion. iii) Landforms of coastal erosion. a) Sea cliff & shore platform. b) Caves, arches & stacks. c) Geos & blow holes.	05
VI	Coastal depositional processes & landforms	i) Concept of coastal deposition. ii) Processes of coastal deposition. iii) Landforms of coastal deposition. a) Beaches. b) Spits bars & barrier islands. c) Sand dunes. d) Mangroves, shamps & salt marshes. e) Estuaries & deltas.	06
VII	Coastal sediments	i) Sources of coastal sediments. ii) Types. a) Terrigenous. b) Pelagic. c) Volcanic. d) Meteoric. iii) Coral reef. a) Definitions. b) Favorable conditions for the formation. c) Formation – daily & Murray's theory. d) Types of coral reef. i) Fringing reef. ii) Barrier reef. iii) Atol.	07
VIII	Classification of the coast & shore line	i) Bases of classification. ii) Types & characteristics & examples. a) Submergence. b) Emergence. c) Neutral.	05

Reference Books

1. Pethic John (1984) : An Introduction to coastal geomorphology, Arnold Heinemann, London.
 2. Ahmed E. (1973) : Coastal Geomorphology of India , Orient Longman, Mumbai.
 3. Bird E.C.(2000) : Coastal Geomorphology an Introduction ,John Wiley & Sons. Chicfester.
 4. Karlekar S.N> (1993) : Coastal Geomorphology of Konkan, Aparna Publication Pune. 411037.
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NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 302 : Applied climatology

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Nature & scope. ii) Development of Applied climatology. iii) Tools of applied climatology. iv) Categories of problems.	04
II	Basic climatic elements	i) Radiation- Basic relations, laws, distribution, instruments to measure radiation. ii) Temperature- Basic relations , distributions, soil temperature, instruments to measure temperature. iii) Moisture- Basic relations, humidity, clouds, precipitation (rain , snow, sleet, hail, rime, dew.) Distribution of rainfall, instruments to measure precipitation. iv) Evaporation & evapo transpiration- Basic relations, soil- plant relationship, empirical methods to estimate evopotranspiration, distribution, instruments. v) Wind- Basic relations, turbulence, gustiness, instruments.	10
III	Agro- climatology	i) Relationship of climate with agricultural ii) Climate soil. iii) Climate & soil management. iv) Climate & crops v) Climate & pests & diseases. vi) Climate & livestock. vii) Artificial control of plant environment.	05
IV	Climate & Human behavior	i) Human biometezology. ii) Climate, clothing & human control. iii) Climate & health.	03

V	Climate & Urban planning	<ul style="list-style-type: none"> i) Urban climate. ii) Urban- Rural contrast. iii) Climate & Agriculture. iv) Urban air pollution. v) Urban heat island. 	04
VI	Climate & Commerce, Industries, Engineering	<ul style="list-style-type: none"> i) Significant climatic variables for commercial & industrial activities. ii) Application of climatic information in commercial & specific industries. iii) Engineering applications. 	04
VII	Remote Sensing in climatic studies	<ul style="list-style-type: none"> i) Principles of remote sensing. ii) Sensors used in remote sensing. iii) Development of remote sensing in India. iv) Application of remote sensing in climatic studies. 	05
VIII	Remote Sensing in agricultural	<ul style="list-style-type: none"> i) Satellite programming for crop condition. ii) Meteorological study monitoring. iii) detection of plant stress. iv) Canopy transpiration & crop stress. 	05
IX	Climatic change	<ul style="list-style-type: none"> i) Mechanism of climatic change. <ul style="list-style-type: none"> a) External causes of climatic change. b) Internal causes of climatic change. ii) Reconstruction of past climate. <ul style="list-style-type: none"> a) Techniques. b) Ocean floor sediments. c) Oxygen isotope analysis. iii) Theories of climatic <ul style="list-style-type: none"> a) Plate tectonic. b) Volcanic activities. c) Astronomical. d) Solar variability's. iv) Human impact on global climate 	05

Reference Books

1. Mather J.R. : Climatology (1974) , Fundamentals and Application. Mc Graw Hill
New
York
2. Hobbs, John E (1980) : Applied Climatology, Dawson West View Press.
3. Oliver, John E. (1973) : Climate and Mavis Environment, John Wiley and Sons,
New
York.
4. Geiger, Rudolf, (1966) : The climate near the Ground, Harward University Press.
5. Lal M.(ed.) (1981) : Climatology, Selected Application, V .H. Winston and Sons,
London.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 302 : Industrial Geography

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction to Industrial Geography	i) Definition of Industrial Geography ii) Nature of Industrial Geography iii) Scope of Industrial Geography iv) Approaches to the study of Industrial Geography	06
II	Location of Industries	i) Factors of location a) Primary factors : Raw material, Labour, Transport, Market, Power. b) Secondary factors : Government policy (Role), Capital, Infrastructure facilities & external economics, Proper industrial climate, Required site condition	08
III	Industrial location	i) Models of Industrial location. a) Alfred Weber. b) August Losch. c) Tord Palender.	08
IV	World distribution of selected Industries	i) Iron & steel Industry. ii) Textile Industry. iii) Automobile Industry.	06
V	Industrial regions of selected countries	i) U.S.A. ii) Japan. iii) India.	06
VI	Global industrialization & related problems	i) Impact of industrialization on national economy. ii) Industrialization in developed countries. iii) Industrialization in developing countries. iv) Industrialization in under developed countries.	06
VII	Methods of measuring the spatial distribution of manufacturing	i) Location quotient. ii) Index of concentration. iii) Scatter diagram.	05

Reference Books

1. Priti Mathur, Sorina Katia : Industrial Geography, Ritu Publication, Jaipur.
2. Leong Goh Cheng & Morgan Gillianc, : Human & Economic Geography, Oxford University Press, New Delhi.
3. Richard S. Thomas & Piter B. Corbin : The Geography of Economic Activity, Mc Graw Hill Book Co. New York
4. Smith D.W. : A Geography of Industrial Location, Jon wily, New York.
5. Nimkar, Chaudhari Mathan etc. Commercial Geography, Himalaya Publishing House, Mumbai.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 302 : Geography of Rural Settlement

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction to Geography of Rural Settlement	i) Nature & Scope a) Definition. b) Nature. c) Scope ii) Evolution of Settlements from Paleolithic to Modern periods. iii) Place names. a) Importance of place names in the study Of Geography. b) Historical Cultural & Geographical Aspects as reflected in place names.	05
II	Site Distribution, Types and Pattern	i) Site & Situation of Rural Settlements. a) Various factors affecting settlements. b) Application of Weberian Model. ii) Disribution. a) Factors affecting distribution of Rural settlements. b) Factors influencing dispersion & nucleation. c) Methods of measuring the degree of dispersion. iii) Types of Pattern. a) Types & patterns of rural settlements.	07
III	Theories of Rural landuse	i) Vonthuen's theory. ii) Recordo's theory of rent.	07
IV	Rural Economic Activities	i) Rural service centres a) Definition b) Centrality & hierarchy of rural service centres.	07

