

**CB545 Structural Dynamics**

**COURSE INFORMATION**

Prerequisites	Academic Year & Level		Teaching Methods			Credit Hrs.
	Year	Semester	Lecture	Tutorial	Laborator y	
CB343	5	9 – 10	2	2	0	3

**COURSE AIM**

The course introduces the students to the basic concepts of structural vibrations and its applications in building structures.

**COURSE WEEKLY CONTENTS**

- 1 Introduction to Structural Dynamics.
- 2 Equations of motion, Problem statement.
- 3 Solution methods for the calculation of the dynamic response of structure.
- 4 Undamped free vibration of single-degree of freedom systems.
- 5 Damping of structures.
- 6 Damped free vibration of single degree of freedom systems.
- 7 Response of harmonic and periodic excitations and 7th week examination. + Midterm Exam
- 8 Inelastic systems.
- 9 Earthquake response of structures.
- 10 Earthquake Engineering and Cause of earthquakes.
- 11 Design criteria of seismic resistant structures.
- 12 Codes of practice for the design of earthquake resistant structures and 12th week examination.
- 13 Dynamic analysis of tall buildings.
- 14 Seismic response of tall buildings.
- 15 Response spectra.

**STUDENT GRADING & ASSESSMENT**

Weeks	Exams	Assign.	Quizzes	Reports	Present.	Lab.	Total
1 to 7	20 Midterm	←	10	MARKS		→	30
To be freely distributed among possible assessments							
8 to 12	←		20	MARKS		→	20
13 to 15	←		10	MARKS		→	10
16 or 17	40 Final						40
<b>Total</b>	<b>Exams</b>	<b>Assign.</b>	<b>Quizzes</b>	<b>Reports</b>	<b>Present.</b>	<b>Lab.</b>	<b>100</b>

REFERENCES

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- Textbook** Dynamics of Structures, Anil Chopra, 5th Edition, 2016.
- Other** Structural Dynamics: Theory and Computation by PAZ, M, Van Nastrand  
Reinhold Company, New York, 5th Edition, 2004.  
Probabilistic Theory of Structural Dynamics by LIN, Y, McGraw-Hill Inc., 1976.