

**OSTİM TECHNICAL UNIVERSITY
INSTITUTE OF SCIENCES
ELECTRICAL AND ELECTRONICS ENGINEERING**

**COURSE SCHEDULE FORM
2022-2023 FALL/SPRING**

EEE 539 Satellite Communication							
Course Unit Name	Course Unit Code	Semester	Lecture Hr	Practice Hr	Lab Hr	Credit	ECTS
Satellite Communication	EEE 539	Fall/Spring	3	0	0	3	7.5

Course Details	
Language of Instruction	English
Level of Course Unit	Master's Degree
Program	
Mode of Delivery	Face to Face
Type of Course Unit	Elective
Objectives of the Course	Course aims to enhance the understanding of satellite communication and communication satellites and prepare students to study or work in space industry.
Course Content	Communication satellites and its subsystems, satellite orbits, digital satellite communication systems, modulations being used in satellite communication, link budget calculations.
Course Method and Techniques	
Prerequisites and Corequisites	EEE 417- Haberleşme Sistemleri EEE 418- Dijital Haberleşme
Course Coordinator	Assist. Prof. Dr. Şenol GÜLGÖNÜL
Name of Lecturer(s)	Assist. Prof. Dr. Şenol GÜLGÖNÜL
Assistants	
Work Placement(s)	

Recommended or Required Reading
Resources: 1. Satellite Communications Systems: Systems, Techniques and Technology, 5th Edition, Gerard Maral, Michel Bosquet

Course Category			
Mathematics and Basic Sciences :		Education :	
Engineering : X		Science :	
Engineering Design :		Health :	
Social Sciences :		Profession :	

Weekly Detailed Course Contents		
Week No	Topics	Pre-study & Materials
1	Satellites	Satellite Communications Systems-ch1
2	Communication Satellites Platform	Satellite Communications Systems-ch10
3	Communication Satellites Payload	Satellite Communications Systems-ch9
4	Satellite antennas and coverage areas	Satellite Communications Systems-ch9
5	Satellite Orbits	Satellite Communications Systems-ch2
6	Satellite Orbits	Satellite Communications Systems-ch2
7	Propellant Budget Calculations	Satellite Communications Systems-ch2
8	Satellite BPSK and QPSK modulations	Satellite Communications Systems-ch4
9	C/N, BER and Eb/No	Satellite Communications Systems-ch4
10	Digital Video Broadcasting-Satellites DVB-S	Satellite Communications Systems-ch4
11	Digital Video Broadcasting-Satellites DVB-S	Satellite Communications Systems-ch4
12	Satellite Link Budget Calculations-TV	Satellite Communications Systems-ch5
13	Satellite Link Budget Calculations-Data	Satellite Communications Systems-ch5
14	VSAT in Satellite Communication	Satellite Communications Systems-ch6
15	In-Class Presentations	
16	In-Class Presentations	

Course Learning Outcomes	
No	Learning Outcomes
C1	Concept design of communication satellite
C2	Understanding and design satellite communication system
C3	Analyze the performance of satellite communication systems
C4	Operation of communication satellites
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Programme Outcomes	
No	Outcomes
P01	Reaches the knowledge broadly and in depth by doing scientific research in the field, evaluates, interprets and applies the knowledge.
P02	Has comprehensive knowledge about current techniques and methods applied in engineering and their constraints.
P03	Complements and applies knowledge with scientific methods, using uncertain, limited or incomplete data; can use information from different disciplines together.

P04	He is aware of the new and developing applications of his profession, examines and learns them when needed.
P05	Defines and formulates problems related to the field, develops methods to solve and applies innovative methods in solutions.
P06	Develops new and/or original ideas and methods; designs complex systems or processes and develops innovative/alternative solutions in their designs.
P07	Designs and implements theoretical, experimental and modeling research; examines and solves complex problems encountered in this process.
P08	Can work effectively in disciplinary and multi-disciplinary teams, lead such teams and develop solutions in complex situations; can work independently and take responsibility.
P09	Communicates verbally and in writing by using a foreign language at least at the B2 General Level of the European Language Portfolio.
P10	He/she conveys results of his/her studies systematically and clearly in written or verbal form in national and international environments in that field or outside the field.
P11	Knows the social, environmental, health, safety, legal aspects of engineering applications, project management and business life applications and is aware of the constraints they impose on engineering applications.
P12	Observes social, scientific and ethical values in the stages of data collection, interpretation, announcement and in all professional activities.

Assessment Methods and Criteria		
In-term studies	Quantity	Percentage
Attendance		
Lab		
Practice		
Fieldwork		
Course-specific internship (if any)		
Quiz/Studio/Criticize		
Homework		
Presentation		
Project	1	40
Report		
Seminar		
Midterm Exam	1	20
Final Exam	1	40
Total		%100
Contribution of Midterm Studies to Success Grade		20
Contribution of End of Semester Studies to Success Grade		80
Total		% 100

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration (Hr)	Total Work Load
Weekly Theoretical Course Hrs (Including the exam week: 16 x total course hours)	16	3	48
Lab			
Practice			
Course-specific internship (if any)			
Fieldwork			
Out-of-class study time	16	5	80
Presentation/Seminar Preparation			

Project	1	50	50
Report			
Homework			
Quiz/Studio/Criticize			
Midterm Exam and Preperation for Midterm	1	23	23
Final Exam and Preperation for Final Exam	1	24	24
Total Workload			225
ECTS Credit	(..... /30) =		..

Contribution of Course Learning Outcomes to Programme Outcomes												
Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant												
	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12
C1	5	5	5	5	5	5	5	5	4	4	4	4
C2	5	5	5	5	5	5	5	5	4	4	4	4
C3	5	5	5	5	5	5	5	5	4	4	4	4
C4	5	5	5	5	5	5	5	5	4	4	4	4
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