

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

**Fill In Form**

GIS Certificate of Achievement and A.A. Degree

Proposed Program Title

Los Angeles Pierce College

College

August 2016

Projected Program Start Date

Los Angeles Community College District

District

**Contact Information**

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Dean, Academic Affairs - CTE

Voting Member

Title

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Phone Number

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**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**

0708.10 Recommended [Taxonomy of Program \(TOP\) Code](#)

24 Units for Major-Degree

60 Total Units for Degree

18 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)**

This program gives students skills and knowledge needed to either enter, or advance their careers in Geographic Information Systems in today's job market. The program is intended to provide students with both theory and practical experience for many possible applications and fields.

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

One of Pierce's missions is to train students for the workforce. GIS does exactly that. According to the U.S. Department of Labor, geospatial technology, including GIS, is one of the main emerging and evolving job fields in

the U.S. with enormous growth potential. The GIS program at Pierce offers students the opportunity to learn technical skills that can be applied in a multitude of occupations, such as crime analysis and architecture.

Our GIS advisory committee convened in 2014 and 2015 and strongly recommended a Certificate of Achievement and an Associate of Arts Degree in GIS. In collaboration with industry, the department has developed course work that can lead to either a certificate or an A.A. degree in GIS. The certificate and A.A. Degree will expand the program and offer an option for students looking to update their geospatial skills and enhance their marketability in the workforce. The committee suggested that upon completion of the A.A. degree in GIS students would gain proficiency with ArcGIS software, knowledge of databases and visual programming, and skills in cartographic design.

The lack of breadth in GIS courses and state approved Certificate of Achievement programs at other campuses leaves Pierce in an ideal position to offer more comprehensive GIS options. Colleges that have similar yet uniquely different state approved certificates are geographically distant from Pierce and not convenient for students to attend. This document is in support of converting a departmental Skills Certificate to a state approved Certificate of Achievement and A.A. Degree and does not reflect a change in programs or courses being offered, but only the status conversion of an existing program. This certificate is synergistically placed in our curriculum so that it can serve as a stepping-stone towards an A.A. Degree in GIS.

### 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 Employment and Training Administration has invested over \$8,367,110 in the geospatial industry.
- At a national level, the U.S. Department of Labor, Bureau of Labor Statistics reports that employment of surveyors, cartographers, and surveying and mapping technicians is expected to grow 20% from 2012 to 2022, which is faster than the average for all occupations (<http://www.bls.gov/ooh/architecture-and-engineering/cartographers-and-photogrammetrists.htm>).
- At a California level, the employment project for Cartographers and Photogrammetrists is 35%; average mean salary is \$69, 118 (<http://www.labormarketinfo.edd.ca.gov/OccGuides/Search.aspx>).
- As discussed in the aforementioned section, this degree has relevance in a number of occupations. However, the Los Angeles County regional demand for occupations specific to this degree demonstrates a regional need. These occupations include: Surveyors (SOC 17-1022), Surveying and Mapping Technicians (SOC 17-3031), and Cartographers and Photogrammetrists (SOC 17- 1021).

SOC	Description	2012 Jobs	2022 Jobs	2012 - 2022 Change	2012 - 2022 % Change	Median Hourly Earnings
17-1021	Cartographers and Photogrammetrists	218	282	64	29%	\$33.01
17-1022	Surveyors	698	798	100	14%	\$38.35
17-3031	Surveying and Mapping Technicians	791	912	121	15%	\$31.19
		1,707	1,992	285	17%	\$34.38

In 2014 there were 135 regional openings across these three occupations and 67 regional completions (CIP 45.0702 and 15.1102) indicating demand is not fully being met.

In summary, the 17 percent projected job growth (285 jobs), annual gap between regional openings and completions, strong median wage (\$34.38), and global occupational use of the skill competencies in the degree, demonstrate the

need for Los Angeles Pierce College to add this degree to their program options. Source: EMSI 2015 (third quarter, class of worker).

**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
Rio Hondo College	GIS Certificate of Achievement	Whittier: Warren Roberts	No impact
Cypress College	GIS/Marketing Certificate	Cypress: Les Doak	No impact

**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 No.	Course Title	Units
<b>A.A. Major – Required Courses:</b>			
Comp Science and Information Tech	CSIT 501	Introduction to Computers and Their Uses	3
GIS (cross-listed with Geography)	GIS 25 or GEOG25	Introduction to GIS and Laboratory	4
GIS (cross-listed with Geography)	GIS 33 or GEOG33	Intermediate GIS Applications: ArcView	3
GIS (cross-listed with Geography)	GIS 36 or GEOG36	Cartography and Base Map Development	3
GIS (cross-listed with Geography)	GIS 37 or GEOG37	Introduction to Global Positioning Systems	1
GIS (cross-listed with Geography)	GIS 38 or GEOG38	Spatial Analysis and Modeling	3
GIS (cross-listed with Geography)	GIS 40	GIS Internship	1
Comp Science and Information Tech	CSIT 533	Databases Using Access and SQL	3
<b>Elective Courses: select min of 3 unit:</b>			
Geography	GEOG 1	Introduction to Physical Geography	3
Comp Application and Office Tech	CAOT 85	Microcomputer Office App.: Spreadsheet	3
Comp Application and Office Tech	CAOT 86	Microcomputer Office Application: Database	3
Architecture	ARC 162	Computer-Aided Design & Drafting	3
Engineering, General	ENG GEN 101	Introduction to Science, Engineering, and Technology	2
<b>Total</b>			<b>24</b>

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

Since the financial requirements of this program will not change as a result of the state approval of the certificate, there is no financial impact. It is an existing program with existing funding from multiple sources that include the campus budget and VTEA/Perkins funding. Due to the increasing demand for skilled workers in GIS related fields, it is expected that the program will be fully enrolled. With expansion of the section offerings, this would mean approximately 60 students per semester, with 20 completers per year between the Certificate and A.A. Degree programs.