Programme: M. Sc. (Marine Sciences)
Course Code: MSC 375 **Title of the Course: Marine Geochemistry I**
Number of Credits: 02
Effective from AY: June2018-19

Prerequisites for the course:	Should have studied core courses of first and second semester of M.Sc. Marine Sciences along with respective practical. It is assumed that the students have basic knowledge of different branches of Marine Sciences and have ability to apply to understand the processes.	
Objective:	This course introduces concepts of Marine Geochemistry and help to understand processes associated with energy and material transfer from land to sea.	
Content:	Geochemical classification of elements - distribution and abundance of elements in lithosphere – Principle geochemical cycle, Chemical weathering. Suspended matter – Methods of collection and analysis, spatial and temporal variation of total suspended particulate matter in the ocean – Component composition and settling rates of suspended matter – Particle flux in the ocean and various techniques of measurement, Particulate organic matter in the sea: its origin, nature, composition and methods of measurements. Sedimentation – physicochemical factors in sedimentation – ionic potential, hydrogen ion concentration, redox potential and colloids – Behaviour of major and trace elements during sedimentation – Significance of organic content in sedimentation – Component composition and geochemistry of deep sea sediments – Application of major and minor elements in the reconstruction of marine paleo-environment.	12 hours 12 hours
Pedagogy:	Lectures / Assignments / Seminars / Discussion	
References/ Readings	1. Introduction to geochemistry, 1967 Krauskopf, K. B., Mc.Graw-hill. 2. Geochemistry, 1962 Goldschmidt, V. M., Clarendon press. 3. Principles of geochemistry, 1956 Mason, B. and Moore, B., John Wiley & Sons, Inc. 4. Chemical oceanography (Vol. 1 & 3), 1975 Riley, J. P. and Skirrow, G., Academic Press, New York 5. Introduction to geochemistry, 1995 Krauskopf, K. B. and Bird, Mc-Graw Hill. 6. The geochemistry of natural waters, 1982 Drever, J. I.,Prentice-Hall, Inc., Englewood Cliffs, N.J. 7. Estuarine chemistry, 1976 Burton, J.D. and Liss, P. S., Academic Press. 8. Ocean chemistry and deep sea sediments, 1989 Open University Course Material. 9. Aquatic chemistry, 1996 Stumm, W. and Morgan, J.J., Wiley Interscience, New York. 10. Aquatic surface chemistry, 1987 Stumm, W., Wiley Interscience, New York. 11. Marine Chemistry, 1969 Home, R. A.,Reinhold Publishing Corporation, New York.	
Learning Outcomes	1. Understanding material transfer from land to sea through geochemical processes and geochemical processes within sediment column in the oceans.	