

Program Efficacy Report Spring 2019

Conditional Reporting (from Spring 2018 Efficacy Review)

Name of Department: Machinist Technology

Efficacy Team: Sandra Moore, Christie Gabriel, Patti Wall

Overall Recommendation:

Continuation
 Conditional
 Probation

Rationale for Overall Recommendation: The overall recommendation is conditional.

The Machinist Technology program trains students new to the occupation and re-trains those employed in the machine trades industry. The program offers certificates, degrees, and the opportunity to obtain national certification. The program has suffered from a lack of full-time faculty for several years. Enrollments have been low, but are beginning to stabilize with the hiring of a full-time faculty person in 2016-2017. It is understandable that the lack of full-time faculty has led to out of date curriculum and the need to revise SLOs/PLOs according to industry standards. The program does anticipate submitting all out of date curriculum and having revised SLOs/PLOs in fall 2018. The program offers labor market data to support the need for the program. The program does need to increase communication with the campus and community. The program also needs to discuss what type of facilities it requires as it clearly indicates that the existing facility is problematic. For previous does not meets, the program does address labor market data but still needs to address fill rates and actual demand for the courses.

Part I: Questions Related to Strategic Initiative: Increase Access

	Does Not Meet	Meets	Exceeds
Demographics	The program <u>does not provide</u> an appropriate analysis regarding identified differences in the program's population compared to that of the general population.	<p>The program <u>provides an analysis</u> of the demographic data and provides an interpretation in response to any identified variance.</p> <p>The program <u>discusses the plans or activities</u> that are in place to recruit and retain underserved populations as appropriate.</p>	In addition to the meets criteria, the program's analysis and plan <u>demonstrates a need</u> for increased resources.
Pattern of Service	The program's pattern of service is <u>not related to the needs of students.</u>	<p>The <u>program provides</u> evidence that the pattern of service or instruction meets student needs.</p> <p>The program <u>discusses the plans or activities</u></p>	In addition to the meets criteria, the program <u>demonstrates that the pattern of service needs to be extended.</u>

		that are in place to meet a broad range of needs.	
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Does Not Meet Meets Exceeds

Efficacy Team Analysis and Feedback:

EMP: The EMP is complete and reflects the most recent data on the program. The EMP data does reflect some of the challenges the program is having including low enrollment and lack of up-to-date equipment.

Demographics: The program provides an analysis of why certain populations (e.g., females, African Americans, Hispanics, and younger students) do not match the campus demographics. Some conclusions such as “blue collar trades being looked down on” by the underserved population should be investigated by the program to determine if this is reality. Other interpretations and plans/activities that might address the demographic discrepancies such as outreach to high schools, more publicity, etc. seem to be reasonable explanations and potential remedies for the demographic discrepancies. The program might want to work with counseling or the Office of Institutional Research to obtain data on student views of the program.

Stigma associated with blue collar jobs suffer from numerous symptoms, which include low pay, fear of injury, work environment, media portrayal, intelligence bias and the influence of policy makers, educators, and parents as contributing factors to the blue-collar shortage

The media many times portray people’s (blue collar workers) overall worth based upon the kind of work they do. Difficult labor, harsh environments, low pay, and intelligence worthiness due to occupation deepen assumptions about people who work with their hands. Many films have portrayed blue-collar workers as uneducated men who work hard so their kids can go to school and learn to do something other than manual labor.

Parents and educators are sometimes the biggest influence in a student’s career and can be a hurdle as advocates of blue-collar employment discouraging against pursuing these careers by reinforcing that college is the only route to success.

