

MA 543- Finite Element Method I

Course Code:	MA-543
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

Knowledge and expertise in Galerkin Formulation and solving multi-dimensional problems using Finite Element Methods. Experience in multidisciplinary evaluation of results from FEM analysis

Course Content

Basic principles of finite element formulations, static models, formulation techniques, one-dimensional elements, two-dimensional elements, elastostatic problems, heat transfer problems, mass matrix, time integration, plates, locking phenomenon, convergence criteria

Course Learning Outcomes

- 1-Solving multi-dimensional engineering problems using finite element methods
- 2-Capturing the interdisciplinary interaction concerning the problems
- 3-Research ability to solve time-dependent problems during engineering analysis
- 4-Ability to develop strategic approaches to unexpected outcomes