

Stratigraphy

1.1. Course Number: GE314

1.2. Contact Hours: 2-0-0

Credits: 6

1.3. Semester Offered: 3rd Year-Even

1.4. Prerequisite: Basic knowledge of Geology

1.5. Syllabus Committee Members: Dr. Alok Kumar Singh & Dr. Hemant Kumar Singh

2. **Objective:** The course is intended to familiarize the student with stratigraphic principles and nomenclature, major stratigraphic units, methods of stratigraphic correlation, depositional environments, and tectonostratigraphic framework of various lithostratigraphic units of India.

3. **Course Content:** Unit-wise distribution of content and number of lectures

Unit	Topics	Sub-topics	Lectures
1	Basics of Stratigraphy	Principles and Classification of Stratigraphy, Elements of stratigraphy, correlation, Stratigraphic code of nomenclature, Geologic Time Scale.	5
2	Indian Stratigraphy	Stratigraphic Distribution, Geological Succession, Structure, Tectonics and Economic Importance of the following: – Archaean system –Cuddapah system –Kurnool system – Vindhyan system – Aravalli system of India, Dharwar system– Sargur, Supergroup, Sakoli Group – Sausar Group – Iron ore Group of Bihar and Orissa – Bundelkhand, Group – Banded Gneiss complex, The Paleozoic Group, Gondwana Group, Triassic of Spiti, Jurassic of Kutch, Cretaceous of Trichinopoly and the marine, Cretaceous system.	15
3	Distribution, Structure, Lithology, Climate, Fossils and Origin of:	Siwalik system, Pleistocene-Holocene system, Quaternary glaciations, Rise of Himalayas - Eocene, Oligocene, and Lower Miocene systems.	5
4	Boundary and Age Problems	K-T boundary problem, Precambrian – Cambrian boundary problem, Permian - Triassic boundary problem, Age of Saline Series, Age of Deccan traps and its distribution.	5
Total			30

4. Readings:

4.1. Textbook:

- Krishnan, M. S. (1982) Geology of India and Burma, CBS Publishers, Delhi
- Ravindra Kumar (1985) Fundamentals of Historical Geology and Stratigraphy of India.
- Doyle, P. & Bennett, M. R. (1996) Unlocking the Stratigraphic Record. John Wiley.
- Ramakrishnan, M. & Vaidyanadhan, R. (2008) Geology of India Volumes 1 & 2, Geological society of India, Bangalore.

4.2. Reference Books:

- Krishnan, M. S. (1982) Geology of India and Burma, CBS Publishers, Delhi
- Doyle, P. & Bennett, M. R. (1996) Unlocking the Stratigraphic Record. John Wiley.
- Valdiya, K. S. (2010) The making of India, Macmillan India Pvt. Ltd.

5. Outcome of the course:

On successful completion of the course, the student will be able to:

- Evaluate the principles of advanced Stratigraphy and details of Geological Time scale.
- Identify Indian stratigraphic systems of Archean, Dharwar, Cuddapah, Kurnool, Vindhyan and Aravalli systems, and describe the detailed insight into the Geological Time events of Gondwana, Triassic, Jurassic and Cretaceous.
- Assess the detailed significance of the Siwalik, Pleistocene, Holocene, Himalayas, and Eocene systems and analyze the age and boundary problems of various ages.