		<ul style="list-style-type: none"> ii) Rueban centres iii) Central place theory. iv) Impact of rural fringe on urban area. 	
V	Morphogenesis of Rural Settlements & Transformation	<ul style="list-style-type: none"> i) Morphogenesis <ul style="list-style-type: none"> a) Definition b) Morphology of build up area. c) Social morphology. ii) Transformation socio-economic transformation. 	05
VI	Rural House Types	<ul style="list-style-type: none"> i) Factors- Physical, social, cultural & economic factors affecting rural house types in India. ii) House types <ul style="list-style-type: none"> a) Building material. b) Size, functional use & architectural style. c) House types & rural settlement patterns in Maharashtra. 	05
VII	Rural Development	<ul style="list-style-type: none"> i) Rural development in India. <ul style="list-style-type: none"> a) Important features of rural economy & society from the point of view of rural development. b) Scope of rural development. c) Backward area development & rural development programmes in India. ii) Resources for rural development; land, forest, water, energy, human. 	07
VIII	Rural Planning	<ul style="list-style-type: none"> i) Land use planning. ii) Transport planning. iii) Population planning. 	05

Reference Books

1. Charles Whyne, Hammand (1979) : Elements of Human Geography, George Allen and Unwin. London.
2. Chisholm, Michael (1969) : Rural Settlement and Land use, Hutchinson and Co. Ltd. London.
3. Hudson F.S. (1977) : Geography of Settlement, Macdonald and Evans.
4. Mandal R.B. (1979) : Introduction to Rural Settlements, Concept Publishing Co. New Delhi.

5. Mandal R.B. (1981) : Planned Development of Rural Settlements , Concept Publishing Co. New Delhi.
6. Misra R.P. and Misra H.N. (ed.1987) : Rural Geography, Haritage Publishers Meerut.
7. Negi Balbirsing (1977) : Human Geography Kedarnath Ramnath Publishing House Meerut.
8. Raddy K.Venkata (1988) : Rural Development in India, Himalaya Publishing House Mumbai.
9. Singh R.L.and Singh K.N. (1975) : Reading in Rural Settlement Geography, National Geographical Society of India, Varanasi.
10. Whitby, M.C.Robins, D.L.J.Tansey A.W. and Willis K.G. : Rural Resource Development, Methuen and Co.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 303 : A) Regional Geography of India

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Location & space relation. ii) Broad outline historical Geography.	04
II	Physiographic setup	i) Physiographic division. ii) Geographical history, iii) Major rock types of India. iv) Natural drainage system of India.	06
III	Climate	i) Climate type & regional variation. iii) Mechanism of Monsoon.	04
IV	Natural vegetation	i) Types & regions. ii) India's national forest policy & social forestry. iii) Soil- Major soil types of India.	06
V	Agriculture	i) Agriculture. a) Major types of agriculture in India. b) Problems related to agriculture. ii) Irrigation a) Types of irrigation. b) Problems of irrigation. c) National water grid.	06
VI	Minerals & Power resources	i) Minerals. a) Ironore. b) Mica. c) Manganese. ii) Power resources. a) Hydel power. b) Coal.	05
VII	Industries	i) Agro based industries. a) Sugar industries.. b) Cotton textile industries.. ii) Mineral based industries. a) Iron & steel industries.. iii) I.T.Based industries.. a) Information technology industries in India.	06
VIII	Population	i) Disribution. ii) Growth & Problems.	04

IX	Transportation	i) Express highways. ii) Indian railway. a) Divisions. b) Konkan railway. c) Indian railway & tourism.	06
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Reference Books

1. Sharma T.C. & Coutinho : Economic & Commercial Geography of India, Vikas Publication House New Delhi.
2. Negi B.S. : Economic & Commercial Geography of India, Kedarnath Ramnath New Delhi.
3. Mamoria C.B. : Economic & Commercial Geography of India,
4. Singh. : Economic & Commercial Geography of India,
5. Tirtha (1996) : Geography of India, Rawat Publication Jaipur.
6. Singh R.L. : Regional Geography of India.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 303 : B) Regional Geography of U.S.A.

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Location. ii) Geostrategic Importance. iii) Characteristics of size.	02
II	Physiography	i) Major physiographic regions & their characteristics. ii) Geology. iii) Drainage.	11
III	Climate	i) Distribution of rainfall & Temperature. ii) Climatic classification. iii) Thunderstorms. iv) Tornadoes. v) Hurricanes.	07
IV	Soils & Vegetation	Types & Distribution.	05
V	Natural Resources	i) Resources appraisal. ii) Water & Land resources.	05
VI	Energy and Mineral Resources	i) Distribution of following Energy and Mineral Resources. a) Iron ore. b) Coal. c) Petroleum.	06
VII	Agricultural	Agricultural activities, agricultural patterns, regions, problem & prospects.	07
VIII	Tourism	i) Development of tourism. ii) Important National Parks.	05

Reference Books

1. Charles B. Hunt (1967) : Physiography of the Unites States.
2. George T.Miller and Parkins B. Hudgis : Geography of North America.
3. John Fraser Hart (1972) : Regions of the Unites States.
4. G.H.Dary and Mathieacu (1970) : United sStates and Canada.
5. E.S.Shaw and Farland J.M. (1959) : Anglo America- Regional Geography.
6. LOngdon , C.Foscue (1954) : Regional Geography of Anglo- America.
7. J.W.Watson (1982) : The United States.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 304 : A) Geoinformatic III

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Data Analysis	Spatial i) Simple to complex. ii) Grid operations. a) Zonal. b) Global.	04
II	Spatial Interpolation	i) Digital elevation model. ii) Digital terrain model. iii) Applications.	04
III	Spatial Analysis	i) Analytical tasks. a) Single layer operations. b) Multiple-layer operations. c) Spatial modeling. d) Topological overlays. ii) Point pattern analysis. iii) Network analysis. iv) Surface analysis. v) Grid analysis.	08
IV	Digital Image Processing (I)	i) Image rectification. a) Types of errors. i) Systematic. ii) Non-systematic. b) Sources of distortions. i) Atmospheric ii) Radiometric. iii) Geometric. iv) Noise. ii) Georeferencing. a) GCP tools. b) Mapping function. c) Resampling.	08
V	Digital Image Processing (II)	i) Density slicing. ii) Contrast stretching. iii) Spatial filtering. iv) Edge enhancement. v) Spectral rationing.	08
VI	Digital Image Processing (III)	i) Classification accuracy. a) Unsupervised. i) ISODATA approach . b) Supervised.	12

		i) Training stage. ii) Classification stage.(Minimum distance to Means, Parallel-piped & MXL Classifiers). iii) Out-put stage.	
VII	Digital Image Processing (IV)	i) Classification accuracy. ii) Confusion matrix. iii) Producer's accuracy. iv) User's accuracy. v) Mapping accuracy.	04

