Course Number and Name

BCE057 - DESIGN OF R.C.FRAMED STRUCTURES

Credits and Contact Hours

3 & 45

Course Coordinator's Name

Mr.T.P.Maikandaan

Text Books and References

TEXT BOOKS:

- Vazirani V.N & Ratwani M M,"Concrete Structures", Khanna Publishers, New Delhi, 1995

REFERENCES:

- P.Purushothaman, Reinforced Concrete Structural elements Tata McGraw Hill Co, New Delhi.
- R.Park&T.Paulay, Design of Reinforced Concrete Structural Elements – John Wiley & Sons, New York, 1975.
- C.M.Reynolds& J.C. Steedam Reinforced Concrete Designers Handbook Rupa & Co, Calcutta, 1987.
- V.Baikov, and E.Singalov, Reinforced Concrete Structures, Mir Publishers, Moscow,1971.
- W.H.MosleyandW.J.Spencer, Micro Computer Application in Structural Engineering McMilfan Press, London, 1986.

Course Description

- The design aspects and analysis methodologies of tall buildings will be introduced. The stability analysis of tall buildings is another important objective of this course.

Prerequisites	Co-requisites
Reinforced Concrete Structures – I	NIL

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

Course Outcomes (COs)

CO1	Computation of design moments and shears.
CO2	Analysis for wind and earthquake effects, Design of beams, columns and slabs.
CO3	Design by empirical and rigid frame analysis.
CO4	Design of various types of shear walls and detailing
CO5	Moment distribution and FEM methods of analysis of tall building using standard packages.

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	H						
CO2			H	H							
CO3			H	H							
CO4			H	H							
CO5	M		H	H							

List of Topics Covered

UNIT I INDUSTRIAL FRAMES 8

Single Storey Industrial Frames: Estimation of member forces in single storey R.C.C. Industrial bents -of flat Top & gabled configuration from handbooks – Design of members, rigid joints and footing detailing.

UNIT II RC STRUCTURES ELEMENTS 10

Medium – Rise Framed Buildings : Computation of design moments and shears using substitute frame methods of IS 456 and explanatory handbooks – Analysis for wind and earthquake effects – Design of beams, columns and slabs by Sp-16 Design aid – Detailing of reinforcement – Design of staircases and footings.

UNIT III DESIGN OF FLAT SLAB 9

Flat Slab Design, Design of heavily loaded warehouse type – Multi storey frames using flat – slab type of construction – Design by empirical and rigid frame analysis – Detailing – Design of pile foundations.

UNIT IV FUNCTIONAL DETAILS OF TALL BUILDINGS 9

Tall building - functional details – wells, staris and shear walls – lateral deflection - Frame and shear wall interaction - Design of various types of shear walls and detailing – Design of pile foundations.

UNIT V COMPUTER APPLICATION 9

Computer Methods. Moment distribution and FEM methods of analysis of tall building using standard packages.