Tarih: 11 Eylül 2025 13:26

Department of Electricity and Energy / Department of Electricity and Energy /

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
ENR107	ELECTRONIC	3.00	1.00	0.00	4.00	4.00

Course Detail

Course Language	:	Turkish
Qualification Degree	:	PreBachelor
Course Type	:	Compulsory
Preconditions	:	Not
Objectives of the Course	:	To teach semiconductor materials and their properties. To explain the structure, types, properties, and operating principles of semiconductor circuit elements. To provide the ability to analyze circuits in which semiconductor circuit elements are used.
Course Contents	:	Semiconductor materials and their properties, definition, structure, and types of diodes, AC and DC analysis of diodes, rectifier, clipper and clamping circuits, definition, structure, and types of transistors, DC analysis of BJT transistors, use of BJT transistors as amplifier elements, use of JFET and MOSFET as switching and amplifier elements, structure and properties of operational amplifiers, basic operational amplifier circuits.
Recommended or Required Reading	:	Bilgisayar, projeksiyon cihazı. 1 Elektronik Elemanlar ve Devre Teorisi, Robert Boylestad, Louis Nashelsky, Milli Eğitim Basımevi, 2004. 2 Ders notları ve laboratuvar deney föyleri 3 Elektronik-I, Doç.Dr.Hüseyin DEMİREL, Birsen Yayınevi, 2018, ISBN: 9789755116068
Course Instructors	:	Öğr. Gör. Ensar Koşatepe
Presentation Of Course	:	formal
Update Date	:	9/7/2025 5:54:24 PM
Dosya İndirilme Tarihi	:	9/11/2025

Course Outcomes

Upon the completion of this course a student :

1 Can define semiconductor materials and their properties.

2 Can comprehend the definition, structure, and types of diodes.

3 Can perform AC and DC analysis of diodes.

4 Can implement rectifier, clipper, and clamping circuits.

5 Can explain the definition, structure, and types of transistors.

6 Can use JFET as a switching and amplifier element.

7 Can use MOSFET as a switching and amplifier element.

8 Can comprehend the structure and properties of operational amplifiers

9 Can use the operational amplifier as a filter and oscillator element.

Preconditions

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Weekly Contents

	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods	Course Learning Outcomes
1.Week	*Semiconductor Materials	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.1 Ö.Ç.2
2.Week	*Diode	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.1 Ö.Ç.2
3.Week	*Rectifier, Clipper and Clamping Circuits	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.4
4.Week	*Rectifier, Clipper and Clamping Circuits	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.4
5.Week	*Diode Circuits	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.2 Ö.Ç.5
6.Week	*Transistor	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.5
7.Week	*Analysis of BJT Transistors	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.5
8.Week	*Midterm Exam					Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4
9.Week	*Analysis of BJT Transistors	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.5
10.Week	*Transistor Circuit Applications	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.5
11.Week	*JFET	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.6
12.Week	*MOSFET	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.7
13.Week	*Operational Amplifiers	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.8
14.Week	*Operational Amplifiers	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.8
15.Week	*Operational Amplifiers	*Definition, measurements, faults and maintenance of electronic components, and their use in circuits.	*Structure and operating principle of electronic components, their roles and functions in electronic circuits.	*Lecture notes, internet videos, studies of electronic circuits and systems.	*Explanation, discussion, problem solving	Ö.Ç.9
16.Week	*final exam					Ö.Ç.1 Ö.Ç.2 Ö.Ç.3 Ö.Ç.4 Ö.Ç.5 Ö.Ç.6 Ö.Ç.7 Ö.Ç.8 Ö.Ç.9

Assesment Methods %

1 Ara Sınav : 40.000

3 Final : 60.000

ECTS Workload

Activities	Count	Time(Hour)	Sum of Workload
Vize	1	1.00	1.00
Final	1	1.00	1.00
Derse Katılım	14	2.00	28.00
Laboratuvar	14	1.00	14.00
Ders Sonrası Bireysel Çalışma	10	1.00	10.00
Ders Öncesi Bireysel Çalışma	10	1.00	10.00
Ara Sınav Hazırlık	1	6.00	6.00
Final Sınavı Hazırlık	1	8.00	8.00
Teorik Ders Anlatım	14	3.00	42.00
		Total :	120.00
		Sum of Workload / 30 (Hour) :	4
		ECTS :	4.00

Program And OutcomeRelation

	P.O. 1	P.O. 2	P.O. 3	P.O. 4	P.O. 5	P.O. 6	P.O. 7	P.O. 8	P.O. 9	P.O. 10	P.O. 11	P.O. 12	P.O. 13	P.O. 14	P.O. 15	P.O. 16	P.O. 17	P.O. 18	P.O. 19	P.O. 20
L.O. 1	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
L.O. 2	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
L.O. 3	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
L.O. 4	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
L.O. 5	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
L.O. 6	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
L.O. 7	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
L.O. 8	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
L.O. 9	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
Avarage	0	0	0	0	0	0	0	0	5.00	0	0	0	0	0	0	0	0	0	0	0

Engel Durumu/Uyarlama Talebi : Engel durumuna ilişkin herhangi bir uyarlama talebinde bulunmak isteyen öğrenciler, dersin öğretim elemanı ya da Nevsehir Engelli Öğrenci Birimi ile en kısa sürede iletişime geçmelidir.