



A Course of Study for  
**ENGINEERING**

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The Engineering program provides students with a fundamental knowledge of engineering and familiarizes them with modern engineering design tools and skills. In addition, students will be prepared for engineering internship opportunities or entry-level industrial jobs, through developing skills in areas such as computer drafting, solid modeling, circuit build and design, and problem solving. Upon completion of this program, students will also have a strong academic foundation in the field and be prepared for upper division baccalaureate study.

For additional career possibilities, visit the Career Services Center on the main campus to utilize computerized career information systems and other valuable career resources.

### PROGRAMS OFFERED

- Transfer Preparation

### DEGREES AND CERTIFICATES

Associate Degree

- Engineering

Certificates of Achievement

- Engineering
- Introduction to Engineering

### ASSOCIATE DEGREE REQUIREMENTS

An Associate degree is granted upon successful completion of a program of study with a minimum overall grade point average (GPA) of 2.0 (C) and a minimum of **60 degree applicable semester units**, including:

- Completion of the area of emphasis with a grade of C or higher in each course, or with a P if the course was taken on a Pass/No Pass basis, and the P is equal to a C or higher;
- Completion of at least 50% of area of emphasis units at Santa Monica College;
- Completion of one of the following general education patterns: SMC GE, CSU GE, or IGETC;
- Completion of the SMC Global Citizenship graduation requirement.

### CERTIFICATE OF ACHIEVEMENT REQUIREMENTS

A Certificate of Achievement is granted upon successful completion of a program of study with a minimum overall grade point average (GPA) of 2.0 (C) and a **designated minimum number of units**, including:

- Completion of the area of emphasis with a grade of C or higher in each course, or with a P if the course was taken on a Pass/No Pass basis, and the P is equal to a C or higher;
- Completion of at least 50% of area of emphasis units at Santa Monica College;

### CATALOG RIGHTS

A student may satisfy the requirements of a degree that were in effect at any time of the student's *continuous* enrollment. Continuous enrollment is defined as enrollment in consecutive Fall and Spring semesters until completion.

### TRANSFER PREPARATION

Students planning to transfer to a four-year college or university should refer to the transfer preparation information under Engineering.

**ENGINEERING, ASSOCIATE DEGREE OR CERTIFICATE OF ACHIEVEMENT**

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**Program Learning Outcomes:** Upon completion of the program, students will demonstrate basic knowledge of engineering principles of design and analysis, and exhibit effective communication skills and ethical behavior as shown through their written work, teamwork, and lab work.

**AREA OF EMPHASIS: (31 UNITS)**

Required Mathematics Courses: (10 units)

**MATH 7**, Calculus 1 (5)

**MATH 8**, Calculus 2 (5)

Select 2 Physics Courses: (10 units)

**PHYSCS 21**, Mechanics with Lab (5)

**PHYSCS 22**, Electricity and Magnetism with Lab (5)

**PHYSCS 23**, Fluids, Waves, Thermodynamics, Optics with Lab (5)

Select 1 Computer Science Course: (3 units)

**CS 30**, MATLAB Programming (3)

**CS 50**, C Programming (3)

Required Engineering Courses: (5 units)

**ENGR 1**, Introduction to Engineering (2)

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**ENGR 11**, Engineering Graphics and Design (3)

***or***

**ENGR 21**, Circuit Analysis (3)

***and***

**ENGR 22**, Circuit Analysis Lab (1)

Elective Engineering Course: (3 units)

Select 1 course from the following if not used above:

**ENGR 11**, Engineering Graphics and Design (3)

**ENGR 12**, Statics (3)

**ENGR 16**, Dynamics (3)

**ENGR 21**, Circuit Analysis (3)

## INTRODUCTION TO ENGINEERING, CERTIFICATE OF ACHIEVEMENT

The Engineering Certificate program exposes students to the broad field of engineering and modern engineering design tools and skills. In addition, students will be prepared for engineering internship opportunities, through developing skills in areas such as as solid modeling, engineering build and design, and problem solving.

**Program Learning Outcomes:** Upon completion of the program, students will demonstrate basic knowledge of engineering principles of design and analysis, and exhibit effective communication skills and ethical behavior as shown through their written work, teamwork, and lab work.

### AREA OF EMPHASIS: (15 UNITS)

Required Mathematics Course: (5 units)

**MATH 7**, Calculus 1 (5)

Required Physics Courses (5 units)

**PHYSCS 21**, Mechanics with Lab (5)

Required Engineering Course: (2 units)

**ENGR 1**, Introduction to Engineering (2)

Elective Engineering Course: (3 units)

**ENGR 11**, Engineering Graphics and Design (3)

**ENGR 12**, Statics (3)

**ENGR 16**, Dynamics (3)

**ENGR 21**, Circuit Analysis (3)