

# Engineering AS (Associate GE Track)

+If you have completed coursework at another college and/or are starting in a semester other than a Fall term, please follow up with the Counseling Department to determine if this sequence is appropriate for your academic and career goals.

**Program Description:** The Engineering program provides curriculum concerned with the fundamentals of mechanics, electrical theory, and materials that can be applied to all disciplines within engineering. The degree concentrates on helping students develop critical thinking skills, a creative imagination, and excellent communication skills to effectively function in the professional environment. Most careers in engineering require a minimum of a baccalaureate degree, with a graduate degree in engineering recommended for career advancement. Career options include: mechanical engineer, civil engineer, computer engineer, aerospace engineer, electrical engineering, biomedical engineer, automotive engineer, and manufacturing engineer.

**Program SLO:** Interpret, analyze, and evaluate engineering concepts.

**Important Transfer Information:** The sequence listed below, may not meet all your transfer admissions requirements. Connect with a counselor to develop an individual student education plan through the Counseling Department @ <https://www.canyons.edu/counseling> or (661) 362-3288/(661) 362-3811.

Major courses are sequenced and **BOLDED** based on recommendations by the [Engineering Department](#).

**First Semester (2-16 units minimum)** FA = Fall; WI = Winter; SP = Spring; SU = Summer

Course	Title	Units	Major and GE Courses
<b>Group 1 Course Department Recommends ENGR 101</b>	<b>Choose any course form Group 1 listed below – Department Recommends Introduction to Engineering (FA, SP)</b>	<b>2</b>	<b>Major (Department recommends ENGR 101)</b>
*MATH 211	Calculus (FA, SP, SU)	5	Major, Area Dii and Area 3
**CHEM 201/201H	General Chemistry I (FA, WI, SP, SU)	5	Major and Area A
ENGLISH 101/101H	English Composition (FA, WI, SP, SU)	4	Area Di
<b>Term Total:</b>		<b>16</b>	

Check the Honors website for most recent course offerings. Must be enrolled in the Honors program to take courses, see below  
\*Speak with a counselor regarding your math placement results. If you did not place into Math 211 – Calculus I, you will need to satisfy the appropriate pre-requisite courses. Refer to the [Math Placement Chart](#) for sequencing.

\*\*NOTE: CHEM 151 is a pre-requisite for CHEM 201. Students may take the [Chemistry Diagnostic Test](#) to place directly into CHEM 201. Speak with a counselor for more information.

**Interession I (17-19 units minimum)**

Course	Title	Units	Major and GE Courses
American Institutions – Choose Option I or II	Complete first course in chosen option – (note: must take both classes within one option) (FA, WI, SP, SU)	3	American Institutions
<b>Term Total:</b>		<b>3</b>	

**Second Semester (20-34 units minimum)**

Course	Title	Units	Major and GE Courses
<b>MATH 212</b>	<b>Calculus II (FA, SP, SU)</b>	<b>5</b>	<b>Major</b>
<b>PHYSICS 220</b>	<b>Physics for Scientists and Engineers: Mechanics of Solids and Fluids (FA, SP, SU)</b>	<b>4</b>	<b>Major</b>
<b>Group 2 Course Department Recommends ENGR 220</b>	<b>Choose any course form Group 2 listed below Department recommends: Programing and Problem-Solving in MATLAB (FA, SP)</b>	<b>3</b>	<b>Major (Department recommends ENGR 220)</b>
***Social Science and Diversity Requirement	Choose one course from Associate GE Area B <u>AND</u> Diversity Area 4 (FA, WI, SP, SU)	3	Area B and Diversity Area 4
<b>Term Total:</b>		<b>15</b>	

\*\*\*Take a social science general education course GE Area B with an (\*) indication on the [Associate Degree Requirements Checklist](#). Courses with an (\*) will also meet the GE Diversity Requirement. Refer to the Associate Degree Checklist for details.

