

Tilak Maharashtra Vidyapeeth, Pune

GEOGRAPHY SYLLABUS

GC 101: Principles of Geomorphology

Sr. No.	Topic	Subtopics	Learning points	Periods
Credit 1				
1	Fundamentals of Geomorphology	1. Nature and Scope 2. Concepts	1. Definition and history of Geomorphology 1. Geomorphic scale – Timescale Cyclic, Graded and Steady state 2. Geochronological scale 3. Process Geomorphology	3
2	Tectonism and Geomorphology	1. Interior of the Earth. Sources of knowledge 2. Origin of oceans and continents 3. Wegener's Continental Drift Theory 4. Sea floor Spreading And Plate Tectonics	1. Inferred Knowledge (Density, Temperature, Pressure) 2. Surface Expressions. Holmes Convection current Theory Theory, supporting evidences and validity. Concepts of Palaeomagnetism 1. Concept of Sea floor spreading 2. Tectonic plates and Plate boundaries, 3. Mechanics and movements of plates 4. Zones of collision and associated landforms	7
3.	Crustal movements	Endogenic Forces	1. Epirogenic and Orogenic movements 2. Compression, tension 3. Folds, Types and landforms 4. Faults, Types and landforms	5
Credit 2				
4.	Climatic Geomorphology	Denudational Processes Weathering and Mass movement	Weathering and Erosion 1. Types of weathering : Physical, Chemical, Biological and Anthropogenic 2. Types of mass movement: Fall, Slides, Flows	5
5.	Fluvial Processes			5

6.	Glacial Processes	Erosional and Depositional work of valley and Mountain glaciers	1. Types of glaciers 2. Mechanics of erosion, transportation and deposition 3. Erosional landforms 4. Depositional landforms	5
Credit 3				
7.	Arid and Semi arid Processes	1. Work of wind in Desert 2. Work of water Limestone regions	1. Landforms produced by water in the deserts. 2. Concepts of Pediplanation 3. Mechanics of erosion, transportation and deposited. 4. Erosional landforms 5. Depositional landforms 2. Landforms produced in karst topography	5
8.	Coastal Processes	Erosional and Depositional work of waves and Tides	1. Mechanics of erosion , transportation and deposition 2. Erosional landforms 3. Depositional landforms	5
9.	Slopes	Morphology, classification Evolution	Ideal slope profile Genetic classification Models of slope evolution: Slope decline Slope replacement Parallel retreat Planation surfaces : Definition, types, characteristics	5

Reference Books

1. Thornbury, W. D. (1960): 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. Karlekar Shrikant (2009): Coastal processes and landforms, Diamond publ., Pune
4. Savindra Singh (2002): 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. Fairbridge, R. W. (1968): Encyclopedia of Geomorphology, Reinholdts, New York.

GC 102: Principles of Climatology

Sr. No.	Topic	Subtopics	Learning points	Periods
Credit 1				
1.	Introduction	Nature and scope	Weather, Climate, subdivisions of Climatology. Development of Modern Climatology. Tropical climatology	3
2.	Earth`s atmosphere	1.Composition 2. Vertical structure	Physical properties, Chemical composition Temperature changes, Vertical variations in the composition, Ionosphere and aurora	4
3.	Insolation and Heat Balance	1. Solar radiation 2. Distribution 3. Effect of Atmosphere 4.Terrestrial Radiation	Factors affecting insolation. Latitudinal and seasonal, variation of insolation Scattering, Diffusion Absorption Reflection, Albedo Green House Effect. Heat Budget Latitudinal Heat Balance Atmospheric window.	8
Credit 2				
4.	Temperature	Basic concept	Difference between Heat and temperature Controls of temperature Horizontal and Vertical distributions, Inversion of temperature	3
5.	Air pressure and wind	Basic concept	Pressure measurement and units, factors affecting air pressure, pressure changes with altitude observed distribution of surface pressure. Wind observation and measurement factors affecting wind. Geotropic wind, gradient wind. Development of Monsoon.	7
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 Jet stream and it's effect on the surface Weather conditions.	5
Credit 3				

7.	Humidity	1. Basic concept 2. Hydrological Cycle 3. Condensation 4. Evaporation	Humidity measurement Changes of state of water Factors affecting condensation Factors affecting evaporation	5
8.	Stable and unstable Atmosphere	1. Lapse rate 2. Stability	Normal, environmental, dry and wet adiabatic Absolute stability, absolute instability Conditional instability.	3
9.	Air masses and Fronts	Basic concept	Source region ; classification of air masses Modifications: (a) Mechanical (b) Thermodynamic. Characteristics and types of Fronts	7

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 (1993): General Climatology. Prentice Hall, New Delhi.



