

**Programme:** M. Sc. (Marine Sciences)

**Course Code:** MSO 379 **Title of the Course:** Marine Geochemistry Practical II

**Number of Credits:** 01

**Effective from AY:** June 2018-19

<b>Prerequisites for the course:</b>	Marine Geology and Marine Chemistry	
<b>Objective:</b>	<ol style="list-style-type: none"><li>1. The primary purpose of geochemistry is on one hand to determine quantitatively the composition of Earth and on the other hand to discover laws which control the distribution of individual elements.</li><li>2. The chemical analysis of sediment provides information about the concentration of different constituents.</li><li>3. The course work involves estimation of organic carbon and phosphorus and trace metals in sediments collected from different regions of marine environment.</li></ol>	
<b>Content:</b>	<ol style="list-style-type: none"><li>1. Determination of Organic carbon in sediment. (6 hrs; Ref 1)</li><li>2. Determination of phosphorus in sediment. (6 hrs; Ref 1, 2,3)</li><li>3. Sediment digestion procedure (8 hrs; Ref 1)</li><li>4. Estimation of Cr in sediment (5 hrs; Ref 4, 5)</li><li>5. Estimation of Zn in sediment (5 hrs; Ref 4, 5)</li></ol>	24 hours
<b>Pedagogy:</b>	Demonstrations/Laboratory experiments	

<b>References/ Readings</b>	<ol style="list-style-type: none"><li>1. Methods of Seawater Analysis, 1983, 1999 – Grasshoff, K., Ehrhardt, M. and Kremling, K.; Verlag Chemie, Weinheim, 419.</li><li>2. A Manual of Chemical and Biological Methods for Seawater Analysis, 1984 – Parsons, T. R., Maita, Y. and Lalli, C. M., Pergamon Press, Oxford.</li><li>3. Manual for geochemical analysis of marine sediments and suspended particulate matter, 1992 - Loring, D. H. and Rantala, R. T. T., <i>Earth. Science. Rev.</i> 32: 235-283.</li><li>4. Chemical Analysis. In: Methods in plant Ecology, 1976 - Allen, S. E., Grimshaw, H. M., Parkinson, J. A., Quarmby, C. and Roberts, J.D. 1976., S. B. Chapman (eds.), Blackwell Scientific Publications, Oxford, Chapter 8, 411-466.</li><li>5. Methods of Seawater analysis, 1983 - Grasshoff, K.K. Grasskhoff, M. Ehrdardt and K. Krembling (eds.), Verlag Chemie, Weinheim, 419.</li><li>6. Analytical chemistry of seawater, 1975 - In Chemical Oceanography J.P. Riley and G. Skirrow (eds.), Vol. 3. Academic Press, London.</li><li>7. Standard methods for the examination of water and waste water analysis (22nd edition), 2012. Rice, E.W and Bridgewater L. American Public Health Association, Washington DC.</li></ol>	
<b>Learning Outcomes</b>	<ol style="list-style-type: none"><li>1. The analysis of organic carbon and phosphorus in sediment gives information about the nutrient status of sediment and its possible sediment composition.</li><li>2. The results of metal analyses in marine sediments would help in understanding the possible sources of these metals by considering local factors.</li></ol>	