Reference Books

1. Richards J.A, Xiuping Jia : Remote Sensing Digital Processing , Springer Verlag Berlin Heidelberg (My 1999).
2. Chanda B. , Dattaa D., Mujumdar : Digital Image Processing and Analysis , Prentice- Hall of India (Feb 2001).
3. Prithvish Nag and M. Kudrat : Digital Remote Sensing , Concept Publishing Co. New Delhi-110059.(1998).
4. Roy P.S. : Geographical Information Science Vol. I , IIRS 2000.
5. Demers M.N. : Fundamentals of Geographic Information Systems 2nd ed., Introduction to Geographic Information System and Science, (2002) . John Wiley & Sons.
6. (2000).
7. Burrough P.A. MacDonneli R.A. : Principles of Geographical Information Systems , Oxford University Press (2000).
8. Lo, C.P. and Albert K.W. Yeung , : Concepts and Techniques of Geographic Information System , (2000) Prentice- Hall of India.
9. Paul A. Lonfley, Michel F. Goodchild, D.J.Maguire and D.W.Rhind : Introduction to Geographic Information System and Science, (2002) . John Wiley & Sons.
10. Kang- tsung : Introduction to Geographic Information System (2002) . McGraw Hill.
11. George Joseph : Fundamentals of Remote Sensing (2004) ,University Press Pvt. Ltd. Hyderabad.
12. Lillesand T.M. and Kiefer R.W. (2002) : Remote Sensing and Image Interpretation, J Introduction to Geographic Information System and Science, (2002) . John Wiley & Sons.
13. J.R. Jensen : Remote Sensing of Environment, An Earth Resources Perspective (2003) , Person Education Pvt. Ltd. New Delhi.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 304 B) Watershed management and planning

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Concept of watershed. ii) Significance of watershed based development.	02
II	Physical parameters of watershed	i) Channel geometry & basin morphology. a) Hydraulic geometry at channel cross section & along the channel. b) Channel cross section pattern. c) Channel types. ii) Basin morphology. a) Drainage network & watershed boundary. b) Drainage frequency, drainage density & constant of channel maintenance. c) Basin morphology. i) Horton's form factor. ii) Millar's circularity ratio. iii) Schumm's elongation ratio. iv) Stralher's ruggedness index. v) Stralher's hypsometric integral.	08
III	Physical parameters of the watershed II	i) Landuse. a) Measurement & data sources. b) Use of land. i) Total geographical area. ii) Area under forest. iii) Area under agricultural. iv) Area under cultural waste. v) Area under natural waste. ii) Terrain analysis. a) Terrain analysis on the basis of- i) Relief characteristics. ii) Slope. iii) Dissection index. iv) Drainage characteristics. a) Spatial distribution of drainage frequency. b) Spatial distribution of Drainage density	08

		v) Soil	
IV	Hydrological parameter's I	<ul style="list-style-type: none"> i) Rainfall. <ul style="list-style-type: none"> a) Intensity & duration. b) Measurements. ii) Aerial precipitation. <ul style="list-style-type: none"> a) Thiessen polygons. b) Isohytal method. iii) Evaporation & transpiration. <ul style="list-style-type: none"> a) Methods. b) Instruments. iv) Infiltration. <ul style="list-style-type: none"> a) Methods. b) Instruments 	06
V	Hydrological parameter's II	<ul style="list-style-type: none"> i) Run off. <ul style="list-style-type: none"> a) Measurements. b) Selection, criteria of gouging station. ii) Discharge. <ul style="list-style-type: none"> a) Measurements. b) Unit hydrograph. 	06
VI	Ground water	<ul style="list-style-type: none"> i) Definition ii) Aquifer types. iii) Water table. iv) Porosity. v) Ground water movement. vi) Recharge & discharge. 	04
VII	Watershed development & management	<ul style="list-style-type: none"> i) Water management. <ul style="list-style-type: none"> a) Rainwater harvesting. b) percolation tanks & pits. c) Sprinkle irrigation. ii) Development programmes. <ul style="list-style-type: none"> a) Artificial recharge of ground water. b) Dams & weirs. c) Interlinking of rivers. 	05
VIII	Watershed work plan	<ul style="list-style-type: none"> i) problems & needs. <ul style="list-style-type: none"> a) Survey. <ul style="list-style-type: none"> i) Physical. ii) Hydrological. iii) Land use. iv) Resources. ii) Mapping- Land use capability maps. iii) management methods. 	06

Reference Books

1. Murthy J.V.S. (1994) : Watershed Management in India, Wiley Eastern Ltd. New Delhi.
2. Paranjape S. and Other (1998) : Water based Development, Bharat Gyan Vigyan Samithi, New Delhi.
3. Mutreja K.N. (1990) : Applied Hydrology, Tata Mc Graw Hill Pub. Co. Ltd. New Delhi.
4. Shing R.J. (2000) : Watershed planning and Management, Yash Publishing House, Bikaner.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 305 : Application of ILLWIS & GPS

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction to ILWIS 3.4 Academic	i. Introduction to Menus a. Starting: installation and access b. Main windows: c. Menu bar: File, Edit, Operation d. Object selection Toolbar e. Map windows: tool functioning f. Navigation bar and catalog g. Operation tree and list h. Command box ii. Introduction to Domain and Representation a. Concept of Domain, types b. Concept of Representation iii. Introduction to table a. Table window b. Cell and column c. Functions	03
II	Geo-referencing	i. Scanning of hard copy of the map. a. Scanning b. Format setting (tif, tiff) c. Import in ILWIS 3.4 ii. Creating Co-ordinate system a. Selection of System, Projection, Ellipsoid, Datum b. Selection of Zone in UTM iii. Geo-referencing a. Transform the co-ordinates b. Registration of the map	02
III	Creation of layers	i. Domain, . Creation ii. Segment layers a. Boundaries b. Rivers, Roads, canals c. Contour iii. Point layers a. Settlements b. Wells iv. Polygons	05

		a. Village, b. Landuse	
IV	Attribute data	Creation of the table a. Table attachment to map b. Creation of the able	03
V	Interpolation Classification	i. Interpolation. a. Attribute data b. Contours ii. Unsupervised : Clustering iii. Supervised : Slicing	02
VI	Applications I	Physical geography a. Slope analyses b. Drainage analyses c. DEM	05
VII	Applications II	Climatic geography a. Rainfall distribution b. Temperature distribution	05
VIII	Applications III	Population geography a. Density b. Sex ratio c. Category-wise analyses	05
IX	Applications IV	Agricultural geography. a. Landuse analyses b. Agricultural land-use/cover analyses	05
X	Introduction to GPS	i. GPS a. What is GPS, GPS Satellites b. Advanced Forms of GPS c. Triangulating from Satellites d. The Big Idea Geometrically e. Measuring distance from a satellite f. Getting perfect timing g. Knowing where a satellite is in space h. Error Correction i. Advanced Concepts ii. Working with GPS : Putting GPS to work, Location, Navigation Tracking, Mapping	03
XI	Applications of GPS	Applications of GPS in Different Fields Practicals: a. Agriculture, Landuse, Land Cover, Misuse of Land b. Digital mapping of the farms.	10

		c. Physical Geography, Mapping of Degraded Land, Gully Erosion, Bad Land etc d. Soil survey maps e. Settlement Geography: Mapping of Built-up Area. f. Mapping of Roads, Canal and river	
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References

- 1: User Guide of ILWIS 3.4 ACADEMIC- In the software user guide file is given. Print the file
- 2: Monkhouse: "Maps and Diagrams"
- 3; <http://www.gisdevelopment.net/downloads/gps/index.htm>
- 4: <http://www.google.co.in/search?hl=en&q=gps+software&meta=&aq=3&oq=GPS>
- 5: http://www.colorado.edu/geography/gcraft/notes/gps/gps_f.html
- 6: <http://www.funrungames.com/navfunpro.php>

अंतरी पेटवू ज्ञानज्योत



NORTH MAHARASHTRA UNIVERSITY

JALGAON

SEMESTAR IV

Syllabus for

M.A./M.Sc.

