Broward Community College
Course Outline

STATUS: A

COMMON COURSE NUMBER: EET 1141C

COURSE TITLE: Linear Techniques I

CREDIT HOURS: 5

CONTACT HOURS BREAKDOWN:

Lecture/Discussion	64
Lab	32
Other	
Contact Hours/Week	5

CATALOG COURSE DESCRIPTION:

Prerequisite: EET 1015C

Corequisite: None

Semiconductor principles, rectifier diodes, zener diodes, Bit amplifiers, negative feedback amplifers. Field effect transistorsand FET amplifiers. Extensive laboratory experience. Student fee charged.

General Education Requirements - Associate of Arts Degree, meets Area(s):
General Education Requirements - Associate in Science Degree, meets Area(s):

UNIT TITLES:

1. Diodes and Applications
2. Common Base Transitor Amplifier
3. Common Emitter Transistor Amplifier
4. Common Collector Transistor Amplifier
5. Cascading Transistor Amplifier Stages
6. JFETS

I. Course Overview:

Upon successful completion of this course, the students should be able to demonstrate an understanding of the characteristics and applications of diodes, bipolar transistors, and field effect transistors with an emphasis on circuit applications and analysis. The students should be able to use computer software to solve technical problems and undertake technical research and practical projects requiring library resources with oral presentations.

II. Units:

Unit 1. Diodes and Applications

General Outcome:

1.0 The students should be able to describe the p-n junction and the operation of the half wave rectifier, the center tap rectifier, and the bridge rectifier.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

1.1 Perform calculations that use diode V-I curves.

1.2 Build and verify the operation of a half wave rectifier when given a wiring diagram.

1.3 Design and implement a full wave rectifier power supply with capacitor input filter.

1.4 Design a zener diode regulator circuit for a given load current.

Unit 2. Common Emitter Transistor Amplifier

General Outcome:

2.0 The students should be able to demonstrate an understanding of common emitter transistor base biasing techniques and characteristic curves.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

2.1 Plot a family of output characteristic curves.

2.2 Use curves for establishing a Q point and Beta.

2.3 Verify base biasing techniques by laboratory measurement.

Unit 3. Common Emitter Transistor Amplifier

General Outcome:

3.0 The students should be able to demonstrate various common emitter transistor biasing techniques and analyze the common emitter amplifier.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

3.1 Use emitter bias to establish a Q point.

3.2 Use voltage divider bias to establish a Q point.

3.3 Verify calculations of Q point parameters by measurement.

3.4 Use the small-signal equivalent circuit to analyze an amplifier.

Unit 4. Common Collector Transistor Amplifier

General Outcome:

4.0 The students should be able to explain the characteristics and applications of the common collector amplifier.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

4.1 Analyze a common collector amplifier.

4.2 Measure input impedance, output impedance, and current gain in a given common collector amplifier.

4.3 Design a common collector amplifier to match a source to a given load.

Unit 5. Cascading Transistor Amplifier Stages

General Outcome:

5.0 The students should be able to cascade transistor stages, make voltage and current measurements, and perform analysis of the cascaded circuit.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

5.1 Analyze a cascaded amplifier.

5.2 Calculate Q points, gain, and input impedance of a given two-stage amplifier and verify the calculations by measurement.

5.3 Design a two stage transitor voltage amplifier given appropriate specifications.

Unit 6. JFETS

General Outcome:

6.0 The students should be able to explain JFET characteristic curves, biasing techniques, and applications.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

6.1 Construct characteristic curves for the JFET.

6.2 Design and implement a JFET amplifier.

6.3 Verify various parameters in a JFET amplifier by measurement.