

Programme: M. Sc. (Marine Sciences)

Course Code: MSO 382**Title of the Course:** Sedimentology

Number of Credits: 04

Effective from AY: June 2018-19

Prerequisites for the course:	Fundamental courses in all the branches of Marine Sciences of this University or any other University recognized as equivalent.	
Objective:	This course introduces sediment types and their distribution, concept of facies, heavy mineral zones, sedimentary depositional environments, sedimentary rocks and diagenesis.	
Content:	Distribution and genesis of terrigenous, biogenous, chemogenous, volcanogenic, authigenic and extra terrestrial (cosmogenous) sediments in the world ocean – Rate of sedimentation in the oceans.	12 hours
	Concepts of sedimentary facies, facies construction and interpretation, factors controlling the nature and distribution of facies – Provenance – Heavy minerals, rock particles and clay minerals – Mineral stability – Goldich stability series, sediment maturity, heavy mineral zones - X ray diffraction technique and its use in mineral and sediment study.	12 hours
	Sedimentary depositional environments – Aeolian, lacustrine, glacial desert, fluvial, coastal shallow marine and deep sea – Sedimentary and faunal markers of paleoenvironmental conditions.	12 hours
	Sedimentary rocks – Classification, properties, origin and importance – Sandstone, limestone, mudstones and evaporites – Sedimentary structures formed by unidirectional water flows, water waves, airflows, liquefaction and current drag, diapirism and differential loading, desiccation and shrinkage structure – Diagenesis: general considerations, terrigenous clastic sediments, carbonate sediments, evaporates and hydrocarbons, Diagenesis of silica, iron and Manganese.	12 hours
Pedagogy:	Lectures / Assignments / Seminars / Discussion	

References/ Readings	1. Sedimentation in the world ocean, 1972 Lisitzin, A. P., Soc. Of E. C. Paleontologists. 2. Sedimentology, 1982 Leeder, M. R., George Allen & Unwin. 3. Sedimentary rocks (3rd edn.), 1984 Pettijohn, E. J., C.B.S. Publ. and Distrib. 4. Stratigraphy and sedimentation, 1963 Krumbein, W. C. and Sloss, L. L., W. H. Freeman & Co. 5. Sedimentary environments and facies (2nd edn), 1986 Reading, H.G., Blackwell Sci Publ. 6. Depositional sedimentary environments, 1986 Reineck, H.E. and Singh, I.B., Springer Verlag. 7. Origin of sedimentary rocks, 1972 Blatt, H., Middleton, G. and Englewood, M.R., Cliff, New Jersey. 8. Principles of sedimentology, 1978 Friedman, G.M. and Sanders, J. E., John Wiley & Sons. 9. Procedures in sedimentary petrology, 1971 Carver, R.F., Wiley Interscience. 10. Sedimentary structures: their character and physical basis (Vol.1 & 2), 1982 Allen, J.R.I., Elsevier. 11. Physical processes of sedimentation: An introduction, 1970 Allen, J.R., George Allen & Unwin. 12. Ancient sedimentary environments: A brief survey, 1970 Selley, R. C., Chapman & Hall. 13. Atlas and glossary of primary sedimentary structures, 1964 Pettijohn, F. J. and Potter, P. E., Springer Verlag. 14. Sand and sandstone, 1972 Pettijohn, F. J., Potter, P.E. and Siever, R., Springer Verlag.	
Learning Outcomes	1. Understanding sediment processes, paleo-environments, formation. 2. Ability to reconstruct paleo-climate and paleo-environments	