

**PROGRAM APPROVAL APPLICATION**  
**NEW or SUBSTANTIAL CHANGE or LOCALLY APPROVED**  
**(This application may not exceed 3 pages)**

**Fill In Form**

Geospatial Engineering and Technologies

Proposed Program Title

Fall 2016

Projected Program Start Date

East Los Angeles College

College

Los Angeles Community College District

District

**Contact Information**

Christopher Whiteside

Voting Member

Dean of Career and Technical Education

Title

323-265-8640

Phone Number

whitescj@elac.edu

Email

**Goal(s) of Program (Check all that apply):**

Career Technical Education (CTE)       Transfer       Other

**Type of Program (Check all that apply):**

Certificate of Achievement 12-17 (or 17-27 quarter) units       Certificate of Achievement 18+ semester (or 27+ quarter) units  
 Associate of Science Degree       Associate of Arts Degree

**Reason for Approval Request (Check One):**

New Program       Substantial Change       Locally Approved

**Program Information**

Surveying 0957      Recommended [Taxonomy of Program \(TOP\) Code](#)

19      Units for Major-Degree

49      Total Units for Degree

14      Required Units-Certificate

**Written Form**

**1. Insert the description of the program as it will appear in the catalog. (See PCAH pp. 142 and 170)**

The Geospatial Engineering and Technologies (GSET) program at ELAC is structured to produce qualified geospatial engineering technicians by offering relevant technical courses and business practices primarily in land surveying, but also in civil and geospatial engineering. What sets GSET's program apart from other similar community college programs is its state of the art equipment and facilities to perform practical and advanced forms of design and analysis for land surveying and civil engineering land development projects. GSET's student learning outcomes include field applications and practical & advanced math topics, and the usage of technology in land surveying and civil engineering practices. Prerequisite skills include a basic understanding of geometry and trigonometry, and a desire to be part of a community of practice of land surveyors and geospatial engineering technicians that enhances the profession. Professionals and technicians can be employed in a variety of settings, including private businesses and government agencies. Upon completion, students obtain careers as a professional land surveyor or technician, a cartographer or a photogrammetrist, or a civil engineering technician. The program offers two skills set certificates (5

units), a certificate of accomplishment (14 units), and an associate of science degree (19 units). In addition, GSET provides a preparatory course for the National Council of Examiners for Engineering and Surveying (NCEES), Fundamentals of Surveying (FS) exam, which if passed successfully, leads to an increase in the likelihood of job placement with public, private and non-profit organizations. In addition, GSET also provides a cooperative education work experience course in land surveying, civil and geospatial engineering.

**2. Provide a brief rationale for the program.**

The rationale for the program are three folds. First, GSET will mitigate for the increase number of professional land surveyors retiring or scheduled for retirement in the next few years. For example, the California Land Surveyors Association’s (CLSA) mission statement is to promote, enhance, and to elevate the public’s understanding of the profession ([www.californiasurveyors.org](http://www.californiasurveyors.org)). To date, CLSA has been an active supporter of GSET through their generous contributions by way of scholarships and their annual high school mathematics competitions titled Trigstar. The purpose of these activities is to build an awareness of land surveying and mapping as a profession and to earn awards. Two, GSET is strategically located in the City of Monterey Park near Los Angeles which is the largest city in the State of CA, and the second largest in the country. GSET is therefore set to serve, widely, the community of practicing land surveying and civil engineering technicians in its vicinity; and, according to the California Labor Market Information and the Department of Labor, surveying and mapping technician jobs are expected to rise 8 and 14 percent, respectively. In addition, students have the option of enrolling at two community colleges outside of our region to obtain skill sets in land surveying. The first community college is College of the Canyons which is located approximately 40 miles from ELAC. The second community college is Santiago Canyon College which is located approximately 35 miles from ELAC. These colleges collectively produced an average of 46 completers (certificate of accomplishment: 18-30 units) from 2008-2012. And finally, GSET has established a transfer pathway relationship with transfer colleges such as Oregon Institute of Technology, CSU Fresno State & Pomona, and Purdue University. Therefore, students seeking to advance their knowledge in land surveying and geospatial engineering and technologies can continue taking courses through GSET to earn credit towards a bachelor and a master of science in land surveying. GSET continues to be supported by the California Land Surveyors Association (CLSA), City of Los Angeles Public Works – Bureau of Engineering, and the League of California Surveying Organizations (LCSO).

