**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)

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

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S.No. | Course  Code | Course Title | Contact  Hours/  Week | | | Credits | 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 | 13CE4101 | Environmental Engineering – II | 4 | - | - | 4 | 2 | | 40 | 2 | 40 | 3 | 60 | 100 | |
| 2 | 13CE4102 | Irrigation & Hydraulic Struc.. | 4 | - | - | 4 | 2 | | 40 | 2 | 40 | 3 | 60 | 100 | |
| 3 | 13CE4103 | Quantity Surveying & Valuation | 3 | - | 1 | 4 | 2 | | 40 | 2 | 40 | 3 | 60 | 100 | |
| 4 | 13CE4104 | Construction Planning & Management | 3 | - | 1 | 4 | 2 | | 40 | 2 | 40 | 3 | 60 | 100 | |
| 5 | 13SH4101 | Economics & Accountancy | 4 | - | - | 4 | 2 | | 40 | 2 | 40 | 3 | 60 | 100 | |
| 6 | 13CE41EX | Elective – II | 4 | - | - | 4 | 2 | | 40 | 2 | 40 | 3 | 60 | 100 | |
|  | | **PRACTICALS** |  |  | | | | | | | |  |  | | | |
| 1 | 10CE41P1 | Concrete Technology Laboratory | - | 3 | - | 2 | | - | - | - | - | Day-to-day Evaluation and a test | 3 | 60 | | 100 |
| 2 | 10CE41P2 | Environmental Engineering Laboratory | - | 3 | - | 2 | | - | - | - | - | 3 | 60 | | 100 |
|  |  | **TOTAL** | **22** | **06** | **02** | **28** | | **12** | **320** | **12** | **320** | **24** | **480** | | **800** |

**Elective – II:**

13CE41E1 Prestressed concrete structures

13CE41E2 Advanced structural design

13CE41E3 Solid waste management

13CE41E4 Traffic engineering

13CE41E5 Applied soil mechanics

13CE41E6 Bridge engineering

**13CE4104 -CONSTRUCTION PLANNING AND MANAGEMENT**

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| --- | --- | --- | --- |
| **Course category:** | Program core | **Credits:** | 4 |
| **Course Type:** | Theory | **Lecture - Tutorial - Practical:** | 3 - 1 - 0 |
| **Prerequisite:** | Concrete Technology (3-2) | **Sessional Evaluation :**  **Univ.Exam Evaluation:**  **Total Marks:** | 40  60  100 |

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| **Course Outcomes** | CO1 | .Be able to understandthe basics of construction management. |
| CO2 | Be able to schedule various components of project and apply CPM/ PERT techniques. |
| CO3 | Be able to demonstrate the working of various equipments in construction industries. |
| CO4 | Be able to perform quality control and prepare audit statement. |
| CO5 | Be able to demonstrate the importance of safety and risk in construction. Be able to understand the organizational structures and roles. |
| **Course Content** | **UNIT - I**  **INTRODUCTION:** Significance of construction management, Objectives and functions of construction management. Types of construction, Resources for construction industry. Stages of construction, Construction team. Engineering drawings  **UNIT - II**  **CONSTRUCTION PLANNING:** Stage of planning, Scheduling, Preparation of material, Equipment, labour and finance schedules, Bar charts, Mile stone charts.  Network Techniques In Construction Management: Critical Path Method (CPM), Programe Evaluation and Review Technique (PERT) – Network techniques breakdown structures. Classification of activities, Rules, for developing net works. Network development. Network analysis. Critical activities and critical path - Cost optimization  **UNIT – III**  **CONSTRUCTION AND EQUIPMENT MANAGEMENT** Equipment requirement in construction industry, heavy earth moving equipment Bulldozer Scrapers, loaders Excavator, shovels and Cranes; Compaction equipment; Grading equipment. Aggregate production equipment; Asphalt mixing plant; Asphalt laying equipment; Hauling equipment, Concrete mixing equipment; Material handling devices; Pneumatic equipment; Bridge construction equipment; Drilling and blasting equipment; Pumping and dewatering equipment.  **UNIT – IV**  **INSPECTION AND QUALITY CONTROL:** Need for inspection and quality control Principals of inspection. Enforcement of specifications Stages of inspection and quality control  Ethical Audit: Introduction - Aspects of project realization - Ethical audit procedures - The decision makers - Variety of interests - Formulation of briefs - The audit statement- the audit reviews  **UNIT – V**  **SAFETY AND RISK:** Introduction – Safety and risk - Concept and importance of safety - Types of risk - Safety and engineers - Safety measures in construction works - Design for safety - Risk benefit analysis – Accidents.  **ORGANISING CONSTRUCTION:** Principals of organization. Communication Leadership and human relations. Types of organization. Organization for a construction firm. Temporary services. Job layout**.** | |
| **Text Books and reference Books:** | **TEXT BOOKS:**  1. Construction Planning and Management by P.S. Gahlot and B.M Dhir.  2. Construction Equipment and its Management by S.C.  3. Construction Management and Accounts by J.L. Sharma  **REFERENCE BOOKS:**  1. Engineering Ethics by M. Govinda Rajan.  2. Construction Engineering and Management by S. Seetharaman.  3. Construction Management and Accounts by Haripal Singh. | |