

Department	03 Mechanical, Automotive and Aeronautical Engineering
Course title	Digital Circuit Design and Analysis
Hours per week (SWS)	4
Number of ECTS credits	5
Course objective	This course will equip students with the skills to design and analyze digital circuits, and prepare the students for the use of Arduino microcontroller type boards. Introduction to the concepts of programming, feedback, and control for basic digital circuits will be covered. The students should be able to create fundamental digital circuits and control systems using the Arduino microcontroller by the end of the course.
Prerequisites	Fundamentals in Physics related to electricity
Recommended reading	Recommendation will be supplied to the course later on
Teaching methods	Course lecture with laboratory
Assessment methods	Final Report and Presentation
Language of instruction	English
Name of lecturer	John M. Pavlina, Ph.D.
Email	pavlinaj@erau.edu
Link	
Course content	<ul style="list-style-type: none">• Digital Circuits Basics (Binary numbers, A/D, D/A)• Design, construct, and trouble-shoot digital electronic circuits• Interface digital circuitry with various devices (LEDs, switches, 7-segment displays, etc.)• Coding Basics (Pseudocode, for, while, if, switch)• Control using digital signals• Arduino Basics• Feedback control• Specialized topics as needed
Remarks	This course is a block course and as such lecture and lab times are extended compared to a normal course.