**Techno India NJR Institute of Technology**



**Course File**

**Engineering Geology Lab (3CE4-25)**

Bhupendra Purohit

(Associate Professor)

**Department of CE**



**Course Overview:**

Engineering geology is the application of the geological sciences to engineering projects. ... Engineering geologists provide geological and geotechnical recommendations, analysis, and design associated with human development and various types of Structure .Geological engineering studies are conducted by a geologist or engineering geologist who is educated, trained and has experience in recognizing and interpreting natural processes ; Understanding how these processes affect human – made structures (and vice versa) and knowledge of ways to mitigate hazards caused by adverse natural or human – made conditions. The engineering geologist’s main objective is to protect life and property from damage caused by different geological

**Course Outcomes:**

|  |  |  |
| --- | --- | --- |
| **CO.NO.** | **Cognitive Level** | **Course Outcome**  |
| 1 | **Comprehension** | Explain different types of rocks & minerals found on earth |
| 2 | **Application** | Explain faults and folds in earth crust |
| 3 | **Analysis** | Explain the difference between several minerals by examining their physical & chemical properties |
| 4 | **Synthesis** | The students will interpret subsurface information such as thickness of soil, weathered zone, depth of hard rock and saturated zone by using geophysical methods |
| 5 | **Evaluation** | The students will learn the techniques in the interpretation of LANDSAT Imageries to find out the lineaments and other structural features for the given area.. |

**Prerequisites:**

1. Fundamental’s knowledge of Engineering Geology Practically.

**Course Outcome Mapping with Program Outcome:**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| 3 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| 3 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| 3 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 |
| 2 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2.6 | 1 | 1.8 | 1.6 | 1.2 | 1.2 | 1.2 | 1 | 1.2 | 1 | 1 | 1.2 | 1 | 1 | 1.6 |

**Course Coverage Module Wise:**

|  |  |
| --- | --- |
| **Lab No.** | **Experiments List According to RTU Syllabus** |
| 1 |  Physical Properties of Minerals |
| 2 | Physical Properties of Rocks |
| 3 | Identification of Minerals in Hand Specimen |
| 4 | Identification of Rocks in Hand Specimen |
| 5 | Identification of Geological features through wooden Modelsa. Structural Geological Diagrams b. Petrological Diagrams c. Engineering Geological Diagrams |
| 6 | Interpretation of Geological Map (10 Nos.) |
| 7 | Dip & Strike Problems (8 Nos.) |

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| **Faculty Lab Manual Link**1. [https://r.search.yahoo.com/\_ylt=Awrx1MnBp6xhOnYABwa7HAx.;\_ylu=Y29sbwNzZzMEcG9zAzEEdnRpZAMEc2VjA3Ny/RV=2/RE=1638733890/RO=10/RU=https%3a%2f%2fwww.iare.ac.in%2fsites%2fdefault%2ffiles%2flab1%2fEngineering%2520Geology%2520Lab%2520Manual.pdf/RK=2/RS=685jWJGW9bT6aFKc73sqZj.Urzc-](https://r.search.yahoo.com/_ylt%3DAwrx1MnBp6xhOnYABwa7HAx.%3B_ylu%3DY29sbwNzZzMEcG9zAzEEdnRpZAMEc2VjA3Ny/RV%3D2/RE%3D1638733890/RO%3D10/RU%3Dhttps%3A//www.iare.ac.in/sites/default/files/lab1/Engineering%2520Geology%2520Lab%2520Manual.pdf/RK%3D2/RS%3D685jWJGW9bT6aFKc73sqZj.Urzc-)
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**Assessment Methodology:**

1. Practical exam based on Geology Syllabus.
2. Internal exams and Viva Conduct.
3. Final Exam (practical paper) at the end of the semester.