

CTE Program Narrative

NAME OF COLLEGE: San Joaquin Delta College

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DATE: 4/20/2016

DIVISION: Applied Science, Business, and Technology

FACULTY: Joseph Mac Isaac

PROGRAM NAME: Machining Technology

REASON FOR APPROVAL REQUEST (Check One):

- New Program Proposal
- Program Revision Proposal (Substantial or TOP Code Changes)
- Locally Approved

TYPE OF DEGREE:

- Certificate of Achievement
- Associate of Arts
- Associate of Science
- Associate of Arts for Transfer
- Associate of Science for Transfer
- Other

TRANSFER APPLICABILITY: Yes No

ATTACHMENTS/INFORMATION REQUIRED:

Labor/Job Market Data and Analysis
Advisory Committee Meeting Minutes
List of Advisory Committee Members
Employer Survey, if applicable

1. Statement of Program Goals and Objectives

Identify the goals and objectives of the program. For CTE programs, the statement must include the main competencies students will have achieved that are required for a specific occupation. The statement must, at a minimum, clearly indicate the specific occupations or fields the program will prepare students to enter and the basic occupational competencies students will acquire.

If the program is selective, describe relevant entry criteria and the selection process for admission to the program. Specify all mandatory fees that students will incur for the program aside from the ordinary course enrollment fee.

The objective of this new program is to offer students additional opportunities to gain skills and knowledge in the Advanced Manufacturing industry. This program will address specific occupational training needs. Students will learn the skills necessary to start a career in Advanced Manufacturing using manual and/or computerized manufacturing equipment. Students that successfully complete the program can go on to work as CNC machine tool operators, CNC machine tool programmers, CNC Machinists, Quality Control Technicians, Tool and Die Apprentices, Mold Maker Apprentices, and Manual Machinists. In addition to new students gaining skills necessary for a career in Advanced Manufacturing, existing career employees can update/upgrade their skills.

2. Catalog Description

Enter exactly as it will appear in the catalog, including program outcomes. The description must also

- *Convey the certificate's goals(s) and objectives*
- *Provide an overview of the knowledge and skills that students who complete the requirements must demonstrate (student learning outcomes)*
- *List all prerequisite skills or enrollment limitations*
- *Mention any risks, such as occupations that are inherently competitive or low-salaried and/or occupational areas where inexperienced graduates are not generally hired.*
- *For CTE programs, the description must list the potential careers students may enter upon completion.*
- *Convey what the student may expect as an outcome*

If applicable, reference accrediting and/or licensing standards. If there is a widely recognized certification provided by a professional association, specify whether the program will fully prepare completers for the recognized professional certification.

Upon successful completion of the Machining Technology Associate in Science Degree the student will demonstrate skills, knowledge and training for entry-level positions in a variety of Advanced Manufacturing industries including machine shops, metal fabrication shops, tool and die shops, mold making shops, research and development laboratories, industrial maintenance or millwright positions, and apprenticeships in these fields. The student will demonstrate safe and proper set up and operation of manual, and Computer Numerically Controlled (CNC) machine tools. These include Lathes, Milling Machines, 3D Printers, Grinders, Saws, and Drill Presses. Students will utilize Computer Aided Drafting (CAD), and Computer Aided Machining (CAM) software systems to fabricate parts using CNC machine

tools and tools used in Additive Manufacturing. Students will also demonstrate the ability to read and operate inspection tools commonly used in the machining industry. The student will demonstrate his or her ability to apply mathematics, problem solving skills, communication, and machining techniques to the manufacturing process.

Program Learning Outcomes

1. Upon successful completion of this program, the student will be able to:
2. 1. Use safe work practices to perform activities while participating in the fabrication process.
3. 2. Interpret and verify 2D mechanical drawings, and 3D CAD models used in the fabrication process.
4. 3. Properly select, setup, and operate machine tools used in the fabrication process.
5. 4. Create G-Code programs from mechanical drawings, and 3D CAD models.
6. 5. Use inspection tools to dimensionally inspect fabricated parts.

