New Jersey Institute of Technology

Department of Civil and Environmental Engineering

CE 634	Structural Dynamics	Fall 2016
Texts:	1) Dynamics of Structures, Theory and Application to Earthquake Engineering 4th Ed. Chopra, Anil ISBN: 978-0-13-285803-8	
Instructor:	Adjunct Professor Anthony Massari Email address: amassari@caltech.edu	
Course Description:	*Students are introduced to concepts in structural dynamics and their applications in structural engineering. Methods to determine dynamic response of single degree of freedom systems with free and forced vibrations are studied first, followed by similar concepts in multi-degree of freedom systems. Numerical methods to determine response over time will also be investigated.*	

Prerequisites: Requires working knowledge of structural analysis, statics, differential equations and matrix algebra

Week	Topics	Chapters
1	SDOF: Introduction, Equations of Motion, Free Vibration	1,2
2	SDOF: Forced Vibration - Response to Harmonic Excitation	3
3		
4	SDOF: Forced Vibration - Response to General Excitation	4
5		
6	Numerical Evaluation of Dynamic Response	5
7		
8	Midterm Exam	
9	Response Spectrum Analysis. Rigid Body Assemblages	6,8
10	MDOF: Introduction, Equation of Motion, Free Vibrations, Mode Shapes, Modal Frequencies	9,10
11		
12	MDOF: Damping Systems, Analysis and Response of Linear Systems	11,12
13		
14	MDOF: Systems with Distributed Mass and Elasticity	17
15	Final Exam	

Basis of Grading

Homework	20%
Midterm	35%
Final	45%

Note: *The NJIT Honor Code will be upheld and any violation will be brought to the immediate attention of the Dean of Students*