GEOGRAPHY

w. e. f. June 2009

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 401 : Tropical Geomorphology

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Tropical Geomorphology	i) Definition. ii) Nature & scope. iii) Tropics- a) Definition. b) Extent. iv) Morphogenetic regions of tropics. a) Bases of regionalization. i) Climate. ii) Natural vegetation. iii) Geomorphic processes. iv) Landforms. b) Types of morphogenetic regions of tropics. i) Humid tropics. ii) Savanna tropics. iii) Monsoon tropics. iv) Arid tropics.	07
II	Tropical weathering	i) Definition. ii) Factors of weathering & types. iii) Processes & products. iv) Weathering profile. v) Degree of weathering & properties of regolith. vi) Weathering depth & patterns.	05
III	Laterite	i) Definition. ii) Occurrence. iii) Formation. iv) Classification of laterite. a) Morphogenetic types. b) Composition. v) Development of laterite. vi) Laterite profile on granite basalt. a) Truncated. b) Non-truncated. vii) Laterite landforms with special reference to India.	06
IV	Tropical denudation	i) Introduction- concept. ii) Mechanical eluviations. iii) Mass movements.	05

V	Tropical deposition	i) Introduction. ii) Concept of land surface stability & instability. iii) K-cycle. iv) Tropical delta. a) Definition. b) Occurrence. c) Formation. d) Structure. e) Types.	06
VI	Tropical terrain	i) Introduction. ii) Concept of tropical terrain. iii) Tropical terrain characteristics. a) Relief characteristics. b) Drainage characteristics. iii) Tropical terrain types. a) Buddle terrain types. b) Doornkamps terrain types. c) Mabbutls terrain types. d) D`Hoore`s terrain types.	06
VII	Tropical land forms	i) Introduction. ii) Tropical escarpments & pediments. iii) Tropical tors & domes. a) Definition. b) Occurrence. c) Morphology. d) Formation. e) Types.	05
VIII	Tropical planations	i) Concept of tropical planation. ii) Etch plain. a) Definition. b) Formation- waylands concept. c) Types. iii) Double planation concept. a) Definition. b) Occurrence. c) Formation-Buddles concept of Double planations.	05

Reference Books

1. Michael F.Thomas (1974) : Tropical Geomorphology, Mc Milan.
2. Douglas I. & Spanser (1985) : Environmental changes and Tropical Geomorphology, George Allen and Unwin, London.
3. Faniran A and Teje L.K. (1983) : Humid Tropical Geomorphology, Longman London.
4. Tricart J. (1972) : Landforms in Humid Tropics , Forest and Savannas , Longman London.
5. Sharma H.S. (1969) : Tropical Geomorphology, UNESCO Paris.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 401 : Monsoon climatology

(w. e. f. June – 2009)

Unit No.	Topic	Sub topic	Periods
I	Introduction	i) Development of Monsoon climatology. ii) Definition. iii) Environmental & Economic importance.	04
II	Origin of Monsoon	i) Concepts. a) Thermal. b) Aerological. c) Fohn`s concept. ii) Regional aspects. a) Monsoon of East Asia. b) Monsoon of South Asia.	06
III	Indian Monsoon	i) Classical Theory of Indian monsoon. ii) Summer monsoon. iii) Winter monsoon.	04
IV	Monsoon model	i) Driving mechanism. a) Differential heating of land & sea. b) Annual cycle of radiative cooling. ii) Realistic monsoon model. a) Compressibility of atmosphere. b) Moisture effect. c) Rotation. d) Annual cycle of monsoon.	06
V	Features of summer monsoon	i) Sea level pressure patterns- The heat low monsoon trough. ii) Surface winds of upper winds. iii) Temperature at the surface & aloft.	05
VI	Regional aspects	i) Monsoon season. a) On-set of monsoon. b) Withdrawal of monsoon. ii) Main rain bearing systems. a) Monsoon depressions. b) Mid-troposphere cyclone. c) Off-shore trough along west coast of India. iii) Semi-permanent systems. a) Easterly Jet. b) Tibetan anticyclone.	06

VII	Rainfall variability	i) Intra-seasonal active & break monsoon situations. ii) Inter- annual- droughts & floods. iii) Decadal & centurial- long period trends in Indian rainfall.	04
VIII	Meteorological teleconnections	i) ENSO. ii) Walker circulation. iii) Eurosion snow cover. iv) Role of ocean & upper atmosphere.	04
IX	Monsoon forecast	i) Forecasting at different time scale. ii) Features of the predictors. iii) Regional conditions. iv) ENSO indicators. v) Cross equatorial flow. vi) Global / hemispheric conditions. vii) Parametric & multiple power regression model.	06

Reference Books

1. P.K.Das (1968) : The Monsoon,
2. G.B.Pant & Rupa kumar (1997) : Climates of South asia.
3. Y.P.Rao (1976) : Meteorological Monograph synoptic Met. No. 1 Southwest Monsoon.
4. K.N.Keshavmurthy (1992) : The Physics of Monsoon.
5. Jay S. Fein , Pamela : Monsoon.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 401 : Geography of Trade and transport

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Trade	i) Meaning, definition & types of trade. ii) International trade. iii) Factors affecting international trade. iv) Balance of payments. v) Invisible exports.	06
II	Trading blocks	i) Trading blocks. ii) World trading blocks. iii) Major trading zones, iv) Western Europe, N. America & Asia.	06
III	World trading pacts	i) The European economic community. (Common market) EEC. a) European Free Trade Association (EFTA) b) Council of Mutual Economic Assistance. c) Latin American Free Trade Association (LAFTA) ii) India's Foreign Trade.	07
IV	Geography of International trade	i) International trade dynamics. ii) Free trade initiatives. a) GATT system. b) Non-tariff barriers. iii) Future prospects. iv) International business strategies.	06
V	Transport	i) Meaning & definition of transport. ii) Role of transport in the development of economic region. iii) Significance of transportation.	06
VI	Modes of transport I	i) Relative merits- Land transport. a) Road transport. i) Road transport in India. ii) Merits & demerits of road transport. b) Railway transport.	06

		i) Railway transport in India. ii) Merits & demerits of railway transport.	
VII	Modes of transport II	i) Water transport. a) Ocean & Sea transport. i) The Cape route. ii) The North Atlantic ocean route. iii) The Pacific ocean route. iv) The Suez canal route & its importance. v) The Panama canal route & its importance. ii) Air transport. a) Factors affecting air transport. b) Indian Air transport.	08

Reference Books

1. Majid Husain (1994) : Transport Geography, Anmol Publication Pvt. Ltd. New Delhi.
2. Nimkar , Kankure & others (1989) : Commercial Geography, Himalaya Publishing House, Mumbai.
3. Morgan & Dugh (1977) : Economic Geography, Himalaya Publishing House, Mumbai.
4. Goh Cheng Leong & Gillian C. Morgan (1977) : Human and Economic Geography, Oxford University Press.
5. Pandey N.P. Geography of Transport.
6. Pate Liyod & Dicken (1972) : Location in Space a Theoretical Approach to Economic Geography, Harper 7 Raw Publishers , New York.
7. Taffee & Gauthier : Geography of International Trade.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 401 : Urban Geography

