

Spring 2024

CE 634 - 102: STRUCTURAL DYNAMICS

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New Jersey Institute of Technology
Department of Civil and Environmental Engineering
CE 634 – Structural Dynamics

Instructor:

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Textbook

Chopra, Anil K., “Dynamics of Structures: Theory and Applications to Earthquake Engineering,” 4th Edition, Prentice Hall, Sept. 2012, ISBN 13: 978-0-13-285803-8

Outline:

Week(s)	Subject	Chapter(s)
1	SDOF: Introduction, Equation of Motion (EOM), Free Vibration, Rigid Body Assemblages	1, 2, 8
2-3	SDOF: Response to Harmonic Excitations	3
4-5	SDOF: Response to General Excitations	4
6-7	Numerical Integration of EOM; Application(s) for Dynamic Analysis of SDOF (such as NONLIN - http://training.fema.gov/EMIWeb/nonlin.asp)	5
8	Mid-Term (tentative), Project Definition	
9	Introduction to Earthquake Engineering: Response Spectrum Concept	6
10	MDOF: Introduction, EOM, Free Vibration, Mode Shapes, Frequencies	9-10
11-12	MDOF: Modal Analysis, Forced Vibration	12
13	Systems with Distributed Mass and Elasticity	16
14	Approximate Methods	8, 10
15	Final	

Grading:

Homework	25%
Mid-Term	25%
Project	25%
Final	25%