**NBKR INSTITUTE OF SCIENCE & TECHNOLOGY :: VIDYANAGAR**

*(AUTONOMOUS)*

**CIVIL ENGINEERING**

SCHEME OF INSTRUCTION AND EVALUATION

(With effect from the batch admitted in the academic year 2013-2014)

**II YEAR OF FOUR YEAR B.TECH. DEGREE COURSE – I SEMESTER**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.No. | Course  Code | Course Title | Contact Hours/  Week | | | | Cred-its | | Evaluation | | | | | | | | | | | | | |
| Sessional  Test-I | | | | Sessional  Test-II | | | | Total Sessional Marks (Max. 40) | Semester  End Examination | | | Max.  Total Marks | |
| **THEORY** | L | P | T | |  | | Duration  In Hours | | Max.  Marks | | Duration  In Hours | | Max.  Marks | | 0.8(Better of two sessional tests)  +  0.2(Other) | Duration  In Hours | Max.  Marks | |  | |
| 1 | 13SH2102 | Computational Techniques, Statistics and Complex Analysis | 3 | - | 1 | | 4 | | 2 | | 40 | | 2 | | 40 | | 3 | 60 | | 100 | |
| 2 | 13CE2101 | Engineering Mechanics | 3 | - | 1 | | 4 | | 2 | | 40 | | 2 | | 40 | | 3 | 60 | | 100 | |
| 3 | 13CE2102 | Fluid Mechanics - I | 3 | - | 1 | | 4 | | 2 | | 40 | | 2 | | 40 | | 3 | 60 | | 100 | |
| 4 | 13CE2103 | Building Technology | 4 | - | - | | 4 | | 2 | | 40 | | 2 | | 40 | | 3 | 60 | | 100 | |
| 5 | 13CE2104 | Surveying – 1 | 3 | - | 1 | | 4 | | 2 | | 40 | | 2 | | 40 | | 3 | 60 | | 100 | |
| 6 | 13CE2105 | Engineering Geology | 4 | - | - | | 4 | | 2 | | 40 | | 2 | | 40 | | 3 | 60 | | 100 | |
|  | | **PRaCTICALS** |  |  | | | | | | | | | | | | |  |  | | | | |
| 7 | 13CE21P1 | Surveying Laboratory – I | - | 3 | | - | | 2 | | - | | - | | - | | - | Day-to-day Evaluation and a test | 3 | | 60 | | 100 |
| 8 | 13CE21P2 | Engineering Geology Laboratory | - | 3 | | - | | 2 | | - | | - | | - | | - | 3 | | 60 | | 100 |
|  |  | **TOTAL** | **20** | **06** | | **04** | | **28** | | **-** | | **-** | | **-** | | **-** | **-** | | **-** | | **800** |

**13CE2105 - ENGINEERING GEOLOGY**

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| --- | --- | --- | --- |
| **Course category:** | Program core | **Credits:** | 4 |
| **Course Type:** | Theory | **Lecture - Tutorial - Practical:** | 3 - 1 - 0 |
| **Prerequisite:** | None | **Sessional Evaluation :**  **Univ.Exam Evaluation:**  **Total Marks:** | 40  60  100 |

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| **Course Outcomes** | CO1 | Understand the surface geological processes and importance of geology in Civil engineering. |
| CO2 | Understand and identify various types minerals. |
| CO3 | Understand and identify various typesrocks. |
| CO4 | Understand the elements of structural geology. |
| CO5 | Apply the geology concepts in major civil engineering projects and understand general geological disasters. |
| **Course Content** | **UNIT – I**  **PHYSICAL GEOLOGY:** Introduction to geology and its various branches – Role of Earth Science in Civil Engineering Operations.  Processes acting at the surface of the earth – Volcanism, Geological action of wind, glaciers, rivers and oceans – Rock weathering.  **UNIT – II**  **MINEROALOGY:** Study of various properties for the identification of minerals – Study of minerals like Quartz and its varieties. Feldspars, Garnet, Mica, Olivine, Hornblende, Augite, Calcite, Talc, Kyanite, Bauxite and Clay minerals.  **UNIT – III**  **PETROLOGY:** Origin and formation of rocks – Classification of rocks – Igneous, Sedimentary and Metamorphic rocks – Their textures and structures – Study of rocks like Granite, Gabbro, Dolerite, Basalt, Breccia, Conglomorate, Sand Stone, Limestone, Laterite, Quartzite, Schist, Gneiss, Marble, Slate.  **UNIT – IV**  **STRUCTURAL GEOLOGY:** Elements of structural geology like strike – dip – outcrop – Study of folds – joints – faults and their importance in civil engineering works.  **UNIT – V**  **APPLIED GEOLOGY:** Geology of dams – reservoirs – tunnels and land slides – Earthquakes – Groundwater exploration – Rock as a construction materials. | |
| **Text Books and reference Books:** | **TEXT BOOKS:**   1. A Text Book of Engineering and General Geology by Prof P. Parbin Singh 2. A Text book of Geology by Mukherjee P.K. 3. A Text Book of Engineering Geology by N.Chennakesavulu   **REFERENCE BOOKS:**   1. Principles of Engineering Geology and Geotechnics by Krynine & Judd 2. Geology for Engineering by Blyth &De Freitaus 3. Fundamentals of Engineering Geology by F.H.Bell 4. Principles of general & engineering Geology by K.N. Bangar. 5. A text book of Geology by G.B. Mahapthra. | |