

COURSE RECORD

Code	ECE 508
Name	Microwave Engineering
Hour per week	3 (Theory)
Credit	3
ECTS	7,5
Level/Year	Graduate
Semester	Spring
Type	Elective
Location	
Prerequisites	EE 205
Special Conditions	
Coordinator(s)	Dr. Veli Tayfun Kılıç
Webpage	
Content	In the course following topics are covered: basic electromagnetic theory, transmission line theory, microwave network analysis including S-parameters and ABCD matrix, impedance matching and tuning, and microwave devices and applications such as microwave resonators, power dividers, directional couplers, microwave filters, and so on.
Objectives	- Providing fundamental knowledge and skills for microwave engineering - Introducing fundamentals of microwave engineering - Analyzing design and testing principles of microwave devices and systems - Investigating various types of microwave devices and their applications
Learning Outcomes	L01: To learn fundamentals of microwave engineering L02: To learn operation principles of microwave devices and systems L03: To learn how to analyze, design and test a simple microwave device and system L04: To learn microwave device parameters (such as S parameters) L05: To understand impedance matching and tuning
Requirements	Basic knowledge about fundamentals of electromagnetics
Reading List	- Microwave Engineering, 3rd Edition, David M. Pozar, John Wiley & Sons, Inc., United States of America, 2005 - Lecture Notes
Ethical Rules and Course Policy	

LEARNING ACTIVITIES *Please, use this one as a reference for your course*

Activities	Number	Weight (%)
Lecture	14	60%
Group Works	1	40%
Presentations	0	0%
Site Visits	0	0%
	Total	100

ASSESSMENT

Evaluation Criteria	Weight (%)
Midterm Exam/Submission	20%
Laboratory Work	10%
Group Project Assignments & Presentations	40%
Attendance/Participation	05%
Final Exam/Submission	25%
	Total 100%

This is a tentative grading policy. It may change as needed.

COURSE LOAD *Please, use this one as a reference for your course*

Activity	Duration (hour)	Quantity	Work Load (hour)
In class activities	3	13	39
Lab	2	1	2
Group work	2	14	28
Research (web, library)	0	0	0
Required Readings	3	12	36
Pre-work for Presentation	2	1	2
Lab reports	2	1	2
General Sum			109

ECTS: 4 (Work Load/25-30)

CONTRIBUTION TO PROGRAMME OUTCOMES*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14
L01	4	5	2	2	1	1	0	0	0	0	0	0	0	0
L02	3	5	5	5	5	5	0	5	5	5	0	0	1	1
L03	1	1	5	5	5	5	5	5	5	5	4	5	4	4
L04	0	0	0	0	4	2	4	2	2	2	5	5	2	2
L05	0	0	0	0	0	0	0	0	0	0	0	0	5	5

* Contribution Level: 0: None, 1: Very Low, 2: Low, 3: Medium, 4: High, 5: Very High

WEEKLY SCHEDULE

W	Topic	Outcomes
1	Maxwell's Equations and Boundary Conditions Lab/Activity:	L01, L02
2	Wave Equations, Guided Waves (Part I) Lab/Activity:	L01, L02
3	Guided Waves (Part II) Activity:	L02, L03
4	Transmission Lines (Part I) Activity:	L02, L03
5	Transmission Lines (Part II), Standing Wave Ratio (SWR) Activity:	L02, L03, L04
6	Transmission Lines (Part III) Activity:	L02, L03
7	Smith Chart Activity:	L03, L04
8	Waveguides (Part I) Activity:	L02, L03
9	Waveguides (Part II) Activity:	L02, L03
10	Waveguides (Part III) Activity:	L02, L03
11	Impedance and Admittance Matrices, The Transmission (ABCD) Matrix Activity:	L03, L04
12	The Scattering (S) Parameters Activity:	L03, L04
13	Impedance Matching and Tuning (Part I) Activity: Lab I	L03, L05
14	Impedance Matching and Tuning (Part II) Activity:	L03, L05