**Programme:** M. Sc. (Marine Sciences)
**Course Code: MSC 462 Title of the Course: Estuarine Chemistry**
**Number of Credits:** 01
**Effective from AY:**June2018-19

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| **Prerequisites for the course:** | Should have undergone the course Marine Chemistry (MSC 162). | |
| **Objective:** | This course develops concepts about the chemistry of the estuarine environment that concerns the study of the properties and interactions of the substances present in the estuarine environment. | |
| **Content:** | Salinity distribution in estuaries – a chemical perspective, flushing time, mixing and diffusion dispersal of pollutants in estuaries and near shore areas – Conservative and non – conservative properties of dissolved constituents during estuarine mixing – Behaviour of dissolved oxygen, pH and major elements in estuarine water. | 12 hours |

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| **Pedagogy:** | Lectures/tutorials/assignments/self-study. | |
| **References/ Readings** | 1. Estuarine Chemistry, 1976 - Burton, J.D. and Liss, P.S., Academic Press.<br>2. Practical Estuarine Chemistry, 1985 – Head, P.C., Cambridge University Press.<br>3. Chemistry and Biogeochemistry of Estuaries, 1980 – Olausson, E. and Cato, I., John Wiley & Sons.<br>4. Chemical Oceanography (Vol.7), 1978, Riley, J.P. and Chester, R., Academic Press.<br>5. Waves, Tides and Shallow-Water Processes, 1991, 2005 – The Open University.<br>6. Coastal and Estuarine Sediment Dynamics, 1986 – Dyer, K.R., Wiley.<br>7. Estuarine Hydrography and Sedimentation, 1980 – Dyer, K.R., Cambridge University Press.<br>8. Biogeochemistry of Marine Dissolved Organic Matter, 2002–D.A.Hansell and C. A. Carlson., Academic Press.<br>9. Biogeochemistry of Estuaries, 2007 – Thomas S. Bianchi, Oxford University Press.<br>10. Treatise on Estuarine and Coastal Science - Vol. 4: Geochemistry of Estuaries and Coasts, Vol. 5: Biogeochemistry, 2012, E. Wolanski and D. McClusky, Elsevier Inc. | |
| **Learning Outcomes** | 1. Provide a comprehensive understanding of the properties and interactions of the substances present in the estuarine environment.<br>2. Explain the key processes operating in the estuarine environment.<br>3. Explain the importance of dissolved $O_2$, pH and the $CO_2$ problem.<br>4. Explain the biogeochemical cycling of major seawater constituents from the perspective of the global biogeochemical cycling of elements. | |