Department of Civil Engineering

Course Name:

Dynamics of Structures II

Course Number: 20-162	**Credit:** 3
Program: Graduate	**Course Type:** Technical Selective
Prerequisite: -	**Corequisite:** -

Course Description (Objectives):

In this course, students become familiar with advanced topics in structural dynamics, including continuous structures, structures with non-classical damping, and methods for dynamic analysis of structures in the frequency domain. Additionally, methods for modeling and analyzing nonlinear multi-degree-of-freedom structures, intended for use in research studies, are presented in this course.

Course Content (outline):

- Chapter 1: Systems with continuous mass and stiffness
- Chapter 2: Standard structural models
- Chapter 3: Analysis of linear structures in the frequency domain
- Chapter 4: Identification of structural properties from dynamic tests
- Chapter 5: Nonlinear dynamic behavior of structures
- Chapter 6: Advanced models for damping simulation
- Chapter 7: Analysis of structures with non-classical damping
- Chapter 8: Reduction of dynamic degrees of freedom
- Chapter 9: Variational formulation of equations of motion

References:

- Chopra, A.K. Dynamics of Structures, Prentice Hall.
- Paz, M. and Leigh, W. Structural Dynamics: Theory and Computation, Springer.
- Clough, R.W. and Penzien J. Dynamics of Structures, McGraw-Hill.
- Gawronski, W.K. Advanced Structural Dynamics and Active Control of Structures, Springer.