Jordan University of Science and Technology

Faculty of Engineering

Aeronautical Engineering Department

AE574 Introduction To Avionics Systems - JNQF Level: 7

Second Semester 2023-2024

Course Catalog
3 Credit Hours. Fly-by-wire control, inertial sensors and attitude derivation, introduction to navigation systems including inertial navigation systems (INS), global positioning systems (GPS), and radio navigation systems, air data and air data systems, autopilots, flight management systems, avionics systems integration, unmanned aerial vehicles, displays.
Teaching Method: On Campus

Text Book	
Title	Introduction to Avionics Systems
Author(s)	R.P.G. Collinson
Edition	3rd Edition
Short Name	Collinson
Other Information	

Instructor	
Name	**Dr. KHALED ALJANAIDEH**
Office Location	-
Office Hours	
Email	kfaljanaideh@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 11:30 - 13:00 Room: CH2106

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
713700	AE370 Instrumentation	Prerequisite / Study
253200	ME320 Fundamentals Of Electronics And Digital Logic	Prerequisite / Study
714640	AE464 Automatic Control	Prerequisite / Study
713440	AE344 Aerodynamics (1)	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Introduction	From **Collinson**
Weeks 2, 3	Aerodynamics and aircraft control	From **Collinson**
Weeks 4, 5, 6	Fly-by-wire control	From **Collinson**
Weeks 7, 8, 9	Inertial sensors and attitude derivation	From **Collinson**
Weeks 10, 11	Navigation systems	From **Collinson**
Week 12	Air data and air data systems	From **Collinson**
Week 13	Autopilots	From **Collinson**
Week 14	Displays and man-machined interaction	From **Collinson**
Week 15	Avionics systems integration	From **Collinson**
Week 16	Unmanned aerial vehicles	From **Collinson**
Week 16	Flight management systems	From **Collinson**

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understand the importance and role of avionics in civil and military aircrafts [100SO7] [100L7C4]	10%	
Understand fly-by-wire control systems including their design, functionality, and role in modern civil and military aircraft systems [100SO1] [100L7K1]	25%	
Apply knowledge of inertial sensors and systems in flight dynamics and control and navigation systems [100SO1] [100L7K1]	15%	
Analyze and compare various navigation systems, including inertial navigation systems (INS), global positioning systems (GPS), and radio navigation systems, highlighting their advantages, limitations, and applications in avionics. [100SO2] [100L7S2]	15%	
Analyze and understand the basics of avionic systems such as air data sensors and systems, autopilots, displays, and flight management systems, and avionics systems integration [100SO2] [100L7S2]	25%	

Understand the role of avionics in unmanned aerial vehicles (UAVs) [100SO7] [100L7C4]	10%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
40	40					20

Relationship to NQF Outcomes (Out of 100%)		
L7K1	L7S2	L7C4
40	40	20

Evaluation	
Assessment Tool	**Weight**
First exam	25%
Second exam	25%
Final Exam	40%
Project	10%

Policy	
Classroom rules	No excessive talking; no eating; no open laptops; no texting; no smart phone usage for any reason.
Attendance policy	Attendance will be taken at the beginning of the lecture. You are allowed up to 20% of the total number of lectures. No exceptions will be made.

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