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.

Course ID	Title	Units/ Hours
Required Core Courses		
CHEM V01A & V01AL	General Chemistry I and General Chemistry I Laboratory	5
ENGR V01	Introduction to Engineering	3
MATH V21A	Calculus with Analytic Geometry I	5
MATH V21B	Calculus with Analytic Geometry II	5
MATH V21C	Multivariable Calculus	5
PHYS V04 & V04L	Mechanics for Scientists and Engineers and Mechanics Laboratory for Scientists and Engineers	5
PHYS V05 & V05L	Electricity and Magnetism for Scientists and Engineers and Electricity and Magnetism Laboratory for Scientists and Engineers	5
Required Core Units		**33**
Required Additional Courses (12-14 units)		**12-14**
- List A. Select 3 or 5 units:		
CHEM V01B & V01BL	General Chemistry II and General Chemistry II Laboratory	5
MATH V22	Introduction to Linear Algebra	3
MATH V23	Introduction to Differential Equations	3
PHYS V06 & V06L	Optics, Heat, and Modern Physics: For Scientists and Engineers and Optics, Heat, and Modern Physics Laboratory for Scientists and Engineers	5
- From Lists B and C: Select a total of 9 units, as indicated below:		
- 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 & V18L	Engineering Materials and Engineering Materials Laboratory	4
- List C. May select 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 Units	12-14
Total Required Major Units	45-47
VCCCD General Education Pattern	
Required Major Units	45-47
VCCCD General Education Units	29
Double-Counted Units	- 6
Unrestricted Elective Units	0
Total Units for the AS Degree	**68-70**

Year 1

Fall Semester		**Units/Hours**
CHEM V01A	General Chemistry I (VCCCD GE Area A2)	3
CHEM V01AL	General Chemistry I Laboratory	2
ENGL V01A	English Composition (VCCCD GE Area D1)	4
ENGR V01	Introduction to Engineering	3
MATH V21A	Calculus with Analytic Geometry I (VCCCD GE Area D2)	5
	Units/Hours	**17**
Spring Semester		
MATH V21B	Calculus with Analytic Geometry II	5
PHYS V04	Mechanics for Scientists and Engineers	4
PHYS V04L	Mechanics Laboratory for Scientists and Engineers	1
Select Course: Restricted Elective		3
Select course: VCCCD GE Area Area A1		3
	Units/Hours	**16**

Year 2

Fall Semester		
MATH V21C	Multivariable Calculus	5
PHYS V05	Electricity and Magnetism for Scientists and Engineers	4
PHYS V05L	Electricity and Magnetism Laboratory for Scientists and Engineers	1
Select Course: Restricted Elective		3
Select course: VCCCD GE Area C1		3
Select course: VCCCD GE Area C2		3
	Units/Hours	**19**

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