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PROGRAM APPROVAL APPLICATION

NEW or SUBSTANTIAL CHANGE or LOCALLY APPROVED

(This application may not exceed 3 pages)

Fill In Form

Engineering Technology Proposed Program Title	2016 - 2017 Projected Program Start Date
Long Beach City College College	Long Beach Community College District District

Contact Information

Mollie Smith Voting Member	Dean, School of CTE Title
(562) 938-3057 Phone Number	msmith@lbcc.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

0956.00	Recommended Taxonomy of Program (TOP) Code
21.5-24	Units for Major-Degree
60	Total Units for Degree
21.5-24	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)**

Mission:

The engineering technology program prepares students for transfer to university engineering technology programs and for employment in technical fields, by completing the certificate requirements, students acquire a foundation in the principles of engineering, engineering design, digital electronics, automated manufacturing, and the application of math and science in technical fields.

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Outcomes:

- Demonstrate the ability to interpret mechanical electronic engineering drawings and specifications
- Apply principles of engineering technology to design problems and constraints.
- Create simple control circuits using digital electronics for engineering technicians.
- Create programs to use automation tools and equipment.

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2. Provide a brief rationale for the program.

Through the CCPT funded AMETLL (Advanced Manufacturing Engineering Technology Linked Learning) project, Long Beach City College has created the engineering technology program to establish a new workforce pipeline in our area for furthering education and to support industry's need for trained technicians. Working closely with our industry partners and local school districts, the engineering technology program is another step towards developing pathways which begin in high school and continue through a 4-year degree and employment for the Long Beach and surrounding communities.

The program provides training through Project Lead The Way curriculum and enables students to complete coursework while in high school through dual enrollment or credit by exam. The program includes a course in basic engineering technology, and elective coursework in advanced manufacturing technologies including robotics, computer aided design/drafting, welding, and metal fabrication to provide a well-rounded set of employer-valued skills for program completers.

Degree or certificate completers will be qualified for entry-level employment in a variety of related fields or be well prepared, with additional coursework in our traditional engineering program, for transfer to 4-year programs.

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 engineering technology program will lead to a number of employment opportunities for students. Careers in the field include Aerospace Engineering Technician (17-3021), Electronics Engineering Technician (17-3023), Electro-mechanical Technician (17-3024), Industrial Engineering Technician (17-3026), Mechanical Engineering Technician (17-3027), and Engineering Technicians other (17-3029). Typically, an Associate degree is required for entry-level employment, however, many employers will accept a certificate of achievement.

There were 14,736 jobs in 2014, growing to 14,777 in 2017, a .3% increase. There are job declines of 3.5% projected in the aerospace sector from 2014 to 2017. Aerospace is a cyclical sector and the Los Angeles region, home to the largest aerospace sector in the nation, is affected by changes in defense spending and relocation of defense contractors to out-of-state areas. The space-craft sub-sector is hiring with Space X (Hawthorne CA) at 49 active job postings for engineering technicians, and Virgin Galactic (Long Beach CA) with 19 active postings. From 2014 to 2017, there are 1,318 openings for the above listed jobs with 439 annual openings. The median wage is $28.68 per hour, with entry-level wages near $17.80 per hour.

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From 2013-14 through 2014-15, there were 126 annual completions from community colleges in the region. Supply and demand data indicates a regional needs and supports approval of new program in the region.

EMSI Oct 2016

Space X – Hawthorne, Engineer Technician Job Openings (click on link to access, then click "search")

Virgin Galactic – Engineering Technician Job Openings, Long Beach and Mojave

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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)

College	Program	Who You Contacted	Outcome of Contact
Cerritos College	Engineering Tech	Real	No response
ELAC	Engineering Tech	Whiteside	No response
El Camino College	Engineering Tech	Rapp	No response
Pasadena City College	Engineering Tech	Davila	No Response
Santa Ana College	Engineering Tech	Hoffman	No response

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). (See PCAH pp. 143 and 171)

Courses	Course Number	Course Title	Units
REQUIRED COURSES			
Technology	TEC 10	Introduction to Engineering Technology	1
	TEC 20	Introduction to Engineering and Design	3
	TEC 30	Principles of Engineering Technology	3
	TEC 40	Electronics for Engineering Technology	3
Metal Fabrication	MTFAB 90	Computer Integrated Manufacturing	3
ELECTIVES - 3 courses minimum			
Technology	TEC 200	Engineering Design and Development	3
Mechanical Drafting/CAD	DRAFT 51A	Industrial Draft I	3
Electrical Technology	ELECT 230A	Robotics Technology – Design	3
Machine Tool Technology	MACHT 50	Machine Tool Operations	3

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Metal Fabrication	MTFAB 50	Introduction to Metalworking	4
	MTFAB 280	Introduction to Robotic Welding	2.5
Welding	WELD 50	Introduction to Welding	4

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