ENGINEERING, ASSOCIATE IN SCIENCE

Ventura College offers a two-year lower-division engineering program that prepares students for transfer to colleges and universities in California and across the nation. The first two years of the engineering curriculum, at many colleges and universities, are fairly similar with specialization commencing in the junior year. Completion of lower division core courses is essential in facilitating progress as an upper division engineering transfer student.

The Ventura College Associate in Science (A.S.) in Engineering is structured to allow students to complete core requirements found in the majority of Engineering majors within the UC and CSU systems, while also customizing their major, through the choice of restricted electives and support courses, to align with their specific Engineering field at the particular universities to which they are applying. The A.S. degree requires students to complete the Ventura County Community College District (VCCCD) General Education Pattern.

This is a high-unit major, requiring 68 or 70 units. Students will be able to complete the program in two years (four semesters) by taking between 16 and 19 units per semester. However, students can reduce semester units by taking one or more courses in the summer term between their first and second years.

It is important that engineering students meet with an engineering transfer counselor and/or the Engineering Department for specific requirements for transfer.

Title	Units/ Hours		
Required Core Courses			
General Chemistry I	5		
and General Chemistry I Laboratory			
Introduction to Engineering	3		
Calculus with Analytic Geometry I	5		
Calculus with Analytic Geometry II	5		
Multivariable Calculus	5		
Mechanics for Scientists and Engineers and Mechanics Laboratory for Scientists and Engineers	5		
Electricity and Magnetism for Scientists and Engineers and Electricity and Magnetism Laboratory for Scientists and Engineers	5		
	33		
Required Additional Courses (12-14 units)			
- List A. Select 3 or 5 units:			
General Chemistry II and General Chemistry II Laboratory	5		
Introduction to Linear Algebra	3		
Introduction to Differential Equations	3		
Optics, Heat, and Modern Physics: For Scientists and Engineers and Optics, Heat, and Modern Physics Laboratory for Scientists and Engineers	5		
	Title File File File		

- List B: Select 3 to 9 units:

ENGR V02	Engineering Graphics and Design	3
ENGR V12	Engineering Statics	3
ENGR V14	MATLAB: Programming and Problem Solving	3
ENGR V16	Electronic Circuit Analysis	3
ENGR V16L	Electronic Circuits Laboratory	1
ENGR V18	Engineering Materials	4
& V18L	and Engineering Materials Laboratory	
- List C. May select 3	3 or 6 units as part of the 9 units:	
CS V11	Programming Fundamentals	3
CS V13	Object-Oriented Programming	3
CS V15	Data Structures and Algorithms	3
CS V17/MATH V52	Discrete Structures	3
CS V19	Computer Architecture and Organization	3
CS V30	Beginning C++	3
CS V40	Beginning Java	3
CS V42	Intermediate Java	3
Total Required Units		45-47
Required Core Units		33
Restricted Elective L	Inits	12-14
Total Required Majo	r Units	45-47
VCCCD General Educ	cation Pattern	
Required Major Unit	S	45-47
VCCCD General Educ	cation Units	29
Double-Counted Units		
Double-Counted Unit	ts	- 6
Double-Counted Unit	ts e Units	- 6 0
Double-Counted Unit Unrestricted Elective Total Units for the A	ts e Units S Degree	- 6 0 68-70
Double-Counted Unit Unrestricted Elective Total Units for the A	ts 9 Units S Degree	- 6 0 68-70
Double-Counted Unit Unrestricted Elective Total Units for the A Year 1	ts 9 Units S Degree	- 6 0 68-70
Double-Counted Unit Unrestricted Elective Total Units for the A Year 1 Fall Semester	ts e Units S Degree	- 6 0 68-70 Units/Hours
Double-Counted Unit Unrestricted Elective Total Units for the A Year 1 Fall Semester CHEM V01A CHEM V01AL	ts e Units S Degree General Chemistry I (VCCCD GE Area A2) General Chemistry I Laboratory	- 6 0 68-70 Units/Hours 3 2
Double-Counted Unit Unrestricted Elective Total Units for the A Year 1 Fall Semester CHEM V01A CHEM V01AL ENGL V01A	ts e Units S Degree General Chemistry I (VCCCD GE Area A2) General Chemistry I Laboratory English Composition (VCCCD GE Area D1)	- 6 0 68-70 Units/Hours 3 2 4
Double-Counted Unit Unrestricted Elective Total Units for the A Year 1 Fall Semester CHEM V01A CHEM V01AL ENGL V01A ENGR V01	ts e Units S Degree General Chemistry I (VCCCD GE Area A2) General Chemistry I Laboratory English Composition (VCCCD GE Area D1) Introduction to Engineering	- 6 0 68-70 Units/Hours 3 2 4 3
Double-Counted Unit Unrestricted Elective Total Units for the A Year 1 Fall Semester CHEM V01A CHEM V01AL ENGL V01A ENGR V01 MATH V21A	ts e Units S Degree General Chemistry I (VCCCD GE Area A2) General Chemistry I Laboratory English Composition (VCCCD GE Area D1) Introduction to Engineering Calculus with Analytic Geometry I (VCCCD GE Area D2)	- 6 0 68-70 Units/Hours 3 2 4 3 5
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Double-Counted Unit Unrestricted Elective Total Units for the A Year 1 Fall Semester CHEM V01A CHEM V01AL ENGL V01A ENGR V01 MATH V21A Spring Semester MATH V21B PHYS V04 PHYS V04L	ts e Units S Degree General Chemistry I (VCCCD GE Area A2) General Chemistry I Laboratory English Composition (VCCCD GE Area D1) Introduction to Engineering Calculus with Analytic Geometry I (VCCCD GE Area D2) Units/Hours Calculus with Analytic Geometry II Mechanics for Scientists and Engineers Mechanics Laboratory for Scientists and Engineers	- 6 0 68-70 Units/Hours 3 2 4 3 5 5 17 5 4
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Double-Counted Unit Unrestricted Elective Total Units for the A Year 1 Fall Semester CHEM V01A CHEM V01AL ENGL V01A ENGR V01 MATH V21A Spring Semester MATH V21B PHYS V04 PHYS V04 Select Course: Restricted E Select course: VCCCD GE A Year 2 Fall Semester MATH V21C PHYS V05	ts e Units Comparison	- 6 0 68-70 Units/Hours 3 2 4 3 5 17 5 4 1 3 3 3 3 16
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2 Engineering, Associate in Science

Spring Semester	
Select Course: Restricted Elective	3
Select Course: Restricted Elective	3-5
Select course: VCCCD GE Area B1	3
Select course: VCCCD GE Area B2	3
Select course: VCCCD GE Area E1	3
Select course: VCCCD GE Area E2	1
Units/Hours	16-18
Total Units/Hours	68-70

Upon successful completion of this program, students will be able to:

- Analyze and interpret data to make engineering problem decisions.
- · Identify, formulate, and solve basic engineering problems