EE301 ELECTRONICS-I SYLLABUS

Lecturer: Assist. Prof. Dr. Coşkun DENİZ
Hours: Fridays 13.30-16.45, at classroom: MA204
Office hours: Wednesday 12.00—14.00
Textbook:
1) R. L. Boylestad and L. Nashelsky, Electronic Devices and Circuit Theory, 11th ed., Pearson.
2) A. S. Sedra and K. C. Smith, Microelectronic Circuits, Oxford Uni. Press, 2009 (6th ed.)
Course objectives: The objective of this course is to teach operation and application of the basic electronic elements like diodes and transistors, DC and AC analysis of BJT and FET amplifiers , to make students understand the basics of operational amplifiers, oscillators and power amplifiers.
Course content: Operational amplifiers, diodes and diode applications, zener voltage regulator, bipolar junction transistor (BJT) and its characteristics, field effect transistor (FET) and its characteristics, frequency response of BJT and FET amplifiers, DC and AC analysis.
Learning outcomes:

1. To be able to analyze properties of operational amplifiers
2. To understand the operation and application of diodes
3. To understand the operation of BJT and perform AC/DC analysis
4. To understand the operation of FET and perform small signal analysis

To design transistor amplifiers (BJT or FET) for the given gain, input-output impedance and frequency response specifications.
Assessment and Evaluation:

Requirements	Number	Percentage
Attendance	70%	
Quizzes	2	%20
Midterms	1	%30
Term	1	%50
Total		**100 %**

Contents:

Weekly Subjects and Related Preparation Studies		
Week	**Subjects**	**Related Preparation**
1	Semiconductor diodes, P-N junctions, diode characteristics, the ideal-diode Model, the small-signal model, zener diodes	Textbook1, Ch.1
2	Diode applications (rectifiers, clippers, clampers, voltage multipliers, zener voltage regulators)	Textbook1, Ch.2
3	Bipolar junction transistor (BJT) and its characteristics, DC biasing of BJTs	Textbook1, Ch.3
4	DC biasing of BJTs	Textbook1, Ch.4
5	DC biasing of BJTs	Textbook1, Ch.4
6	AC analysis of BJT	Textbook1, Ch.5
7	AC analysis of BJT	Textbook1, Ch.5
8	Midterm exam	Textbook1, Ch.1—Ch.5
9	Field effect transistor (FET), FET types and their characteristics	Textbook1, Ch.6
10	DC biasing of FETs	Textbook1, Ch.7
11	DC biasing of FETs	Textbook1, Ch.7
12	FET amplifiers	Textbook1, Ch.8
13	FET amplifiers	Textbook1, Ch.8
14	Analysis of multistage BJT and FET multistage amplifiers, Input impedance, output impedance and gain calculations of multistage amplifiers	Textbook1, Ch.9
15	Analysis of internal circuits of opamp	Textbook1, Ch.9
16	Final exam	Textbook1, Ch.1—Ch.9