**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 – I SEMESTER**

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| --- | --- | --- | --- | --- | --- |
| 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 | 13CE3101 | Structural Analysis - I | 3 | - | 1 | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
| 2 | 13CE3102 | R.C.C. Structural Design – I | 3 | - | 1 | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
| 3 | 13CE3103 | Steel Structural Design | 3 | - | 1 | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
| 4 | 13CE3104 | Foundation Engineering | 3 | - | 1 | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
| 5 | 13CE3105 | Transportation Engineering - II | 4 | - | - | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
| 6 | 13CE3106 | Advanced Hydraulics | 4 | - | - | 4 | 2 | 40 | 2 | 40 | 3 | 60 | 100 |
|  | **PRACTICALS** |  |  |  |  |
| 1 | 13CE31P1 | Soil Mechanics Laboratory | - | 3 |  | 2 | - | - | - | - | Day-to-day Evaluation and a test | 3 | 60 | 100 |
| 2 | 13CE31P2 | Material Testing Laboratory | - | 3 |  | 2 | - | - | - | - | 3 | 60 | 100 |
|  |  | **TOTAL** | **20** | **06** | **04** | **28** |  |  |  |  |  |  | **800** |

**13CE3103 - STEEL STRUCTURAL DESIGN**

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| --- | --- | --- | --- |
| **Course category:** | Program core | **Credits:** | 4 |
| **Course Type:** | Theory | **Lecture - Tutorial - Practical:** | 3 - 1 - 0 |
| **Prerequisite:** | Structural Analysis I,Engineering mechanics, Engineering Mathematics-I&II. | **Sessional Evaluation :****Univ.Exam Evaluation:****Total Marks:** | 4060100 |

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| **Course Outcomes** | CO1 | Be able to design riveted and welded connections. |
| CO2 | Be able to design tension and compression members. |
| CO3 | Be able to design laterally supported beams. |
| CO4 | Be able to design laterally unsupported beams like gantry girders. |
| CO5 | Be able to design slab bases, gusseted bases and grillage foundations. |
| **Course Content** | **UNIT – I****INTRODUCTION:** Properties of sections – Types of loads – Permissible stresses in tension, compression and shear as per IS code.**RIVETED CONNECTIONS:** Types of Riveted Joints – modes of failure of riveted joints – Strength and efficiency of rivet – Strength of lap and butt joints – Design of riveted joints – Design of bracket connections (Beam to column and Beam to beam connections).**WELDED JOINTS:** Types of welded joints – Strength of fillet and butt welds – Design of welded joints – Design of bracket connections (Beam to column and beam to beam connections).**UNIT – II****DESIGN OF TENSION AND COMPRESSION MEMBERS:** Design of tension members – Lug angles – Tension splice. Design of compression members – Single and built – up columns – Design of lacing and battens – Design of eccentrically loaded columns – Column splicing.**UNIT – III****LATERALLY SUPPORTED BEAMS:** Design of simple beams – Design of built up beams- Curtailment of flange plates – Connection of flange plate with flange of beam.**UNIT – IV****LATERALLY UNSUPPORTED BEAMS:** Permissible bending compressive stress – Effective length of compression flange – Design of simple beams – Design of Gantry Girders.**UNIT – V****DESIGN OF COLUMN BASES:** Slab base – Gusseted base – Bases subjected to moment – Grillage foundation. |
| **Text Books and reference Books:** | **TEXT BOOKS:**1. Design of Steel Structures by S.K. Duggel.
2. Design of Steel Structures by S.S. Bhavikatti.

**REFERENCE BOOKS:**1. Design of Steel Structures Vol. I & II by Dr. Rama Chandra.
2. Limit State design Structural steel by M.R. Shiyekar.
3. Design of Steel Structures by N. Subramaniyan.
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