

ENGINEERING

Engineering involves the application of science, mathematics, and technology to solve and analyze a wide range of problems. In today's society, engineering specialties include civil, electrical, mechanical, chemical, materials, industrial, aeronautical, environmental, and computer engineering, among others. In general, engineers participate in the activities which make the resources of nature available in a form beneficial to society and provide systems that will perform optimally and economically.

The Engineering transfer program at Santa Barbara City College provides lower-division engineering coursework equivalent to the first two years of education at a 4-year university leading to a Bachelor of Science Degree. At Santa Barbara City College, all Engineering transfer students major in Engineering and do not declare a specific branch of engineering study until after they have transferred to a 4-year university. An Associate in Science and an Associate in Arts may also be obtained.

Programs of Study

Associate Degrees

- Engineering, Associate of Arts or Science (AA/AS) (<https://catalog.sbccc.edu/academic-departments/engineering/engineering-aa/>)

Credit Courses Engineering (ENGR)

ENGR 101 Introduction To Engineering (2 Units)

Hours: 36 (36 lecture)

Introduction to the engineering profession, engineering schools and four-year transfer programs. Discussion of methods and history of engineering, as well as guest speakers. Discussion of current areas of interest including engineering in the Santa Barbara area community. Recommended for all Engineering majors.

Transfer Information: CSU Transferable, UC Transferable

ENGR 102 Engineering Calculations with MATLAB (1 Unit)

Hours: 27 (13.5 lecture, 13.5 lab)

Introduction to engineering calculations using the MATLAB interactive environment software package for performing technical computations. Topics include matrix computation, numerical analysis, graphics and m-files (source code). Designed for people who have no MATLAB experience and who may not have any previous programming experience.

ENGR 105 Engineering Graphics (4 Units)

Hours: 108 (54 lecture, 54 lab)

Graphic/visual communication, emphasizing the engineering design process. Topics include the design process, freehand sketching, multiviews, dimensioning, tolerancing, auxiliary views, 3D solid modeling and assembly, sectional views and computer-aided drafting using CADKEY or AutoCAD software.

Transfer Information: CSU Transferable, UC Transferable

ENGR 115 Statics And Strength Of Materials (4 Units)

Prerequisites: PHYS 121.

Hours: 72 (72 lecture)

Study of force systems, statics of particles and rigid bodies, and distributed forces. Analysis of structures, friction, centroids, moments of inertia, Mohr's circle, shear and bending moment diagrams, and distributed forces.

Transfer Information: CSU Transferable, UC Transferable

ENGR 116 Dynamics (4 Units)

Prerequisites: ENGR 115 and MATH 160.

Hours: 72 (72 lecture)

Study and analysis of motions of particles and rigid bodies. Velocity, acceleration, relative motion, work, energy, impulse, and momentum.

Vector mathematics where appropriate.

Transfer Information: CSU Transferable, UC Transferable

ENGR 117 Electronic Circuits (3 Units)

Prerequisites: MATH 160.

Corequisites: PHYS 122.

Skills Advisories: Eligibility for ENG 098 and 103.

Hours: 54 (54 lecture)

Introduction to electronic circuits. Includes AC and DC circuit analysis, transient and complete response, and operational amplifiers.

Transfer Information: CSU Transferable, UC Transferable

ENGR 117L Electronic Circuits Laboratory (1 Unit)

Prerequisites: MATH 160.

Corequisites: ENGR 117 and PHYS 122.

Hours: 54 (54 lab)

Laboratory to accompany ENGR 117.

Transfer Information: CSU Transferable, UC Transferable