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:	Prof. Dr. UĞUR YALÇIN
15	Course Lecturers:	Doç. Dr. Sibel YENİKAYA Dr. Öğr. Üyesi Esin KARPAT
16	Contact information of the Course Coordinator:	uyalcin@uludag.edu.tr, +90 (224) 2942023, Bursa 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:	To be able to follow innovations and apply them in the field by using the competence of collecting information, researching and analyzing
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.	
8	Good Conductors. Group Velocity.	
9	Flow of Electromagnetic Power and the Poynting Vector.	
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.	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	3.00	42.00
Homeworks	14	3.00	42.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	10.00	10.00
Others	0	0.00	0.00
Final Exams	1	14.00	14.00
Total Work Load			150.00
Total work load / 30 hr			5.00
ECTS Credit of the Course			5.00

Total	100.00
Measurement and Evaluation Techniques Used in the Course	Midterm Exam and Final Exam

24	**ECTS / WORK LOAD TABLE**

25	**CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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

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