Some parents also experienced losing their manufacturing job and homes and believe that re-emphasizing a four-year college degree versus a manufacturing jobs is the only sure route to the middle class, this belief has driven the younger generations from these trades

<https://www.manhattan-institute.org/html/getting-kids-unfilled-and-good-paying-blue-collar-jobs-will-require-cultural-shift-11258.html>

https://www.washingtonpost.com/news/wonk/wp/2014/05/15/there-are-some-jobs-now-in-manufacturing-kids-just-arent-interested-in-taking-them/?noredirect=on&utm_term=.6000825248be

<https://intpolicydigest.org/2019/01/11/where-are-all-of-america-s-blue-collar-workers-in-2019/>

Pattern of Service: The program offers courses based on the needs of the students in the program. As most of these students already have jobs, offerings are usually in the evening or on Saturday. Courses are offered off-site to high school students and the program is exploring offering more courses in mornings and afternoons to increase diversity. The Office of Institutional Research could provide enrollment data trends to aid with the future discussions of more varied course times being offered.

Part II: Questions Related to Strategic Initiative: Promote Student Success

	Does Not Meet	Meets	Exceeds
Data/Analysis demonstrating achievement of instructional or service success	Program <u>does not provide an adequate analysis</u> of the data provided with respect to relevant program data.	Program <u>provides an analysis</u> of the data which indicates progress on departmental goals.	In addition to the meets criteria, the program <u>uses the achievement data</u> in concrete planning and <u>demonstrates</u> that it is prepared for growth.
Service Area Outcomes and/or Student Learning Outcomes and/or Program Level Outcomes	Program <u>has not demonstrated</u> that it is continuously assessing Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs) based on the plans of the program since their last program efficacy. Evidence of data collection, evaluation, and reflection/feedback, and/or connection to area services is <u>missing or incomplete</u> .	Program <u>has demonstrated</u> that it has fully evaluated within a four-year cycle and is continuously assessing <u>all</u> Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs).	In addition to the meets criteria, the program <u>demonstrates that it has fully incorporated Service Area Outcomes (SAOs) and/or Student Learning Outcomes (SLOs) and/or Program Level Outcomes (PLOs) into its planning, made appropriate adjustments, and is prepared for growth.</u>

Does Not Meet Meets Exceeds

Efficacy Team Analysis and Feedback:

Promote Student Success: The program provides an analysis of the EMP data along with supplemental data supporting the need for the program. The lack of a full-time instructor was viewed as a major contributor to the decline in enrollment in the program as well as the decline in degrees and certificates. The program expects that now that there is a full-time instructor, the enrollment as well as the number of degrees and certificates will increase. The program provides supplemental data on the job market for machine trades that support the need for the program. There is a lot of projected growth for the machine trades and not many colleges in the area that provide instruction in this field.

SLOs/PLOs: The program has demonstrated that it has evaluated SLOs within the past few years. Assessment of PLOs is based on input from the program’s advisory board. Although the curriculum and SLOs need to be updated, a thorough discussion as to why and plans to implement this have been discussed in detail. The curriculum for the program is still being updated, which means the program will need to revise SLOs and create PLOs. Given that the full-time faculty person was recently hired and there was no full-time faculty for several years, it is understandable that PLOs have not been developed. The program is aware of this issue and has plans to meet with the advisory board to develop SLOs/PLOs that meet industry needs.

Part III: Questions Related to Strategic Initiative: Improve Communication, Culture & Climate

	Does Not Meet	Meets	Exceeds
Communication	The program <u>does not identify</u> data that demonstrates communication with college and community.	The program <u>identifies</u> data that demonstrates communication with college and community.	In addition to the meets criteria, the program <u>demonstrates</u> the ability to communicate more widely and effectively, <u>describes</u> plans for extending communication, and provides data or research that <u>demonstrates</u> the need for additional resources.
Culture & Climate	The program <u>does not identify</u> its impact on culture and climate or the plans are not supported by the data and information provided.	The program <u>identifies and describes</u> its impact on culture and climate. Program <u>addresses</u> how this impacts planning.	In addition to the meets criteria, the program provides data or research that <u>demonstrates</u> the need for additional resources.

