



COURSE / MODULE / BLOCK DETAILS

ACADEMIC YEAR / SEMESTER

Offered by: Faculty of Engineering			
Course Title: WIRELESS POWER TRANSER SYSTEMS		Course Org. Title: WIRELESS POWER TRANSER SYSTEMS	
Course Level: Bachelor's Degree		Course Code: MTH 3505	
Language of Instruction: English		Form Submitting/Renewal Date 13/02/2023	
Weekly Course Hours: 2		Course Coordinator: PROF.DR. EMİNE YEŞİM ZORAL	
Theory	Application	Laboratory	National Credit: 2
2	0	0	ECTS Credit: 4



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Offered to:	Course Status: Compulsory/Elective
Name of the Department:	
Electrical and Electronics Engineering	Technical Elective
Computer Engineering	Technical Elective

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Instructor/s:

PROF.DR. EMİNE YEŞİM

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Course Objective:

The contemporary methods and techniques in wireless power transfer is aimed to be discussed using intermediate level theoretical content, with article-reading based development of research skills

Learning Outcomes:

- 1 To have basic knowledge of wireless power systems
- 2 To have an understanding of the basic principles and the differences of capacitive, inductive and microwave based systems
- 3 To have knowledge of compensation schemes of resonant inductive wireless power transfer systems
- 4 To understand inductive structures
- 5 To develop article reading and presentation skills.

Learning and Teaching Strategies:

The course is taught in a class presentation and discussion format. In addition to the lesson, homework will be prepared by the students.

Assessment Methods:

Name	Code	Calculation formula
MIDTERM EXAM	MTE	
PROJECT	PRJ	
FINAL EXAM	FIN	
FINAL COURSE GRADE	FCG	$MTE * 025 + PRJ * 025 + FIN * 050$
RESIT	RST	
FINAL COURSE GRADE (RESIT)	FCGR	$MTE * 025 + PRJ * 025 + RST * 050$

Further Notes about Assessment Methods:

Assessment Criteria:

Midterm, project and final exam.



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Textbook(s)/References/Materials:

? Wireless Power Transfer for Electric Vehicles and Mobile Devices (Yazar: Chun T. Rim, Chris Mi),

Course Policies and Rules:

To be announced.

Contact Details for the Instructor:

To be announced.

Office Hours:

To be announced.

Course Outline:

Week	Topics:	Notes:
1	Wireless Power Transfer Systems: General concepts, application areas, and types	
2	Capacitive coupling and microwave based systems	
3	Inductive coupling based wireless power systems I	
4	Inductive coupling based wireless power systems II	
5	Resonant Inductive Wireless power transfer systems I	
6	Compensation schemas in resonant inductive wireless power systems and circuit model based analysis	
7	Compensation schemas in resonant inductive wireless power systems and circuit model based analysis and simulation	
8	Coil pads in Inductive coupling based systems I	
9	Coil pads in Inductive coupling based systems II	
10	Charging systems for Electric Vehicles	



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11	EMI/EMC and health effects of Wireless Power Transfer Systems
12	Article research presentations I
13	Article research presentations I
14	Article research presentations I



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ECTS Table

Course Activities	Number	Duration (hour)	Total Work Load (hour)
In Class Activities			
Lectures	13	2	26

Exams

Final	1	2	2
Midterm	1	2	2

Out of Class activities

Preparation for midterm exam	1	20	20
Preparation for final exam	1	20	20
Project Preparation	1	20	20
Total Work Load (hour)			90
ECTS Credits of the Course= Total Work Load (hour) / 25			4