**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)

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S.No. | CourseCode | Course Title | ContactHours/Week | Credits | Evaluation |
| SessionalTest-I | SessionalTest-II | Total Sessional Marks (Max. 40) | SemesterEnd Examination | Max.Total Marks |
| **THEORY** | L | P | T |  | Durationin Hours | Max.Marks | Durationin Hours | Max.Marks | 0.8(Better of two sessional tests)+0.2(Other) | Durationin Hours | Max.Marks |  |
| 1 | 13CE3201 | R.C.C. Structural Design - II | 3 | - | 1 | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
| 2 | 13CE3202 | Hydrology | 4 | - | - | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
| 3 | 13CE3203 | Structural Analysis -II  | 3 | - | 1 | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
| 4 | 13CE3204 | Concrete Technology | 4 | - | - | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
| 5 | 13CE3205 | Environmental Engineering - I | 4 | - | - | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
| 6 | 13CE32EX | Elective –I | 4 | - | - | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
|  | **PRACTICALS** |  |  |  |  |
| 1 | 13SH32P1 | Advanced Communication Skills Laboratory | - | 3 | - | 2 | - | - | - | - | Day-to-day Evaluation and a test | 3 | 60 | 100 |
| 2 | 13CE32P1 | Highway Materials Laboratory | - | 3 | - | 2 | - | - | - | - | 3 | 60 | 100 |
|  |  | **TOTAL** | **22** | **06** | **02** | **28** |  |  |  |  |  |  | **800** |

**Elective I:**

13CE32E1 Industrial Steel Structural Design

13CE32E2 Advanced Foundation Engineering

13CE32E3 Transportation Planning

13CE32E4 Industrial Waste and Waste Water Management

13CE32E5 Ground Water Hydrology

**13CE3202 - HYDROLOGY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Course category:** | Program core | **Credits:** | 4 |
| **Course Type:** | Theory | **Lecture - Tutorial - Practical:** | 3 - 1 - 0 |
| **Prerequisite:** | None  | **Sessional Evaluation :****Univ.Exam Evaluation:****Total Marks:** | 4060100 |

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| **Course Outcomes** | CO1 | Be able to measure, analyze and estimate rainfall data. |
| CO2 | Be able to measure and calculate evaporation, transpiration, evapotranspiration and infiltration indices. |
| CO3 | Be able to determine runoff volume. |
| CO4 | Be able to analyze unit hydrograph method. |
| CO5 | Be able to perform flood routing by Pul’s and Muskingum methods. Be able to calculate the yield of aquifers |
| **Course Content** | **UNIT – I****INTRODUCTION:** Hydrologic cycle – Hydrologic data – Sources of Data.**PRECIPITATION :** Precipitation – forms and types of precipitation – Measurement of precipitation – Mean precipitation over an area – Rain gauge network – Estimation of missing data – Double mass curve – Intensity – duration – frequency (IDF) curves.**UNIT – II****ABSTRACTIONS:** Evaporation, Transpiration, Evapotranspiration – Factors affecting – Measurement – Methods for reduction – Infiltration – Measurement – Infiltration indices.**UNIT – III****RUNOFF:** Runoff process – Factors affecting runoff – Drainage basin characteristics – Determination of run off – Run off formulae, tables – Stream gauging Yield – Flow duration curve – Flow mass curve.**UNIT – IV****FLOODS:** Importance of flood studies – Methods of estimating flood peak – Empirical formulae – Rational method – Components of a Hydrograph – Base flow separation – Unit hydrograph – Derivation of unit hydrograph of different durations – Gumbel’s method of flood frequency analysis.**UNIT – V****FLOOD ROUTING:** Basic equation – Types – Routing by Pul’s and Muskingum methods.**GROUNDWATER:** Groundwater occurrence – Darcy’s law – Types of aquifers – Dupuit’s equation – wells – yield – recuperation test. |
| **Text Books and reference Books:** | **TEXT BOOKS:**1. Engineering Hydrology by Subramanya, K.
2. A Text Book of Hydrology by P. Jayarami Reddy.

**REFERENCE BOOKS:**1. Hydrology by H.M. Raghunath.
2. Hydrology by Madan Mohan Das.
3. Hand Book of Applied hydrology by Ven Te Chow.
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