

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Earth Science)
Semester: II
Syllabus with Effect from: June - 2014

Paper Code: PT03CESC02	Total Credit: 4
Title Of Paper: Geochemistry	

Unit	Description in Detail	Weightage (%)
I	Aquatic Chemistry - Acid-Base, Complexation, Dissolution and Precipitation Reactions (example related with Silicates and Minerals) , Clays- Surface Chemistry and Charges, Trace Elements in Igneous Processes- Behavior of the Elements and their Distribution of Trace, Partition and Crystal-Field Effects.	25%
II	Radiogenic Isotope Geochemistry – Basics, Geochronology, Decay, Cosmogenic and Fossil Isotopes (Applications) Stable Isotope Geochemistry- Scope, Theoretical Considerations Fractionation (in hydrological, Biological and Hydrothermal System) Isotopes of Boron and Lithium.	25%
III	Cosmochemistry - The Polygenetic Hypothesis, Nucleosynthesis in Stellar Interiors, Explosive and Interstellar Space. Meteorites: Chondrites, Differentiated Meteorites, Meteorite Mineralogy, Relationships among Meteorites and Meteorite Parent-Bodies, Isotopic composition of the Solar System, Origin of Meteorites, Formation of the Solar System, Formation of Chondritic Meteorites and Processes in the Solar Nebula, Formation of the Planets, The Moon: Its Chemistry and History.	25%
IV	Minerals and Rocks: Forms of minerals, Crystal forms and systems, Morphological relationship of crystals, Feature for identifying minerals, Basics components of crust, Igneous rocks, Grain growth and texture, Composition and classification of Igneous rocks, Description and common igneous rocks, Sedimentary rocks- Formation of layering in sedimentary rocks, Description and common Sedimentary rocks, Factors controlling metamorphism, Type and concept of metamorphism, Influences of fluids in metamorphism, metamorphism rocks.	25%

Basic Text & Reference Books:-

- Geochemistry , W.M.White, Wiley-Blackwell
- Stable Isotopes and Biosphere- Atmosphere Interactions, Lawrence B. Flangan, James R. Ehleringer and Diane E. Pataki, Elsevier Academic Press.
- Principles of Isotope Geology, G. Faure, Wiley, 2nd Edition.
- Principles and Applications of Geochemistry, G. Faure, Prentice- Hall, New Jersey
- Fundamentals of Geology, A.B. Roy, Narosha publishing house, New Delhi
- Foundation of Geology, S.B. Bhagwat, Global vision publishing house, New Delhi.
- Petrology, Walter T. Huang, McGraw-Hill, New York

