

# ENGINEERING WITH EMPHASIS IN CIVIL ENGINEERING APPLICATIONS (AS DEGREE S0832)

## Natural Science Division

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.

Engineering with Emphasis in Civil Engineering Applications degree incorporates the engineering, science, and communications skills needed by an entry-level civil engineering technology employee. Completion of this degree 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 degree 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   |
|------------------------------|--|---------|
| Required Core                |  | 36 - 37 |
| ENGR 1                       | Introduction to Engineering  | 2       |
| ENGR 1C                      | Engineering Critical Thinking                                      | 3       |
| 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       |
| CHEM 50                      | General Chemistry I  | 5       |
| or CHEM 50H                  | General Chemistry I - Honors                                       |         |
| or CHEM 55                   | Chemistry for Engineers  |         |
| MATH 180                     | Calculus and Analytic Geometry                                     | 4       |
| or MATH 181                  | Calculus and Analytic Geometry                                     |         |
| PHYS 2AG                     | General Physics  | 4       |
| or PHYS 4A                   | Engineering Physics  |         |
| SURV 1A                      | Surveying  | 3       |
| SURV 1B                      | Surveying  | 3       |
| Required Electives           |  |         |
| Choose a minimum of 10 units |  | 10      |
| ENGR 18                      | Introduction to Engineering Graphics                               |         |
| ENGR 40                      | Statics  |         |
| ENGR 40T                     | Applied Statics  |         |
| ENGR 41                      | Dynamics   |         |
| ENGR 42                      | Mechanics of Materials   |         |

|                    |   |                |
|--------------------|---|----------------|
| ENGR 50A           | Robotics Team Project Development                       |                |
| ENGR 50B           | Intermediate Robotics Team Project Development          |                |
| ENGR 285           | Differential Equations and Linear Algebra for Engineers |                |
| PHYS 2BG           | General Physics   |                |
| PHYS 4B            | Engineering Physics                                     |                |
| <b>Total Units</b> |   | <b>46 - 47</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.