



Course Syllabus

Course: EET K134/5 Electronics I **Credits:** 4
Prerequisites: EET* K105/106, MAT* K137 **Corequisites:** MAT* K186
Instructor: Dan Courtney – dcourtney@trcc.commnet.edu – 860-885-2338
Office Hours: As Posted – Office C134
Text: Electronic Devices & Circuits, Bogart, Beasley & Rico,
Pearson Education, ISBN: 9780131111424

Course Description:

This course is an introduction to the internal physical behavior of solid state electronic devices. Conduction in metals and semiconductors is considered. The design, analysis and synthesis of semi-conductor circuits for various applications are presented. Bipolar and field effect transistors as well as integrated circuits are considered. High and low frequency effects are investigated. Various circuits and circuit functions will be addressed, including multistage and feedback amplifiers, operational amplifiers, power amplifiers, oscillators and timers.

This course supports Electronics I by providing the student with practical experience in designing, building, and evaluating the operation of a variety of electronic circuits. Both computer simulation and bench experimentation are employed in gaining familiarization with circuit design, function, and operation.

Course Format: Lecture and Lab exercises will be integrated in this course. Lab Reports will be defined and assigned as topics are investigated.

Grading: Notebooks, Lab Reports, Oral Presentation, Class Participation, Attendance, Promptness, Homework, Tests, Professional Attitude

Attendance/Timeliness: Attendance is mandatory at all class and lab sessions. Tardiness of attendance and/or assignments can have a significant negative impact on grading.

Course Topics:

Course Overview
Semiconductor PN Junctions
Diodes Types
Transistors – Bipolar/FET
Integrated Circuits
Amplifiers – Characteristics
Amplifiers - Classes
Operational Amplifiers
Op Amp applications
Oscillators
Timers

Lab Topics:

Lab Safety & Standard Practices
Equipment Familiarization
Semiconductor Diode Characteristics
Diode Rectifiers
LED/Laser Driver Circuits
AC/DC Circuit Analysis – Amplifiers
Pulsed Circuit Analysis
Power Amplifier
Op Amp Circuits
Wien Bridge Oscillator
Pulse Width Modulation



ABET Outcome Requirements

- a) an appropriate mastery of the knowledge, techniques, skills, and modern tools of their disciplines
- b) an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering, and technology
- c) an ability to conduct, analyze and interpret experiments, and apply experimental results to improve processes
- d) an ability to apply creativity in the design of systems, components, or processes appropriate to program educational objectives
- e) an ability to function effectively on teams
- f) an ability to identify, analyze and solve technical problems
- g) an ability to communicate effectively
- h) a recognition of the need for, and an ability to engage in lifelong learning
- i) an ability to understand professional, ethical and social responsibilities
- j) a respect for diversity and a knowledge of contemporary professional, societal and global issues
- k) a commitment to quality, timeliness, and continuous improvement

TRCC EET Stated Outcomes

1. Students will practice the skills needed to work effectively in teams and as an individual.
2. Students will demonstrate the ability to use appropriate mathematical and computational skills needed for engineering technology applications.
3. Students will combine oral, graphical, and written communication skills to present and exchange information effectively and to direct technical activities.
4. Students will know of a professional code of ethics.
5. Students will describe concepts relating to quality, timeliness, and continuous improvement.
6. Students will describe how the concepts of electric circuits, electrical measurements, digital electronic devices, programmable logic circuits, electromechanical and automated systems, affect the design, maintenance, and operation of electrical systems.
7. Students will illustrate an ability to think critically and identify, evaluate and solve complex technical and non-technical problems; demonstrate creativity in designing problem solutions; and conduct and interpret experimental data and outcomes.
8. Students will recognize actions and acts of professionalism that allows them to become informed and participating citizens cognizant of ethics, civic duty, and social responsibility.
9. Students will recognize the need to be lifelong learners.

K134/5 Course Outcomes

1. Mastery of Electronics concepts as defined in the course syllabus
2. Knowledge of semiconductor materials, devices and operation
3. Demonstrate an ability to build and test semiconductor circuits and systems
4. Demonstrate an ability to analyze and solve problems relating to basic semiconductor systems
5. Demonstrate senior level oral and written communication skills
6. Demonstrate an appreciation for lifelong learning
7. Demonstrate proper professional and ethical behavior
8. Demonstrate a commitment to quality, timeliness and continuous improvement



Course Detail

CRN	Subj	Crse	Sec	Textbook	Crđ	Title	Inst	Day	Time	Instructor	Date	Room
10312	EET*	K134	T1	textbook info	3.00	Electronics I	TRAD	MW	09:30 am-10:45 am	Daniel P Courtney	01/20-05/18	KTRCC B229
10313	EET*	K135	T1A	textbook info	1.00	LAB, Electronics I	TRAD	R	01:00 pm-02:40 pm	Daniel P Courtney	01/20-05/18	KTRCC B229

Instructor Bio - Dan Courtney

AS 1976 (STCC)	1976	Electronic Technology
MSEE (UMass)	1983	Electrical and Computer Engineering, Microwave Engineering
Galileo Electro-Optics	1976	Engineering Technician, Fiber Optic Characterization, Fiber Optic Fabrication
STCC	1977-83	Assistant Prof – Electronics, Laser/Electro-Optics Technology
Western New England College	1983-84	Adjunct Faculty - Computer Algorithms, Advanced Programming Languages
United Technologies	1983-95	
UT Diesel Systems	1983-84	Systems Engineer - Diesel Engine Electronic Controls
UT Hamilton Sundstrand	1984-95	Principal Engineer - Fiber Optics Gyro, Aircraft Environmental Control Systems
JDS Uniphase (JDSU)	1995-present	Specialist – Business Processes
TRCC	2009-present	Program Coordinator – Electrical Engineering Technology