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	Nature and scope of Urban Geography. i)	05
II	Urbanization	Process of Urbanization i) Concept ii) Factors of urban growth. iii) Characteristics of Urbanization. iv) Process of Urbanization. v) Urbanization process from the early to modern times. vi) Recent trends of Urbanization in the world. vii) Trends of Urbanization in India.	06
III	The City in History	The Earliest Towns. i) Ancient towns. ii) Greek towns. iii) Roman towns. iv) Indian towns.	05
IV	Urban Morphology	i) Morphology of the city. a) Definition. b) The city core. c) Integument. d) Enclaves. e) Kernel. f) Characteristics & demarcation of C.B.D. g) Morphology of Indian towns. ii) Models of Urban Structure put forth by a) Park & Burgess. b) Homar Hoyt. c) Harris & Ullman.	08
V	Urban Function	i) Functional Base of a city- Concept of the basis & non-basis functions ii) Functional Zonation iii) Methods of functional classification a) H.J.Nelson. b) C.D.Harris.	07

VI	Rural- Urban Fringe	i) Concepts. a) Meaning b) Characteristics c) Demarcation of rural-urban fringe iii) Suburbanization. a) Concept of Suburbanization. b) Functional types of Suburbanization. c) Conurbation. d) Megalopolis.	07
VII	Towns and it's Region	i) Concept of the city region. a) Concept. b) The nature of urban influence. i) On rural economy. ii) On industrial location. ii) Hinterland. a) Meaning. b) Urban field. c) Hinterland or umland.	06
VIII	Urban Problems	i) Urban problems in India. a) Economic problems. b) Social problem. c) Physical problem. d) Environmental problems. ii) Solutions to urban problems	04

Reference Books

1. Ahmad Enayat : Some Aspects of Indian Geography , Central Book Depot. Allahabad.
2. Berry and Horton : Geographic Perspectives on Urban Systems.
3. Bose Ashsh : India's Urbanization 1901 to 2001-Tata Mcgraw Hill Publishing Co. New Delhi.
4. Carter Harold : The Dstudy of Urban Geography , Arnold Heinemam Publisher India.
5. Chopara Girish (2006) : Urban Geography , Comman Wealth Publishing Co. New Delhi.
6. Dikenson R.F. : City and Region , Routledge and Kegan Paul Ltd. London.
7. Hudson F.S. : Geography of Settlement ,
8. Jonson J.M. : Urban Geography, Pergaman International Library. Pergaman Press.
9. K.Siddhartha and S.Mukarjee (2000) : Cities Urbanization and Urban Systems , Kisalaya Publication New Delhi.
10. Mayer Harold H. and Kohn clyde F. : Reading in Urban Geography , Central Book Depot. Allahabad .
11. Misra R.P. (ed.) : Million cities of India.

12. Misra R.P. (ed.) : Contribution to Indian Geography, Urban Geography; Haritage Publishing Co. New Delhi.
13. Mumfort lewis : Culture of Cities.
14. Noble A.G. and Dutt. A.K. (ed.) : Indian Urbanization and Planning Tata McGraw Hill Publishing Co. Ltd. New Delhi.
15. V.L.S. Prakash Rao : Urbanization in India , Concept Publishing New Delhi.
16. Ray Northam : Urban Geography ,Willey Publication.
17. Sawant S.B. : The City of Poona , University of Pune.
18. Sha Mazoor Alam : Urbanization in Developing Countries,
19. Smailes A.E. : The Geography of Towns , Hutchinson University Library.
20. Sundaram K.V. : Urban and Regional Plianning in India < Vikas Publish House PVT New Delhi.
21. Taylor Griffith : Urban Geography , Meththen & Co. Ltd. London.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 402 : (A) Soil Geography

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Evolution of soil concept. a) Soil concept. b) Edaphological approaches. c) Pedological approaches. ii) Nature & scope. a) Soil as a dynamic medium. b) Soil as a resource.	05
II	Soil development	i) Soil farmers. a) Weathering processes. b) Soil farming factors. i) Active. ii) Passive. ii) Soil farming processes. a) Eluviations. b) Illuviations. c) Humification. d) Laierization. e) Calcification. f) Salinization. g) Podzolization. iii) Soil profile. a) Development. b) Characteristics of ideal soil profile.	06
III	Soil physical properties	i) Morphology. ii) Structure. iii) Texture. iv) Soil water , air, temperature & colour.	05
IV	Soil Chemical properties	i) Chemical properties of soil. a) Soil reaction b) Soil reaction, soil pH & its importance. ii) Factors controlling soil reaction. a) Nature of soil colloids. b) Soil solution. c) Climate. d) Soil parent material. e) Soil management. f) Soil acidity & soil alkalinity.	05

V	Soil water	<ul style="list-style-type: none"> i) Definition. ii) Importance of soil water. iii) Sources of soil water. iv) Types of soil water. 	04
VI	Soil organic matter & microorganism	<ul style="list-style-type: none"> i) Organic mater. <ul style="list-style-type: none"> a) Sources of organic matter. b) Composition of organic matter. c) Decomposition of organic matter. d) Factors controlling decomposition. e) Changes produced during decomposition. ii) Humus. <ul style="list-style-type: none"> a) Definition. b) Composition. c) Formation. d) Properties. e) Function. iii) Soil microorganism. <ul style="list-style-type: none"> a) Micro & macro organisms. b)Environment factors influencing activity of soil microorganisms. i) Soil moisture. ii) Soil temperature. iii) Light & air. iv) Soil reaction. v) Nature of the soil. vi) Food & energy. iv) Different microorganism in soil. <ul style="list-style-type: none"> i) Algae. ii) Fungi. iii) Actinomyceies. iv) Bacteria. v) Protozoa. 	08
VII	Soil genetic & taxonomic classification	<ul style="list-style-type: none"> i) Modern system of soil classification. <ul style="list-style-type: none"> a) Physical. b) Genetic. c) American. ii) Description of <ul style="list-style-type: none"> a) Zonal soils. b) Azonal soils. c) Intrazonal soils. 	05
VIII	Soil erosion	<ul style="list-style-type: none"> i) Definition. ii) Types of soil erosion. <ul style="list-style-type: none"> a) Water erosion- causes, effects & preventive measures. b) Wind erosion- causes, effects & preventive measures. 	05
IX	Soil degradatation & conservation	<ul style="list-style-type: none"> i) Soil degradatation. <ul style="list-style-type: none"> a) Soil pollution due to- <ul style="list-style-type: none"> i) Inorganic contamination. 	05

		ii) Organic waste. iii) Fertilizers & pesticides. iv) Soluble salts. v) Radioactive substances. ii) Soil conservation. a) Definition. b) Methods of soil conservation	
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Reference Books

