

ELECTROMAGNETIC WAVE THEORY

1	Course Title:	ELECTROMAGNETIC WAVE THEORY
2	Course Code:	EEM2202
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	2
6	Semester:	4
7	ECTS Credits Allocated:	5.00
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	-
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Doç.Dr. UĞUR YALÇIN
15	Course Lecturers:	Yrd. Doç.Dr. ESİN KARPAT Öğr. Gör. Dr. Sevim KURTULDU
16	Contact information of the Course Coordinator:	uyalcin@uludag.edu.tr, +90 (224) 2942023, Uludağ Üniversitesi, Mühendislik Fakültesi, Elektrik-Elektronik Müh. Bölümü Görükle / BURSA
17	Website:	
18	Objective of the Course:	Historical development of electromagnetism, to search behavior of electromagnetic waves.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	
	1	The gain of ability to model and solve electromagnetic waves problems using theoretical knowledge.
	2	Gain the ability to identify, model, and solve complex engineering problems on electromagnetic waves; the ability to select and apply appropriate analysis and modelling methods for these problem.
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	Faraday's Law of Electromagnetic Induction. A Stationary Circuit in a Time-Varying Magnetic Field.	

2	A Moving Conductor in a Magnetic Field. A Moving Circuit in a Time-Varying Magnetic Field.	
3	Maxwell's Equations. Integral Form of Maxwell's Equations. Electromagnetic Boundary Conditions.	
4	Potential Functions. Solution of Wave Equations.	
5	Time-Harmonic Electromagnetics. Plane Waves in Lossless Media. Transverse Electromagnetic Waves. Polarization of Plane Waves.	
6	Plane Waves in Lossy Media.	
7	Low-Loss Dielectrics. Good Conductors. Group Velocity.	
8	Flow of Electromagnetic Power and the Poynting Vector.	
9	Midterm Exam + Review of past lectures	
10	Normal Incidence of Plane Waves at Plane Boundaries.	
11	Oblique Incidence of Plane Waves at Plane Boundaries.	
12	Transmission-Line Equations and Parameters.	
13	Wave Characteristics on an Infinite and Finite Transmission Line.	

Activities		Number	Duration (hour)	Total Work Load (hour)
Theoretical	Materials: K. Cheng, Prentice Hall, 1992. 2. Elektromagnetik Dalgaların Teorisi. Bavrakçı H.F., Birsen	2	3.00	42.00
Practicals/Labs		0	0.00	0.00
Self study and preparation		3	14.00	42.00
Homeworks		10	2.00	20.00
PERIODS		0	0.00	0.00
FIELD LEARNING ACTIVITIES		0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm Exam		1	23.00	23.00
Midterm exams		1	23.00	23.00
Others		0	0.00	0.00
Home work-project		0	0.00	0.00
Final Exams		1	23.00	23.00
Final Exams		1	23.00	23.00
Total Work Load				150.00
Total work load/ 30 hr		2	100.00	5.00
ECTS Credit of the Course				5.00

Contribution of Final Exam to Success Grade	60.00
Total	100.00
Measurement and Evaluation Techniques Used in the Course	

24	ECTS / WORK LOAD TABLE
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ÖK2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low		2 low		3 Medium		4 High		5 Very High							