



## COLORADO SCHOOL OF MINES

### PRE-ENGINEERING ADVISING GUIDE FOR COMMUNITY COLLEGE STUDENTS

**If you plan to complete a bachelor's degree in engineering at Colorado School of Mines, you should know this:**

1. You do not need to complete an associate's degree, but you should enroll in one for Admission.
2. There is no associate's degree in engineering because there are not enough courses at the 100 and 200 levels (to make up a 60 credit associate's degree) that will transfer and apply to a bachelor's degree in engineering.
3. You should consider transferring into a bachelor's in engineering program after you take the first 30-31 community college credits outlined below, plus any electives that will apply to the bachelor's in engineering program.
4. If your community college has an agreement with Colorado School of Mines, follow that agreement and disregard this advising guide.

#### **Purpose:**

This statewide advising guide for pre-engineering students identifies the courses a student at a Colorado public community college should complete prior to transferring to Colorado School of Mines for an engineering degree (BS). This guide outlines a curriculum that will apply to an engineering degree with majors in engineering, computer science, economics, applied math or statistics, or chemistry at Colorado School of Mines. It also outlines a list of elective courses that apply to many engineering programs but you should check with the engineering advising office at Colorado School of Mines to verify they will apply to the bachelor's program into which you will transfer.

#### **Transfer Recommendations:**

Always consult an academic advisor at your community college AND at Colorado School of Mines. Students who complete an associate's degree prior to transferring to Colorado School of Mines have no guarantee that all associate degree credits will apply to the engineering degree and should be advised that the sequence of courses in the engineering baccalaureate major may take 6-8 semesters, in addition to hours transferred. In some cases, transfer prior to completion of the AA or AS degree is advisable.

#### **How Are Your Math Skills?**

For students with strong math skills, it is usually better to transfer to Colorado School of Mines after completing the Prescribed Pre-Engineering Curriculum below. Students who have developmental math needs and are not as strong in math should consider working towards an associate's degree while completing developmental education courses and the Prescribed Pre-Engineering Curriculum below. These students should explore with advisors how their graduation timeline and financial aid will be affected by completing an associate's degree before transferring. Pre-engineering students seeking to complete the associate's degree should consult with their community college advisor to make provisions to complete the [gtPathways general education curriculum](#), which will enhance the transferability of the degree should the student switch from an engineering track to a liberal arts & sciences track.



## COLORADO SCHOOL OF MINES PRE-ENGINEERING CURRICULUM

Required Courses Applicable to Engineering Majors (including free electives)			30-31
General Education Knowledge Area	Credit Hours	Community College (CCCS) Course No.	Course Title and gtPathways Category
Art & Humanities, History or Social & Behavioral Science	6		200-level <a href="#">GT-HI1</a> , <a href="#">GT-AH1</a> , <a href="#">GT-AH2</a> , <a href="#">GT-AH3</a> or <a href="#">GT-SS1</a> , <a href="#">GT-SS2</a> , or <a href="#">GT-SS3</a> and 100-level courses World Language courses <u>may</u> fulfill humanities and social sciences requirements at Mines. Students should contact a Mines advisor and refer to the <i>Bulletin</i> information at <a href="http://lais.mines.edu/LAIS-HSS-Requirements">http://lais.mines.edu/LAIS-HSS-Requirements</a> to obtain information regarding course transfer.
Natural & Physical Sciences	5	PHY 211	Physics: Calculus-based I (GT-SC1)
	5	CHE 111	General College Chemistry I with Lab (GT-SC1)
Mathematics	5	MAT 201	Calculus I (GT-MA1)
Mathematics – Calculus II*	5	MAT 202	Calculus II (GT-MA1)
Mathematics – Calculus III**	4	MAT 203	Calculus III (GT-MA1)
	5	Or MAT 204 (PREFERRED)	Calculus III with Engineering Applications (GT-MA1)
<p>*Students are strongly encouraged to complete the Calculus II and III sequence at the same institution. Due to the unique nature of the Calculus curriculum at the Colorado School of Mines, transfer credit for Calculus II and III will only be granted if both courses have been successfully completed prior to transfer and provided that the Calculus III course being transferred is equivalent in content to CSM's <i>MATH213: Calculus for Scientists and Engineers III</i>. Should it be necessary, CSM has created short-form courses to bridge from the highest-level Calculus course being transferred to the CSM curriculum. These courses are designed to have a minimal impact on transfer students while insuring that they have the same foundation as all CSM undergraduates.</p>			

