Course Number and Name

BCE064 - ADVANCED CONCRETE DESIGN

Credits and Contact Hours

3 & 45

Course Coordinator's Name

Dr.D.S.Vijayan

Text Books and References

TEXT BOOKS:

1. Krishna Raju N. "Prestressed concrete", Tata McGraw Hill Company, New Delhi 2007

REFERENCES:

1. MallieS.K.and Gupta A.P. "Prestressed concrete", Oxford and VB publishing Co. Pvt Ltd., 1987.

Course Description

- To apprise the students about the basics of design of flat slabs, folded plates and cylindrical shells.

Prerequisites	Co-requisites
Reinforced Concrete Structures - I	NIL

required, elective, or selected elective (as per Table 5-1)

Course Outcomes (COs)

CO1	To study Limit Analysis of beams in Flexure.
CO2	Limit analysis and design of Portal frames
CO3	Analysis and design of orthogrid floors/roofs.
CO4	Analysis and design of prismatic folded plates and circular cylindrical shells
CO5	To study the Design of bunkers and silos.

Student Outcomes (SOs) from Criterion 3 covered by this Course

COs/SOs	a	b	c	d	e	f	g	h	i	j	k
CO1			H	H							
CO2			H	H							
CO3			H	H							
CO4			H	H							
CO5			H	H							

List of Topics Covered

UNIT I LIMIT STATE ANALYSIS OF BEAMS 9

Limit Analysis of beams in Flexure: Behaviour of reinforced concrete members in bending and shear. Plastic hinge Rotation capacity. Factors affecting rotation capacity of a section. Plastic moment. Moment

curvature relationship. Redistribution of moments – Analysis and limit state design of continuous beams.

UNIT II PORTAL FRAMES 9

Limit Analysis & Design: Limit analysis and design of Portal frames.

UNIT III DESIGN OF FLAT SLABS 9

Design of Flat Slabs Using BIS 456: Analysis and design of orthogrid floors/roofs.

UNIT IV PLATES AND SHELLS 9

Analysis and design of prismatic folded plates and circular cylindrical shells using beam approximation.

UNIT V BUNKERS AND SILOS 9

Design of bunkers and silos.