1. Daji J.A. : Text Book of Soil Science, Tata Mc Graw Hill Bombay.
2. Miller C.E., Turk L.M. & Forth : Fundamental of Soil Science, Willey International Library of Congress catlog carol number 65- 21451, Printed in Japan by Tappan Co. Ltd.
3. Sarkar Himanshu : Soil Geography, Nikhil K.D.Kolkata.
4. Forth Henry D. Fundamentals of Soil Science.
5. Buntice B.T. : Soil Geography.
6. Rode A.A. : Soil Science.
7. Biswas T.D. and S.K. Mukherjee : A Text Book of Soil Science.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 402 : (B) Research Methodology

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Meaning. ii) Motivation in Research iii) Types of Research. iv) Significance of Research v) Research & Scientific method. vi) Research process. vii) Criteria of good research.	05
II	Defining the research problem	i) What is a research problem? ii) Selecting the problem. iii) Technique involved in defining a problem literature survey. iv) Library & Documentation.	06
III	Hypothesis	i) Characteristics of usable hypotheses. ii) Types of Hypotheses. iii) Sources of hypotheses. iv) Formulation of Hypotheses. v) Utility of Hypotheses in scientific research.	06
IV	Research Design	i) Meaning of research design. ii) Need for research design. iii) Features of good design. iv) Basic principles of experimental designs. v) Conclusion developing a research plan.	06
V	Sampling Design	i) Census & sample survey ii) Implications of a sample design. iii) Steps in sampling design. iv) Criteria for selecting a sampling procedure. v) Characteristics of a good sample. vi) Random sample from an infinite universe. vii) Complex random sampling design. viii) Conclusion.	05

VI	Methods of data collection	<ul style="list-style-type: none"> i)Collection of primary data collection. ii)Collection of data through questionnaires. iii)Collection of data through schedules. iv)Some other methods of data collection. v)Collection of secondary data. vi) Case study method. vii)Guidelines for successful interviewing. 	07
VII	Processing and Analysis of data	<ul style="list-style-type: none"> i)Processing operation. ii)Types of analysis. iii)Statistics in research. iv)Measures of central tendency. v)Measures of dispersion, measures of asymmetry. vi)Measures of relationship. vii)Simple regression analysis. viii)Multiple correlation & regression. ix)Partial co-relation association in case of attributes. x) Others measures. 	06
VIII	Interpretation and Report writing	<ul style="list-style-type: none"> i)Meaning. ii)Technique of interpretation. iv) Precautions in interpretation. v) Signification of report writing differ steps in writing report. vi) Layout of research report. vii)Types of reports. viii) Oral presentation mechanics of writing a research report. ix) Precautions for writing research reports. x) Conclusion. 	07

Reference Books

1. Research Methodology Methods and Techniques : C.R.Kothari, Welley Eastern Ltd.
2. Research Methodology A Hand Book : R.P.Mishra, Concept Publishing Co. New Delhi
3. Research Methodology : Dr. R.N.Tiwari and Dr. D.P.Shukla College Book Depot. 83, Tripolia Jaipur.
4. Explanation in Geography : Harvey D. Arnold ,London.
5. Perspective on the nature of Geography : R. Hartshorne.
6. Theoretical Geography.
7. Models in Geography ; Haggett and Chorley :

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 403 : (A) Regional planning

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Concepts & scope. a) The concept & scope of Regional Planning. b) Need & objectives of Regional Planning. c) Role of Geography in Regional Planning. ii) Planning regions. a) The concept of region. b) Planning region- i) Objectives. ii) attributes & Hierarchy.	04
II	Planning topology	i) According to levels. a) Macro region planning. b) Meso region planning. c) Micro region planning.	04
III	Regionalization	i) Methods of demarcation of planning region. a) Flow analysis. b) Gravitational analysis. ii) Regional survey. a) Proposed by Geddes- Physical & Human resources. iii) City region- a) Delimitation of urban boundaries.	08
IV	Planning regions of India	i) Delineation of region in India. a) Physiographic region. b) Economic region. c) Historical reviews. ii) Attempts made by- Dudley stamp, Beker & Pithawala, Spate, L.S.Bhat, Nath P., Sen Gupta, K.V. Sundaram, Prakash Rao, Macro & Meso regions only.	10
V	Regional development planning	i) Area development planning in India. a) Hilly area development. b) Tribal area development. c) Drought- prone area development. d) River valley area development. ii) Role of growth Foci in regional	07

		development. a) Definition. b) Role. c) Hierarchy. d) Review of previous concept.	
VI	Regional Imbalances	i) Measurement of levels of regional development in India. a) Criterion used to measure the levels. b) Levels of regional development. i) Developed regions. ii) Developing regions. iii) Under developed regions. ii) Regional imbalances in India . a) Imbalances in natural resources. b) Imbalances in industrial development. c) Imbalances in agricultural development.	07
VII	Planning for natural resources	i) land a) Land use survey & Planning. b) Land capability classification & Planning. ii) Water- water conservation & Planning. iii) Soil- soil conservation & Planning.	05

Reference Books

1. Bhattacharya S. : Corporate Planning.
2. Kulkarni A.R. : Contributions to regional Planning and Development.
3. Mahesh Chand & Puri V.K. : Regional Planning in India.
4. Mishra R.P. Regional Planning.
5. Peter Self : Planning and the Urban Region.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 403 : (B)Dissertation

(w. e. f. June – 2009)

Note :- Only those students will be allowed to offer dissertation who scored more than 55 % in all the courses of first two semester & the option of dissertation at the beginning of the IIIrd semester. No student who carries any back log of the courses to the IIIrd semester will be allowed to offer dissertation.

A students should prepare individual dissertation report on one topic. While preparing the dissertation students should follow the guidelines cited as below :

- i) Students will prepare the dissertation by considering research methodology.
- ii) Students will apply Excel worksheet for data analysis.
- iii) All maps should be prepared by AUTO cad Map or Ilwis or GPS-GIS software.
- iv) A students will submit three copies of their project. (One copy for students, One copy for Department & One copy for University.
- v) Students should present the dissertation with the help of Power point.
- vi) At the time of presentation student should present raw data, data analysis techniques & findings.
- vii) Manual data analysis & mapping will not be entertained.

Selection of the Topic :

- i) Geomorphology
- ii) Watershed Management & Planning.
- iii) Groundwater Resources.
- iv) Climatology.
- v) Population Geography.
- vi) Settlement Geography.
- vii) Geography of Health & Nutrition.
- viii) Agricultural Geography.
- ix) Industrial Geography.
- x) Geography of Disaster Management.
- xi) Geography of Tourism.
- xii) Economic Geography.
- xiii) Trade & Transport Geography.
- xiv) Human Geography.
- xv) Geography of Soils.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 403 : (C) Hydrology

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Definition, Nature & scope. ii) Elements of surface Hydrology. iii) Global hydrology scale.	05
II	Precipitation	i) Definition. ii) Types. iii) Intensity mass curve. iv) Hydrograph.	06
III	Evapo- transpiration & infiltration.	i) Evaporation. ii) Transpiration. iii) Evapotranspiration. iv) Factors of Evapotranspiration. v) Methods & measures. vi) Infiltration. a) Definition. b) Methods Of measurement. c) Factors affecting infiltration.	08
IV	Runoff	i) Definition. ii) Factors affecting runoff. iii) Rainfall runoff relationship. iv) Unit hydrograph.	06
V	Discharge	i) Definition. ii) Rating curve. iii) Types of gauging stations. iv) Gauge & Discharge relationship.	06
VI	Ground water	i) Definition. ii) Aquifer a) Definition. b) Types. iii) Water table and Vadose zone. iv) Hydraulic conductivity. v) Transmissibility. vi) Spring & Artesian wells.	06
VII	Ground water management & conservation	i) Ground water management. a) Recharging & discharging. b) Ground water zones & regionalization. ii) Ground water conservation.	08

