Model Template for Scheme of Course Work

to be submitted by the Faculty of B.Tech/M.Tech/MCA I semester on or before 11.10.2013 to
bhanucvk@gvpce.ac.in and yadavalliraghu@yahoo.com

# SCHEME OF COURSE WORK

**Course Details:**

| | |
|---|---|
| **Course Title** | : **EXPERIMENTAL TECHNIQUES IN STRUCTURAL ENGG. Lab.** |
| **Course Code** | : **13CE2208**     **L   P   C**    : **0 3 2** |
| **Program:** | : **M. Tech.** |
| **Specialization:** | : **Structural Engineering** |
| **Semester** | : **I** |
| **Prerequisites** | : **Concrete Technology, Strength of Materials, Structural Analysis.** |
| **Courses to which it is a prerequisite** | : **None** |

**Course Outcomes (COs):**

At the end of the course, the student will be able to:

| | |
|---|---|
| 1 | Draw stress-strain curve of concrete. |
| 2 | Determine elastic properties of steel. |
| 3 | Assess the flexural and shear capacity of R.C beams |
| 4 | Measure the strength of concrete using Non-destructive testing methods. |
| 5 | Estimate the double shear strength of concrete. |

**Program Outcomes (POs):**

Post graduates will be able to:

| | |
|---|---|
| 1 | Synthesize existing and new knowledge in various sub areas of structural engineering |
| 2 | Analyse complex engineering problems critically with adequate theoretical background for practical applications. |
| 3 | Evaluate a wide range of feasible and optimal solutions after considering safety and environmental factors. |
| 4 | Demonstate the ability to pursue research by conducting experiments and extract the relevant information through literature surveys. |
| 5 | Use state –of- the- art of modern tools for interpeting the behaviour and modeling of complex engineering structures. |
| 6 | Attain the capability to work in multi disciplinary teams to achieve common goals. |
| 7 | Demonstrate the knowledge to perform the projects efficiently in multi disciplinary environments after consideration of economical and financial matters. |
| 8 | Communicate effectively on complex engineering activities to prepare reports and make presentations. |
| 9 | Engage in life-long learning independently to improve knowledge. |
| 10 | Understand the responsibility of carrying out professional practices ethically for sustainable development of society. |
| 11 | Examine critically and independently one's actions and take corrective measures by learning from mistakes. |

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**Course Outcome versus Program Outcomes:**

| COs | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO-1 | S | S | M | M | | | | | | | | M |
| CO-2 | S | S | M | M | | | | | | | | M |
| CO-3 | S | S | M | M | | | | | | | | M |
| CO-4 | S | S | | M | | | | | | | | M |
| CO-5 | S | S | S | M | S | | | | | | | M |

*S - Strongly correlated*, *M - Moderately* correlated, *Blank - No correlation*

| Assessment Methods: | Assignment / Seminar / Mid-Test / End Exam |
|---|---|

## Teaching-Learning and Evaluation

| Week No. | TOPIC / CONTENTS | Course Outcomes | Sample questions | TEACHING-LEARNING STRATEGY | Assessment Method & Schedule |
|---|---|---|---|---|---|
| 1&2 | Elastic properties of concrete | CO-1 | Calculate the young's modulus of concrete Calculate the poisons ratio of concrete | ▫ Lecture/ Demonstration | |
| 3 | Elastic properties of steel | CO-2 | Calculate the elastic properties of steel | ▫ Lecture/ Demonstration | |
| 4&5 | Shear capacity of R.C Beams | CO-3 | Assess the Shear capacity of R.C Beams | ▫ Lecture ▫ Problem solving | |
| 6&7 | Flexural test on R.C beams | CO-1 | Assess the flexural capacity of R.C Beams | ▫ Lecture | |
| 8 | Modulus of rupture of concrete | CO-2 | Calculate the Modulus of rupture of given grade of concrete | ▫ Lecture/ Problem solving | |
| 9 | Flexural capacity of R.C slabs | CO-2 | Calculate the Flexural capacity of R.C slabs | ▫ Lecture/ Demonstration | |
| 10 | **MID TEST - I** | | | | |

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| 11 | Non- Destructive testing of concrete | CO-2 | Calculate the compressive strength using rebound hammer. | ▫ Lecture/ Demonstration | |
|---|---|---|---|---|---|
| 12 | Double shear test on steel rod specimen | CO-3 | Calculate the Double shear test on steel rod specimen | Lecture | |
| 13&14 | Pre-stressing of beams (pre-tensioning) | CO-3 | Estimate the Pre-stressing of beams | ▫ Lecture Problem solving | |
| 15 | Pre-stressing of beams (post-tensioning) | CO-3 | Estimate the Pre-stressing of beams | ▫ Lecture Problem solving | |
| 16 | Flexural capacity of corrugated decks | CO-4 | Calculate the Flexural capacity of corrugated decks | ▫ Lecture Problem solving | |
| 17 | Strain measurement using strain gauges | CO-4 | Calculate the Strain in a r.c beam using strain gauges | ▫ Lecture Problem solving | |
| **18** | **MID TEST - II** | | | | |
| | **END EXAM** | | | | |