T.C. ESKİŞEHİR OSMANGAZİ UNIVERSITY
ENGINEERING AND ARCHITECTURE FACULTY
ELECTRICAL AND ELECTRONICS ENGINEERING DEPARTMENT

COURSE INFORMATION FORM

SEMESTER	Fall

COURSE CODE	151228552-151248552	COURSE NAME	ANTENNA THEORY

SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAGE
7	3	0	2	4	7	COMPULSORY ( ) ELECTIVE (√)	Turkish ( ) English (x)

COURSE CATEGORY			
Basic Science	Basic Engineering	Engineering Subjects [if it contains considerable design, mark with (√)]	Social Science
		4 ( )	

ASSESSMENT CRITERIA			
	Evaluation Type	Quantity	%
MID-TERM	Mid-Term	1	30
	Quiz	2	10
	Homework	2	10
	Project	1	10
	Report		
	Others (……)		
FINAL EXAM		1	40

PREREQUIEITE(S)	None
COURSE DESCRIPTION	Radiation mechanism, antenna parameters, dipole antennas, loop antennas and antenna arrays are main topics of this course.
COURSE OBJECTIVES	1. Fundamental knowledge about radiation mechanism and antenna parameters. 2. Analysis of dipole and loop antennas and antenna arrays. 3. Calculation of radiation patterns of fundamental antennas. 4. Understanding antenna synthesis.
ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	The strong connection of antenna theory and design with the defence systems and communication technology is emphasized in this course.
COURSE OUTCOMES	Students who pass the course will be able to; 1. Have fundamental knowledge on raditation mechanism and antenna parameters. 2. Analyze dipole and loop antennas, as well as antenna arrays. 3. Calculate and simulate radiation patterns of certain antennas.
TEXTBOOK	Constantin Balanis, Antenna Theory: Analysis and Design, Wiley Interscience, 4th ed., 2016.
OTHER REFERENCES	Robert E. Collin, Antennas and Radiowave Propagation, McGraw-Hill, 1985.
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	**TOPICS**
1	Review on electromagnetic waves
2	Types of antennas and radiation mechanism
3	Antenna parameters
4	Antenna parameters
5	Radiation integrals
6	Dipole antennas
7	Dipole antennas
8	Mid-Term Examination
9	Mid-Term Examination
10	Loop antennas
11	Loop antennas
12	Antenna arrays
13	Antenna arrays
14	Antenna synthesis
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.	**[x]**	**[ ]**	**[ ]**
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	**[x]**	**[ ]**	**[ ]**
3	Ability to design a complex system, a component and/or an engineering process under real life constrains or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.	**[ ]**	**[ ]**	**[x]**
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.	**[ ]**	**[x]**	**[ ]**
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.	**[ ]**	**[ ]**	**[x]**
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.	**[ ]**	**[ ]**	**[x]**
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.	**[ ]**	**[ ]**	**[x]**
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	**[ ]**	**[ ]**	**[x]**
9	Understanding of professional and ethical issues and taking responsibility	**[ ]**	**[ ]**	**[x]**
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.	**[ ]**	**[ ]**	**[x]**
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.	**[ ]**	**[ ]**	**[x]**
1:None. **2**:Partially contribution. **3**: Completely contribution.				

Prepared by: Prof. Dr. Gökhan ÇINAR **Date:** 08.05.2018

Signature(s):