ENGINEERING WITH EMPHASIS IN SOFTWARE ENGINEERING APPLICATIONS LEVEL - 2 (CERTIFICATE T0843)

Natural Sciences Division
Certificate T0843

The Engineering with Emphasis in Software Engineering Applications program concentrates on the design of complex computing systems through the applications of computing languages, contextualized problem-solving, control systems, and applied mathematics. This degree program is for job seekers interested in electrical software engineering technology as well as students interested in university programs in software engineering and software engineering technology.

Engineering with Emphasis in Software Engineering Applications Level 2 certificate incorporates the engineering, science, and communications skills needed by an entry-level software engineering technology employee. Completion of this certificate will prepare graduates for multiple terminal technologist positions, including engineering technician, software engineering technician, application developer, assistant engineer, technical sales, technical consultant and other endeavors related to electrical systems. Through this program, students will develop proficiency with electrical systems, mechanical systems, Microsoft Excel, oral communication, functional analysis, project management, developing presentations, laboratory analysis, programming, numerical methods, software development, and hardware interface tools. Completion of this certificate may facilitate transfer into B.S. programs in Engineering Technology, Software Engineering or Computer Science related degree programs.

Required Courses

Course Prefix	Course Name	Units
Completion of Engineering Fundamentals coursework		16-17
PLUS		
Completion of Engineering with Emphasis in Software Engineering Applications - Level 1 coursework		15.5
PLUS		
Completion of Engineering with Emphasis in Software Engineering Applications - Level 2 coursework		11.5 - 13
Total Units		**43-45.5**

Course Prefix	Course Name	Units
Engineering Fundamentals Coursework		
ENGL 1A	Freshman Composition	4
or ENGL 1AH	Freshman Composition - Honors	
or ENGL 1AM	College Composition for Non-Native English Speakers	
or AMLA 1A	College Composition for Non-Native English Speakers	
ENGR 1	Introduction to Engineering	2
ENGR 1C	Engineering Critical Thinking	3
MATH 150	Trigonometry	3
or MATH 160	Precalculus Mathematics	
or MATH 180	Calculus and Analytic Geometry I	
PHYS 2AG	General Physics	4
Total Units		**16 - 17**

Course Prefix	Course Name	Units
Engineering with Emphasis in Software Engineering Applications - Level 1 Coursework		
CSCI 110	Fundamentals of Computer Science	3.5
CSCI 190	Discrete Mathematics Applied to Computer Science	4
ENGR 6	Introduction to Engineering Programming Concepts and Methodologies	4
SPCH 1A	Public Speaking	4
or SPCH 1AH	Public Speaking - Honors	
Total Units		**15.5**

Course Prefix	Course Name	Units
Engineering with Emphasis in Software Engineering Applications - Level 2 Coursework		
CSCI 140	C++ Language and Object Development	4
or CSCI 220	Data Structures I	
or CSCI 240	Data Structures and Algorithms	
ENGR 16	Introduction to Digital Electronics with FPGA Programming	4
MATH 181	Calculus and Analytic Geometry II	4
Total Units		**11.5 - 13**

Please see the Mt. San Antonio College Engineering, Engineering Technology and Surveying Program Website (https://www.mtsac.edu/engineering/) for updated information on program courses, transfer help, extracurricular activities, faculty contact information and more.

Program Learning Outcomes

Review Student Learning Outcomes (SLOs) (http://www.mtsac.edu/instruction/outcomes/sloinfo.html) for this program.