



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

Course name and number:

AE 544 Aeronautic Lab. II

Credit, contact hours and categorization:

Credit and contact hours	Contact hours	Categorization
1 Credit Hours	One day a week: 3-hours Lab	Engineering Topic

Instructor's or course coordinator's name:

Name	Dr. Ahmad Alshyyab
Office location	N1-L2
Email address	asalshyyab@just.edu.jo

Textbook and other supplemental materials:

Textbook			
Title	Lab Manual		
Author(s)	AE		
Edition			
Other Information			
References			
Book Name	Author(s)	Edition	Other Information
Aircraft Structures for engineering students	T. H. G. Megson	5th Edition	Elsevier Ltd
Flight Stability and Automatic Control	R. C. Nelson	2st Edition	McGraw-Hill
Fundamentals of Aerodynamics	J. D. Anderson	6th Edition	McGraw Hill, Inc. sixth Edition, 2017

Course information:

Course Catalogue		
1 Credit Hours. Short period oscillation, The phugoid oscillation, Trim curves and neutral point determination, Bending of Aircraft Wing (Symmetric Wing, The Role of the Shear Center), Torsion of Airfoils (Twocell Section, Effect of the Spar), Thin-walled Shear Beams (Three Stringer Beams, The Role of the Shear Center), Structural Dynamics (Vibration of Beam, Various Vibration Modes of a Cantilevered Plate), Whole-field Stress Analysis (Photo elasticity of Grooved Specimen, Effect of Notch Geometry).		
Course type : This course is required to fulfill the program.		
Prerequisites or co-requisites		
Line Number	Course Name	Prerequisite Type
714440	AE444 Aeronautics Lab 1	Prerequisite / Study
715330	AE533 Aircraft Structure 1	Prerequisite / Study



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715630	AE563 Aircraft Stability & Control	Prerequisite / Study
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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 measure and find the deflections, normal stress, shear stress and buckling stress for different sections	10SO 1, 10SO 2, 20SO 3, 10SO 5, 20SO 6, 30SO 8	30%
Enable students to study the stability of longitudinal and lateral motions of airplane	10SO 1, 10SO 2, 15SO 3, 10SO 5, 25SO 6, 30SO 8	30%
Know a variety of experimental techniques and some practical experience 20% Reports, Final exam	20SO 1, 40SO 7, 40SO 8	20%
Enhance the students written, oral, and graphical communication skills.	50SO 3, 50SO 5	20%

Brief list of topics to be covered:

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1	Introduction.	From Textbook
Weeks 2	Unsymmetrical Bending of a Cantilever Beam	From Textbook
Weeks 3	Shear Center	From Textbook
Weeks 4	I-Beam in Bending	From Textbook
Weeks 5	Hollow Shaft (Tube) Analysis	From Textbook
Weeks 6	Wing strain Analysis	From Textbook
Weeks 7	Wing strain Analysis using Ansys	From Textbook
Weeks 8	MidTerm	From Textbook
Weeks 9	Trim curves and neutral point determination	From Textbook
Weeks 10	Dynamic stability of longitudinal motion. Short period oscillation (Rapid incidence Adjustment) and The Phugoid Oscillation	From Textbook
Weeks 11	Electrical gyroscope	From Textbook
Weeks 12	Hydraulic Landing Gear system	From Textbook
Weeks 13	Cockpit Instrumentation system	From Textbook
Weeks 14	Aircraft Performance	From Textbook