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	**: Industrial structures**		
Course Code	**: 13CE2104**	**L P C**	**: 4 0 3**
Program:	**: M. Tech.**		
Specialization:	**: Infrastructure Engineering and Management**		
Semester	**: I**		
Prerequisites	**:**		
Courses to which it is a prerequisite	**: None**		

Course Outcomes (COs):
At the end of the course, the student will be able to:

1	Discuss the planning and functional requirements of Industrial structures.
2	Discover the need to learn about the design concepts, and constructional aspects of Industrial structures.
3	Analyse and evaluate the importance of various construction materials for industrial construction.
4	Design portal frames, tower cranes and bracing system in industrial buildings.
5	Analyse and design structural elements used in pre – cast construction including fabrication, erection and installation.

Program Outcomes (POs):
Post graduates will be able to:

1	Apply the knowledge of basic infrastructure requirements for the development of towns, cities and satellite towns
2	Critically analyse the usage of natural resources in construction materials
3	Evaluate a wide range of potential solutions for the alternative methods and techniques which can be adopted effectively keeping economic considerations of the project.
4	Apply scientific knowledge to analyse various problems of infrastructural engineering and to provide possible solutions by pursuing research
5	Select appropriate modern engineering and IT tools for the design and construction of civil engineering infrastructure project.
6	Attain the capability to work in multidisciplinary teams to achieve common goals.
7	Demonstrate knowledge and understanding of engineering and management principles in multidisciplinary environments after consideration of economic and financial factors.
8	Communicate effectively on complex engineering activities to prepare reports and make presentations.

9	Ability to 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.

Course Outcome versus Program Outcomes:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO-1	S		M			M					M
CO-2	M	S	M	M		M					M
CO-3	S	S	M	M		M					M
CO-4	S	S		M		M					M
CO-5	S	S	S	M	S	M		M			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	Classification of industrial structures – choice of site – general requirements of different types of industries for safety, space requirements	CO-1	What are the requirements of different types of industries for safety.	▫ Lecture ▫ Demonstration	Assignment (Week 2 - 4)
2	Services and land planning for layout requirements regarding lightning, ventilation, and fire safety – protection against noise and vibration.	CO-1	Describe the measures taken for protection against noise and vibration.	▫ Lecture / Discussion	Mid-Test 1 (Week 9)
3	Guidelines from Factories Act. Codes of practice in the design and construction	CO-1	Explain Factories act.	▫ Lecture ▫ Problem solving	
4	Properties of concrete, steel, RCC, Prestressed concrete, Aluminum, PVC that affect the structural performance – relative merits and demerits – suitability as construction material in Industrial industries.	CO-1	Explain the properties of aluminum.	▫ Lecture / Discussion	

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5	Loads on industrial structures – gravity load, live load, wind load and earthquake load.	CO-2	Describe the loads that act on a building.	▫ Lecture / Discussion	
6	Configuration of various industrial buildings.	CO-2	Problems	▫ Lecture / Discussion	
7	Need for large column free areas – various types of floors roofs and roof coverings.	CO-2	Problems on roof coverings.	▫ Lecture ▫ Problem solving	
8	Introduction to plastic analysis – shape factor – plastic moment carrying capacity of simple beams.	CO-3	Shape factor problems.	▫ Lecture ▫ Problem solving	
9	**MID TEST – I**				
10	Plastic moment carrying capacity of portal frames –	CO-3	Problems on portal frames.	▫ Lecture ▫ Discussion ▫ Problem solving	Mid-Test 2 (Week 18)
11	design of steel portal frames with and without Gantry girders.	CO-4	Problems on portal frames	▫ Lecture / Discussion	
12	Tower cranes and transmission line and communication towers.	CO-4	What are the different towers.	▫ Lecture / Discussion	
13	Analysis and design of bracing systems in industrial sheds..	CO-5	Design of bracing systems	▫ Lecture / Discussion	
14	Pre – casting techniques – planning, analysis and design considerations.	CO-5	What are the design considerations of pre casting techniques	▫ Lecture / Discussion	
15	suitability for Industrial structures Handling techniques.	CO-5	Explain the handling techniques	▫ Lecture / Discussion	Seminar (Week 15)
16	– transportation, storage and erection of structures Test on precast elements.	CO-5	Explain Prefabrication	▫ Lecture / Discussion	
17	quality control – repairs and economical aspects on prefabrication	CO-5	What is quality control describe it breifly	▫ Lecture / Discussion	
18	**MID TEST – II**				
19/20	**END EXAM**				