Elective Courses			0-30
<p>Elective courses must be selected in consultation with the engineering advising office at Mines to verify they will transfer and apply to the student's chosen major requirements.</p> <p>Community college students are advised not to break up course sequences. For example, in majors that require both PHY 211 and PHY 212 or MAT 201 and MAT 202 student should complete the sequences at the community college before transferring.</p>			
Advanced Mathematics	3	MAT 255	Linear Algebra
	4	MAT 261	Differential Equations with Engineering Applications (GT-MA1)
	4	MAT 265	Differential Equations (GT-MA1)
	4	MAT 266	Differential Equations with Linear Algebra
Science	5	BIO 111	General College Biology I with Lab (GT-SC1)*
	5	BIO 112	General College Biology II with Lab (GT-SC1)
	5	CHE 112	General College Chemistry II with Lab (GT-SC1)*
	4	GEY 111	Physical Geology with Lab*
	5	PHY 212	Physics: Calculus-based II (GT-SC1)*
Computer Science	4	CSC 160	Computer Science I (Language)
	4	CSC 161	Computer Science II (Language)
	3	CSC 233	Object-Oriented Programming (Language)
	4	CSC 234	C++ Programming
	3	CSC 240	Java Programming
Computer Aided Drafting	3	CAD 101	Computer Aided Drafting I
	3	CAD 102	Computer Aided Drafting II
	3	CAD 201	CAD/Custom
	3	CAD 202	Computer Aided Drafting/3D
Public Speaking	3	COM 115	Public Speaking
<p>*These courses count as required distributed science courses for some majors. Please consult the Mines <i>Bulletin</i> (<a href="http://bulletin.mines.edu/undergraduate/undergraduateinformation/distributedcore/">http://bulletin.mines.edu/undergraduate/undergraduateinformation/distributedcore/</a>) or an advisor at Mines for additional information.</p>			

**Other Good Advice:**

It is critical that students seeking an engineering degree within a 4-5 year time frame begin engineering course work prior to the junior year. It is important for community college students preparing for the baccalaureate engineering degree to work with those advisors in the first semester to identify:

- the specific major within the BS engineering degree;
- an advising contact for transfer to Colorado School of Mines; and
- course grades and GPA required to be competitive for admission.

For students who wish to continue their education at the community college beyond the prescribed pre-engineering curriculum, this advising guide identifies courses that *may* apply toward the engineering BS degree at Colorado School of Mines; however, any such additional course work is major specific and must be taken in consultation with the engineering advising office at Colorado School of Mines.

Courses not listed in this document are evaluated by the Mines Admissions Office and faculty from the relevant academic department(s) on a course-by-course basis. Credit will be granted where the course is judged to be the equivalent of an analogous Mines course. Certain courses that are granted transfer credit may not be directly applicable for meeting Mines departmental degree requirements and may be transferred as free elective credit.

**Guarantees and Limitations:**

Please note that this advising guide curriculum completes neither the gtPathways general education curriculum nor the AS degree requirements. Students who successfully complete (minimum C grade) the prescribed pre-engineering curriculum:

- are eligible to apply for admission, directly into an engineering program at Colorado School of Mines;
- are not guaranteed admission to Colorado School of Mines;
- are responsible for meeting admission requirements of Colorado School of Mines;
- are guaranteed, once admitted, application of credit of the prescribed course work to degree requirements; either lower division core curriculum credit, course work required for the engineering major, or free elective credit;
- must consult with Colorado School of Mines engineering program to utilize AP or IB credits that may apply to the pre-engineering curriculum; and
- must consult with Colorado School of Mines engineering program for course work credits beyond those prescribed above, as additional courses are major specific, and Colorado School of Mines may restrict the number of community college transfer credits.

**Admissions Standards:**

Minimum admissions standards and requirements for all students who have attended another college or university as follows:

- 1) Students transferring from another college or university must have completed the same high school coursework requirements as entering freshmen, and as specified in the Mines *Bulletin* in effect at the time of the student's initial Mines enrollment. A transcript of the applicant's final high school record is required. Transfer students are not required to take the SAT of the College Board or the ACT battery.
- 2) Applicants should present college transcripts showing an overall 2.75 grade point average or higher (per the current Undergraduate *Bulletin* which can be found at <http://bulletin.mines.edu/undergraduate/>). Students presenting a lower GPA will be given careful consideration and acted upon individually.
- 3) An applicant who has attended another college may not disregard any other collegiate record. If the applicant has attended more than one college, records must include official transcripts of record from all colleges attended.

- 4) An applicant who cannot re-enroll at the institution from which he or she wishes to transfer because of his or her scholastic record or for other reasons is ineligible to enter Mines.
- 5) Previously completed college courses that are judged to be equivalent to those required for graduation at Mines may be transferred for credit if the grade earned was not lower than a "C" or its equivalent.

**Application procedures and deadlines:**

A transfer student should apply for admission to Mines at the beginning of the final quarter or semester of attendance at his or her present college. Application deadlines are listed on the Mines website at <http://www.mines.edu/UndergraduateTransfer>. The application will be evaluated upon receipt of the completed application form, high school transcript or copy of the GED, transcripts covering all work taken from each university or college attended, and a list of courses in progress. All of these materials must be received at Mines no later than 28 days prior to the date of registration for the semester in which the student plans to enroll. Mines Admissions will notify the student about his or her admission status. Admission is subject to satisfactory completion of current courses in progress and submission of a final, complete official transcript.

**Contact Information for CSM Engineering Program Advisors:**

Colorado School of Mines

<http://www.mines.edu/UndergraduateTransfer>

admit@mines.edu

303-273-3220

Toll Free 888-446-9489