DISCIPLINE SPECIFIC CORE COURSE– 3 (DSC-3) Concepts of Stratigraphy

Credit distribution, Eligibility and Pre-requisites of the Course

Course t itle & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of t he course(if any)
		Lecture	Tutorial	Practical/ Practice		
Concepts of Stratigraphy	4	3	0	1	B.Sc. Hons. Geology students only	NIL

Learning Objectives
This is to introduce students with the fundamental concepts of stacking of sediments in both space and time based on principles of stratigraphy and sedimentation.

Learning outcomes
Students will be able to learn the distribution of sedimentary rocks in both space and time and appreciate the stacking of sediments following the fundamental concepts of stratigraphy

SYLLABUS OF DSC-3

Unit 1: Principles of stratigraphy, geological time scale **(3 Hours)**

Unit 2 : Stratigraphic units: lithostratigraphic, chronostratigraphic and biostratigraphic units **(2 weeks)**

Unit 3 : Stratigraphic classification and correlation. Methods of collecting stratigraphic data, identification of stratigraphic contacts and unconformities. **(6 Hours)**

Unit 4: Facies concept in stratigraphy. Applications of lithostratigraphy **(3 Hours)**

Unit 5: Fossils and stratigraphy; Evolutionary trends, Biozones and zone fossils **(3 Hours)**

Unit 6: Biostratigraphy in relation to other stratigraphic techniques **(6 Hours)**

Unit 7: Radiometric dating (K-Ar, Rb-Sr, U-Pb) and correlation techniques **(6 Hours)**

Unit 8 : Basic principles of magnetostratigraphy, seismic stratigraphy and sequence stratigraphy. **(6 Hours)**

Unit 9 : Concept of Stratotypes. Global Stratotype Section and Point (GSSP). International and Indian code for stratigraphic classification. **(6 Hours)**

Practical (30 Hours)
Preparation and study of stratigraphic maps:

a) Correlation diagrams using lithologs of fossiliferous and non-fossiliferous stratigraphic units. Geophysical logs.
b) Examination of isopach and isofacies maps.

c) Exercises related to stratigraphic classification and correlation.

Essential readings

- Blatt, H., Berry, W.B. and Brande, S., 1991. Principles of stratigraphic analysis. Blackwell scientific publications, Oxford
- Nicols G., 2009 Sedimentology and Stratigraphy 2nd Edition, Wiley-Blackwell
- Brookfield, M.E., 2016 Principles of stratigraphy, Wiley India

Suggestive readings

1. Blatt, H., Berry, W.B. and Brande, S., 1991. Principles of stratigraphic analysis. Blackwell scientific publications, Oxford Annexure-III Page 24 of 25
2. Nicols G., 2009 Sedimentology and Stratigraphy 2nd Edition, Wiley-Blackwell
3. Brookfield, M.E., 2016 Principles of stratigraphy, Wiley India