

DEPARTMENT OF GEOGRAPHY
FACULTY OF NATURAL SCIENCES
JAMIA MILLIA ISLAMIA
NEW DELHI – 110 025

(A Central University by an Act of Parliament)



B.A. /B.Sc.(H) Geography

Syllabus (w.e.f. 2015-2016)

Course Structure B.A. /B.Sc. (H) Geography

Semester-I

Paper (Theory)	Title	Credits	
GEB-101 (paper I)	Geomorphology	4	CC
GEB-102 (paper II)	Climatology	4	CC
GEB-103 (paper III)	Fundamentals of Remote Sensing	4	CB

Semester-II

Paper (Theory)	Title	Credits	
GEB-201 (paper IV)	Oceanography and Hydrology	4	CC
GEB-202 (paper V)	Principles of Ecology	4	CB
GEB-203 (Practical I)	Map Interpretation	4	CC
GEB-204 (Practical II)	Cartographic Techniques	4	CC

Semester-III

Paper (Theory)	Title	Credits	
GEB-301 (paper VI)	Man and Environment	4	CC
GEB-302 (paper VII)	World Regional Geography	4	CC
GEB-303 (paper VIII)	Disaster management	4	CC
GEB-304 (Practical III)	Land Surveying and GPS	4	AE CC

Semester-IV

Paper (Theory)	Title	Credits	
GEB-401 (paper IX)	Economic and Resource Geography	4	CC
GEB-402 (paper X)	Geography of India	4	CC
GEB-403 (paper XI)	Environmental Issues and management	4	CB
GEB-404 (Practical IV)	Statistical Techniques in Geography	2	CC

Semester-V

Paper (Theory)	Title	Credits	
GEB-501 (paper XII)	Regional Development and Planning	4	CC
GEB-502 (paper XIII)	Evolution of Geographical Thought	4	CC
GEB-503 (paper XIV)	Population and Development	4	CB
GEB-504 (Practical V)	Photo and Image Interpretation	2	CC

Semester-VI

Paper (Theory)	Title	Credits	
GEB-601 (paper XV)	Urban Geography	4	CC
GEB-602 (paper XVI)	Agriculture Geography	4	CC
GEB-603	Project	4	CC
GEB-604 (Practical VI)	GIS	4	SEC

GRAND TOTAL

Semester	Core Course(CC)			Choice Based (CB)	Skill Enhancement(SEC)	Ability Enhancement(AECC)	Total Papers	Credits
	Theory	Practical	Total					
I	02	-	02	01	-	-	03	12
II	01	02	03	01	-	-	04	12
III	03	-	03	-	-	01	04	16
IV	02	01	03	01	-	-	04	14
V	02	01	03	01	-	-	04	14
VI	03	-	03	-	01	-	04	16
Total Papers	13	04	17	04	01	01	23	
Total Credits	13 * 4 = 52	4 * 2 = 08		4 * 4 = 16	4 * 1 = 04	4 * 1 = 04		84

SEMESTER-I
Geomorphology
Paper (GEB-101)

Credits: 4

Unit-I

The nature and scope of Geomorphology; Constitution of earth's interior; Geological Time Scale; Continental Drift, Plate Tectonics.

Unit-II

Forces of earth crust and earth movements; Folds and Faults; Rocks: Formation and Types; Volcanoes and Earthquakes; Weathering; Normal cycle of Erosion by Davis & Penck.

Unit-III

Evolution of Landscape: Fluvial, Glacial, Aeolian, Karst and Coastal.

Unit-IV

Relevance of Geomorphological Studies in Environment Management, Settlement and Industries.

Books Recommended:

1. Dayal, P., 2015. Text-Book of Geomorphology, Shukla Book Depot, Patna.
2. Gabler R.E, Peterson. J.F., Trapasso, L.M. 2009. Essentials of Physical Geography Brooks/Cole Cengage Learning.
3. Kale, V. and Gupta, A., 2004. Elements of Geomorphology. Oxford University press, Calcutta.
4. Strahaler, A.H., 2013(6th edition). Introducing Physical Geography. Wiley Pub.
5. Thornbury, W.D., 1991. Principles of Geomorphology, Wiley Eastern Ltd., New Delhi
6. Worcester, P.C. 1969. Text Book of Geomorphology. East West Press, New Delhi.
7. Savindra Singh. Fundamental Concepts in Geomorphology. Prayag Pustak Bhawan, Allahabad.
8. Gautam, A. 2015. Geomorphology. Sharda Pustak Bhawan.
9. Hugget, R.J. 2011. Fundamentals of Geomorphology. Routledge Pub.
10. Harvey, 2012. A. Introducing Geomorphology: A Guide to Landforms and Processes. Dunedin Academic Press

Climatology
Paper (GEB-102)

Credits: 4

Unit-I

Nature and scope of climatology, Composition and structure of the atmosphere; Insolation and its factor; heat Budget; Horizontal and vertical Distribution of temperature.