Reference Books

1. Addison H. (1961) : (1961) Land and Flood, Champman and Hall, London.
2. Charley R.J. (1969) : Introduction to Physical Hydrology, Methuen, London.
3. Charley R.J. (1967) : Water Earth and Man , Methuen, London.
4. Todd D.K. : Ground Water Hydrology.
5. Wister : Hydrology

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 404 : (A) Geoinformatics- IV

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Statistics Projections and Survey	i)Statistics. a) Matrix. b) Algebra. ii) Projections. a) Spherical Coordinate system. b) DMS. c) DD. d) UTM ZONES. iii)GPS. a) Orientation . b) Navigation	08
II	Aerial Photography	i)Measurements. a) Scales & Height. (Using parallax bar) ii) Interpretation. a) Visual interpretation of single aerial photograph. b) Interpretation of stereo pair using Stereoscope.	08
III	Satellite Images	i)Interpretation. a) Visual interpretation of LISS. b) PAN. c) WIFS. d) Merged Images.	08
IV	Spatial Database	i)Layer generation. a) Raster. i) Full Grid. ii) Chain Codes iii)Run length codes. b)Vector. i) Manual digitization. ii) Errors & Topology building.	08
V	Digital Image Processing	i)Enhancement. a) Linear- Contrast Enhancement. b) Non-Linear- Square. c) Square root cube. ii) Spatial filtering- Mean & Median. iii)Band ratioing. iv)NDVI Computation.	08
VI	Software	Image Processing GIS. i)Using IL, WIS/IDRISI.	

		ii)Registration. iii)Enhancement. iv)Unsupervised classification. v)Georeferencing of scanned raster image. vi) Digitization (vectorization) vii)Rasterization. viii) Attribute data linking. ix) Thematic layer generation.	
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Reference Books

1. Richards J.A, Xiuping Jia : Remote Sensing Digital Processing , Springer Verlag Berlin Heidelberg (My 1999).
2. Chanda B. , Dattaa D., Mujumdar : Digital Image Processing and Analysis , Prentice- Hall of India (Feb 2001).
3. Prithvish Nag and M. Kudrat : Digital Remote Sensing , Concept Publishing Co. New Delhi-110059.(1998).
4. Roy P.S. : Geographical Information Science Vol. I , IIRS 2000.
5. Demers M.N. : Fundamentals of Geographic Information Systems 2nd ed., Introduction to Geographic Information System and Science, (2002) . John Wiley & Sons.
6. (2000).
7. Burrough P.A. MacDonneli R.A. : Principles of Geographical Information Systems , Oxford University Press (2000).
8. Lo, C.P. and Albert K.W. Yeung, : Concepts and Techniques of Geographic Information System , (2000) Prentice- Hall of India.
9. Paul A. Lonfley, Michel F. Goodchild, D.J.Maguire and D.W.Rhind : Introduction to Geographic Information System and Science, (2002) . John Wiley & Sons.
10. Kang- tsung : Introduction to Geographic Information System (2002) . McGraw Hill.
11. George Joseph : Fundamentals of Remote Sensing (2004) ,University Press Pvt. Ltd. Hyderabad.
12. Lillesand T.M. and Kiefer R.W. (2002) : Remote Sensing and Image Interpretation, J Introduction to Geographic Information System and Science, (2002) . John Wiley & Sons.
13. J.R. Jensen : Remote Sensing of Environment, An Earth Resources Perspective (2003) , Person Education Pvt. Ltd. New Delhi.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 404 : (B) GIS & Remote sensing

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Introduction	i) Definition of GIS. ii) Concept of Space & Time. iii) Spatial Information Theory. iv) History of GIS. v) Objectives of GIS. vi) Elements of GIS. vii) Tasks of GIS. viii) Functional & Logical relationships among geographic features & their attributes. ix) Types of attributes.	06
II	Co-ordinate System	A) Geographic Co-ordinate System B) Projected Co-ordinate System i) U.T.M. ii) U.P.S. iii) S.P.C. iv) P.L.S.S. C) Introduction to GPS i) Function of GPS ii) Application of GPS	05
III	Map Projection	i) Spherical coordinate system. ii) Datum Plane.	
IV	Conceptual Models of Spatial Information	i) Raster data model, ii) Vector data model, iii) Comparative overview.	04
V	Conceptual Models of non-spatial Information	i) Hierarchical data base structure. ii) Network structure. iii) Relational model.	06
VI	Structure of Spatial data	i) Scanning ii) Digitizing. iii) Error detection & Correction. iv) Topology.	06
VII	Digital Image Processing(DIP)	i) Image rectification. ii) Geometric correction. iii) Radiometric correction. iv) Atmospheric correction.	10
VIII	Image Enhancement	i) Contrast stretch. ii) Filtering-Low Frequency, High Frequency iii) Linear Edge Enhancement.	08

		iv)Band Ratioing.	
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Reference Books

1. Lillesand, Thomas M. & Kiefer Ralph (2000) : Remote Sensing and Image interpretation, Jonh Wiley.
2. Agarwal C.S.and Garg P.K. (2002) : Text Book on Remote Sensing, Wheeler Publishing New Delhi.
3. Prithvish Nag and M. Kudrat (1998) : Digital remote Sensing , Concept Publishing Company, New Delhi.
4. William Jonathan (1995) : Geographic information from Space : Processing and applications of Geocoded Satellite Images, John Wiley & Sons.
5. Taylor and Francis (1996) : Spatial analytical on GIS
- DeBarry ,Paul A. (1999) GIS Modules nd Distributed Models of the Watershed: A Report from ASCE Task Committee on GIS Modules and Distribution, ASCE.
6. Burrough, P.A. (1986) : Principles of Geographical information System for Land Resources Assessment, Oxford University Press.
7. Environment System Research Institute (1993) : Understanding GIS , The Arc Info Method.
8. Bernhardsen, Tor (1999) : Geographic Information System, An Introduction, John Wiley & Sons.
9. Clarke ,Keith C. (1999) : Getting Started with Geographic Information System , Prentice Hall.
10. Demers, Michael N. (2000) : Fundamentals of Geographic Information System ,John Wiley.
11. Haywood, Ian (2000) : Geographical Information System, Longman.
12. Chang, Kang-taung (2000) Introduction to Geographic information System, Tata McGraw Hill.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 405 : (A) Interpretation of S.O.I. Topographical maps, Aerial Photographs Land
sat Imageries & Project Report

