

ETE 282 ELECTRONIC CIRCUITS

Marmara University
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Course Information

Homepage

<http://mimoza.marmara.edu.tr/~hkorkmaz/edl.swf>

Assessment Scheme

- Experiments (%25)
- Midterm Exam (%25)
- Final Exam (%50)

Reference Books

- ❑ Electronics Devices and Circuits, Theodore F. Bogart
- ❑ Electronics Devices and Circuit Theory, Robert Boylestad, Louis Nashelsky
- ❑ Electronic Devices, Thomas L. Floyd
- ❑ Elektronik Cihazlar ve Devre Teorisi, Robert Boylestad, Louis Nashelsky (çeviri, Palme Yayıncılık)
- ❑ Experiments in Electronic Devices and Circuits by Theodore F. Bogart

Experiment List

- ❑ **Exp. No:1** Diode Characteristics
- ❑ **Exp. No:2** Large-Signal Diode Circuits (Halfwave and fullwave Rectifiers, Filters and Ripple)
- ❑ **Exp. No:3** Clipping and Clamping Circuits, Logic Gates
- ❑ **Exp. No:4** Zener Diodes
- ❑ **Exp. No:5** BJT Biasing
- ❑ **Exp. No:6** Common Emitter Amplifier

Experiment List

- Exp. No:7** JFET Biasing
- Exp. No:8** JFET Amplifiers
- Exp. No:9** Multistage Amplifiers
- Exp. No:10** Lower Cutoff Frequency
- Exp. No:11** Upper Cutoff Frequency
- Exp. No:12** Differential Amplifier

Overview of Course

- ❑ Introduction to Semiconductor Theory
- ❑ The P-N Junction Diode
- ❑ Diode Applications (Rectifiers, Clippers, clampers, Logic gate applications)
- ❑ The Bipolar Junction Transistors
- ❑ Common Base, Common Collector and Common Emitter Characteristics
- ❑ Biasing Types, Stability factor(Temperature dependence)
- ❑ BJT Amplifiers

Overview of Course

- ❑ JFET and MOSFET transistors: structure, theory of operation.
- ❑ JFET Configurations: Input and Output Characteristics, biasing methods, stability analysis and comparison between them.
- ❑ JFET amplifiers: Small signal models, voltage gain and phase relations.
- ❑ Multistage Amplifiers: Small signal model, voltage gain and phase relations, loading effect.

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- Frequency response of the amplifiers:
 - Midband, low and high frequency regions, bandwidth, dB, decade and octave concepts, Bode plots
 - effects of the internal and external capacitances on gain,
 - lower and higher cutoff frequencies, Miller effect on higher cutoff frequency.
 - Differential amplifiers: Differential and common mode gains, Common Mode Rejection Ratio.
 - Operational Amplifiers and applications (inverting, noninverting amplifiers, summation, subtraction circuits etc)