Montgomery County Community College
EGT 210
Digital Devices
4-3-3

COURSE DESCRIPTION:
This course introduces the student to basic digital circuit design and analysis with an emphasis on applications. The course is taught in a laboratory-oriented environment and incorporates a design-of-experiments approach to fabrication and test of a variety of digital circuits. 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 190 Principles of Critical Thinking in Technology
- MAT 161 Precalculus I
- PHY 121 General Physics I
- PHY 122 General Physics II, or equivalent

Concurrent Course Requirements
None

LEARNING OUTCOMES Upon successful completion of this course, the student will be able to:	LEARNING ACTIVITIES	EVALUATION METHODS
1. Explain basic digital theory and its applications.	Lecture Group Problem Solving Design of Experiments	Exams Design of Experiments Review
2. Describe the uses of digital devices from basic logic gates through advanced circuit applications.	Lecture Group Problem Solving Design of Experiments	Exams Design of Experiments Review
3. Operate equipment necessary to monitor and troubleshoot digital circuits.	Lecture Group Problem Solving Design of Experiments	Exams Design of Experiments Review
4. Design, assemble, and present digitally-based devices or systems.	Lecture Group Problem Solving Design of Experiments	Term Design/Fabrication 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 Digital Concepts, Number Systems, Operations, and Codes
2. Logic Gates
3. Boolean Algebra and Logic Simplification
4. Combinational Logic
5. Functions of Combinational Logic
6. Introduction to Programmable Logic Devices
7. Flip-Flops and Related Devices
8. Counters
9. Shift Registers
10. Sequential Logic Applications
11. Memory Types and Designs
12. Digital System Interfacing
13. Introduction to Microprocessors

LEARNING MATERIALS:

Textbook:

Thomas Floyd. (2008). *Digital Fundamentals* (10th ed.). Prentice Hall.
ISBN: 9780132359238

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
Associate Professor of Engineering

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.