MERI College of Engineering & Technology (MERI-CET)

Session: 2020-2022 **Course: B. Tech.**
Department: Civil Engineering **Semester: 4th**
Subject: DCS-1, PCC-CE-204-G **Faculty name: Er. Amit Kaushik**

Name of the Faculty	**:**	Er. Amit Kaushik
Discipline	**:**	Civil Engineering
Semester	**:**	4TH
Subject	**:**	DCS-1 (**PCC-CE-204-G)**
Lesson Plan Duration	**:**	15 Weeks (From JUNE- SEPT 2021)
Work load (Lectures/Practical)		
Per week (in hours)	**:**	Lectures-04

WEEK	LECTURE	TOPIC COVERED / ASSIGNMENT GIVEN
01st	1st	Introduction to Concrete Structures , IS 456
	2nd	Working stress and limit state methods, Limit state v/s working stress method
	3rd	Building codes, Normal distribution curve, Characteristic strength and Characteristics loads
	4th	Design values, Partial safety factors and Factored loads,
02nd	1st	Stress-Strain relationship for concrete and steel.
	2nd	Working Stress Method: Basic assumptions, permissible stresses in concrete and steel
	3rd	Design of Singly Reinforced Rectangular Beams in flexure by WSM
	4th	
03rd	1st	Design Examples and Numericals
	2nd	Design of Singly Reinforced Flanged Beams in flexure by WSM
	3rd	
	4th	Assignment - 1
04th	1st	Quick revision of Singly Reinforced Beams
	2nd	Design of Doubly Reinforced Rectangular Beams in flexure By WSM
	3rd	Design of Doubly Reinforced Flanged Beams in flexure By WSM
	4th	Design Examples and Numericals
05th	1st	Assignment – 1 solution
	2nd	Steel beam theory & inverted flanged beams, design examples
	3rd	Quick revision of Module – 1
	4th	Assignment – 2 from module - 1

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06th	**1st**	Basic assumptions, Analysis and design of singly reinforced rectangular Beam by LSM
	2nd	Analysis and design of singly reinforced Flanged Beam by LSM
	3rd	Analysis and design of Doubly reinforced Rectangular Beam by LSM
	4th	Analysis and design of Doubly reinforced Flanged Beam by LSM
07th	**1st**	Continuous Beams by both methods -Basic assumptions, Moment of inertia, settlements, Modification of moments, maximum moments and shear.
	2nd	
	3rd	Numericals & examples solving by LSM and Revision of Module 2
	4th	
08th	**1st**	General considerations, Design of one way slab for distributed load
	2nd	Design of one way slab for concentrated load
	3rd	Design of two way slab for concentrated load
	4th	Design of two way slab for distributed load
9th	**1st**	Non-rectangular slabs, Openings in slabs & Revision of Module – 5 / Assignment - 3
	2nd	Requirements of good detailing, Cover to reinforcement, Spacing of reinforcement, Reinforcement Splicing, Anchoring reinforcing bars in flexure and shear
	3rd	
	4th	
10th	**1st**	Curtailment of reinforcement. Analysis and Design of Sections in shear , bond and torsion, Diagonal tension, shear reinforcement, Development length, Anchorage and flexural bond, Torsional stiffness, equivalent shear, Torsional reinforcement, Design examples./ Assignment - 4
	2nd	
	3rd	
	4th	Problem Solving of Module - 3
11th	**1st**	Control of deflection, Cracking, Slenderness and vibrations, Deflection and moment relationship for limiting values of span to depth, Limit state of crack width, Design examples
	2nd	
	3rd	
	4th	Problem Solving of Module – 4
12th	**1st**	Effective length, Minimum eccentricity, Short columns, under axial compression, Uniaxial and biaxial bending, Slender columns. Design examples.
	2nd	
	3rd	
	4th	Problem Solving of Module – 7
13th	**1st**	Isolated and wall footings, Design examples. Foundations-
	2nd	

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	3rd	Combined footings, raft foundation, design of pile cap and piles, under reamed piles, design examples.
	4th	Problem Solving of Module – 8 / Assignment - 5
14th	1st	Classification, Forces on retaining walls, Design criteria, Stability requirements, Proportioning of cantilever retaining walls, counter fort retaining walls, criteria for design of counter forts, Design examples and Problem Solving of Module – 6
	2nd	
	3rd	
	4th	
15th	1st	Revision of complete syllabus
	2nd	
	3rd	
	4th	