

Montgomery County Community College  
 EGT 240  
 Communication Devices  
 4-3-3

**COURSE DESCRIPTION:**

This course introduces the student to the principles of analogue and digital data transmission by way of RF, microwave, wire, and fiber- optic technology associated with the transmission and reception of data. Wired and wireless LAN, cellular, satellite, radio, and microwave transmission are discussed and reinforced. This course is taught in a laboratory- oriented environment and incorporates a design-of-experiments approach to fabrication and test of a variety of communication systems. Interactive computer-based instructional systems reinforce the material covered in class. This course is subject to a course fee. Refer to <http://mc3.edu/adm-fin-aid/paying/tuition/course-fees> for current rates.

**REQUISITES:***Previous Course Requirements*

- EGT 210 Digital Devices
- MAT 162 Precalculus II
- EGR 111 Engineering Computations

*Concurrent Course Requirements*

None

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
Upon successful completion of this course, the student will be able to:		
1. Explain the various applications of telecommunications devices and systems.	Lecture Group Problem Solving Design of Experiments	Exams Design of Experiments Review
2. Apply learned methods of analysis to telecommunications devices and systems.	Lecture Group Problem Solving Design of Experiments	Exams Design of Experiments Review

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
3. Operate instrumentation used in the measurement of telecommunications devices and systems.	Lecture Group Problem Solving Design of Experiments	Exams Design of Experiments Review
4. Apply course-derived knowledge in the design, assembly, and presentation of a telecommunications device/system.	Lecture Design of Experiments	Design/Fabrication Term Project/ Presentation Review

At the conclusion of each semester/session, assessment of the learning outcomes will be completed by course faculty using the listed evaluation method(s). Aggregated results will be submitted to the Associate Vice President of Academic Affairs. The benchmark for each learning outcome is that *70% of students will meet or exceed outcome criteria.*

#### SEQUENCE OF TOPICS:

1. Introduction to Electronic Communication
2. Fundamentals Review in Communications Device Electronics
3. Amplitude Modulation Fundamentals
4. Amplitude Modulator and Demodulator Circuits
5. Fundamentals of Frequency Modulation
6. FM Circuits
7. Digital Communications Techniques
8. Radio Transmitters
9. Communications Receivers
10. Multiplexing and Demultiplexing
11. Data Transmission Techniques
12. Introduction to Networking and LANS
13. Transmission Lines
14. Antennas and Wave Propagation
15. Internet Technologies
16. Microwave Communications
17. Satellite Communications
18. Telecommunications Systems
19. Optical Communication
20. Cell Phone Technologies
21. Wireless Technologies
22. Communication Tests and Measurements

## LEARNING MATERIALS:

Textbook:

Frenzel. *Principles of Electronic Communication Systems 3<sup>rd</sup> ed.* 2008. McGraw-Hill.

ISBN: 9780073222783

Laboratory:

Multi-Sim software

Other learning materials may be required and made available directly to the student and/or via the College's Blackboard course management system.

## COURSE APPROVAL:

Prepared by: William H. Brownlowe Date: 11/28/2004  
Associate Professor of Engineering

Revised by: William H. Brownlowe Date: 9/26/2013  
VPAA/Provost or designee Compliance Verification

Victoria L. Bastecki-Perez, Ed.D. Date: 6/11/2014

Revised by: Debbie Dalrymple Date: 12/17/2017  
VPAA/Provost or designee Compliance Verification: Date: 1/9/2018



*This course is consistent with Montgomery County Community College's mission. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.*