

Engineering Transfer Guideline  
College of San Mateo  
(revised March, 2007)

The engineering program at CSM prepares students to transfer with junior standing to Bachelors degree programs in engineering. At most schools, students will transfer into a specific engineering department (e.g., Civil Engineering, Mechanical Engineering, Electrical Engineering). Engineering 100 (Introduction to Engineering) provides an overview of the different engineering majors. Additional information is available through

- <http://www.assist.org>, a website showing transfer requirements;
- the Union of Student Engineers (USE), CSM's engineering club in Building 19 Room 42;
- Engineering News, a monthly newsletter available outside the USE room;
- Laura Demsetz, Engineering Instructor & Advisor, [demsetz@smccd.edu](mailto:demsetz@smccd.edu), 650 574-6617.

The first two years of study in an engineering major, whether at CSM or at a four year school, consist of courses in five areas: mathematics, science, computer programming, engineering, and general education. The specific requirements vary among majors and transfer schools. However, the mathematics sequence is usually the longest. Students interested in engineering should take a math class every semester even if they are still uncertain about specific major and transfer school.

Because requirements vary among majors and transfer schools, students should work closely with an advisor throughout their time at CSM and should check ASSIST (statewide transfer information, [www.assist.org](http://www.assist.org)) and the website of the department and school to which they plan to transfer. The basic transfer requirements are described below. Students or advisors with questions about engineering should contact Laura Demsetz (650 574-6617, [demsetz@smccd.edu](mailto:demsetz@smccd.edu), <http://www.smccd.edu/accounts/demsetz>).

### Mathematics

This is longest sequence of courses for most engineering students. Engineering programs at four year schools assume that students are prepared to take Calculus in their freshman year. At CSM, students can take the full sequence of math leading up to Calculus. Of course, this means that the engineering transfer requirements will take longer than 2 years to complete.

MATH 110 (or 111 and 112) Elementary Algebra  
MATH 115 Geometry  
MATH 120 (or 122 and 123) Intermediate Algebra  
MATH 130 Trigonometry  
MATH 222 Precalculus

\*\*\*Note: Students who are having difficulty with math courses prior to Calculus should think carefully about their choice of Engineering as a major.\*\*\*

MATH 251 Calculus/Analytic Geometry I (DO NOT TAKE Math 241/242)  
MATH 252 Calculus/Analytic Geometry II  
MATH 253 Calculus/Analytic Geometry III  
MATH 270 Linear Algebra (required for most, but not all, transfer programs)  
MATH 275 Differential Equations

Note: Math268 Discrete Math is required for some computer science and computer engineering programs

## Science

PHYS 250 Physics with Calculus I (prerequisites: MATH251, PHYS150)  
PHYS 260 Physics with Calculus II  
PHYS 270 Physics with Calculus III (required for most programs)

CHEM 210 General Chemistry I  
CHEM 220 General Chemistry II (required for some programs)

## Computer Programming

The programming requirement varies by transfer school and by major and is subject to frequent changes. For most majors, it is satisfied by at least one of ENGR215 (MATLAB), CIS278 (C++), or CIS255 (Java). CIS278 and CIS255 have CIS254 as a prerequisite. Some schools and majors also require a data structures course, either CIS278 (C++) or CIS256 (Java).

## Engineering

ENGR 100 Introduction to Engineering (offered each Fall)  
ENGR 210 Engineering Graphics (offered each Fall)  
ENGR 215 Computational Methods (offered each Spring)  
ENGR 230 Engineering Statics (offered each Fall at CSM; offered each Spring at Canada)  
ENGR240 Engineering Dynamics (offered each Fall at Canada)  
ENGR 260 Circuits and Devices (offered each Spring)  
ENGR 270 Materials Science (offered each Spring at CSM; offered each Fall at Canada)

There is a great deal of variation in the engineering course requirements among schools and majors. Most Civil and Mechanical Engineering programs require ENGR 210, ENGR 230, and ENGR270. Some Civil Engineering programs require ENGR260; most Mechanical Engineering programs require ENGR260. Most Electrical Engineering programs require ENGR260 and ENGR270; some also require ENGR230; some also require ENGR210. Consult [www.assist.org](http://www.assist.org) for the requirements of specific schools and majors.

Some schools and majors have additional lower division engineering courses that are not offered at most community colleges (for example, a course in Environmental Engineering). These courses do not have to be completed prior to transfer, but will have to be taken at the four year school (in addition to the upper division courses).

## General Education

Typically, engineering students transferring to a CSU must complete the Area A requirements (Oral Communication, Written Communication, and Critical Thinking). The remainder of the General Education requirements may be completed at CSM or after transferring (but it's less expensive at CSM!). Engineering students transferring to a UC should complete ENGL 100 and a second composition course (see IGETC, Area 1; for U.C. Berkeley, take ENGL110, not ENGL165). Additional general education courses should be taken so as to satisfy the requirements of the specific U.C. campus. Students should consult ASSIST (statewide transfer information, <http://www.assist.org>) and the website of the department and school to which they plan to transfer for more information.