



Course Information

Course Title	Communications Circuits
Course Prefix, Num. and Title	EECT 2339 Communications Circuits
Division	Technology and Business
Department	Electronics Engineering Technology
Course Type	WECM Course
Course Catalog Description	A study of communications systems with emphasis on amplitude modulation, frequency modulation, phase modulation, and digital pulse modulation. Discussion of several types of modulators, demodulators, receivers, transmitters, and transceivers. Laboratory realization of lecture topics.
Pre-Requisites	Credit for CETT 1403 and CETT 1425
Co-Requisites	None

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours:	3:2:4
Lab/Other Hours	
Equated Pay Hours	4
Lab/Other Hours Breakdown: Lab Hours	4
Lab/Other Hours Breakdown: Clinical Hours	0
Lab/Other Hours Breakdown: Practicum Hours	0
Other Hours Breakdown	0

Approval Signatures

Title	Signature	Date
Prepared by:		
Department Head:		
Division Chair:		
Dean/VPI:		
Approved by CIR:		

Additional Course Information

Topical Outline: Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

The following performance will be expected of any student completing this course with a passing grade. There is no absolute time limit on the performance of these objectives, unless noted, but the grade received by the student will depend, in part, on the relative speed and precision of the student's performance in these tasks. Where subjective evaluations are indicated, the instructor will make these judgments based on his or her knowledge of the skills required to place a graduate with the expectation of successful on-job performance.

The student will be expected to demonstrate understanding in the following in written examination or laboratory demonstration:

Introduction to Communication systems

- Elements of a communication system
- Types of electronic communications
- The electromagnetic spectrum

Amplitude Modulation

- Principles Modulation index
- Sidebands and frequency domain
- Power distribution
- Single Sideband

Amplitude Modulation Circuits

- Modulators
- Demodulators
- Balanced Modulators
- SSB Circuits

Frequency Modulation

- Principles
- Phase modulation
- Sidebands and modulation index
- FM vs. AM
- FM with binary signals

Frequency modulation Circuits

- Modulators
- Phase modulators
- Demodulators

Radio Transmitters

- Power amplifiers
- Impedance matching
- Speech processing

Communication Receivers

- Super heterodyne
- Frequency Conversion
- IFF selection and images Noise
- Typical circuits
- Transceivers and synthesizers

Antennas, Transmission lines

- Transmission lines Antenna fundamentals
- Radio Frequency Wave propagation

Course Learning Outcomes:

Learning Outcomes – Upon successful completion of this course, students will:

1. Describe the operation of communications receivers and transmitters
2. Measure and troubleshoot communications systems.

Methods of Assessment:

Outcomes 1,2 are assessed by:

- Exams
- Homework
- Laboratory work
- Quizzes
- Reassessed in Capstone Experience: ELMT 2349 Final Project course.

Required text(s), optional text(s) and/or materials to be supplied by the student:

An electronics text covering Communication Electronics. Example: Communication Electronics by Frenzel

Calculator – scientific with Sine, Cosine, Tangent capabilities

Suggested Course Maximum:

20 lecture, 20 laboratory

List any specific or physical requirements beyond a typical classroom required to teach the course.

Lecture facilities for 20 students. Laboratory facilities for 20 students must include 10 bench positions each with a digital meter, logic probe, 50 MHz oscilloscope and probes, bread boarding facility with power supply and signal generator, and a stock of basic circuit components.

Course Requirements/Grading System: Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

Evaluation of Performance:

Course grades will be determined by the percentage of course objectives for which the student can demonstrate mastery and by attendance. Mastery of course objectives will be determined by written examinations, physical soldering exams, an attendance grade as described in the Departmental Policy handout, a daily work grade which will include graded homework, graded laboratory work, and a comprehensive final exam.

Approximate Grade Evaluation Summary:

Major tests 60%

Attendance 10%

Lab reports, homework, and quizzes 15%

Final examination 15%

Grade Scale:

- 90 to 100: A
- 80 to 89: B
- 70 to 79: C
- 60 to 69: D
- 0 to 59: F

Curriculum Checklist:

- Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
- Administrative WCJC Core Course.** Attach the Core Curriculum Review Forms
 - Critical Thinking
 - Communication
 - Empirical & Quantitative Skills
 - Teamwork
 - Social Responsibility
 - Personal Responsibility
- WECM Course** -If needed, revise the Program SCANS Matrix and Competencies Checklist