



Science, Technology, Engineering, and Mathematics

Career and Academic Pathways (CAPs)

Program Map: Associate of Science for Geo-Spatial Engineering and Technologies

Total number of units: 63 units

Top Code/Academic Plan: 0957.30

Updated on February 20, 2022

Fall Semester	Course Code	Course	Units	Notes	Notes for Part-time students
Program Course	ENG SUP 121	Land Surveying I	3	Offered every fall semester and is offered using a hybrid schedule (online lecture and face to face field work). This course also prepares you for the FE, FS, PE and PLS State of CA examination. Course offers several field activities and software demonstrations. Prerequisite includes MATH 241 (trigonometry); can be waived if student has field and office experience.	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 SUP 201	Introduction to Engineering and Technologies for Land Surveyors	2	Offered every fall semester and online. Course offers several basic techniques used in land development such as construction staking and design. Prerequisite includes ENG SUP 121. Can be waived if student is enrolled in ENG SUP 121 at the same time. Both Bentley and Autodesk software will be used.	This course will be taught online during the evening time. In addition, lectures will be archived for those that miss class.
Program Course	ENG SUP 200	Business Practices for Land Surveyors & Civil Engineers	1	This course teaches students fundamentals business practices used in technical career opportunities in land development. No Prerequisites required.	This class will be taught online and requires no special equipment. Lectures will be archived for those that miss class.
GE Course	ENGLISH 101	College Reading and Composition I	3	This course has sections that are part of the Honors Program. Check the current catalog for the section number(s). To apply for admission to the Honors Program, please visit the ELAC Counseling Center. For additional information about the Honors Program, please visit the ELAC Honors Program website or contact Dr. Bermudez at bermudn@elac.edu .	This course may have sections that include a low cost (LCT) or no cost textbook (ZTC). Check the current catalog for the section number(s). You can search for classes in the ELAC and LACCD Schedule of Classes under "Class Search Type" as "Zero Textbook Cost" or "Low-Cost Textbook Classes."
GE Course	LACCD GE Area C1		3	Student may select any course from LACCD GE Area C.	

Total Units 12

Winter Session	Course Code	Course	Units	Notes	Notes for Part-time students
Program Course	ENG SUP 224	Land Surveyor-in-Training Review Course	2	Offered online every winter and summer session. This course prepares you for the FE, FS, PE and PLS State of CA examination. Course reviews several example exams and students complete over 100 test problems. This course does not have any prerequisites.	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 185	Directed Study – General Engineering	1	This is an accelerated sponsored project. The duration of the tasks is one month. This course is best suited for those that have completed all ENG SUP courses such as 121, 221, 224, 225, 201, 202 and 200.	This course will involve a faculty advisor and company sponsorship. Credit can be potentially awarded for the State of CA, FS and PS examinations.

Total Units 3

Spring Semester	Course Code	Course	Units	Notes	Notes for Part-time students
Program Course	ENG SUP 221	Land Surveying II	3	Offered every spring semester and is offered using a hybrid schedule (online lecture and face to face field work). This course also prepares you for the FE, FS, PE and PLS State of CA examination. Course offers several advanced field activities and software demonstrations. Prerequisite includes ENG SUP 121; can be waived if student has field and office experience.	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 SUP 202	Advanced Engineering Technologies for Land Surveyors	2	Offered every spring semester and online. Course offers several basic techniques used in land development such as construction staking and design. Prerequisite includes ENG SUP 221. Can be waived if student is enrolled in ENG SUP 221 at the same time. Both Bentley and Autodesk software will be used.	This course will be taught online during the evening time. In addition, lectures will be archived for those that miss class.
Program Course	EGD TEK 102	Engineering Graphics with Introduction to Graphics Design & Technologies and 2D CAD	3	This course is also offered during the Fall semester. No prerequisites required.	
GE Course	POL SCI 001	The Government of the United States	3	This course is suggested as it also meets a CSU grad requirement should a student be interested in CSU transfer. This course has sections that are part of the Honors Program. Check the current catalog for the section number(s). To apply for admission to the Honors Program, please visit the ELAC Counseling Center. For additional information about the Honors Program, please visit the ELAC Honors Program website or contact Dr. Bermudez at bermudn@elac.edu .	This course may have sections that include a low cost (LCT) or no cost textbook (ZTC). Check the current catalog for the section number(s). You can search for classes in the ELAC and LACCD Schedule of Classes under "Class Search Type" as "Zero Textbook Cost" or "Low-Cost Textbook Classes."
GE Course		LACCD GE Area B2	3	Student may select any course from LACCD GE Area B2.	
Total Units			14		

