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| Image result for nit meghalaya logo | | | | **National Institute of Technology Meghalaya**  An Institute of National Importance | | | | | | | | | | | | | | | | | | | | | | | **CURRICULUM** | | | | | |
| Programme | | | | **Bachelor of Technology in Civil Engineering** | | | | | | | | | | | | | Year of Regulation | | | | | | | | | | **2020-21** | | | | | |
| Department | | | | **Civil Engineering** | | | | | | | | | | | | | Semester | | | | | | | | | | **VII** | | | | | |
| Course  Code | | Course Name | | | | | | | | **Pre requisite** | | | | Credit Structure | | | | | | | | Marks Distribution | | | | | | | | | | |
| L | | T | | | P | C | | INT | | | MID | | | END | | | Total | |
| **CE 471** | | **Engineering Geology** | | | | | | | | **Nil** | | | | **2** | | **0** | | | **0** | **2** | | **50** | | | **50** | | | **100** | | | **200** | |
| Course  Objectives | | **To introduce basic geology to civil engineering students** | | | | | | | | | | Course Outcomes | | | | CO1 | | | **Able to acquire knowledge about the importance and scope of Engineering Geology in the field of Civil Engineering, introduction to town planning, Infrastructure development and various disciplines involved in Engineering Geology** | | | | | | | | | | | | | |
| **To acquire the knowledge of the most important rocks and minerals** | | | | | | | | | | CO2 | | | **Able to acquire knowledge about various minerals and rocks, their classification and usage in various civil Engineering structures** | | | | | | | | | | | | | |
| **To understand the seismicity and earthquake associated with geology** | | | | | | | | | | CO3 | | | **Able to acquire knowledge about various rock deformations such as folds, faults, joints and unconformities with special reference to their classification, genesis and their significance inCivil Engineering projects** | | | | | | | | | | | | | |
| CO4 | | | **Able to get acquainted with geological investigations on important Civil Engineering structures and help them to take decision while planning, design and execution stage of the structures in their professional life** | | | | | | | | | | | | | |
| CO5 | | | **Able to get a comprehensive understanding on Earth’s interior, seismology, plate tectonics, seismicity of India, theory of continental drift, Elastic rebound theory, various Earthquake hazards, magnitude and intensity of Earthquakes** | | | | | | | | | | | | | |
| No. | COs | | Mapping with Program Outcomes (POs) | | | | | | | | | | | | | | | | | | | | | | | Mapping with PSOs | | | | | | |
| PO1 | | PO2 | PO3 | PO4 | PO5 | PO6 | | PO7 | | PO8 | | PO9 | | | PO10 | | | PO11 | | PO12 | | | PSO1 | | | PSO2 | | | PSO3 |
| 1 | CO1 | | **1** | | **0** | **0** | **0** | **0** | **0** | | **1** | | **1** | | **0** | | | **0** | | | **0** | | **0** | | | **1** | | | **2** | | | **0** |
| 2 | CO2 | | **0** | | **1** | **0** | **0** | **0** | **0** | | **1** | | **1** | | **0** | | | **0** | | | **0** | | **0** | | | **1** | | | **3** | | | **0** |
| 3 | CO3 | | **0** | | **0** | **0** | **0** | **0** | **0** | | **1** | | **1** | | **0** | | | **0** | | | **0** | | **0** | | | **1** | | | **2** | | | **0** |
| 4 | CO4 | | **0** | | **1** | **0** | **0** | **0** | **0** | | **1** | | **1** | | **0** | | | **0** | | | **0** | | **0** | | | **1** | | | **2** | | | **0** |
| 5 | CO5 | | **0** | | **0** | **0** | **0** | **0** | **0** | | **1** | | **1** | | **0** | | | **0** | | | **0** | | **0** | | | **1** | | | **2** | | | **0** |
| **SYLLABUS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **No.** | **Content** | | | | | | | | | | | | | | | | | | | | | | | **Hours** | | | | | | **COs** | | |
| I | **Introduction**  Importance of Geology in Civil Engineering. | | | | | | | | | | | | | | | | | | | | | | | **04** | | | | | | **CO1** | | |
| II | **Earth Materials**  Rocks, Soils, Minerals, Types of minerals and their significance. | | | | | | | | | | | | | | | | | | | | | | | **04** | | | | | | **CO1** | | |
| **CO2** | | |
| III | **Study of Rocks**  Igneous, Sedimentary and Metamorphic rocks with reference to their origin, texture, structure and classification; Weathering process, Transportation process and Sedimentation process. | | | | | | | | | | | | | | | | | | | | | | | **04** | | | | | | **CO2** | | |
| IV | **Earth Structure**  Fold, Fault, Joints and Shear zones with special reference to their classification, genesis and their significance in Civil Engineering projects. | | | | | | | | | | | | | | | | | | | | | | | **04** | | | | | | **CO3** | | |
| V | **Earthquakes**  Causes, Classification, Magnitude, Intensity, Seismic hazards zoning, Seismic zones of India, Elementary idea about Plate Tectonics. | | | | | | | | | | | | | | | | | | | | | | | **04** | | | | | | **CO4** | | |
| VI | **Geological and Geophysical Investigations**  Representation of geological data, Site classification, Geological consideration for the design of Dams, Tunnels, Bridges and other civil works. | | | | | | | | | | | | | | | | | | | | | | | **04** | | | | | | **CO5** | | |
| Total Hours | | | | | | | | | | | | | | | | | | | | | | | | **24** | | | | | |  | | |
| **Essential Readings** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Parthasarathy A., Panchapakesan V. and Nagarajan R., “Engineering Geology”, Wiley India Pvt. Ltd. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. [Duggal](https://www.amazon.in/s/ref=dp_byline_sr_book_1?ie=UTF8&field-author=S.K.+Duggal&search-alias=stripbooks) S.K., Pandey [H.K.](https://www.amazon.in/s/ref=dp_byline_sr_book_2?ie=UTF8&field-author=H.K.+Pandey&search-alias=stripbooks), Rawat [N.](https://www.amazon.in/s/ref=dp_byline_sr_book_3?ie=UTF8&field-author=N.+Rawat&search-alias=stripbooks), “Engineering Geology”, McGraw Hill Education. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. [Varghese P.C](https://www.amazon.in/s/ref=dp_byline_sr_book_1?ie=UTF8&field-author=Varghese+P.C&search-alias=stripbooks)., "Engineering Geology for Civil Engineers", Prentice Hall India Learning Private Limited. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Supplementary Readings** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Krynine D.P. and Judd W.R., “Principles of Engineering Geology and Geotechnics”, CBS Publishers and Distributors. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Singh P., “Engineering & General Geology”, S.K. Kataria and Sons. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. [Reddy](https://www.amazon.in/s/ref=dp_byline_sr_book_1?ie=UTF8&field-author=D+V+Reddy&search-alias=stripbooks) D. V., “Engineering Geology”, Vikas Publishing. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |