

COURSE OUTCOME MATRIX COURSE SYLLABUS PART 2 of 3

Course Number and Title	EG290 Digital Electronics
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Credit Hours	4
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Course Description	This course includes an introduction to digital techniques, semiconductor devices for digital circuits, digital logic circuits, digital integrated circuits, Boolean Algebra, flip-flops and registers, sequential logic circuits, combinational logic circuits, semiconductor memories, data conversion, and digital troubleshooting
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Prerequisite(s) and/or Corequisite(s)	EG 181 Analog Electronics I
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Required Textbooks/References/Course Materials:

Digital Electronics: Principles and Applications	8th	Roger Tokheim	McGraw Hill	007337377X
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	General Education Outcomes
1	Utilize written and verbal language to discuss and comprehend information, incorporating a variety of technologies, such as text, data, and images (written language, verbal language, and information technology).
2	Identify and interpret relevant information in order to formulate an opinion or conclusion (critical thinking).
3	Demonstrate and communicate computational methods and mathematical reasoning in a variety of formats (using words, tables, graphs, mathematical equations, etc., as appropriate) (quantitative literacy and fluency).
4	Communicate in appropriate ways with those who are culturally diverse (intercultural competence).

	Program/Department Outcomes
1	Prepare students to become safe and competent electrical technicians
2	Provide opportunities to display critical thinking skills
3	Demonstrate responsible professional conduct and behavior
4	Effectively communicate
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	Course Outcomes (CO)	Bloom's Domain for CO (C, A, P), Category, and Level	Program/ Department Outcome(s)	Written Language	Verbal Language	Information Technology	Critical Thinking	Quantitative Literacy and Fluency	Intercultural Competence
1	Compare and contrast characteristics between digital and analog circuits, identify digital and analog circuits, identify decimal, binary, octal, and hexadecimal number systems	C-Analyzing (4)	1, 2, 4	1	1	1	1	1	0
2	Convert binary to decimal and decimal to binary numbers, convert octal to binary and binary to octal, octal to decimal, and decimal to octal	C-Understanding (2)	1, 2, 4	1	1	1	2	1	0
3	Compare and contrast the terms bit, nibble, byte, and word when describing data groupings; identify the name, symbol, truth table, and Boolean expression for seven basic logic gates	C-Analyzing (4)	1, 2, 4	1	1	1	1	1	0
4	Construct logic diagrams from truth tables by developing the Boolean expression; construct the AND-OR logic diagram, construct the Boolean expression in its simplest form using two, three, four, and five-variable Karnaugh maps	C-Appling (3)	2, 3, 4	1	1	1	2	1	0
5	Describe various characteristics and operating procedures for TTL and CMOS IC devices, LEDs, servo motors, LCDs, VFs, R-S flip-flops, 7474 D flip-flops, J-K flip-flops	C-Evaluating (5)	2, 4	1	1	1	2	1	0
6	Describe the characteristics and applications of several commonly used codes	C-Remembering (1)	2, 4	1	1	1	1	1	0
7	Describe the characteristics of various sensors	C-Remembering (1)	2, 4	1	1	1	1	1	0
8	Compute binary multiplication problems using repeated addition and the add-and-shift methods of calculations, add and subtract signed numbers using 2s complement addition and subtraction.	C-Appling (3)	1, 2, 4	1	1	1	1	2	0
9	Describe common memory and storage devices used in	C-Remembering (1)	1, 2, 4	1	1	1	1	1	0

	microcomputer systems, general organization of a computer, including CPU, control bus, address bus, data bus, RAM, ROM, NVRAN, and bulk storage memory devices								
10	Analyze the operation of two digital dice game circuits, the organization of a digital clock system, the operation of LSI digital clock system, the operation of a digital frequency counter system, the operation of an LCD timer system	C-Analyzing (4)	1, 2, 4	1	1	1	1	1	0

Bloom's Domain Legend

C = Cognitive

A = Affective

P = Psychomotor

General Education Outcome Legend

2 = Included and Measurable

1 = Introduced and/or Minimally Addressed and Not Measurable

0 = Not included

Approved: May 2021

Reviewed: November 11, 2021