Course Number and Name

BCE058 - TALL STRUCTURES

Credits and Contact Hours

3 & 45

Course Coordinator's Name

Ms.T.Aarthiharini

Text Books and References

TEXT BOOKS:

1. Wolfgang Schueller " High Rise Building Structures", John Wiley And Sons, NewYork, 1976.

REFERENCES:

1. Tung-Yen Lin &Sidney D. Stotesbury, "Structures Concept and Systems for Architects and Engineers", John Wiley & Sons, 1981
2. Lynn Baedle S., "Advances in Tall Buildings", CBS Publishers and Distributors. New Delhi, 1986.
3. Bryan Stafford Smith And Alex Coull, " Tall Building Structures ", Analysis And Design, John Wiley And Sons, Inc., 1991.

Course Description

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

Prerequisites	Co-requisites
Structural Analysis – I	NIL

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

Course Outcomes (COs)

CO1	Implement design philosophies for the development of high rise structures
CO2	Find out the design loads for high rise buildings
CO3	Analyze the behavior of tall buildings subjected to lateral loading.
CO4	Perform computerized general three dimensional analysis for high rise building
CO5	Perform stability analysis using various methods for tall buildings

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	M		H	H							
CO5			H	H							

List of Topics Covered

UNIT I GENERAL 9

Historical Development & Design Criteria: Design philosophy Loading, strength and stability. Stiffness and dirt limitations. Human comfort, Creep, shrinkage and temperature effects – Fire – Foundation -settlement – Soil structure interaction.

UNIT II LOADS 9

Gravity loading Methods and lively hood reduction- Impact loading - Construction loads – Wind loading – Static and dynamic approach – Analytical and experimental method – Earthquake loading – Model analysis.

UNIT III BEHAVIOUR SYSTEMS 9

Behaviour of Various Structural system: Factors affecting growth, height and structural form. High Rise behavior- Rigid frames - Braced frames - Infilled frames – Shear walls – Coupled shear walls – Walls frames – Tubular cores and hybrid mega systems.

UNIT IV ANALYSIS & DESIGN 10

Analysis & Design: Modeling – Analysis of building as total structural system considering overall integrity and major sub – system interaction. Analysis of member forces- Drift and twist - Computerised general three dimensional analysis - Section shapes, Properties and resisting capacity – Design of differential movement – Creep and shrinkage effects- Temperature effects and fiber resistance.

UNIT V STABILITY OF TALL BUILDINGS 8

Stability of Tall Buildings : Overall buckling analysis - Wall frames - Approximate methods – Second order effects – P – Delta – Simultaneous first – order and P – Delta analysis – Translational – Torsional instability – Out of plumb – Effect of foundation rotation.