

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

Fill In Form

Coordinate Metrology

Proposed Program Title

Cerritos College

College

Cerritos

District

Fall 2015

Projected Program Start Date

Nick Real

Voting Member

Instructional Dean

Title

562-860-2451 ext 2903

Phone Number

yreal@cerritos.edu

E-mail Address

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

Career Technical Education (CTE)

Transfer

Other

Type of Program (Check all that apply):

A.S. Degree

A.A. Degree

Certificate of Achievement:

18+ semester (or 27+ quarter) units

12-18 semester (or 18-27 quarter) units

Reason for Approval Request: (Check One)

New Program

Substantial Change

Locally Approved

Program Information

Recommended Taxonomy of Program (TOP) Code 0956.30

Units for Major-Degree N.A.

Total Units for Degree N.A.

Required Units-Certificate 17.5

Written Form

1. Insert the description of the program as it will appear in the catalog.

The Machine Tool Technology program prepares students for entry level employment in technical fields and transfer to Engineering Technology programs. By completing one of the certificates or degree, students acquire knowledge of the fundamentals of machine tool technology. The certificate of achievement in coordinate metrology prepares students to work with Coordinate Measuring Machines (CMMs). Those machines are either used during fabrication or machining to assist the machinist, after the fact when the first article is produced, or post production when the part is completed.

Career Opportunities: Upon completion of the courses, employment is available in manufacturing companies where Coordinate Measuring Machines are utilized. Typical job titles can include but are not limited to: Aerospace engineering and operations technicians, Engineering technicians, Surveying and mapping technicians, Computer controlled machined operators, Computer numerically controlled machine tool programmers, Machinists, and Inspectors.

2. Provide a brief rationale for the program.

Cerritos College has a long tradition of offering classes in Machine Tool Technology. We have offered an AA transfer degree in Machine Tool Technology since 1964 (Unique code 09953 at the Chancellor's office). Separate options within the major resulted in four additional unique codes between 2005 and 2012. Those were in the categories of machinist, numerical control machine operator, numerical control tool programmer and tool and die maker. We were approached by industry to offer a class in computer assisted inspection in 2008. That class has been taught continuously for six years now. We have since created two additional classes in computer assisted inspection. Together with our existing classes in blueprint reading, geometrical dimensioning, shop math and quality systems, we are able to offer a certificate of achievement valuable to industry. We are therefore creating a new certificate of achievement. There is and always has been high demand for Cerritos College Machine Tool Technology candidates but the complexity of most private industry companies today require them to be polyvalent and to have competences in multiple disciplines. The proposed certificate with its coordinate metrology emphasis will meet this need.

3. List all courses required for program completion, including core requirements, restricted electives and prerequisites. (Push Enter after each entry to begin a new line)

Courses	Course No.	Course Title	Units
Click here to enter text.	ENGT116	Blueprint Reading	2
	ENGT117	Geometric Dimensioning and Tolerancing	2
	MTT56	CNC Shop Inspection	2
	MTT50	CNC Shop Math	3
	MTT68	Computer Assisted Inspection using Verisurf	2
	NPD102	Quality Systems for New Product Development	3
	MTT168	Advanced Computer Assisted Inspection using Verisurf	2
	MTT78	Tool Building Using Verisurf	1.5

4. Summarize the Labor Market Information and employment outlook (including citation of the source of the data) for students exiting the program.

The proposed certificate has several corresponding classifications in the Department of Labor's US bureau of Labor Statistics. They are to be found under category 17-3000 (Drafters, Engineering Technicians, and Mapping Technicians) and 51-0000 (Production Operations). EDD (www.labormarketinfo.edd.ca.gov) provides us with the following data.

SOC Code*	Occupational Title	2020	New Jobs	Replace-ment Needs	Total Jobs	Median Hourly
17-3021	Aerospace Engineering and Operations Technicians	760	0	16	16	\$31.75
17-3029	Engineering Technicians, Except Drafters, All Other	1,990	22	34	56	\$29.94
17-3031	Surveying and Mapping Technicians	340	3	6	9	\$31.28
51-4011	Computer-Controlled Machine Tool Operators	3,760	70	58	128	\$16.23
51-4012	CNC Machine Tool Programmers	900	14	14	28	\$25.88
51-4041	Machinists	10,790	160	169	329	\$17.35
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	14,550	131	288	419	\$16.57

As a current subscriber of EMSI (Economic Modeling Specialists Inc. <http://www.economicmodeling.com/>), the Cerritos Community College District was able to corroborate the info from EDD. Here are the findings for Los Angeles and Orange Counties.

SOC	Occupation	2016 Jobs	Openings (3-year)	Annual Openings	Pct 10 Hourly Earnings	Median Hourly Earnings
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	21,045	1,608	536	\$10.23	\$16.99
51-4041	Machinists	15,971	1,584	528	\$10.37	\$17.71
51-4011	Computer-Controlled Machine Tool Operators	5,597	647	216	\$10.86	\$17.22
51-4012	CNC Machine Tool Programmers	1,530	223	74	\$15.05	\$25.91
17-3029	Engineering Technicians, Except Drafters, All Other	2,332	189	63	\$17.59	\$29.04
17-3031	Surveying and Mapping Technicians	962	128	43	\$19.88	\$26.96
17-3021	Aerospace Engineering and Operations Technicians	967	65	22	\$22.00	\$31.05

A survey was administered to the members of the advisory committee and industry contacts in the southern California region. The survey became live on October 6th 2014 and was closed on October 9th 2014. The results of the survey indicated that the curriculum listed on the course descriptions would adequately prepare students for an entry level job in the field. The survey also confirmed the job openings projected by EWD and EMSI.

The Certificate of Achievement in Coordinate Metrology has been established as a result of industry input and collaboration. Industry leaders have shared the challenge of being able to recruit students that have a good technical preparation for advanced jobs in industry. Their request is what drove the machine tool technology department of Cerritos College to offer the classes in coordinate metrology. Employers listed in the advisory committee also routinely hire graduates of Cerritos College for entry level positions. They also consistently offer plant visits for the students. Internships are however not usually offered for this field of study.

- List similar programs at other colleges in the Los Angeles and Orange County Region which may be adversely impacted. (Push Enter after each entry to begin a new line)

College	Program	Who you Contacted	Outcome of Contact
El Camino	Machine Tool Technology	Virginia Rapp	No Response
Fullerton	Machine Tool Technology	Scott McKenzie	Sees no conflict
Glendale	Machine Tool Technology	Jan Swinton	No Response
LA Pierce	Machine Tool Technology	Jose Luis	No Response
LA Trade Tech	Machine Tool Technology	Nicole Albo-Lopez	No Response
LA Valley	Machine Tool Technology	Laurie Nalepa	No Response
Orange Coast	Machine Tool Technology	Von Lawson	No Response
Pasadena City	Machine Tool Technology	Salomon Davila	Sees no conflict
Santa Ana	Machine Tool Technology	Bart Hoffman	Sees no conflict

- Include any other information you would like to share.
[Click here to enter text.](#)