Unit-II

Atmospheric Evaporation; Humidity; Condensation, Precipitation, types of rainfall, Hydrological Cycle.

Unit-III

Atmospheric pressure and winds, Air Masses and Fronts; Cyclones and anti cyclones, Tropical and Temperate cyclones; Thunderstorms: Type and Distributions.

Unit-IV

Koppen's Classification of Climates, Global Warming; Air Pollution, Climatic Change and its impact on the earth.

Books Recommended:

1. Barry, R.G. and Chorley R.J. 2009(9th edition). Atmosphere Weather and climate, Routledge
2. Critchfield, J.H. 1983(4th edition). General Climatology. Phi Learning Pub.
3. Das, P.K. 2011(3rd edition). The Monsoons. National Book Trust, New Delhi
4. Fein, J.S. and Stephens, P.N. 1987. Monsoon. John Wiley and Sons, New York
5. India Met. Deptt: Climatological Tables of observation in India
6. Lal, D.S. 2012. Climatology. Sharda Pustak Bhawan, Allahabad.
7. Lydolph.P.E. 1985. The Climate of the Earth. Roman & Allanheld Pub.
8. Menon,P.A. 1989. Our Weather, National Book Trust, New Delhi.
9. Thompson, R.D. and Perry, A. 1997. Applied Climatology: Principles and Practice. Routledge.
10. Siddhartha, K. 2013. Oceanography-A Brief Introduction, Kishalaya Pub., New Delhi.

Fundamentals of Remote Sensing
(Choice Based Paper)
Paper – III (GEB-103)

Credits: 4

Unit-I

Introduction to Remote Sensing; EMR and EMS; Stages of Remote Sensing; Remote Sensing & its Types; Interaction of EMR with Atmosphere and Earth Surface Features

Unit-II

Remote Sensing Platforms and Sensors; Satellite Series: IRS, Spot, IKONOS and Quick Bird

Unit-III

Digital images and their types; Image Resolutions: Spatial, Spectral, Radiometric and Temporal; Image Histograms; Image Rectification: Radiometric and Geometric

Unit-IV

Aerial Photographs and their types; Geometry of Aerial Photographs; Scales of Aerial Photographs; Difference between Aerial Photographs and Maps; Difference between Aerial photographs and Imageries

Books Recommended:

1. Lillisand,T., Keifer, Ralph W., Chipman, J. 2011. Remote Sensing and Image Interpretation. John Wiley Pub., New York.
2. Campbell, J.B. 1996(2nd edition). Introduction to Remote Sensing. Taylor and Francis, London.
3. Curran, P. 1985. Principles of Remote Sensing. Longman, London.
4. Sabins, J.F.F. 1997. Remote Sensing: Principles and Interpretation. W.H. Freeman & Co., New York.
5. Jenson, J.R. 2013. Remote Sensing and Environment. Pearson India
6. Kumar, S. 2005. Basics of Remote Sensing and GIS. Laxmi Pub.

SEMESTER-II
Oceanography and Hydrology
Paper – IV (GEB-201)

Credits: 4

Unit-I

Definition and Scope of oceanography; Surface configuration of Ocean floor; Sub-marine relief of Atlantic, Pacific and Indian Oceans; Horizontal and vertical Distribution of Temperature and Salinity

Unit-II

Oceanic Circulation: Tides and Currents; Origin of Tides and their types; Equilibrium theory of tides and Tsunamis; Ocean Deposits, Coral Reefs and Atolls; Marine resources: Conservation and management.

Unit-III

Definition and Scope of Hydrology; Hydrological cycle; Surface water: sources and factors affecting quality and quantity: Precipitation: forms and estimation; Runoff: sources, and factors; Evaporation: factors and measurement; Transpiration: significance and factors; Evapo-transpiration.

Unit-IV

Ground water: Characteristics of stream flow; porosity and permeability, infiltration; Ground water: storage, aquifers, movement and discharge; water pollution: Implications and Management; Rain water Harvesting

Books Recommended:

