

DISCIPLINE SPECIFIC CORE COURSE – 8 (DSC-8): Sedimentary Geology

Credit distribution, Eligibility and Prerequisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Sedimentary Geology (DSC-8)	4	3	0	1	Class 12 th with Science	Studied Stratigraphy, Earth System Science (or equivalent)

Learning Objectives

Main objective of the course is to provide basic and advance knowledge to students about sediments origin, transport, and depositions and formation of the sedimentary rocks and their distribution in space and time.

Learning outcomes

Students will learn and appreciate the concepts of weathering and sedimentary flux, the basic concepts of sediment transport and formation of sedimentary structures. Grain size scales and analysis. Students will be able to appreciate sedimentary facies, classification of sedimentary rocks, sedimentary environments and provenance.

SYLLABUS OF DSC- 8

UNIT – I (9 hours)

Detailed contents

Introduction to Sedimentary Geology. Chemistry of weathering processes. Sediments: origin, transportation, deposition, consolidation and diagenesis

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UNIT – II (9 hours)

Detailed contents

Sediment granulometry: Grain size scales Udden-Wentworth and Krumbein (phi) scale, particle size distribution; mean, median, mode, standard deviation, skewness. Environmental connotation.

UNIT – III (9 hours)

Detailed contents

Sedimentary fabric, textures, Porosity and permeability. Sedimentary structures: Syn-sedimentary, Penecontemporaneous

UNIT – IV (9 hours)

Detailed contents

Ichnofossils: Sediment-organism interaction. classification of sedimentary rocks. Tectonics and Climate Diagenesis of terrigenous and chemical sediments

UNIT – V (9 hours)

Detailed contents

Concept of sedimentary facies, paleoenvironment and paleocurrent analyses. Introduction to sedimentary environment: aeolian, glacial, fluvial, near-shore and deep-marine environments. Introduction to carbonate rocks: classification

Practical Component- (30 Hours)

Study of megascopic characters of major sedimentary rocks:

Sketching of primary sedimentary structures in laboratory and museum specimen: ripple marks, cross beddings, sole marks, biogenic structures.

Microscopic study of textures and diagenetic features in sedimentary rocks:

Essential/recommended readings

Prothero, D.R., and Schwab, F. 2003. Sedimentary Geology. Freeman & Co.

Boggs Sam Jr. 1995. Principles of Sedimentology and Stratigraphy, Prentice Hall

Suggestive readings (if any)

Prothero, D.R., and Schwab, F. 2003. Sedimentary Geology. Freeman & Co.

Boggs Sam Jr. 1995. Principles of Sedimentology and Stratigraphy, Prentice Hall.

Stanley, S. M. 1985. Earth and Life through time. Freeman & Co.

Tucker, M., 1988 Techniques in sedimentology Blackwell scientific publications

Nicols, G., 2009 Sedimentology and Stratigraphy Wiley-Blackwell

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.