

# ENGINEERING WITH EMPHASIS IN CIVIL ENGINEERING APPLICATIONS - LEVEL 2 (CERTIFICATE T0834)

## Natural Sciences Division Certificate T0834

The Engineering with Emphasis in Civil Engineering Applications program prepares the students for an entry-level career working as a technician under the direction of civil engineers, surveyors, contractors and architects through project-based learning activities. This degree program is for job seekers interested in civil engineering and civil engineering technology; as well as students interested in university programs in civil engineering and civil engineering technology.

The Engineering with Emphasis in Civil Engineering Applications Level 2 certificate incorporates the engineering, science, and communications skills needed by an entry-level civil engineering technology employee. Completion of this certificate will prepare graduates for multiple terminal technologist positions, including engineering technician, civil engineering technician, project engineer, engineering assistant, and designer. Through this program students will develop proficiency with mechanical systems, Microsoft Excel, oral communication, functional analysis, project management, developing presentations, laboratory analysis, land surveying, mapping, computer aided design, geometric dimensioning and tolerances, programming, numerical methods and technical reporting. Completion of this certificate may facilitate transfer into B.S. programs into Civil Engineering, Construction Engineering, and Construction Engineering Management related programs.

## Required Courses

Course Prefix	Course Name	Units
Completion of Engineering Fundamentals coursework		16-17
PLUS		
Completion of Engineering with Emphasis in Civil Engineering Applications - Level 1 coursework		15
PLUS		
Completion of Engineering with Emphasis in Civil Engineering Applications - Level 2 coursework		16
<b>Total Units</b>		<b>47-48</b>

Course Prefix	Course Name	Units
<b>Engineering Fundamentals Coursework</b>		
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
<b>Total Units</b>		<b>16-17</b>

Course Prefix	Course Name	Units
<b>Engineering with Emphasis in Civil Engineering Applications - Level 1 Coursework</b>		
CHEM 50	General Chemistry I	5
or CHEM 50H	General Chemistry I - Honors	
or CHEM 55	Chemistry for Engineers	
SPCH 1A	Public Speaking	4
or SPCH 1AH	Public Speaking - Honors	
SURV 1A	Surveying	3
SURV 1B	Surveying	3
or ENGR 18	Introduction to Engineering Graphics	
<b>Total Units</b>		<b>15</b>

Course Prefix	Course Name	Units
<b>Engineering with Emphasis in Civil Engineering Applications - Level 2 Coursework</b>		
ENGR 6	Introduction to Engineering Programming Concepts and Methodologies	4
or ENGR 7	Programming Applications for Engineers	
ENGR 8	Properties of Materials	4
ENGR 24	Engineering Graphics	4
MATH 181	Calculus and Analytic Geometry II	4
<b>Total Units</b>		<b>16</b>

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.