KNT105 - ELECTRONIC I - Meslek Yüksekokulu - Elektronik ve Otomasyon Bölümü

General Info

Objectives of the Course

Understanding what electronics are, active and passive circuit elements. Gaining the skill of reading the values of electronic elements. Teaching the basic laws of electricity. Teaching the concept of analog and digital electronics.

Course Contents

Basic laws of electricity, passive and active circuit elements, analog and digital concepts, operational amplifiers.

Recommended or Required Reading

Electronic Devices and Circuit Theory (Robert L. Boylestad, Louis Nashelsky), Projector, Electronic Experiment Set

Planned Learning Activities and Teaching Methods

Face to face

Recommended Optional Programme Components

Before attending the course, the student must follow the preparation instructions included in the information packet.

Presentation Of Course

Face to Face

Dersi Veren Öğretim Elemanları

Inst. Samet Ayık

Program Outcomes

1. Learn the Basic Concepts of Electronics.
2. Learn the basics of Semiconductor Diodes.
3. Learn Diode Applications.
4. Learn the Fundamentals of Transistors.
5. Learn DC Analysis of BJT Transistors.
6. Learn the fundamentals of field effect transistors.
7. Learn the fundamentals of operational amplifiers.
8. Learn the fundamentals of Op-Amp applications.

Weekly Contents

Order	PreparationInfo	Laboratory	TeachingMethods	Theoretical	Practise
1	Students should participate in the course by doing preliminary research on the subject. Source Page: 1-20		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Basic Concepts in Electronics	Examination of basic circuit elements
2	Students should participate in the course by doing preliminary research on the subject. Source Page: 1-20		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Basic Concepts in Electronics	Examination of basic circuit elements
3	Preliminary study on semiconductor diodes Source Page: 1-49		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Semiconductor Diodes	Investigation of semiconductor diodes and their operating principles
4	Review of what has been learned about semiconductor diodes Source Page: 1-49		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Semiconductor Diodes	Investigation of semiconductor diodes and their operating principles
5	A preliminary study of basic diode applications and where they are used. Source Page: 59-114		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Diode Applications	Basic diode applications
6	Review of what has been learned about basic diode applications Source Page: 59-114		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Diode Applications	Basic diode applications
7	Preliminary study on transistors Source Page: 131-156		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Bipolar Junction Transistors	Examining transistors
8	Midterm Exam		Midterm Exam	Midterm Exam	Midterm Exam
9	Preliminary study on BJT Transistors and why DC analysis is performed Source Page: 246-343		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	BJT Transistors and DC Analysis	Examination of BJT transistors
10	Repetition of what has been learned about BJT Transistors Source Page: 246-343		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	BJT Transistors and DC Analysis	Examination of BJT transistors
11	Preliminary study on field effect transistors Source Page: 368-406		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Field Effect Transistors	Investigation of field effect transistors
12	Preliminary study on operational amplifiers Source Page: 594-631		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Operational Amplifiers	Analyzing operational amplifiers
13	Preliminary study on where operational amplifiers are used Source Page: 594-631		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Operational Amplifiers	Analyzing operational amplifiers
14	Preliminary study on Op-Amp Source Page: 641-659		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Op-Amp Applications	Basic Op-Amp applications
15	Preliminary study on Op-Amp applications Source Page: 641-659		Face to face, subject explanation by following the course source and then problem solutions to reinforce the relevant subject.	Op-Amp Applications	Basic Op-Amp applications

Workload

Activities	Number	PLEASE SELECT TWO DISTINCT LANGUAGES
Vize	1	1,00
Final	1	1,00
Ara Sınav Hazırlık	1	1,00
Final Sınavı Hazırlık	1	1,00
Derse Katılım	14	3,00
Uygulama / Pratik	14	1,00
Ödev	14	1,00
Diğer	14	1,00
Quiz Hazırlık	2	1,00

Assesments

Activities	Weight (%)
Ara Sınav	40,00
Final	60,00

Elektronik ve Otomasyon Bölümü / KONTROL VE OTOMASYON TEKNOLOJİSİ PROGRAMI X Learning Outcome Relation

	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
L.O. 1	5				4						3			
L.O. 2	4										4		3	
L.O. 3											4	3		3
L.O. 4	4										4		2	
L.O. 5	5				4						4			
L.O. 6	4										4			3
L.O. 7	5										4			3
L.O. 8					4						5			5

Table :

P.O. 1 : Mesleği ile ilgili temel, güncel ve uygulamalı bilgilere sahip olur.

P.O. 2 : İş sağlığı ve güvenliği, çevre bilinci ve kalite süreçleri hakkında bilgi sahibi olur.

P.O. 3 : Mesleği için güncel gelişmeleri ve uygulamaları takip eder, etkin şekilde kullanır.

P.O. 4 : Mesleği ile ilgili bilişim teknolojilerini (yazılım, program, animasyon vb.) etkin kullanır

P.O. 5 : Mesleki problemleri ve konuları bağımsız olarak analitik ve eleştirel bir yaklaşımla değerlendirme ve çözüm önerisini sunabilme becerisine sahiptir.

P.O. 6 : Bilgi ve beceriler düzeyinde düşüncelerini yazılı ve sözlü iletişim yolu ile etkin biçimde sunabilir, anlaşılır biçimde ifade eder.

P.O. 7 : Alanı ile ilgili uygulamalarda karşılaşılan ve öngörülemeyen karmaşık sorunları çözmek için ekip üyesi olarak sorumluluk alır

P.O. 8 : Kariyer yönetimi ve yaşam boyu öğrenme konularında farkındalığa sahiptir.

P.O. 9 : Alanı ile ilgili verilerin toplanması, uygulanması ve sonuçlarının duyurulması aşamalarında toplumsal, bilimsel, kültürel ve etik değerlere sahiptir.

P.O. 10 : Bir yabancı dili kullanarak alanındaki bilgileri takip eder ve meslektaşları ile iletişim kurar.

P.O. 11 : Kontrol ve otomasyon sistemlerinin temel prensiplerini açıklar, tasarımını ve montajını yapar.

P.O. 12 : Otomasyon sistemlerinde meydana gelebilecek arızaları tespit eder ve arızaları giderir.

P.O. 13 : PLC, mikrodenetleyici ve diğer kontrol sistemleri için yazılım geliştirir.

P.O. 14 : Endüstriyel sensörler ve kontrol elemanları hakkında bilgi sahibi olur ve uygulamalar geliştirir.

L.O. 1 : Elektronikte Temel Kavramları öğrenir.

L.O. 2 : Yarıiletken Diyotların temellerini öğrenir.

L.O. 3 : Diyot Uygulamalarını öğrenir.

L.O. 4 : Transistörlerin Temellerini öğrenir.

L.O. 5 : BJT Transistörlerin DC Analizini öğrenir.

L.O. 6 : Alan etkili transistörlerin temellerini öğrenir.

L.O. 7 : İşlemsel yükselteçlerin temellerini öğrenir.

L.O. 8 : Op-Amp uygulamalarının temellerini öğrenir.