GC 103: Principles of Economic Geography

	Topic	Subtopics	Learning points	Periods
Credit 1				
1.	Introduction	Definition, Natures and scope of Economic Geography	Definitions, Nature and scope and recent trends	01
2.	Concepts and principles of economic geography	a) Various concepts and principles	Location, flows, networks, economic development, resources, trade, migration	02
3.	Economic Landscapes	a) Evolution b) Location of economic activities	Modern Economic Landscape i. Definition of economic activities ii. Location of Agricultural activities (Von Thunen) iii. Location of industries (Weber)	03
Credit 2				
4.	Resources	Natural and Human Resources	Significance of natural and Human Resources in Economic Growth	03
5.	Factors of Production	a) Land, Labour capital	Significance of these factors on Economic activities.	04
		b) Transport	i. Modes of transport ii. variation in cost of transport	03
		c) Economics of scale	i. Definition ii. External and internal economic of scale e.g. capital, cost of manufacturing, industrial equipment	05
Credit 3				
6	Economic Development	Spatial and Temporal aspects	i) Measures of Economics development like average income, economics structure, productivity. Raw material, human capital, infrastructures, health, literacy. ii) Classification of countries based on Economic Development iii) Rostow and Myrdal's model of economic development	08
7	international trade	spatial and temporal aspect	i) Factors affecting International Trade- Physical, Economic, Political, Environmental, Technological. ii) Trade Blocs-SAARC, OPEC, ASEAN iii) Ricardo's classical theory of international trade.	07

Reference Books

1. Hartshorne T.A. and J.W. Alexander – Economic Geography, Prentice Hall.
2. Enrid Alayev – Social and Economic Geography

3. Singh Parmar – Geography, Economic and Economic Geography
4. Siddharth K – Economic Geography
5. Scott Allen – Geography and economy

GC 104: Geography of Population

Sr. No.	Topic	Sub topic	Learning Points	Periods
Credit 1				
1	History and development of Population Geography	<ul style="list-style-type: none"> * Definition, nature, scope and objectives * Relationship between man and environment with spatial variation of population density 	<ul style="list-style-type: none"> * Development of the sub-discipline of Population Geography * Contribution of Trewartha to the study of Population Geography * System approach, * Behavioral and multi- disciplinary approaches. * Concept of stepped, exponential growth, Homeostatic regimes, population equilibrium, optimum population, over population and under-population, Population growth cycles 	7
	Population Geography and Demography	Vital statistics	Sources and quality of demographic data, their level of reliability. Population counts and censuses.	2
2	Global population patterns	<ul style="list-style-type: none"> World population Distribution Distribution and density of population Factors controlling Population growth Rate of world population growth 	<ul style="list-style-type: none"> Population explosion. Recent population growth trends. Uneven distribution of population. Population percentage change. Population density and Physiologic density. Biological, environmental, physical, economic, social, political, cultural, and technological factors. Natural growth Rate, rate of Population increase, Stationary and stable Population, Population stagnation and decline, Population Projection 	6
Credit 2				
3	Models and theories of	Development of models and theories of population	<ul style="list-style-type: none"> 1. Malthusian Theory of Population 2. Marx views of population 	6

	population	growth and dynamics.	3. Demographic Transition Model Demographic Transition for industrialized developed countries and developing countries. Spatial and temporal processes acting at a variety of scales. Economic and social consequences of Demographic transition.	
4	Population composition		Life expectancy at birth. Sex ratio. Age-sex structure. Literacy and educational attainment. Family and households. Occupational structure. Standard of living. Per capita annual income. Dependency Ratio. Aging of population. HD1 - Human Development Index	4
5	Demographic indicators Population and resources	Basic demographic equations. Measurement and trends in mortality and fertility Natural resources and population	Crude death rate Age-specific mortality rates Infant mortality rates Standardized mortality rates Analysis of mortality - relationship of mortality and levels of economic development. Crude Birth Rate Decline of Fertility. Female infanticide. Gender bias and gender issues with reference to India. Demographic crises. Pressure of population on Resource base. Population and diminishing land resources, Dependence on agricultural resources. Population- Resource Disequilibrium. Population and Resource Regions. Population, Natural resources and economic development in India	5
Credit 3				
6	Population	* Population and urbanization * Socio-economic Problems	Changing population patterns due to urbanization Impact of urban growth on population density and distribution	6

			Overcrowding, slums Urban floating population Poverty, unemployment, malnutrition, poor health, limited educational opportunities, gender inequality, GDI (Gender related development index)	
7		Population and migration	<ul style="list-style-type: none"> * Lee's migration theory * Urban to urban, Rural to urban, Urban to rural migration * Return migration and the global economy * Globalization and Diasporas * Convergence or melting Pot phenomena 	5
8	Population Policies	Political ideology and Population. Population policies in socialist and Communist countries.	Population and environment policy Population and public health policies One-child Policy (China) White Australian Policy.	4