**3. Summarize the Labor Market Information (LMI) and employment outlook (including citation for the source of the data) for students exiting the program. (See PCAH pp. 85-88, 136, 147, 148, 165, 168, and 176)**

The labor market information and employment outlook for students completing the Geospatial Engineering and Technologies program is tailored, mainly, for CTE occupations in: (1) Cartography and Photogrammetry, (2) Land Surveying and Mapping Technician jobs, and, (3) Professional Land Surveyors. The following table describes the labor market information and employment outlook according to EMSI (queried: Los Angeles and Orange County (LA-OC) openings, Source: EMSI 2015 Report.) In addition, in 2016 there were 72 openings and 36 replacements in LA-OC across these three occupations and 2 AS and 18 Certificate of Completers (CC) in total per year across the LA-OC region. This indicates demand is not fully being met. In summary, the projected job growth, the annual gap between LA-OC openings & replacements, and AS and CC completers, the strong median wage (one of the highest in the nation), and the support from public and private agencies, and the academic institution support for GSET, demonstrate the need for ELAC to add this degree to their program options.

Source	SOC	Occupation	2012 Jobs	2022 Jobs	2012-2022 Change	2012-2022 % Change	Median Hourly Earnings, \$	Annual Openings
EMSI	17-3031	Surveying & Mapping Technicians	791	912	121	15	32.48	29
EMSI	17-1021	Cartography & Photogrammetry	218	282	64	29	34.67	13
EMSI	17-1022	Surveyors	698	798	100	14	40.8	30

**4. List similar programs at other colleges in the Los Angeles and Orange County Region which may be adversely impacted. (There is space for 10 listings, if you need more, please contact [laocrc@sccollege.edu](mailto:laocrc@sccollege.edu))**

College	Program	Who You Contacted	Outcome of Contact
<u>Santiago Canyon College</u>	<u>Surveying/Mapping Sciences</u>	<u>Don Mertens (chair)</u>	<u>In support of program</u>
<u>College of the Canyons</u>	<u>Land Surveying</u>	<u>Regina Blasberg (chair)</u>	<u>In support of program</u>
<u>Rio Hondo</u>	<u>GIS</u>	<u>Dean Mike Slavich</u>	<u>In support of program</u>
<u>Pierce College</u>	<u>GIS</u>	<u>CTE Dean</u>	<u>In support of program</u>

**5. List all courses required for program completion, including core requirements, restricted electives and prerequisites. (There is space for 20 listings, if you need more, please contact [laocrc@sccollege.edu](mailto:laocrc@sccollege.edu)). (See PCAH pp. 143 and 171)**

Courses	Course Number	Course Title	Units
Engineering Support	121	Land Surveying I	3
Engineering Support	221	Land Surveying II	3
Engineering Support	224	Land Surveyor-in-Training Review Course	2
Engineering Support	225	Boundary Control	2
Engineering Support	102	Introduction to Technologies for Land Surveyors	2
Engineering Support	103	Advanced Technologies for Land Surveyors	2
Engineering Support	101	Business Practices for Land Surveyors, Civil Engineers & Technicians	2
General Engineering	931	Cooperative Education	3
<b>Total</b>			<b>19</b>

**6. Include any other information you would like to share.**

To date, students from the Engineering & Technologies department at ELAC have been active performing student outreach activities pertaining to land surveying at different high schools (e.g. Oscar De La Hoya Animo & Mark and Eva Stern Math and Science H.S.) while attending the CLSA state meetings in Oakland in order to maintain their charter standing with CLSA. Currently, ELAC has a student surveying club chartered by CLSA. In addition, for the past three years, ELAC students have been attending the CSU Fresno State Geomatics Engineering Conference (GEC) in Clovis, CA, and last year they attended the CSU Pomona surveying conference. The intent of their participation at these conferences is to network and to further enhance their understanding of land surveying principles and its applications. In terms of graduate degree pathways, we are excited to send you letters of support for GSET from two prestigious colleges offering bachelors and master's degrees in land surveying, Oregon Institute Technology and Purdue University. Furthermore, professional land surveying organizations in support of GSET include: California Land Surveyors Association, City of Los Angeles, Department of Public Works, Bureau of Engineering, California Department of Transportation, and the League of California Surveying Organizations. GSET is committed to enhance and promote the land surveying profession, and to assist ELAC students to reach their goals in becoming professional land surveyors.

Please see letters of support from:

1. CSU Fresno State, Dr. Riadh Munjy, PhD, PE, Chairman of Civil and Geomatics Engr. Dept.,
2. CSU Pomona, Dr. Francelina A. Neto, PhD, PLS, Past Dept. Chair, Professor, Civil Engr. Dept.,
3. Purdue University, Jim Bethel, Associate Professor, Civil Engr. Dept.,
4. Oregon TECH, Jack Walker, Chair, Geomatics Dept.,
5. California Land Surveyors Association, Erik Bowers, PLS, President-Los Angeles Chapter,
6. City of Los Angeles, Dept. of Public Works, Bureau of Engr., Tony Pratt, PLS, City Survey Chief, retiree,
7. George Prida, PLS, Ca. Dept. of Transportation,
8. Kurt Lehnhardt, PLS, Party Chief, Ca. Dept. of Transportation, Ventura Regional Survey Office,
9. League of Ca. Surveying Organizations, Thomas Herrin, Chair, PLS,
10. Employer Survey Data,
11. 2014 minutes