

# COLLEGEWIDE COURSE OUTLINE OF RECORD

## EECT 121, ELECTRONICS CIRCUIT ANALYSIS

COURSE TITLE: Electronics Circuit Analysis

COURSE NUMBER: EECT 121

PREREQUISITES: EECT 111 Introduction to Circuits Analysis, and MATH 137 Trigonometry with Analytic Geometry.

COREQUISITE: MATH 137 Trigonometry with Analytic Geometry.

SCHOOL: Technology

PROGRAM: Electronics and Computer Technology

CREDIT HOURS: 4

CONTACT HOURS: Lecture: 3 Lab: 2

DATE OF LAST REVISION: Fall, 2015

EFFECTIVE DATE OF THIS REVISION: Spring, 2016

CATALOG DESCRIPTION: Capacitors, inductors, RC and RL switching circuits, transformers, rectifiers, linear voltage regulators, dependent sources, operational amplifiers, and BJT and MOSFET based small signal amplifiers are studied. Circuit fundamentals such as Ohms Law, Kirchhoff's laws and Thevenin's theorem are used to analyze and design circuits. Computer simulation is used.

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course, the student will be expected to:

1. Explain the characteristics of capacitors, inductors, rectifier diodes, Zener diodes, IC voltage regulators, bipolar junction transistors (BJT's), field effect transistors (FET's), and general-purpose op amps.
2. Apply the principles of circuit analysis to the following major electronic circuits: power supplies, op-amps, BJT and FET biasing, amplifiers, wave shape generators, RC and RL circuits, and transformer circuits.
3. Simulate the above circuits and compare actual data and simulated data.
4. Construct electronic circuits according to a given schematic and make electrical measurements using digital multimeters, signal generators, and oscilloscopes.
5. Analyze and design basic linear and/or switching power supplies.
6. Illustrate the role of mathematical models in electronics problem solving.
7. Interpret the data of laboratory experiments.

COURSE CONTENT: Topical areas of study include –

Capacitors  
Switching circuits  
Inductors  
Transformers

Op amps and comparators  
Linear and switching power supplies  
Computer simulation  
Schematic entry & PCB layout

Diodes and Rectifiers  
Linear regulators  
BJT and FET small signal amplifiers

Ohm's and Kirchhoff's laws  
Prototype construction and soldering

#### HOW TO ACCESS THE IVY TECH COMMUNITY COLLEGE LIBRARY:

The Ivy Tech Library is available to students on- and off-campus, offering full text journals and books and other resources essential for course assignments. Go to <http://www.ivytech.edu/library/> and choose the link for your campus.

#### ACADEMIC HONESTY STATEMENT:

The College is committed to academic integrity in all its practices. The faculty value intellectual integrity and a high standard of academic conduct. Activities that violate academic integrity undermine the quality and diminish the value of educational achievement.

Cheating on papers, tests or other academic works is a violation of College rules. No student shall engage in behavior that, in the judgment of the instructor of the class, may be construed as cheating. This may include, but is not limited to, plagiarism or other forms of academic dishonesty such as the acquisition without permission of tests or other academic materials and/or distribution of these materials and other academic work. This includes students who aid and abet as well as those who attempt such behavior.

#### COPYRIGHT STATEMENT:

Students shall adhere to the laws governing the use of copyrighted materials. They must insure that their activities comply with fair use and in no way infringe on the copyright or other proprietary rights of others and that the materials used and developed at Ivy Tech Community College contain nothing unlawful, unethical, or libelous and do not constitute any violation of any right of privacy.

#### ADA STATEMENT:

Ivy Tech Community College seeks to provide reasonable accommodations for qualified individuals with documented disabilities. If you need an accommodation because of a documented disability, please contact the Office of Disability Support Services.

If you will require assistance during an emergency evacuation, notify your instructor immediately. Look for evacuation procedures posted in your classroom.