

COURSE SYLLABUS

Course Title:	Microprocessors & Microcontrollers	Date submitted:	May 2019 (AAC: 19-25)	
Department:	Advanced Manufacturing Technology			
Curriculum:	Technology Studies			
Course Descriptors: Make certain that the course descriptors are consistent with college and Board of Trustees policies, and the current course numbering system.	Course Code: (eg. ACC 101) <input type="text" value="MFG*147"/> Course Type: <input type="text" value="X"/> A: Clinical B: Lab D: Distance Learning I: Individual/Independent L: Lecture N: Internship M: Seminar P: Practicum U: Studio X: Combined Lecture/Lab Y: Combined Lecture/ Clinical/Lab Z: Combined Lecture/Studio Elective Type: <input type="text" value="G"/> AH: Art History E: English FA: Fine Arts FL: Foreign Language G: General HI: History HU: Humanities LAS: Liberal Arts & Sciences M: Math S: Science SS: Social Science	Prerequisites: Math for Electricity & Electronics(MFG*133), Circuit Theory I (MFG*137), Digital Fundamentals (MFG*138), Circuit Theory II (MFG*139), and Robotics (MFG*140) or consent of the instructor		
	Credit Hours: <input type="text" value="3"/> Developmental: (yes/no) <input type="text" value="No"/> Lecture: <input type="text" value="1.5"/> Clinical: <input type="text" value="0"/> Lab: <input type="text" value="1.5"/> Studio: <input type="text" value="0"/> Other: <input type="text" value="0"/> TOTAL: <input type="text" value="3"/>	Corequisites: None		
	Contact Hours:	Other Requirements: None		
	Class Maximum: <input type="text" value="24"/> Semesters Offered: <input type="text" value="Fall, Spring"/>			
	Catalog Course Description: Microprocessors & Microcontrollers is designed to give the student an overview of the microprocessor and microcontroller by reviewing the fundamentals of 8085A architecture, software, and interface applications; and by reviewing the architecture, software, and interface applications of the 8051 microcontroller.			
	Topical Outline: List course content in outline format.			
	1. Microprocessor and Computer Memory 2. Microprocessor Fundamentals 3. Introduction to 8085 Software 4. Introduction to 8085 Hardware 5. The 8085A Software Instruction Set 6. Interfacing and Applications			

	7. The 8051 Microcontroller
<p>Outcomes: Describe measurable skills or knowledge that students should be able to demonstrate as evidence that they have mastered the course content.</p>	<p>Upon successful completion of this course, the student will be able to do the following:</p> <ol style="list-style-type: none"> 1. Demonstrate the ability to discuss the operation and application for the various types of semiconductor memory IC's; distinguish between different memory storage mediums (e.g., transistors, capacitors, magnetic hard disks and tapes). 2. Demonstrate an understanding of the design, internal architecture, abilities and uses of the 8085A microprocessor. 3. Demonstrate the ability to program the 8085A microprocess using assembly language. 4. Demonstrate an understanding of the 8085 hardware and timing waveforms as they are used in a complete microprocessor-based system design. 5. Demonstrate the ability to program the 8085 microprocess by using assembly language and the intel instruction set. 6. Demonstrate the ability to interface converters DAC and ADC to the 8085A microprocessor and the ability to write several software application programs for the 8085A microprocessor. 7. Demonstrate an understanding of the architecture, hardware, and software of the 8051 microcontroller and demonstrate the ability to write simple 8051 I/O programs. <p>PROGRAM: <i>Electronics Technology Certificate and A.S. Degree</i></p> <ol style="list-style-type: none"> 1. Demonstrate an understanding of Shop Safety. 2. Demonstrate an understanding the theory of electrical structure, voltage, current, resistance, and electrical circuit and their measurement. 3. Demonstrate an understanding of the basic laws of arithmetic. 4. Demonstrate an understanding of several number systems and codes that are the foundation of digital theory and digital applications. 5. Make comparisons with personal computers; as well as, develop an understanding of its origin and growth since conception. 6. Demonstrate an understanding of the fundamentals of Automated Manufacturing systems. <p>GENERAL EDUCATION: <i>(Numbering reflects General Education Outcomes as they appear in the college catalog)</i></p> <p>No General Education outcomes.</p>
<p>Evaluation: List how the above outcomes will be assessed.</p>	<p>Assessment will be based on the following criteria:</p> <ol style="list-style-type: none"> 1. Tests and quizzes

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Instructional Resources: List library (e.g. books, journals, on-line resources), technological (e.g. Smartboard, software), and other resources (e.g. equipment, supplies, facilities) required and desired to teach this course.	Required: Full electronics lab with microprocessors and microcontrollers. Desired: None
Textbook(s)	<u>Digital and Microprocessor Fundamentals Theory and Applications</u> , William Kleitz, Prentice Hall, latest edition.