MA 578- Rotary Wing Aerodynamics and Aeroacoustics

Course Code:	MA-578
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

This course provides an introduction to rotary wing aeromechanical behavior, rotor performance calculationsat various levels of approximations, helicopter conceptual design and airfoil aerodynamics

Course Content

Understanding of the flow field around the rotor

Understanding of rotor performance

Understanding of rotor- fuselage interaction

Understanding of the relation between rotor aerodynamics and helicopter performance

Course Learning Outcomes

1-Understanding of rotor aeromechanical behavior

- 2-Calculation of rotor performance using momentum theory
- 3-Calculation of rotor performance using BEMT method
- 4-Conceptual design of helicopters
- 5-Understanding of airfoil characteristics related to rotary wings