



# Science, Technology, Engineering, and Mathematics Career and Academic Pathways (CAPs) Program Map: Skills Certificate for Programming and Problem Solving

Total number of units: 7 units

Top Code/Academic Plan: 0901.00

Updated on December 10, 2021

Semester 1	Course Code	Course	Units	Notes	Notes for Part-time students
Program Course	ENG GEN 121	<b>Programming for Engineers: C++</b>	<b>4</b>	Offered every fall semester. This course is transferrable and can also be used to obtain credit for the Programming and Problem-Solving Skills Certificate.	This course is scheduled during the late afternoon to allow students who are currently employed to complete the course after work hours.
Program Course	ENG GEN 122	<b>Programming and Problem Solving in MATLAB</b>	<b>3</b>	Offered every spring semester. This course is transferrable and can also be used to apply for entry level, student engineering internships in electrical engineering and or computer science.	This course is scheduled during the morning time to allow students who work during the afternoon time to enroll.

**Total Units 7**

## Degree Path and Requirements:

This skills certificate's requirement is 7 units. Both courses require MATH 261 as a prerequisite.

This map is a suggested term-by-term sequence of courses to complete the program in a recommended time frame. This is an efficient and recommended plan, but actual plans may vary by individual student need. This map cannot replace a meeting with [counselors](#). Students can apply for certificates as soon as the necessary courses are completed. Meet with a [counselor](#) and the [financial aid office](#) to ensure continued financial aid. Check with [financial aid](#) for eligibility.

## Department Advising Notes:

Contact Mr. Jose Ramirez for further information regarding transfer requirements for an academic educational plan in electrical engineering or computer science. In addition, please set up an appointment with a [STEM counselor](#) to obtain further information regarding the General Education requirements to transfer to schools with an electrical engineering and computer science program.

## Program Description

This skill set certificate program prepares students for an entry level, student engineering internship opportunity. Both set of courses (ENG GEN 121 & 122) require a good sense of advanced math concepts that will enhance the students understanding of engineering applications. The programming languages C++ and MATLAB are highly sought out for in industry and are considered advanced programming languages.

## Career and Transfer Opportunities

Visit the [Transfer Center](#) for transfer information, which varies based on transfer college. Make an appointment with a [counselor](#). Students can visit [Career and Job Services](#) for career counseling and further exploration. For additional resources, students pursuing a certificate can visit the [American Job Center of California](#) on ELAC main campus.

Please refer to the [careers videos](#) using the department of labor's occupational titles for the architecture and engineering sector.

In addition, you can utilize ELAC's [career coach web site](#) to discover majors and in-demand careers and education based on your interests.

## Youtube Videos

[What is MATLAB](#)

[E&T's video collection](#) (motivational, lessons learned, for entrepreneurs, calculator tips and tricks, and others)

## Program Map

A suggested sequence of classes to complete a degree, certificate, or program of study. Students should consult an academic counselor for variations to this plan based on part-time or full-time status, transfer plans, pre-requisites needed, etc.

## Prerequisite Course

A specific course that must be completed before advancing to the next course.

Check the online catalog at [elac.edu](http://elac.edu) for the latest and most accurate information.

## Contact

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