

## Semester: 1

**PAPER: MAJOR**

### Paper Description: Geotectonic

This paper deals with topics in Geotectonic, Scale and Diagrammatic data presentation. In particular, the theoretical part of the course will cover internal structure of the earth, rocks, isostasy, earth movements, mountain building, continental drift theory, sea-floor spreading, plate tectonics and volcanicity; while the practical part will cover construction of linear and comparative scale and diagrammatic data presentation using line, bar and circle.

**Paper Code: UGEOMAJ11001**

**Paper Type: Theory + Practical Lab Based-PLB**

**Credit: 3 credit theory and 1 credit practical.**

**Class hours: 3 theory classes per week and 2 practical classes per week. Total 5 classes per week.**

**Duration of the Examinations: 2 hrs. Theoretical and 2 hrs. Practical Examinations.**

### Syllabus:

#### Paper Objectives

##### Knowledge acquired:

1. Concept of geotectonic and earth's interior.
2. Theories of mountain building.
3. Continental drift, plate movements and volcanicity.

##### Skills gained:

1. Develop skills in constructing linear and comparative scale.
2. Graphical representation of data using line, bar and circle diagrams.

##### Competency developed:

1. Developing skills in questioning, reasoning, and drawing logical conclusions based on evidence and scientific principles of various theories and concepts related to geotectonic.
2. Enable students to interpret and visually communicate data effectively.

### Syllabus Overview

#### Theory

Unit	Content	Hours/Week
1	Geological time scale; Internal structure of the earth; Classification of rocks: Igneous, Sedimentary and Metamorphic; Theory of isostasy; Views of Airy and Pratt.	3
2	Earth movements, processes and topographic effects of folding and faulting; Classification of mountains; Theories of mountain building; Geosynclinal theory of Kober, Thermal contraction theory of Jeffreys, Thermal convection current theory of Holmes.	
3	Continental drift theory of Alfred Wegener; Concept of sea-floor spreading; Plate tectonics, plate boundaries and subduction zones; Concept of volcanicity; Classification of volcanoes; Volcanic landforms; World distribution of volcanoes.	



### Practical

Unit	Content	Hours/Week
1	Scale: Definition and types; Construction of linear and comparative scale.	2
2	Diagrammatic data presentation: Line, bar (simple, compound and composite) and circle (pie graph, proportional circle and proportional divided circle).	

### Suggested reading

- Monkhouse, F.J. 1974. Principles of Physical Geography (2009-reprint). Platinum Publishers.
- Strahler, A. 2016. Introducing Physical Geography, 6th ed, Wiley.
- Khullar, D.R. (2012). Physical Geography. New Delhi, India: Kalyani Publishers.
- Mohan, K. (2018). GES PERIODOS VOL I, An Ultimate Guide to Physical Geography, Oak Bridge Publication, New Delhi.
- Kearey, P., Klepeis, K.A., Vine, F.J. 2011. Global Tectonics, 3rd ed, Wiley-India.
- Singh, S. (2022). Physical Geography. Pravalika Publications, Prayagraj.
- Christopherson, R. W. and Birkeland, G. H., (2012) Geosystems: An Introduction to Physical Geography (8th edition), Pearson Education, New Jersey.
- Das Gupta, A and Kapoor, A.N., (2001) Principles of Physical Geography, S.C. Chand & Company Ltd. New Delhi.
- Skinner, Brian J. and Stephen C. Porter (2000), The Dynamic Earth: An Introduction to Physical Geology, 4th Edition, John Wiley and Sons.
- Singh R. L. and Singh R. P. B., 1999: Elements of Practical Geography, Kalyani Publishers.
- Sarkar, A. (2015) Practical geography: A systematic approach. Orient Black Swan Private Ltd., New Delhi.
- Mishra R. P. and Ramesh A., 1989: Fundamentals of Cartography, Concept, New Delhi.

**Practical guidelines: Students will prepare a laboratory notebook covering all the practical units duly signed by the internal faculty members. Viva-voce is compulsory at the time of practical examination.**

### Question pattern

Type	Marks			Total
Theoretical	1: 5 out of 5	5: 3 out of 5	10: 2 out of 4	40
Practical	15 : 1 out of 1	5: Laboratory notebook and viva-voce.		20
CE	10: Mid-term test, class test, seminar presentation, term paper (Any one to be decided by the respective departmental faculty members)			10
Attendance	5			5
Full marks				75