1. Andrew D. Ward and Stanley Trimble .2004(2nd edition). Environmental Hydrology, Lewis Publishers.
2. Basu S.K. 2004(ed). Handbook of Oceanography. Global Vision, Delhi.
3. Garg, S.K. 2005. Hydrology and Water Resource. Khanna Publishers, New Delhi.
4. Garrison Tom. 2012. Geography: An Invitation to Marine Science. Brooks/Cole. New York
5. Garrison Tom. 2008. Essentials of Oceanography. Brooks/Cole. New York
6. Savindra Singh. 2013. Oceanography. Prayag Pustak Bhawan, Allahabad.
7. Singh, V.P., 1992. Elementary Hydrology. Prentice Hall Inc., Upper Saddle River, N.J.
8. Timothy, Davie,(2003), Fundamentals of Hydrology. Routledge, Taylor and Francis Group, U.K.
9. Hussain, T and Tahir, M. 2012. Oceanography. Jawahar Pub., New Delhi
10. Siddhartha, K. . 2013. Oceanography: A Brief Introduction. Kisalaya Pub., New Delhi
11. Hussain, Majid. 2010. Fundamentals of Physical Geography. Rawat Pub.
12. Trujillo, Alan P and Thurman Harold V. 2013. Essentials of Oceanography. Pearson - Prentice Hall
13. Davis Richard A. (1972) Principles of Oceanography. Addition Wesley Publishing House.

Principles of Ecology (Choice Based Paper)
Paper – V (GEB-202)

Credits: 4

Unit-I

Introduction Definition, Scope, Evolution and development; Difference between Ecology and Human Ecology; Environmentalism; Conservation Ethics.

Unit-II

Man and Environment Interaction; Human Adaptation and Modification; Environmental Adaptation Types, Aquatic, Desert and Land adaptations

Unit-III

Nutrient cycles: Water Cycle. Nitrogen Cycle, Carbon Cycle, Phosphorous Cycle; Human Population Size and Growth; Carrying Capacity of Earth.

Unit-IV

Ecosystem: Definition, Components, Types and functions; Food Chain, Food Webs and Energy Trophic Levels; Energy flow within the Ecosystem: Y- Shaped Model.

Books Recommended:

1. Odum, E.P. 2004. Fundamentals of Ecology. Cengage Learning, New York.
2. Arumugam, N. 2014. Concepts of Ecology. Saras Publication, Delhi.
3. Pushpam Kumar, Reddy B. Sudhakar. 2007. Ecology and Human Well Being. Sage Publication.
4. Robert Ezra Park. 2003. Human Communities: The City and Human Ecology. Freeman Press.
5. Vladimir F. Krapivin., Costas A. Varotsos. 2005. Biogeochemical Cycles in Globalization and Sustainable Development. Springer.
6. Lovett G.M., Jones C., Turns M.G., Weather K.C. 2005. Ecosystem Function in Heterogenous Landscapes. Springer.
7. Yueh-Hsin Lo, Juan A. Blanco and Shovonlal Roy. Biodiversity in Ecosystem. InTech Publishers.
8. Herbert C. Hanson. 1962. Dictionary of Ecology. Philosophicalz Library Publisher .
9. Ehrlich, P.R, Ehrlich, A.H. and Holdren, J.P. 2000(Revised). Human Ecology. W.H.Freeman & Co. San Franchisco.

Map Interpretation
Practical – I (GEB-203)

Credits: 2

Unit-I: Map Introduction

Map: Definition, Significance and Classification; Geographic Coordinate Systems and Map Projections; Graphical Construction of Mercator's, Simple Conical with One Standard Parallel, Gnomonic and Stereographic Projections

Unit-II: Map Interpretation

Types of Maps: General purpose vs Thematic Maps; Interpretation of Topo-sheets and Weather Maps.

Books Recommended:

1. Monkhouse. F. J. and Wilkinson. H. R. 1972. Maps and Diagrams. Methuen, London
2. Misra. R. P. 1969. Fundamentals of Cartography. Prasaranga. University of Mysore, Mysore
3. Arthur H. Robinson, Joel L. Morrison, Phillip C. Muehrcke , A. Jon Kimerling, Stephen C. Guphill. 1995(6th Edition). Elements of Cartography. Willey Pub.

**Cartographic Techniques
Practical – II (GEB-204)**

Credits: 2

Unit-I: Fundamentals to Cartography

Definition and Scope of Cartography; Elements of Map Making; Methods of Scale Representation; Drawing of Plain, Comparative and Diagonal Scales

Unit-II: Cartographic Techniques

Diagram: Line, Bars, Circles; Techniques of Mapping: Dots and Choropleth.

BOOKS RECOMMENDED:

1. Monkhouse. F. J. and Wilkinson. H. R. 1972: Maps and Diagrams. Methuen , London
2. Misra, R. P. 1969. Fundamentals of Cartography, Prasaranga. University of Mysore, Mysore
3. Kraak, M & Ormelling, F 2003, Cartography: Visualization of Spatial Data, 2nd edn, Pearson Education, Harlow, England.
4. Dent, BD 1999, Cartography - Thematic Map Design, 5th edn, William C Brown/McGraw-Hill.
5. Arthur H. Robinson, Joel L. Morrison, Phillip C. Muehrcke , A. Jon Kimerling, Stephen C. Guphill. 1995(6th Edition). Elements of Cartography. Willey Pub.