

ENGINEERING

engineering.missioncollege.edu

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Engineering: Certificate of Achievement (CA)

Engineering Certificate: Engineers design and create the future. They use the principles of math, science, and engineering to design and build new products or to develop large-scale systems such as transportation systems or a water treatment plant. Engineering problems usually involve teams of people, so engineers must work well with others and communicate effectively. The Engineering Certificate is modeled after the statewide Engineering Transfer Preparation Certificate and offers four distinct engineering tracks. It is identical to the Engineering AS degree except all general education degree requirements are omitted. In order to transfer to a 4-year college or university, students who complete one of the certificate tracks will also have to complete the minimum admissions requirements for the intended transfer institution. Upon completion of the Engineering Certificate, students will possess the knowledge and skills required for upper-division coursework in Engineering.

Program Learning Outcomes:

- Analyze and interpret experimental results and/or data to make engineering problem decisions.
- Use math, science, and engineering concepts to describe, formulate, and solve engineering problems.
- Communicate the results of design and/or analysis orally and through text and graphics. Students will work effectively in teams.

Career Opportunities:

Career opportunities for students who have completed baccalaureate degrees in Engineering include the following engineering disciplines: aerospace, architectural, bioengineering, biomedical, chemical, civil, computer, electrical, environmental, industrial, manufacturing, materials, mechanical, software, and nuclear. More career information can be found at bls.gov/oes/current/oes170000.htm

To earn this certificate, students must complete the minimum required courses with a grade of C (or P) or better.

Core Requirements (35 units)

	Units
EGR 010 Introduction to Engineering -OR-	4.0
EGR 010H Introduction to Engineering - Honors	4.0
MAT 003A Analytic Geometry and Calculus I	5.0
MAT 003B Analytic Geometry and Calculus II	5.0
MAT 004A Multivariable Calculus	4.0
MAT 004B Differential Equations	4.0
PHY 004A Engineering Physics-Mechanics	5.0
PHY 004B Engineering Physics-Electricity and Magnetism	4.0
PHY 004C Engineering Physics-Light and Heat	4.0

Complete one of the following tracks (13-23 units)

Mechanical, Aerospace, Manufacturing Engineering or Civil Engineering Track (22-23 units):

Complete all of the following

	Units
CHM 001A General Chemistry -OR-	5.0
CHM 001AH General Chemistry - Honors	5.0
EGR 023 Mechanics - Statics	3.0
EGR 024 Introduction to Circuit Analysis	3.0
EGR 025 Engineering Graphics and Design	4.0
EGR 026 Engineering Materials	4.0
EGR 030 Introduction to Computing for Engineers -OR-	4.0
MAT 005 Programming and Problem-Solving in MATLAB	3.0

Electrical Engineering Track (13 Units):

Complete all of the following

	Units
CHM 001A General Chemistry -OR-	5.0
CHM 001AH General Chemistry - Honors	5.0
EGR 024 Introduction to Circuit Analysis	3.0
EGR 024L Introduction to Circuit Analysis Lab	1.0
EGR 030 Introduction to Computing for Engineers	4.0

Computer, Software Engineering Track (16 Units):

Complete all of the following

	Units
CIS 044 Introduction to Data Structures w/Java	4.0
EGR 024 Introduction to Circuit Analysis	3.0
EGR 024L Introduction to Circuit Analysis Lab	1.0
EGR 030 Introduction to Computing for Engineers	4.0
MAT 019 Discrete Mathematics	4.0

Total Required Units:

48.0-58.0