Semester	JAN 2022
Open to semester	6,8,22
Course code	**EC3293/EC6273**
Course title	**Isotope Geochemistry**
Credits	3 /3
Course Coordinator & participating faculty (if any)	Gyana Ranjan Tripathy
Nature of Course	Lectures and Tutorials
Pre-requisites	None
Objectives (goals, type of students for whom useful, outcome etc)	This inter-disciplinary course aims to present application of (inorganic) chemistry in Earth and Climate sciences. We will discuss in detail how abundance and distribution of chemical elements (and their isotopes) can be used to understand various geological processes. The goal is to understand the behavior of selected isotopes in different geochemical reservoirs and applying these properties in the field of hydrology, ocean and climate sciences.
Course contents (details of topics /sections with no. of lectures for each)	Properties of chemical elements; Stable and radioactive isotopes; Geochemical cycles; Mass dependent and independent fractionation; Analytical methods and isotope dilution; Binary Mixing; Solid Earth and magmatic processes; Radiogenic tracers and Geochronology; Paleothermometry; Reconstruction of past climate; Isotopes in the hydrology; Sub-marine groundwater; Application of isotopes in oceanography
Evaluation /assessment	End-Sem Examination-40% Mid-Sem Examination-40% Others-20%
Suggested readings (with full list of authors, publisher, year, edn etc.)	1. Faure, G. and Mensing, T.M. (2004) Isotopes: Principles and Applications, 3rd Edition, John Wiley publishers, 928 pp. 2. Dickin, A.P. (2005) Radiogenic Isotope Geology, 2nd Edition, , Cambridge Publishers, 512 pp. 3. Allegre C. (2008), Isotope Geology, , Cambridge University Press, 512 pp. 4. Sharp Z. (2007) Principles of stable isotope geochemistry, 2nd edition, Pearson/Prentice Hal, 344 pp.