Jordan University of Science and Technology
Faculty of Engineering
Aeronautical Engineering Department

Course name and number:

AE344 Aerodynamics (1)

Credit, contact hours and categorization:

Credit and contact hours	Contact hours	Categorization
3 Credit Hours	Sunday-Tuesday- Thursday 1-hour lecture Or Monday-Wednesday 1.5-hours lecture	Engineering Topic

Instructor's or course coordinator's name:

Name	Dr. Montasir Hader
Office location	N1-L2
Email address	hader@just.edu.jo

Textbook and other supplemental materials:

Textbook			
Title	Fundamentals of Aerodynamics		
Author(s)	J. D. Anderson		
Edition	6th Edition		
Other Information	McGraw-Hill's		
References			
Book Name	Author(s)	Edition	Other Information
Aerodynamics for engineering students	J. Bertin & R. M. Cunnings	5th Edition	Prentice Hall

Course information:

Course Catalogue		
3 Credit Hours. 3 Credit Hours. Basics of aerodynamics: the concept of lift and drag, source panel method, Kutts-Joukwski theorem, Aerodynamic characteristics of airfoils: airfoil geometry parameters, vortex panel method, Kutta condition, thin-airfoil theory, high-lift airfoil section, Wings of finite span: lifting-line theory, trailing vortices and downwash, vortex-induced drag, vortex-lattice method, Effects of boundary layer interaction, Aerodynamic design.		
Course type : This course is **required** to fulfill the program.		
Prerequisites or co-requisites		
Line Number	Course Name	Prerequisite Type
712010	AE201 Introduction To Aeronautical Engineering	Prerequisite / Study
713210	AE321 Thermodynamics	Prerequisite / Study

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713410	AE341 Fluid Mechanics	Prerequisite / Study

Specific goals of the course :

Specific outcomes of instruction and the student outcomes (SO) mapping		
Outcomes	SO Mapping	Course Outcome Weight (Out of 100%)
Calculate the forces on bodies in flow; Lift forces, Drag forces and moments	80SO 1, 20SO 8	10%
Calculate Pressure Distribution on an aerofoil.	80SO 1, 20SO 8	10%
Estimate the coefficients of Lift and Drag from pressure distribution.	50SO 1, 50SO 8	20%
Learn how to construct potential flow over arbitrary bodies using elementary flows.	100SO 1	20%
Learn about the wing sections and aerofoil theories.	50SO 1, 50SO 8	20%
Apply the panel method for 2-D lifting	60SO 1, 40SO 8	20%

Brief list of topics to be covered:

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Basic concepts and definitions	From **Textbook**
Weeks 3, 4, 5, 6	Potential flow	From **Textbook**
Weeks 7, 8, 9	Two-dimensional wing theory	From **Textbook**
Weeks 10, 11, 12, 13	Finite wing theory	From **Textbook**
Weeks 14, 15, 16	Aerodynamic Design	From **Textbook**