Reference Books

- 1 Ackerman E. A.: Population and resources
- 2 Beaujeu- Garnier, J.: 1966: Geography of Population [translated by Beaver S.H] Longmans. London.
- 3 Chandna, R.C.: 2000: Geography of Population- concepts: determinants and patterns. Kalyani Publishers, New Delhi
- 4 Clarke, J.T: 1972: Population Geography: second edition. Pergamon Oxford & New York
- 5 Demko, G.J, Rose, H.N and Schnell, G.A: 1970: Population Geography- a reader. New York Mcgraw-Hill
- 6 Srinivasan, K and M. Vlassoff: 2001: Population development nexus in India: challenges for the new millenmum. Tata Mcgraw-Hill publishing limited. New Delhi
- 7 Trewartha, G.T: 1969: A Geography of world population patterns. John Wiley & Sons New York
- 8 Trewartha, G.T: 1972: The less developed realm- A population geography. Mcgraw-Hill New York
- 9 Trewartha, G.T: 1978: The more developed realm- A population geography. Mcgraw-Hill New York
- 10 UNDP: Human Development Report: 2001: Oxford University Press
- 11 Woods, R.I:1979: Population analysis in geography. Longman London & New York
- 12 Woods, R.I: 1982: Theoretical Population Geography. Longman Group limited
- 13 Zelinsky,W: 1966: Prologue to population geography. Englewood Cliffs, Prentice Hall New Jersey
- 14 Zelinsky, W: [ed] 1970: Geography and a crowding world. Oxford University Press

GC 105: Practical's in Physical Geography

Sr.	Topic	Subtopics	Learning points	No. of Practical
a. Geomorphology Select a drainage basin from the top sheet, visit the area and analyses the drainage				

basin on the basis of following aspects				
1.	Drainage Network	Stream Ordering	1. Horton and Strahler methods of stream ordering (for a 3 to 5 order drainage basin) (two examples each) 2. Relationship between stream order and number; Stream order and stream length, stream length and stream catchment area, 3. Bifurcation ratio	04
2.	Drainage basin	Basin relief analysis	Relief analysis (for a 3 to 5 order drainage basin; based on grid method) 1. Absolute relief map 2. Relative relief map 3. Slope, Aspect map (degrees) 4. Dissection index map 5. Hypsometric curve & integral 6. Basin cross profiles 7. Block Diagram (multiple section) 8. River long profile	08
b. Climatology				
3.	Climatic elements	Preparation of climatic diagrams	1. Climatograph 2. Climograph 3. Simple and compound wind rose 4. Hythergraph	04
4.	Classification of Climate and weather forecasting	1. Climatic classification of Koppen and Thornthwaite	Determination of climatic Type by using Koppen's and Thornthwaite's scheme of classification.	
		2. Water budget	Construction of water budget diagram using Precipitation and potential evapo-transpiration data.	04
		3. Weather forecasting	Forecasting by path method	

Reference Books

1. King, C. A. M (1966): Techniques in Geomorphology, Edward Arnold, London
2. Monk house, F. J. and Wilkinson, H. R., (1976). Maps and Diagrams, Methuen & Co.
3. Savindra Singh (2002): Geomorphology, Prayag Pustak Bhawan, Allahabad
4. Miller, Austin (1953): The skin of the Earth, Methuen & Co. Ltd. London
5. Strahler: Physical Geography

GC 106 – Practical's in Human Geography

a. Economic Geography				
Unit No.	Topics	Sub-topic	Learning Points	No. of Practical
1	Crop Combination	Methods	1. Weaver's method 2. Thomas' method	02
2	Agricultural Efficiency	Methods	1. Kendall's method 2. Bhatia's method	02
3	Measures of Network Structure	Network indices	1. Ratio measure 2. Alpha, beta, gamma, etc. 3. Associated number, cyclomatic number	01
4	Lorenz Curve Location quotient	Lorenz Curve Location quotient	Calculation and plotting	02
5	Use of Logarithmic Graph Paper	Exponential and power functions	1. Plotting of suitable economic data on semi-log graph paper 2. Plotting of suitable economic data on double-log graph paper	02
b. Settlement and Population Geography				
	Population Geography	Indices and Projection	1. Age-sex pyramid 2. Child-women ratio 3. Dependency ratio 4. Infant mortality rate 5. Age specific mortality 6. Population growth rate 7. Population projection	03
		Computer Application	Data Analysis and presentation using Computers	05
	Settlement Geography	Methods for calculation of Urban data and Dispersion	1. Rank size rule & primate index 2. Calculation of centrality 5. Nearest Neighbor analysis 6. Gravity model	03

Reference Books

1. Carter Harold (1977): The study of Urban Geography
2. Hans Raj (1978): Fundamentals of Demography
3. Hudson F.S. (1976): Geography of Settlements
4. Michael E. and E. Hurse: Transportation Geography
5. Pollard A. H. and Farhat Yusu: Demographic Techniques
6. Singh, R. L. Reading in Rural Settlement Geography
7. Yeats, M. H. (1974). An introduction to Quantitative Analysis in Human Geography
8. Singh, J. and Dillon (1984): Agricultural Geography.
9. Liendsor, J. M. (1997): Techniques in Human Geography, Routledge.
10. Lloyd, P. and B. Dicken (1972): Location in Space - A theoretical approach to economic geography. Harper and Row, New York