



Course Syllabus

Course: Telecommunications

Course Detail:

31840	EET*	K274	T1	3	Telecommunications I	MW	02:00 pm-03:15 pm	08/27-12/19	KTRCC B229
31841	EET*	K275	T1A	1.5	Lab, Telecommunications I	MW	03:30 pm-04:45 pm	08/27-12/19	KTRCC B229

Prerequisites: EET* K134/135 **Corequisite:** EET* K275
Instructor: James Rhoades – jrhoades@trcc.commnet.edu – 860-885-2354
Student Resource: Dan Courtney – Dan.Courtney@jdsu.com
Office Hours: As Posted – C232
Text: Modern Electronic Communications
Jeffery Beasley & Gary Miller, Pearson, Ninth Edition

Course Description:

Students will study communications from an informational and circuit/systems point of view. Modulation theory and techniques will be covered. Noise considerations, bandwidth requirements, and the transmission, propagation, reception and detection of RF signals will be considered. Analog and digital considerations will be addressed.

This lab course supports the Telecommunications course by providing students with hands-on experience in the design, check-out, and evaluation of the various circuits and subsystems that comprise a communications system. Both computer simulation and bench experimentation are emphasized in gaining a familiarization with the circuitry and instrumentation involved.

Dan Courtney is on leave of absence but will be doing guest lectures and is available via the above email to answer questions.

Course Topics:

- Review of Circuit Analysis
- Communications Concepts
- Amplitude & Frequency Modulation
- Communications Techniques
- Wired Communications
- Wireless Communications
- Network Communications
- Wave Propagation
- Transmission Lines
- Fiber Optics

Laboratory Topics

- Course Project
- Development Board Research
- Individual Experiments
 - Spectrum Analysis
 - Filters
 - Oscillators
 - Modulators/Demodulators
 - Phase Locked Loop
 - Network Analysis
 - Other

ABET Student Outcomes – Associate Degree Programs

- 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.

K274/5 Course Outcomes

1. Mastery of Telecommunications Technology concepts as defined in the course syllabus
2. Knowledge of Telecommunications terminology, quantities, units and relationships
3. Demonstrate an ability to build, test and troubleshoot Telecommunications circuits and systems
4. Demonstrate an ability to analyze and solve problems relating to basic Telecommunications systems
5. Demonstrate technician 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