

**OSTIM TECHNICAL UNIVERSITY
FACULTY OF ENGINEERING**

**COURSE SYLLABUS FORM
2023-2024**

Fundamentals of Avionics Systems							
Course Name	Course Code	Period	Hour	Application Hour	Lab Hour	Credit	ECTS
Fundamentals of Avionics Systems	EEE 475	7	3	--	--	3	4

Prerequisite	--
Language of Instruction	English
Course Status	Technical Elective
Course Level	Undergraduate
Method of Teaching	Face to Face
Learning and Teaching Techniques of the Course	Lecture, Question and Answer, Presentation, Problem/Problem Solving.

Course Objective
This course is the main part of the Avionics Components course for Electrical& Electronics Engineers. The course is first prepared to meet the EASA (European Aviation Safety Agency) Regulations Part-66 Module 11 requirements. The course covers basic knowledge of Avionics and its components.

Learning Outcomes
Students who can complete this course;
1 Will learn the propagation, antennas, and transmitter/receiver background.
2 Will learn the rules of air navigation and the related avionics systems.
3 Will be able to understand the communication system in aviation.
4 Will be able to select suitable avionics systems for appropriate situations.
5 Will learn the total avionics structure in an aircraft.

Course Outline
The course aims students to understand the concepts of Avionics sub-systems separately and as a whole system that work together in coordination for Module 11. The course introduces students to the combination of aviation and electronics structures, getting familiar with the behaviors of avionics sub-systems by electrical and RF behavior. Also, it provides students with a theoretical background for data communication.

Weekly Topics and Related Preparation Studies		
Weeks	Topics	Preparation Studies
1	Introduction to RF Propagation	
2	Antenna Theory	
3	Antenna Theory	
4	Receiver (Rx)/Transmitter (Tx) Structures	
5	Aircraft Communication (VHF/HF)	
6	Internal Communication Systems	
7	ELT (Emergency Locator Tx)	
8	Midterm	
9	Fundamentals of Navigation	
10	Radar Basics	
11	NDB (Non-Directional Beacon) /ADF	
12	VOR (VHF Omni-range)/TACAN (Tactical Air Navigation)	
13	DME (Distance Measuring Equipment)	
14	INS	
15	Instrument Landing Systems (ILS/MLS)	
16	Final	

Textbook(s)/References/Materials:
<ol style="list-style-type: none"> 1. M.Tooley, D.Wyatt; Aircraft Communications and Navigation Systems, Biblioteca Central. 2. A. Helfrick; Principles of Avionics; Avionics Comms Inc.

Assessment		
Studies	Number	Contribution margin (%)
Active Participation		
Lab		
Application		
Field Study		
Course-Specific Internship (if any)		
Quizzes / Studio / Critical	2	15
Homework		
Presentation		
Projects	1	15
Report		
Seminar		
Midterm Exams / Midterm Jury	1	30
General Exam / Final Jury	1	45
Total		100
Success Grade Contribution of Semester Studies		55
Success Grade Contribution of End of Term		45
Total		100

Course Category	
Basic Vocational Courses	
Specialization/Field Courses	X
Support Courses	
Communication and Management Skills Courses	
Transferable Skills Courses	

Relationship Between Course Learning Outcomes and Program Competencies						
No	Learning Outcomes	Contribution Level				
		1	2	3	4	5
1	Will learn the propagation, antennas, and transmitter/receiver background.					x
2	Will learn the rules of air navigation and the related avionics systems.				x	
3	Will be able to understand the communication system in aviation.				x	
4	Will be able to select suitable avionics systems for appropriate situations.					x
5	Will learn the total avionics structure in an aircraft.				x	

ECTS / Workload Table			
Activities	Number	Duration (Hours)	Total Workload
Course hours (Including the exam week: 16 x total course hours)	14	4	56
Laboratory	0	0	0
Application	0	0	0
Course-Specific Internship	0	0	0
Field Study			
Study Time Out of Class	14	3	42
Presentation / Seminar Preparation	0	0	0
Projects	1	14	14
Reports	1	4	4
Homeworks	0	0	0
Quizzes / Studio Review	2	2	4
Preparation Time for Midterm Exams / Midterm Jury	1	14	14
Preparation Period for the Final Exam / General Jury	1	16	16
Total Workload			150