SARDAR PATEL UNIVERSITY
Programme: B.Sc (Physics)
Semester: III
Syllabus with effect from: June-2012

Paper Code: US03EPHY02	Total Credit: 2
Title Of Paper: Basic Geophysics	

Unit	Description in detail	Weighting (%)
I	**Introduction to Geology, Earth Structure, Origin and interior of the Earth** **Fundamentals of Geology as a Science**: Branches of Geology, Interrelation between all the science and status of Geology in them, Origin of the Earth and Universe: Origin of the Universe, their hypotheses, Binary star theory, Accretion theory, Big Bang theory. **Internal structure of the Earth**: Crust, Mantle and Core, their chemical compositions, Pressure and Temperature in the earth, Earthquakes: tool to understand the interior of the Earth, Velocity of P and S waves inside the earth, Architecture of the Earth: Landscape and its origin, Isostasy	
II	**Plate Tectonics, Earth processes, Fundamentals of Minerals and Rocks** **Continental Drift and Plate tectonics:** Wegner's theory of continental drift, sea floor spreading, plate tectonics, plate boundaries, linear magnetic anomalies, polar wandering. **Introduction and Origin of the Minerals and Rock**: Classification and origin of the minerals (Oxides, silicates, carbonates, halides, sulphates, sulphides etc.), Igneous, sedimentary and metamorphic rocks (introductory)	
III	**Structural Geology, Stratigraphy and Sedimentation** **Basic Structural Geology:** Introduction to structural geology, terminology, stress and strain concept, folds, faults, joints their classification. **Process of Sedimentation and Basins**: Sedimentary processes, Depositional processes, sedimentary basins (marine and continental), basin analysis (introductory)	
IV	**Introduction to Earthquakes and Seismology** **Basics of Earthquake Science**: Origin of Earthquakes, Epicentre, hypocentre, characters of P and S waves, magnitudes and intensity of earthquakes etc. **World distributions of earthquakes and Plate boundaries - Introduction**: Relation between the earthquakes and plate boundaries, World distributions, **Fundamentals of Seismology:** Basic properties of P and S waves in various rocks, reflection and refraction of waves inside the earth (layers, and structures), wave mechanics	

Basic Text & Reference Books:-

- Introduction to Geophysics
  Howell Benjamin F
  McGraw Hill Co., New York
- Physics of the Earth
  Stacey Frank D
  Cambridge University Press
- Seismology and Plate Tectonics
  Gubbins Devid
  Cambridge University Press
- Plate Tectonics and Crustal Evolution
  Condie Kent C
  Heinemann Publication
- Fundamentals of Geophysics
  Lowrie William
  Cambridge University Press