

# JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY: KAKINADA KAKINADA – 533 003, Andhra Pradesh, India

#### DEPARTMENT OFCIVIL ENGINEERING

II Year – II Semester	L	Т	P	C	
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Engineering Geology Lab					

## **Course LearningObjectives:**

The objective of this courseis:

- To identify the Megascopic types of Ore minerals & Rock forming minerals.
- To identify the Megascopic types of Igneous, Sedimentary, Metamorphic rocks.
- To identify the topography of the site & material selection.

## **Course Outcomes:**

Upon the successful completion of this course, the students will be able to:

- Identify Megascopic minerals & their properties.
- Identify Megascopic rocks & their properties.
- Identify the site parameters such as contour, slope & aspect for topography.
- Know the occurrence of materials using the strike & dip problems.

#### **SYLLABUS:**

#### LIST OF EXPERIMENTS

- 1. Physical properties of minerals: Mega-scopic identification of
  - a. Rock forming minerals Quartz group, Feldspar group, Garnet group, Mica group & Talc, Chlorite, Olivine, Kyanite, Asbestos, Tourmelene, Calcite, Gypsum, etc...
  - b. Ore forming minerals Magnetite, Hematite, Pyrite, Pyralusite, Graphite, Chromite, etc...
- 2. Megascopic description and identification of rocks.
  - a) Igneous rocks Types of Granite, Pegmatite, Gabbro, Dolerite, Syenite, Granite Poryphery, Basalt, etc.
  - b) Sedimentary rocks Sand stone, Ferrugineous sand stone, Lime stone, Shale, Laterite, Conglamorate, etc.
  - c) Metamorphic rocks Biotite Granite Gneiss, Slate, Muscovite & Biotiteschist, Marble, Khondalite, etc.
- 3. Interpretation and drawing of sections for geological maps showing tilted beds, faults, unconformities etc.
- 4. Simple Structural Geology problems.
- 5. Bore hole data.
- 6. Strength of the rock using laboratory tests.
- 7. Field work To identify Minerals, Rocks, Geomorphology & Structural Geology.



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### LAB EXAMINATION PATTERN:

- 1. Description and identification of FOUR minerals
- 2. Description and identification of FOUR (including igneous, sedimentary and metamorphic rocks)
- 3. ONE Question on Interpretation of a Geological map along with a geological section.
- 4. TWO Questions on Simple strike and Dip problems.
- 5. Bore hole problems.
- 6. Project report on geology.

### **REFERENCES:**

- 1. 'Applied Engineering Geology Practicals' by M T Mauthesha Reddy, New Age International Publishers, 2<sup>nd</sup> Edition.
- 2. 'Foundations of Engineering Geology' by Tony Waltham, Spon Press, 3<sup>rd</sup> edition, 2009.

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