

## OET002 – DIGITAL ELECTRONICS

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| <b>Credit Hours:</b> 3-4 Semester Hours  |
| <b>Related TAG:</b> Electrical Engineering Technology  |
| <b>General Course Description:</b><br>Principles and applications of digital systems. Emphasis placed on the study of combinational and sequential logic from a systems approach. Actual ICs and Programmable logic devices (PLDs) are used, as well as digital timing diagrams and waveforms. Includes hands-on labs. |
| <b>Student Learning Outcomes marked with an asterisk (*) are essential and must be met.</b>  |
| Students will be able to:  |
| 1. Demonstrate an understanding of and application for number systems, operations, and codes.*   |
| 2. Identify various types of logic gates and explain their truth tables.*  |
| 3. Utilize Boolean Algebra to describe and simplify digital logic circuits.*   |
| 4. Apply DeMorgan's theorem to simplify combinational logic circuits.*   |
| 5. Design combinational logic circuits to meet specified system requirements.*   |
| 6. Demonstrate an understanding of and applications for Encoders/decoders.*  |
| 7. Demonstrate an understanding of and applications for multiplexers/demultiplexers.*  |
| 8. Demonstrate an understanding of and applications for adders, subtractors, and Arithmetic Logic Units (ALUs).*   |
| 9. Explain the types of, operation of, and applications for flip-flops and related devices.*   |
| 10. Demonstrate an understanding of and applications for counters.*  |
| 11. Demonstrate an understanding of and applications for shift registers.*   |
| 12. Utilize and explain the types of memory and storage in digital circuits.*  |
| 13. Explain the development of and applications for integrated circuit technologies.*  |

**ELECTRICAL ENGINEERING TECHNOLOGY TAG: DIGITAL ELECTRONICS TAG  
COURSE  
FACULTY PARTICIPANTS  
November 2016 – April 2017**

| <b>Name</b>                               | <b>Institution</b>               |
|---|----------------------------------|
| Rob Speckert (Review/Revision Panel Lead) | Miami University                 |
| Keith Sanders                             | Columbus State Community College |
| David Barth                               | Edison State Community College   |
| Thomas Mahas                              | Owens Community College          |
| Keith Saunders                            | Rio Grande Community College     |
| Kassiani Kotsidou                         | Shawnee State University         |
| Xuefu (Frank) Zhou                        | University of Cincinnati         |
| Ted Bosela                                | Youngstown State University      |