MA 502- Advanced Vibration

Course Code:	MA-502
UTAA Credit (Theoretical-Laboratory hours/week):	3(3-0)
ECTS Credit:	6.0
Department:	Mechanical and Aeronautical Engineering
Language of Instruction:	English
Level of Study:	Graduate
Offered Semester:	Fall and Spring Semesters.

Course Objectives

Obtaining the equations of motion of systems modeled as discrete or continuous. Formulating the eigenvalue problem and solving it. Obtaining mode shapes and Eigen frequencies approximately. Analyzing free and forced vibrations of discrete systems

Course Content

Important concepts for Advanced Mechanical Vibrations. Natural modes and free vibrations of discrete systems. Natural modes and free vibrations of continuous systems. Approximate methods for natural modes and frequencies. Free and forced vibrations of discrete and continuous systems.

Course Learning Outcomes

1-Representing a real mechanical system exhibiting a linear behavior as a discrete or continuous model,

2-Obtaining equations of motion of the models and solving them with the help of an eigenvalue problem,

3-Obtaining modal characteristics of systems approximately,

4-Explicating the behaviors of the systems under damping and forcing effects.