3. Program Requirements

The program requirements must be consistent with the catalog description. The number of units, specific course requirements and the sequence of the courses must be coherent, complete and appropriate. Display the program requirements in a table format that includes all courses required for completion of the program (core requirements and required or restricted electives), subtotal of core units, and total program units. For each course, indicate the course department number, course title, and unit value.

Display of Program Requirements

	Course	Title	Units	
Core Courses	E TECH 012	Computer Aided Drafting		3
	E TECH 022	Three Dimensional Modeling		3
	MECH 070A	Elem. Machine Shop I		3
	MECH 070B	Elem. Machine Shop II		3
	MECH 073A	Machine Shop I		3
	MECH 073B	Machine Shop II		3
	MECH 074A	Computer Numerical Controlled Machining I		3
	MECH 074B	Computer Numerical Controlled Machining II		3
	MECH 076A	Computer Aided Machining I		3
	MECH 076B	Computer Aided Machining II		3
Restricted elective – Complete 4 units selected from:	MECH 081	Metal Trade Layout & Forming	5	4
	WELD 010	Basic Welding for the Trades	4	
		Minimum Major Units Required		34
		Local GE pattern		24
		Electives		2

		Total Units Required for Degree		60
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Display of Proposed Sequence

First Semester	Units
ETECH 012	3.0
MECH 070A	3.0
MECH 070B	3.0
GE Course	3.0
GE Course	3.0
Total	15.0

Second Semester	Units
ETECH 022	3.0
MECH 073A	3.0
MECH 073B	3.0
GE Course	3.0
GE Course	3.0
Total	15.0

Third Semester	Units
MECH 074A	3.0
MECH 074B	3.0
WELD 010	4.0
GE Course	3.0
GE Course	3.0
Total	16.0

Fourth Semester	Units
MECH 076A	3.0
MECH 076B	3.0
GE Course	3.0
GE Course4	3.0
Elective	2.0
Total	14.0

Proposed Sequence

	Major Units	GE Units	Elective Units	
Year 1, Fall	9.0	6.0		
Year 1, Spring	9.0	6.0		
Year 2, Fall	10.0	6.0		
Year 2, Spring	6.0	6.0	2.0	
Total	34.0	24.0	2.0	60

4. Master Planning (Background and Rationale)

Given the stated goals and objectives, address the role the proposed program will fulfill in the college’s mission and curriculum offerings. This discussion may include some history of the program proposal origins, a description of the program purpose, and/or the program’s relevancy for the region and college.

The proposal must demonstrate a need for the program that meets the stated goals and objectives in the region the college proposes to serve with the certificate. A proposed new certificate must not cause undue competition with an existing program at another college.

If any expenditures for facilities, equipment or library and learning resources are planned, please explain the specific needs in this section.

If the program is to be offered in close cooperation with one or more specific employers, a discussion of the relationship must be provided.

The Machining Technology Associate in Science Degree at San Joaquin Delta College centers on teaching students the core skills needed for a career in Advanced Manufacturing as well as the general education requirements to create a well-rounded individual. The degree supports District Strategic Goal (#4) to work with industry partners to enhance and reinvigorate CTE programs and offerings. This new degree program provides students with additional skills needed for attaining and advancing in manufacturing jobs. Curriculum content has been selected from industry input. This input comes in the form of Advisory Committee input, and Instructor visits to local businesses. A common need for entering employees is to have a high technical skill level as well as written and verbal communication abilities. The AS Degree addresses both of these needs through instruction of technical and GE courses. Students attain skills using state of the art equipment and simulators while working on real world scenarios.

5. Need for Program

a. Enrollment and Completer Projections

Address and justify the number of projected students or “annual completers” to be awarded the certificate each year after the program is fully established.

