

Course unit title:	Aircraft Design		
Course unit code:	ME415		
Type of course unit:	Technical Elective		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	3 or 4		
Semester when the unit is delivered:	Fall		
Number of ECTS credits allocated :	6		
Name of lecturer(s):	Professor Varnavas C. Serghides		
Learning outcomes of the course unit:	This course aims to teach the students the iterative multidisciplinary approach which is adopted by the Aerospace Industry for carrying out the full conceptual and preliminary design of advanced modern and future aircraft. This complex creative process starts from only a simple set of operational requirements and finishes with a fully defined and optimised aircraft design.		
Mode of delivery:	Face-to-face		
Prerequisites:	None	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	Design Process and Tools Aircraft Types and Roles Design Criteria and Constraints Airworthiness Requirements and Standards Design Target Specification Baseline Configuration Development Initial Sizing Process Powerplant Selection Powerplant-Airframe Integration Systems Packaging Fuselage Design Flying Surface Design High-Lift Device Selection and Design Flight Control Surface Design Undercarriage Layout and Design Aerodynamic Analysis Structural Layout, Loads and Aeroelastics Weight and Balance Estimations Stability and Control, Handling Qualities Performance Estimation Cost Estimation Optimisation Process		
Recommended and/or required reading:			
Textbooks:	<ul style="list-style-type: none"> • Raymer, D.P., Aircraft Design – A Conceptual Approach, American Institute of Aeronautics and Astronautics, 2012 • Torenbeek, E., Synthesis of Subsonic Airplane Design, DUP, 1982 • Stinton, D., The Design of the Aeroplane, American Institute of Aeronautics and Astronautics, 2001 • Fielding J.P., Introduction to Aircraft Design, Cambridge University Press, 1999 		
References:			
Planned learning activities and teaching methods:	This course is presented with the aid of several PowerPoint slides and photos, while the whiteboard is used for analytical work. Copies of all the slides presented during the course are distributed to the students in the form of handouts. The course material is further		

	enhanced with numerous real aircraft case studies, examples and detailed practical explanations.
Assessment methods and criteria:	<ul style="list-style-type: none"> • Quizzes/Assignments 15% • Mid-Term Tests 25% • Final Exam 60%
Language of instruction:	English
Work placement(s):	No