

MA 555- Advanced Aircraft Design

Course Code:	MA-555
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 aims to present the basic principles of aircraft conceptual design process, to provide common methods used in conceptual design stages, and to intensify the knowledge by means of weakly homeworks and term project.

Course Content

Aircraft Design I course provides important tools in understanding of aircraft design process. Mission requirements are the basic design goals for aircraft. The course provides basic information about aerodynamics, structure, propulsion, landing gears, performance, and configuration layout. It also includes some conceptual design examples such as single-seat aerobatic and lightweight supercruise fighter aircraft.

Course Learning Outcomes

- 1-Be able to define the whole aircraft design process, specifically a conceptual design phase
- 2-Be able to do an initial sizing of an aircraft,
- 3-Be able to draw a configuration layout and loft
- 4-Be able to define the principles related to airfoil and geometry selection,
- 5-Be able to describe main components and systems of an aircraft
- 6-Be able to make an estimate about aircraft performance and flight mechanics,