AGU Graduate School of Engineering and Science ……
Program

COURSE RECORD	
Code	ECE 508
Name	Microwave Engineering
Hour per week	3 (Theory)
Credit	3
ECTS	10
Level/Year	Graduate
Semester	Fall; 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	LO1: To learn fundamentals of microwave engineering LO2: To learn operation principles of microwave devices and systems LO3: To learn how to analyze, design and test a simple microwave device and system LO4: To learn microwave device parameters (such as S parameters) LO5: 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
LO1	4	5	2	2	1	1	0	0	0	0	0	0	0	0
LO2	3	5	5	5	5	5	0	5	5	5	0	0	1	1
LO3	1	1	5	5	5	5	5	5	5	5	4	5	4	4
LO4	0	0	0	0	4	2	4	2	2	2	5	5	2	2
LO5	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	LO1, LO2
	Lab/Activity:	
2	Wave Equations, Guided Waves (Part I)	LO1, LO2
	Lab/Activity:	
3	Guided Waves (Part II)	LO2, LO3
	Activity:	
4	Transmission Lines (Part I)	LO2, LO3
	Activity:	
5	Transmission Lines (Part II), Standing Wave Ratio (SWR)	LO2, LO3, LO4
	Activity:	
6	Transmission Lines (Part III)	LO2, LO3
	Activity:	
7	Smith Chart	LO3, LO4
	Activity:	
8	Waveguides (Part I)	LO2, LO3
	Activity:	
9	Waveguides (Part II)	LO2, LO3
	Activity:	
10	Waveguides (Part III)	LO2, LO3
	Activity:	
11	Impedance and Admittance Matrices, The Transmission (ABCD) Matrix	LO3, LO4
	Activity:	
12	The Scattering (S) Parameters	LO3, LO4
	Activity:	
13	Impedance Matching and Tuning (Part I)	LO3, LO5
	Activity: Lab I	
14	Impedance Matching and Tuning (Part II)	LO3, LO5
	Activity:	

Prepared by Veli Tayfun KILIÇ
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