ENGINEERING, ASSOCIATE IN SCIENCE

The Associate in Science in Engineering 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 program 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 program requires students to complete the Ventura County Community College District (VCCCD) General Education Pattern.

This is a high-unit major. Students will be able to complete the program in two years (four semesters) by taking more than **15** 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 V120A	General Chemistry I	5
ENGR V01	Introduction to Engineering	3
MATH C2210	Calculus I: Early Transcendentals	5
MATH C2220	Calculus II: Early Transcendentals	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		
List A: Select 3 to 5 units from the following:		
CHEM V120B	General Chemistry II	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 from the following:		
ENGR V02	Engineering Graphics and Design	3
ENGR V12	Engineering Statics	3
ENGR V14	MATLAB: Programming and Problem Solving	3
ENGR V16 & V16L	Electronic Circuit Analysis and Electronic Circuits Laboratory	4
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
Required Additional Units		**12-14**

Total Major Units		**45-47**

VCCCD General Education Pattern		
Required Major Units		45-47
VCCCD General Education Units		24
Double-Counted Units		(6)
Elective Units		0
Total Units for the A.S. Degree		**63-65**

This Plan of Study illustrates **one** sequence of courses to meet the degree requirements. Students are encouraged to meet with a counselor to design a plan of study which will best meet their specific educational needs.

Year 1		
Fall Semester		**Units/Hours**
CHEM V120A	General Chemistry I (VCCCD GE Area 5)	5
ENGL C1000	Academic Reading and Writing (VCCCD GE Area 1A)	4
ENGR V01	Introduction to Engineering	3
MATH C2210	Calculus I: Early Transcendentals (VCCCD GE Area 2)	5
	Units/Hours	**17**
Spring Semester		
MATH C2220	Calculus II: Early Transcendentals	5
PHYS V04	Mechanics for Scientists and Engineers	4
PHYS V04L	Mechanics Laboratory for Scientists and Engineers	1
ENGL C1001	Critical Thinking and Writing (VCCCD GE Area 1B)	3
Select Course: Restricted Elective		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 3		3
	Units/Hours	**16**
Spring Semester		
Select Course: Restricted Elective		3
Select Course: Restricted Elective		3-5
Select course: VCCCD GE Area 4		3

Select course: VCCCD GE Area 6	3
Select course: VCCCD GE Area 7	3
Units/Hours	**15-17**
Total Units/Hours	**64-66**

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.