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:	6.00	
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. Esin KARPAT Öğr. Gör. Dr. Sevim KURTULDU	
16	Contact information of the Course Coordinator:	uyalcin@uludag.edu.tr, +90 (224) 2942023, Uludağ Üniversitesi Müh. Fak. 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	Entry to electromagnetic waves, Maxwell equations, space equations.	
2	Maxwell equations by integral, induction theory, continuous theorem.	

3	Monochromatic waves in simple space, harmonic Maxwell equations, boundary conditions at simple space.	
4	Electromagnetic waves, energy, power relations, and related applications, uniqueness theorem of electromagnetic waves, the complex Poynting vector and applications.	
5	Wave and Helmholtz equations to obtain.	
6	Potentials of electromagnetic fields. Vector and scalar potentials. Lorentz condition. Hertz vector. Debye potentials.	
7	Helmholtz wave equation and solution methods. Simple two-dimensional solutions.	
8	Midterm Exam + Review of past lectures	
9	Monochromatic waves in a simple environment,frequency, phase, wavelength, phase velocity concepts and applications, a simple plane waves.	
10	Dispersive phase and group velocity of plane waves in media concepts, the polarization of plane waves.	
11	Search for monochromatic plane waves from the surface reflection and diffraction of the two simple environment.	
12	Applications for monochromatic plane waves from the surface reflection and diffraction of	

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	0	0.00	0.00
Projects	1	15.00	15.00
Field Studies	0	0.00	0.00
Midterm exams	1	23.00	23.00
Others	0	0.00	0.00
Midterm Exam	1	1.00	28.00
Total Work Load			150.00
Total work load / 30 hr	0	0.00	5.00
ECTS Credit of the Course			6.00

22	Materials: Yalçınevi 2001. Elements of Electromagnetics , Sadiku M., 2nd Edition.	
23	Assesment	
TERM LEARNING ACTIVITIES	**NUMBE**	**WEIGHT**
Midterm Exams	1	40
Final Exam	1	60
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
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**	

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				