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Interpretation of S.O.I. Topographical Maps	i) Introduction to Topographical Maps a) Types of topographical maps. b) Index Numbers, International World Map Series ii) Interpretation of S.O.I., U.K., U.S.A. (one of each) Maps with special reference to: a) Plain Region b) Plateau Region c) Mountainous Region d) Coastal Region e) Desert Region	15
II	Interpretation of Aerial Photographs	i) Introduction to Aerial Photographs. a) Stereoscope, Stereo-pair, Stereoscopic overlapping & Stereoscopic Vision. b) Camera Calibration: Fiducial marks, Conjugated principal points, Calculation of photo base distance. c) Scale factor. d) Measurement of Geographical area. ii) Preparation of Stereo-Maps. iii) Interpretation of Aerial Photographs. (At least Four Stereo-pairs)	08
III	Interpretation of Land Satellite Imageries	i) Introduction to Satellite Imageries: a) Annotation strip on Satellite Imageries. b) Introduction to Lat-Longs. c) Calculation of Geographical area &	05

		Length of linear features. ii) Interpretation of Satellite Imageries. (At least Two Imageries)	
IV	Project Report	<p>A group of five students should prepare individual project report on one topic. While preparing the project students should follow the guidelines cited as below :</p> <ul style="list-style-type: none"> i) Students will prepare the project by considering research methodology. ii) Students will apply Excel worksheet for data analysis. iii) All maps should be prepared by AUTO cad Map or Ilwis or GPS-GIS software. iv) Each group of five students will submit six copies of their project. (Five copies for five students & One copy for Department. v) Students should present the project with the help of Power point. vi) At the time of examination students will submit the hard copies of project & CD of Power Point Presentation. vii) At the time of presentation student should present raw data, data analysis techniques & findings. viii) Each student of a group will participate in the presentation of project chapter by chapter. ix) Manual data analysis & mapping will not be entertained. <p>Selection of the Topic :</p> <ul style="list-style-type: none"> i) Geomorphology ii) Watershed Management & Planning. iii) Groundwater Resources. iv) Climatology. v) Population Geography. vi) Settlement Geography. vii) Geography of Health & Nutrition. viii) Agricultural Geography. 	18

		viii) Industrial Geography. ix) Geography of Disaster Management. x) Geography of Tourism.	
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Weightage of Marks

Unit No.	Periods	Marks
I	15	15
II	08	10
III	05	10
IV	18	35
Journal & Viva Vice	00	10
Internal Test & Seminar	02	20
Total	48	100

Evaluation System of the Project

Point of Evaluation	Marks
Data Analysis Techniques	05
Mapping Techniques	05
Animation of the Slides	05
Selection of the Topic	05
Design of Project	05
Presentation of Project	10
Total Marks	35

Note: Examiners will conduct examination of section A for only 2 hours and 2 hours for presentation of project Report. Each student will get at least 10 minutes to present their report.

Reference Books

1. W.K.Kilford : Elements of Aie survey, The Pritam Publishing Corporation New Delhi.
2. Paul J. Curran : Principles of Remote Sensing , English Language Book Society. Longman
3. E.C.Barrett and L. F. Curtis : Introduction to Environmental Remote Sensing , Chapman and Hall. New York
4. G.C.Dickinson : Map and Aerial Photographs, Arnold Heinemann.
5. Floyd Sabins : Remote Sensing Principles and Applications, Freeman & Co. New York.
6. K. Rammurti : Map Interpretation.
7. V.S.Gananathan : Map Interpretation.
8. Tamaskar and Deshmukh : Interpretation of Topographical Maps.

NORTH MAHARASHTRA UNIVERSITY JALGAON

Syllabus for M.A. / M. Sc .- Geography

Gg 405 : (B) Soil & Sediment Analysis & Project Report

(w. e. f. June – 2009)

Unit No.	Topic	Sub Topic	Periods
I	Soil sampling concept	i) Soil sampling concept a) Soil sampling technique. b) Study of soil augers. c) Collection of soil samples from the field for analysis. ii) Soil analysis. a) Analysis of physical properties of the collective soil samples. i) Bulk density, specific gravity & Porosity. ii) For determination of pH & EC. iii) Determination of physical properties of soil samples course sand, fine sand & silt & clay. (Seieves & Decantation beaker method. b) Analysis of chemical properties of soil samples. i) Determination of CaCO ₃ from the soil samples by volumetric titration. ii) Determination of organic carbon organic matter of the soil. iii) Determination NKP status of soil. iv) Determination ions & cations composition of soil.	20
II	Sediment analysis	i) Sediment analysis. a) Sediment sampling techniques.	20

		<ul style="list-style-type: none"> b) Sediment sample collections. c) Wentworth grain size distribution scale. ii) Sediment shape analysis. <ul style="list-style-type: none"> a) Zing`'s method of measurement of shape index of sediment. b) Interpretation iii) Sediment grain size analysis. <ul style="list-style-type: none"> a) Dry sieve analysis (Mechanical sieve analysis) b) Wet sediment size analysis. c) Preparation of grain size distribution chart according Wentworth scale. d) Preparation of grain size distribution graphs. e) Estimation of following grain size parameters. <ul style="list-style-type: none"> i) Mean size. ii) Mode size. iii) Median size. iv) Dispersion or sorting index. v) Skewness. vi) Kurtosis. vii) Effective size (D10) viii) Coefficient of currature & uniformity. ix) Interpretation of grain size distribution. 	
III	Project Report	<p>Project report on soil analysis of sediment analysis based on excursion survey</p> <p>A group of five students should prepare individual project report on one topic. While preparing the project students should follow the guidelines cited as below :</p> <ul style="list-style-type: none"> i) Students will prepare the project by considering research methodology. ii) Students will apply Excel worksheet for data analysis. iii) All maps should be prepared by AUTO cad Map or Ilwis or 	05

		<p>GPS-GIS software.</p> <p>iv) Each group of five students will submit six copies of their project. (Five copies for five students & One copy for Department.</p> <p>v) Students should present the project with the help of Power point.</p> <p>vi) At the time of examination students will submit the hard copies of project & CD of Power Point Presentation.</p> <p>vii) At the time of presentation student should present raw data, data analysis techniques & findings.</p> <p>viii) Each student of a group will participate in the presentation of project chapter by chapter.</p> <p>ix) Manual data analysis & mapping will not be entertained.</p>	
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Weightage of Marks

Unit No.	Periods	Marks
I	20	30
II	20	30
III	08	40
Total	48	100

Evaluation System of the Project

Point of Evaluation	Marks
Data Analysis Techniques	05
Mapping Techniques	05
Animation of the Slides	05
Selection of the Topic	05
Design of Project	05
Presentation of Project	10
Total Marks	35

Note:- Examiners will conduct examination of section A for only 2 hours and 2 hours for presentation of project Report. Each student will get at least 10 minutes to present their report.

Reference Books

1. Thomas J. Trout, Ignacio G. Garcia- Castillas & William E. Hart : Soil – water Engineering Field and Laboratory manual , Academic Publication , Jaipur.
2. M.L. Jackson : Soil chemical Analysis , Prentic- Hall of india Pvt. Ltd. New Delhi.
3. M.M.Saxena : Environment Analysis Water Soil & Air. Agrobotanical Publisher India .
4. B.C.Punmiya : Soil Mechanics,
5. N.K.Patil : Geotechnical engineering, Nirali Prakashan.
6. Blatt, Middletone, Murray : Origin of sediments, Prentice Hall, Inc Englewood Cliffs, New Jersey.