**Interession II (35-37 units minimum)**

Course	Title	Units	Major and GE Courses
Humanities and Fine Arts	Choose one course from Associate GE Area C (FA, WI, SP, SU)	3	Area C
<b>Term Total:</b>		<b>3</b>	

**Third Semester (38-53 units minimum)**

Course	Title	Units	Major and GE Courses
ENGR 152	Statics (FA)	3	Major
ENGR 151	Materials of Engineering (FA, SP)	3	Major
ENGR 151L or another Group 1 course	Materials of Engineering Lab (FA, SP)	1	Major ( <i>Department recommends ENGR 151Lab while taking ENGR 151</i> )
MATH 213	Calculus III (FA, SP, SU)	5	Major
PHYSICS 221	Physics for Scientists and Engineers: Electricity and Magnetism (FA, SP, SU)	4	Major
<b>Term Total:</b>		<b>16</b>	

**Fourth Semester (54-66 units minimum)**

Course	Title	Units	Major and GE Courses
ENGR 260	Electrical Circuits (SP)	3	Major
ENGR 260L	Electrical Circuits Laboratory (SP)	1	Major
MATH 215	Differential Equations (FA, SP, SU)	4	Major
PE/Wellness	Take two of any KPEA or Active Dance classes (except not Dance 100) (FA, WI, SP, SU) or Health 100, 149, 150, or 243 (FA, WI, SP, SU)	2-3	Area F
American Institutions	Complete second course in chosen option – (note: must take both classes within one option) (FA, WI, SP, SU)	3	American Institutions
<b>Term Total:</b>		<b>13-14</b>	

**Total Units: 66+****Group 1 – Choose a minimum of three units from the following**

ENGR 101	Introduction to Engineering (FA, SP)	2
ENGR 110	Introduction to Engineering Graphics with AutoCAD (FA, SP)	3
ENGR 114	Solids Modeling for Mechanical Drafting (FA, SP)	3
ENGR 151L	Materials of Engineering Lab (FA, SP)	1
ENGR 230	Dynamics (SP)	3
ENGR 240	Strength of Materials (SP)	3
MATH 214	Linear Algebra (FA, SP, SU)	4
PHYSICS 222	Physics for Scientists & Engineers: Wave Motion, Heat, Optics & Modern Physics (FA, WI, SP, SU)	4
SURV 101	Introduction to Land Surveying (FA, SP)	4

**Group 2 – Choose a minimum of three units from the following**

ENGR 220	Programming and Problem-Solving with MATLAB (FA)	3
CMPSCI 111	Introduction to Algorithms & Programming/Java (FA, SP, SU)	3
CMPSCI 111L	Introduction to Algorithms and Programming Lab (FA, SP, SU)	1
CMPSCI 235	'C' Programming (FA, SP, SU)	3

**American Institutions Requirement – Select one of the options below and complete a total of 6 units**

<b>Option 1</b>	One course from the following: Economics 170/170H, History 111/111H, History 112/112H, History 120/120H, or History 130 <b>AND</b> Political Science 150/150H (FA, WI, SP, SU)
<b>Option 2</b>	History 111/111H <b>AND</b> History 112/112H (FA, WI, SP, SU)

## **Counseling Resources**

Engineering Department: <https://www.canyons.edu/physics>

Counseling Department: <https://www.canyons.edu/student-services/counseling/>

COC Honors Program: <https://www.canyons.edu/academics/honors/index.php>

Associate General Education Guide: <https://www.canyons.edu/student-services/counseling/degrees/generaled.php>

Engineering Club: [cocastronomyclub@gmail.com](mailto:cocastronomyclub@gmail.com)

Society of Hispanic Professional Engineers – College of the Canyons Chapter: [canyonsshpe@gmail.com](mailto:canyonsshpe@gmail.com)

Math, Engineering, and Science Achievement (MESA): [www.canyons.edu/mesa](http://www.canyons.edu/mesa)

STEM Equity Alliance - <https://www.canyons.edu/administration/ie2/equity/alliances.php>

Petition for Associate Degree: Check the [student calendar](#) for term-specific submission deadlines. Summer graduation associate degree petitions are due by April 1st for your name to appear in the spring commencement pamphlet. The petition form must be reviewed with a counselor and may be found here:

[https://www.canyons.edu/\\_resources/documents/student-services/admissions/Petition\\_for\\_Associate\\_Degree\\_and\\_Certificate\\_of\\_Achievement.pdf](https://www.canyons.edu/_resources/documents/student-services/admissions/Petition_for_Associate_Degree_and_Certificate_of_Achievement.pdf)

## **Career Resources**

California Career Zone: [www.cacareerzone.org](http://www.cacareerzone.org)

O\*Net Online: [www.onetonline.org](http://www.onetonline.org)

Bureau of Labor and Statistics: [www.bls.gov](http://www.bls.gov)

Professional Associations:

Society for Hispanic Engineers: <https://www.shpe.org/>

The American Society of Mechanical Engineers: <https://www.asme.org/>

American Society of Civil Engineers: <https://www.asce.org/>

The Institute of Electrical and Electronic Engineers: <https://www.ieee.org/>