



Turbomachinery Dynamics

MECHENG 7255

Credit Hours:

3.00 - 3.00

Course Levels:

Graduate (5000-8000 level)

Course Components:

Lecture

Course Description:

This course focuses on modeling the dynamics of rotating cyclic structures found in turbomachinery. The methods discussed in this class include traditional analysis methods such as cyclic analysis and small mistuning, and recent developments in modeling large mistuning, multi-stage systems, and friction damping.

Prerequisites and Co-requisites:

Prereq: Grad standing in Engr.

Course Goals / Objectives:

- Introduce fundamental tools for dynamic modeling of turbomachinery.
- Gain understanding of state-of-the-art analysis tools for modeling the dynamics of cyclic symmetric structures.
- Develop skills using ANSYS software for modeling and analysis of turbomachinery.
- Develop skills in reading technical papers, understanding the research and presenting it to a technical audience.

Course Topics:

- Turbomachinery Dynamics Fundamentals
 - Modal Analysis & Model Reduction
 - Cyclic Analysis
 - Mistuning Modeling
 - Advanced Turbomachinery Dynamics Topics
 - Student project presentations
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Designation:

Elective