Summer Session	Course Code	Course	Units	Notes	Notes for Part-time students
Program Course	ENG SUP 225	Boundary Control for Surveyors	2	Offered every summer semester. This course prepares you for the FE, FS, PE and PLS State of CA examination. Course offers several simple hands-on field exercises. No prerequisites are required.	This course is scheduled during the late afternoon to allow students who are currently employed to complete the course after work hours.
Total Units			2		

Fall Semester	Course Code	Course	Units	Notes	Notes for Part-time students
Program Course	EGD TEK 121	3D Computer Aided Design with SolidWorks	3	This course is also offered during the Winter and Summer semester. Prerequisite includes EGD TEK 102.	
Program Course	IND TEK 103	Technical Writing and Communication	2		
Program Course	ENG GEN 185	Directed Study - General Engineering	1		
Program Course	ARC 164	Design Software for Architecture	4	No Prerequisites. This course is college transferable at CSU level. This course teaches fundamentals in Building Information Modeling using Autodesk REVIT. Good course for drafters, civil engineers, and architects.	This course is being taught ONLINE.
GE Course		Any Elective from LACCD GE	4	Electives may be needed to assure student will have a minimum of 60 degree applicable units – see counselor to determine what electives are a good fit.	
Total Units			14		

Winter Session	Course Code	Course	Units	Notes	Notes for Part-time students
Program Course	MATH 241S	Trigonometry with Vectors with Support	4	Offered every fall, winter, spring and summer semester. This course has a prerequisite, MATH 125. This Math course will also satisfy LACCD GE Area D2 – if student is planning to transfer, may need additional math – see counselor for more information.	

Total Units 4

Spring Semester	Course Code	Course	Units	Notes	Notes for Part-time students
Program Course	ENG GEN 212	Introduction to Engineering Design	3	Offered every spring semester. Prerequisite includes EGD TEK 121; can be waived if student has field and office experience.	
Program Course	PHYSICS 011	Introduction to Physics	4	This course is offered during the fall, spring and summer semester. This course has a prerequisite, MATH 125. This Physics course will also satisfy LACCD GE Area A – if student is planning to transfer, may need additional math – see counselor for more information. This course has sections that are part of the Honors Program. Check the current catalog for the section number(s). To apply for admission to the Honors Program, please visit the ELAC Counseling Center. For additional information about the Honors Program, please visit the ELAC Honors Program website or contact Dr. Bermudez at bermudn@elac.edu .	
GE Course	HEALTH 002	Health and Fitness	3	This course is recommended as it covers both LACCD GE Area E1 and E2.	
GE Course		Any Elective from LACCD GE	4	Electives may be needed to assure student will have a minimum of 60 degree applicable units – see counselor to determine what electives are a good fit.	

Total Units 14

Degree Path and Requirements:

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.

Skills Certificate requirements is 6 units. Note that the prerequisite course for ENG SUP 121 is Math 241. This can be waived if a student has field and office experience.

Department Advising Notes:

Contact [Dr. Humberto A. Gallegos](#) for further information regarding transfer requirements for an academic educational plan in geospatial engineering and technologies and information regarding career technician career pathways. 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 a geospatial engineering and technologies program.

This plan is using the LACCD GE pattern option, however, there are others that can be used that will also include transfer GE requirements; see a counselor for more details.

Program Description

The Geo-Spatial Engineering & Technologies (GSET) mission is to enhance student's hands on skill sets, networking opportunities, and offer advanced forms of training regarding field equipment and software used in land development and research-oriented projects in civil and geomatics engineering and technologies. GSET offers several certificates of achievements, skill sets, and associate of science degrees in land surveying, geospatial engineering and technologies, and flood mapping. GSET is also structured to offer articulated courses in civil engineering.

Career and Transfer Opportunities

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 website](#) to discover majors and in-demand careers and education based on your interests.

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.

Youtube Videos

[GSET's marking video](#)

[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 for the latest and most accurate information.

Contact

Dr. Humberto A. Gallegos

Department Chair

gallegha@elac.edu

323-265-8832