Year		2012-2013		2013-2014	
CB01: Course Department Number	CB02: Course Title	Annual Number of Sections	Annual Enrollment Total	Annual Number of Sections	Annual Enrollment Total
MECH 070A	Elem. Machine Shop I	0	*N/A	4	36
MECH 070B	Elem. Machine Shop II	0	*N/A	4	18
MECH 073A	Machine Shop I	0	*N/A	4	9
MECH 073B	Machine Shop II	0	*N/A	3	7

MECH 074A	Computer Numerical Controlled Machining I	0	*N/A	3	14
MECH 074B	Computer Numerical Controlled Machining II	0	*N/A	3	9
MECH 076A	Computer Aided Machining I	0	*N/A	2	8
MECH 076B	Computer Aided Machining II	0	*N/A	2	9
ETECH 012	Computer Aided Drafting	2	50	6	137
ETECH 022	Three Dimensional Modeling	2	11	2	23

Annual Completers – Projected: 3

b. Labor Market Information (LMI)

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

Enter table or chart as a separate attachment.

See Supporting Documentation below

c. Employer Survey (if applicable)

When strong LMI data is not available, an employer survey may be submitted. Provide a copy of the survey, including the number of those surveyed, number of responses, and a summary of the results. The survey must address the extent to which the proposed degree or certificate will be valued by employers.

Not applicable

6. Place of Program in Curriculum/Similar Programs

Review the college's existing program inventory, then address the following questions:

- Do any active inventory records need to be made inactive or changed in connection with the approval or the proposed program? If yes, please specify.*
- Does the program replace any existing program(s) on the college's inventory? Provide relevant details if this program is related to the termination or scaling down of another program(s).*
- What related programs are offered by the college?*

The proposed AS degree program is new. It does not replace or update any existing programs at San Joaquin Delta College. Currently, the Machine Tool Technology program at Delta offers two certificates of achievement.
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7. Similar Programs at Other Colleges in Service Area

List similar programs offered at other colleges within the Central/Mother Lode Region that may be adversely impacted. Enter 'none' if there are no similar programs.

College	Program
None	

The Machining Technology Associates in Science Degree will not impact any other colleges in our service area. The closest program outside our service area is Modesto Junior College.

Supporting documentation required

Labor Market Information

In a separate attachment, provide current Labor Market Information showing that jobs are available for program completers within the local service area. Statewide or national LMI may be included as supplementary support but evidence of need in the specific college service area or region is also necessary.

Projections of Employment by Occupation, 2012 - 2022

Selections:

TOP Code(s):

- 095630 Machining and Machine Tools

Geography: California

Includes: All California Counties

Annual Job Openings by Occupation			
SOC Code	Occupation Title (Linked to "Occupation Profile")	2012 Employment	Annual Job Openings (1)
514032	Drilling and Boring Machine Tool Operators, Metal and Plastic	1,700	30
514034	Lathe and Turning Machine Tool Operators, Metal and Plastic	4,500	90
514041	Machinists	34,000	1,300
514035	Milling and Planing Machine Operators, Metal and Plastic	2,600	50
514081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	5,200	100
	Total	48,000	1,570

Source: State of California, EDD, Occupational Projections, <http://www.labormarketinfo.edd.ca.gov/>
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(1) Total Job Openings are the sum of new jobs from growth plus net replacements. Annual job openings are total job openings divided by the number of years in the projection period.

(2) This occupation has been suppressed due to confidentiality.

Projections of Employment by Occupation, 2012 - 2022

Selections:

TOP Code(s):

- 095630 Machining and Machine Tools

Geography: San Joaquin County

Includes: San Joaquin County

Annual Job Openings by Occupation			
SOC Code	Occupation Title (Linked to "Occupation Profile")	2012 Employment	Annual Job Openings (1)
514041	Machinists	410	20
514081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	150	5
	Total	560	25

Source: State of California, EDD, Occupational Projections, <http://www.labormarketinfo.edd.ca.gov/>

(1) Total Job Openings are the sum of new jobs from growth plus net replacements. Annual job openings are total job openings divided by the number of years in the projection period.

