



Course Syllabus

Course: EET K105/6 Electric Circuits and Systems
Credits: 4
Prerequisites: High School Algebra or MAT* K095
Corequisites: MAT* K137
Instructors: Dan Courtney – dcourtney@trcc.commnet.edu (All Sections)
James Rhoades – jrhoades@trcc.commnet.edu (Monday Night)
John Forella – jforella@trcc.commnet.edu (Friday)
Office Hours: As Posted – Office C134, C232
Text: Introduction to Electricity, Robert Paynter and Toby Boydell
Course Detail:

CRN	Sec	Cred	Title	Day(s)	Time	Date
10705	T1	3	Electric Ckts & Systems	M	05:00 pm-07:45 pm	01/19-05/16
12168	T2	3	Electric Ckts & Systems	F	08:30 am-11:15 am	01/19-05/16
10706	T1A	1	LAB, Elec Ckts & Systems	M	08:00 pm-09:40 pm	01/19-05/16
12169	T2A	1	LAB, Elec Ckts & Systems	F	11:30 am-01:10 pm	01/19-05/16

Course Description:

This course provides an introduction to the basic concepts of DC and AC electric circuits. Voltage, current, resistance, energy, and power relationships are introduced. Circuit analysis of basic series and parallel circuits is covered. Instruments and techniques of electrical measurement for both DC and AC circuits are also discussed.

This lab course will supplement the course Electric Circuits & Systems. Students will apply the concepts learned in the classroom and gain practical hands-on experience making electrical measurements using a variety of test instruments.

Course Topics:

Course Overview
Electrical Engineering Technology
Basic Electrical Concepts
Electrical Components and Systems
AC Concepts/Waveforms
Basic Circuit Analysis
Magnetic Circuits
Electrical Machines
Power Systems

Lab Topics:

Lab Safety & Standard Practices
Equipment Familiarization
Volt Ampere Characteristic – Semiconductor Diodes
Voltage and Current Dividers
AC Measurements – Function Generators and Scopes
Wheatstone Bridge
AC/DC Circuit Analysis – Amplifiers
Pulsed Circuit Analysis
Power Supply Circuits
Motors and Generators (As time permits)

Topic	Chapter
Course Overview	Table of Contents
Electrical Engineering Technology	1
Basic Electrical Concepts	2
Electrical Components and Systems	3, 12, 11
AC Concepts/Waveforms	13
Basic Circuit Analysis	4, 5, 6, 7, 9
Magnetic Circuits	10
Electrical Machines	21, 23, 24
Power Systems	9, 20, 25,26



ABET Student Outcomes – Associate Degree Programs - 2011/2012

- a. an ability to apply the knowledge, techniques, skills, and modern tools of the discipline to narrowly defined engineering technology activities;
- b. an ability to apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require limited application of principles but extensive practical knowledge;
- c. an ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments;
- d. an ability to function effectively as a member of a technical team;
- e. an ability to identify, analyze, and solve narrowly defined engineering technology problems;
- f. an ability to apply written, oral, and graphical communication in both technical and nontechnical environments; and an ability to identify and use appropriate technical literature;
- g. an understanding of the need for and an ability to engage in self-directed continuing professional development;
- h. an understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity; and
- i. 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.

K105/6 Course Outcomes

1. Mastery of Electrical Technology concepts as defined in the course syllabus
2. Knowledge of electrical quantities, units and relationships
3. Demonstrate an ability to build and test electrical circuits and systems
4. Demonstrate an ability to analyze and solve problems relating to basic electrical systems
5. Demonstrate technician level oral and written communication skills
6. Demonstrate an ability to engage in self-directed professional development
7. Demonstrate proper professional and ethical behavior
8. Demonstrate a commitment to quality, timeliness and continuous improvement



Course Format: Classes will consist of topic discussions, classroom exercises and laboratory exercises. Classes will move fluently between these activities.

Course Grading: Class Participation, Course Portfolio, Laboratory Skills.

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

Course Portfolio:

The Course Portfolio will be a major component of a student's grade. The Portfolio consists of a 3 ring binder with dividers. All class materials will be filed in the Portfolio. Course activities will consist of topic discussions, in class assignments, laboratory exercises, homework and reports.

During a class discussion, the instructor will record the notes from the discussion on the white board. Students will transcribe the notes into their individual portfolios. The instructor will also distribute supplementary materials which will also be filed in the portfolio. In class assignments, homework, laboratory and other reports will also be filed in the portfolio.

Portfolio Grading Factors: Completeness, Presentation, Timeliness

Portfolio Grading Frequency – Mid Term & Final

Portfolio Physical Requirements:

3 Ring Loose Leaf Binder (1" or greater)

3 Hole Punched 8 ½ X 11 Lined Filler Paper – No Spiral Bound Notebooks or Paper

Divider Tabs

Portfolio Sections:

Class Notes

Handouts

In Class Assignments

Lab Reports

Homework

Other

Other Required Course Materials:

Straight Edge

Scientific Calculator e.g. TI-30 – Calculators should be available at all times during classes.