

**OSTİM TECHNICAL UNIVERSITY
INSTITUTE OF SCIENCES
ELECTRICAL AND ELECTRONICS ENGINEERING**

**COURSE SCHEDULE FORM
2023-2024 SPRING**

EEE104 INTRODUCTION TO ELECTRICAL AND ELECTRONICS ENGINEERING							
Course Unit Name	Course Unit Code	Semester	Lecture Hr	Practice Hr	Lab Hr	Credit	ECTS
INTRODUCTION TO ELECTRICAL AND ELECTRONICS ENGINEERING	EEE104	Spring	3	0	0	3	4

Course Details	
Language of Instruction	English
Level of Course Unit	Bachelor's Degree
Program	ELECTRICAL & ELECTRONICS ENGINEERING
Mode of Delivery	Face to Face
Type of Course Unit	Compulsory
Objectives of the Course	Learn the history of electrical and electronics engineering. Be provided with an overview of the EE profession, careers, and the field in general, learn the current research areas and career opportunities and will be more equipped to make career decisions. Develop engineering ethics, and understand the impacts of unethical engineering decisions on the environment, society, public health, privacy etc. Develop active communication with graduates of the department by means of seminars, discussions Gain a practical perspective to main engineering systems and challenges prior to theoretical courses of the following years with practical design projects
Course Content	An orientation course introducing the students to engineering in general and to electrical and electronics engineering in particular with a discussion of the past, present and future of major areas. The course also aims to emphasize the ethical issues and current debates in electrical engineering and bring career and research opportunities to the attention of students. A general portrayal of electrical engineering is presented by means of practical, hands-on design projects and technical tutorials.
Course Method and Techniques	Lectures, Presentations, Homework's.
Prerequisites and Corequisites	

Course Coordinator	Dr. Hüseyin KÖSE
Name of Lecturer(s)	Dr. Hüseyin KÖSE
Assistants	
Work Placement(s)	Classroom

Recommended or Required Reading	
1.	Foundations of Engineering, Holtzapple, Reece, McGraw Hill, 2nd ed.
2.	Lecturer notes, internet notes.
3.	Student Presentations.

Course Category			
Mathematics and Basic Sciences :		Education :	
Engineering :	x	Science :	
Engineering Design :	x	Health :	
Social Sciences :		Profession :	

Weekly Detailed Course Contents		
Week No	Topics	Pre-study & Materials
1	EE104 Course Content and Objectives. What is electrical engineering? Fundamentals of Electricity.	Lecture notes & Presentations
2	History. Milestones in EE. Fundamental of Magnetism.	Lecture notes & Presentations
3	What is the Electric as science, its history, and applications in life. What is the Electronic as science, its history, and applications in life. Student Presentations, lecturer explanations, class arguments.	Lecture notes & Presentations
4	Gauss & Kirchoff life, theories and inventions. What is the Power Electronic, its history, and applications in life. Student Presentations, lecturer explanations, class arguments.	Lecture notes & Presentations
5	Hydroelectric power plants, generators and working principles. Electromagnetic theory and industrial applications. Student Presentations, lecturer explanations, class arguments.	Lecture notes & Presentations
6	AC machines, generators, motors, theory, types and applications. Engineering ethics, responsibilities, example crimes and court decisions etc. Student Presentations, lecturer explanations, class arguments.	Lecture notes & Presentations
7	Midterm Exam Week, Free Week	
8	Maxwell & Faraday lives, theories and inventions. Edison & Tesla lives, theories and inventions. Student Presentations, lecturer explanations, class arguments.	Lecture notes & Presentations
9	Matlab using in Electrical and Electronics Engineering. Transformers, theory and their applications. Student Presentations, lecturer explanations, class arguments.	Lecture notes & Presentations
10	Embedded circuit designing and programming for EEE. Renewable Energy types, their circuit and applications. Student Presentations, lecturer explanations, class arguments.	Lecture notes & Presentations
11	Electric vehicles, working principles and circuits. MATLAB, CAD, PCB, C, JAVA, programs, example using areas for EEE. Student Presentations, lecturer explanations, class arguments.	Lecture notes & Presentations
12	Batteries, types and their different applications. Wind turbine power plants, generators and working principles. Student Presentations, lecturer explanations, class arguments.	Lecture notes & Presentations

13	Solar power plants, including parts and working principles. Renewable Energy types, their circuit and applications. Student Presentations, lecturer explanations, class arguments.	Lecture notes & Presentations
14	lecturer explanations, class arguments.	Lecture notes & Presentations
15	lecturer explanations, class arguments.	Lecture notes & Presentations
16	Final Exam	

Course Learning Outcomes	
No	Learning Outcomes
C1	an ability to communicate effectively with a range of audiences.
C2	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
C3	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
C4	An ability to research and understand engineering life, job roles, different disciplines etc.

Programme Outcomes	
No	Outcomes
P01	An ability to identify, formulate, and solve complex electrical and electronics engineering problems by applying principles of engineering, science, and mathematics.
P02	Ability to identify, define, formulate and solve complex electrical and electronics engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P03	The ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P04	Ability to develop, select and use modern techniques and tools necessary for the analysis and solution of complex problems encountered in electrical and electronics engineering applications; ability to use information technologies effectively.
P05	Ability to design and conduct experiments, collect data, analyze and interpret results for the investigation of complex electrical and electronics engineering problems or discipline-specific research topics.
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual working skills.
P07	Ability to communicate effectively in Turkish orally and in writing; knowledge of at least one foreign language; ability to write effective reports and understand written reports, to prepare design and produce reports, to make effective presentations, to give and receive clear and understandable instructions.
P08	Awareness of the necessity of lifelong learning; the ability to access information, follow developments in science and technology, and constantly renew oneself.
P09	Behaving in accordance with ethical principles, awareness of professional and ethical responsibility; knowledge of standards used in engineering practice.
P10	Knowledge of business practices such as project management, risk management and change management; awareness of entrepreneurship, innovation; information about sustainable development.
P11	Information about the effects of electrical and electronics engineering practices on health, environment and safety in universal and social dimensions and the problems of the era reflected in the field of engineering; awareness of the legal consequences of engineering solutions.

Assessment Methods and Criteria		
In-term studies	Quantity	Percentage
Attendance	16	%20
Lab		
Practice		
Fieldwork		
Course-specific internship (if any)		
Quiz/Studio/Criticize		
Homework		
Presentation		
Project		
Report		
Seminar		
Midterm Exam	1	% 20
Final Exam	1	% 60
	Total	%100
Contribution of Midterm Studies to Success Grade		% 40
Contribution of End of Semester Studies to Success Grade		% 60
	Total	% 100

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration (Hr)	Total Work Load
Weekly Theoretical Course Hrs (Including the exam week: 16 x total course hours)	16	3	48
Lab			
Practice			
Course-specific internship (if any)			
Fieldwork			
Out-of-class study time			
Presentation/Seminar Preparation	30	0.5	15
Project			
Report			
Homework			
Quiz/Studio/Criticize			
Midterm Exam and Preparation for Midterm	1	20	20
Final Exam and Preparation for Final Exam	1	20	20
Total Workload			103
ECTS Credit	(103 / 25) =		4.12

Contribution of Course Learning Outcomes to Programme Outcomes											
Contribution: 1: Very Slight 2:Slight 3:Moderate 4:Significant 5:Very Significant											
	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11
C1	0	0	0	0	0	4	4	1	0	4	2
C2	0	0	0	0	0	0	3	1	4	0	0
C3	0	0	0	0	0	4	4	1	0	4	2
C4	0	0	0	0	0	0	4	5	0	4	3