Course Type	Course Code	Name of Course	L	T	P	Credit
DC	ESC204	Geology and Land use Planning	3	0	0	9

Course Objective

- To understand the geological concepts for interpreting the environmental problems.
- To learn natural environment that may be regarded as the sum of interaction between geology and land-use planning

Learning Outcomes

Upon successful completion of this course, students will:

- The students will learn the structures thoroughly investigated geologically for which engineering geology prepares the significant background.
- The students will be able to find out the causes of environmental pollution based on geological information.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Branches of Geology: Earth's - its internal constitution, Lithosphere Hydrosphere and their constitutions, Geological work of River and Wind, Folds & Faults, Geological Hazards.	12	The knowledge regarding concepts of geological study of the earth surface.
2	Crystals system, Minerals-its properties, properties of common silicate minerals (Quartz, Feldspar, Pyroxene, Mica),Sulphide (Pyrite, Chalcopyrite, Galena, Sphalerite) and Oxides (Haematite, Magnetite, Chromite, Pyrolusite, Psilomelane).	06	The knowledge regarding different crystals system and type of mineral along with its properties.
3	Magma-its composition and constitution, description of some common Igneous rocks (Peridotite, Dolerite, Basalt, Granite, Rhyolite),Sedimentary rocks (Conglomerate, Sandstone, Shale, Limestone),description of some common Metamorphic rocks (Slate, Schist, Gneiss, Quartzite, Marble).. Aquifer-its types; Porosity and Permeability, delineation of watershed and its characteristics, Total Annual Replenishable Recharge and Pumping test studies.	11	The information regarding different types of rocks and its applications and also learn about the aquifer and its charactertics.
4	Coal- its composition and origin; Distribution of Indian coals, Geological time scale, Various Stratigraphic units of India, Fossils, their mode of preservation and uses. Land use Planning: Objective and importance; Land use and capability classification systems, Land use Planning models and their limitations. Impacts of natural and man-made activities on land characteristics. Impact of soil erosion.	13	The knowledge about coal, its composition and distribution in Indian aspects. Impact of landuse pattern on the environment.

Textbooks:

Textbook of Geology- P. K. Mukerjee.
Textbook of Engineering & General Geology- Parbin Singh.

Reference Books:

Environmental Land Use Planning and Management - John Randoloh (2003).
Landuse Planning for Sustainable Development – Jane Silberstein, M.A, Chris Maser.