(2) This occupation has been suppressed due to confidentiality.

List of Members of Advisory Committee

This list must include advisory committee member names, job titles, and affiliations.

Name	Title	Affiliation
Rocky La Jeunesse	CTE Counselor	SJDC
Hugh Thompson	Machinist	Applied Aerospace Composites Structures Corp.
Salvador Vargas	Dean of CTE and Workforce Development	SJDC
Gillian Murphy	Dean of Applied Science and Business Tech.	SJDC
Arno Oja	Manufacturing Manager	Lock-N-Stitch Inc.
Arthur Reyes	HR Manager	Lock-N-Stitch Inc.
Kyle Beith	Machinist	Lawrence Livermore National Laboratory
Pete Schoenenberger	Manufacturing Supervisor	Lawrence Livermore National Laboratory
Thia So	Student	SJDC
Renee Posadas	Student	SJDC
Luis Rodriquez	Production Supervisor	Simpson Strong Tie
Jens Aagaard	Tool Room Manager	Cepheid
David Valtierra	Sales Engineer	Walter Valenite
Roberto Ruiz	Superintendent	Lawrence Livermore National Laboratory
Carl Bruns	Technician Supervisor	Lawrence Livermore National Laboratory

Recommendation of Advisory Committee (Meeting Minutes)

In a separate attachment, provide minutes of the advisory committee meetings at which the program was discussed and approved, with relevant areas highlighted, as well as a summary of the advisory committee recommendations.

See Minutes below



San Joaquin Delta College

5151 Pacific Avenue • Stockton, CA 95207 • (209) 954-5230

Present:

Pete Schoenenberger, Hugh Thompson, Rocky LaJeunesse Gillian Murphy, Kyle Beith, Salvador Vargas, Arno Oja, Arthur Reyes, Thia So, Renee Posadas, Luis Rodriguez

Absent:

Jens Aagaard, Roberto Ruiz, Carl Bruns, & Dave Valtierra

College Mission Statement (BP 1200)

San Joaquin Delta Community College District serves the needs of students and the District community by providing excellent post-secondary education to the associate degree level, general education and preparation for transfer to other post-secondary institutions, career and technical education, economic development, and the development of intellectual autonomy. To achieve this objective, the faculty and staff are committed to offering high quality instructional programs, student services, and efforts to enhance the public good.

Using the institution's governance and decision-making process, the institution reviews its mission statement on a regular basis and revises it as necessary.

Minutes

Welcome and Introductions

Meeting started at 6:20pm on Sept. 30, 2015

General Updates

Agenda Items:

1. Skills USA National Conference (Louisville, KY – June 23-26) outcome
 - a. Renee Posadas, Thia So, Kevin Parker – AMT – 8 of 15
2. CTE Equipment Purchases FY2014/2015
 - a. Haas DS-30YSS Dual Spindle CNC Lathe
 - b. Haas VF2-SS CNC Milling Machine

Action Items

1. Minutes from last meeting (April 15, 2015) - *Approved*
2. Machine Tool Technology Associate's of Science Degree:
 - a. Specific language was discussed and agreed upon regarding the Program Goals, Objectives, Catalog Description, Program Requirements, & Labor Market Demand.
 - b. MECH 081, WELD 010 should be electives
3. A motion was made by Hugh Thompson to accept the proposal for the Machining Technology Associates in Science Degree
 - a. A Second was made by Kyle Beith
 - b. No further discussion
 - c. The motion was approved with a unanimous vote
4. Future CTE equipment purchases for upcoming FY2015-2016 was discussed
 - a. The committee recommended the possible purchase of a CNC Knee Mill, Cylinder Grinder, Surface Grinder, 3D Printer, 3D Scanner, EDM, & Video Comparator

Next Meeting

The next meeting was proposed for Wednesday, March, 2 @ 6pm

Adjournment

Meeting adjourned at 8:15pm