



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

Course name and number:

AE576 Aircraft Navigation

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. Khaled Aljanaideh
Office location	N1-L2
Email address	kfaljanaideh@just.edu.jo

Textbook and other supplemental materials:

Textbook			
Title	Avionics Navigation Systems		
Author(s)	Myron Kayton and Walter R. Fried		
Edition	2nd Edition		
Other Information	WILEY		
References			
Book Name	Author(s)	Edition	Other Information

Course information:

Course Catalogue		
Fundamentals of aircraft navigation systems, Inertial navigation system (INS) principles, Global Positioning System (GPS) principles, Least squares estimation and Kalman filtering for optimal estimation of stochastic systems.		
Course type : This course is Elective for the program.		
Prerequisites or co-requisites		
Line Number	Course Name	Prerequisite Type
713700	AE370 Instrumentation	Prerequisite / Study
714640	AE464 Automatic Control	Prerequisite / Pass



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

Specific goals of the course :

Specific outcomes of instruction and the student outcomes (SO) mapping		
Outcomes	SO Mapping	Course Outcome Weight (Out of 100%)
Know basics of mathematics used in navigation systems analysis.	10SO 6, 10SO1	20%
Design and analysis of inertial navigation systems.	5SO 2, 3SO 5, 5SO 6, 2SO 8, 5SO1	20%
Know basics of global navigation satellite systems.	5SO 2, 5SO 5, 8SO 6, 5SO 8, 7SO1	30%
Know basics of least squares estimation, Kalman filtering, and optimal estimation.	5SO 2, 5SO 6, 5SO 8, 5SO1	20%
Be familiar with air data-based navigation systems.	5SO 2, 5SO 6	10%

Brief list of topics to be covered:

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Introduction	Textbook
Weeks 2, 3, 4	Mathematical review	Textbook
Weeks 5, 6, 7	Fundamentals of inertial navigation systems	Textbook
Weeks 8, 9, 10	Global Positioning System (GPS) principles	Textbook
Weeks 11, 12	Kalman filtering with application to navigation	Textbook
Weeks 13, 14	Matlab basics for course project	Textbook
Weeks 15, 16	Course project	Textbook