Does Not Meet Meets Exceeds

Efficacy Team Analysis and Feedback:

Communication: The program acknowledges that it does need to work on increasing communication with the campus and community. The program describes how it will begin to increase communication with the campus and community. The program indicates that it needs marketing support to enhance communication. The program might also consider reaching out to counseling to create more awareness in the student population.

Culture and Climate: The program identifies and describes how it impacts culture and climate. The program also briefly discusses how its' planning involves external partnerships with entities such as California Steel Industries, Rialto alternative education, etc.

IV: Questions Related to Strategic Initiative: Maintain Leadership & Promote Professional Development

	Does Not Meet	Meets	Exceeds
Professional Development	The program does not identify currency in professional development activities.	Program identifies current avenues for professional development.	In addition to the meets criteria, the program shows that professional development has impacted/expanded the program and demonstrates that the program is positioning itself for growth.

Does Not Meet **Meets** **Exceeds**

Efficacy Team Analysis and Feedback:

Professional Development: The program identifies current avenues for professional development such as faculty working in the industry and reading journals. Most of the program's faculty have national certification in metal skills and are part of an organization that will help with development of external partnerships that could lead to student employment. Faculty regularly attend all local manufacturing events and professional development activities in the industry.

V: Questions Related to Strategic Initiative: Effective Evaluation & Accountability

	Does Not Meet	Meets	Exceeds
Mission/ Statement of Purpose	The program does not have a mission/ statement of purpose, or it does not clearly link with the institutional mission.	The program has a mission/statement of purpose, and it links clearly with the institutional mission.	
Productivity	The data does not show an acceptable level of productivity for the program, or the issue of	The data shows the program is productive at an acceptable level.	The program functions at a highly productive level and has planned for growth as appropriate.

	productivity is not adequately addressed.		
Relevance, Currency, Articulation	<p>The program does not provide evidence that it is relevant, current, and that courses articulate with CSU/UC, if appropriate.</p> <p><u>Out of date course(s) that were not launched into Curricunet by Oct. 1, 2017 may result in an overall recommendation no higher than Conditional.</u></p>	<p>The program provides evidence that the curriculum review process is up to date. Courses are relevant and current to the mission of the program.</p> <p>Appropriate courses have been articulated or transfer with UC/CSU, or plans are in place to articulate appropriate courses.</p>	<p>In addition to the meets criteria, the program discusses plans to enhance current course offerings that link to student/community needs and positions the program for improved student outcomes.</p>
Challenges	<p>The program does not incorporate weaknesses and challenges into planning.</p>	<p>The program incorporates weaknesses and challenges into planning.</p>	<p>The program incorporates weaknesses and challenges into planning that demonstrate the need for expansion.</p>

Does Not Meet **Meets** **Exceeds**

Efficacy Team Analysis and Feedback:

Mission/Purpose: The program has a mission/statement of purpose, and it links clearly with the institutional mission.

Productivity: The program gives an analysis of the data which indicate a period of decline in productivity (low-enrollment) over the past few years but a slow move toward stability given the issues with lack of a full-time instructor. The reason for the low productivity measure in 16-17 is an increased FTEF with no change in enrollment. No degrees have been achieved for the past two years. Neither of these topics are touched on.

Response: Most students in the Machinist Technology program are enrolled to get the skills and competencies to get employed or if already employed, to get promoted into a new position. This occupation is in high demand as all students seeking employment in this field get hired as soon as they have gained enough skills to operate the equipment and use the machine tools or the student feels that he/she is ready to work. This results in students not pursuing their respective degrees, or certificates once they get employed. Still, we continue to encourage the students are always encouraged to pursue their A.S degree as the Machinist Technology program is in need of qualified instructors as well. It has been the faculty's experience after speaking and working with his students for many years, that students are attending Machinist courses to gain the knowledge and skills to get employed in this area rather than a college degree.

The program has strived to grow by hiring more staff and offering more courses, however, the desired enrollment did not substantially increase. In an effort to increase enrollment, the program has recently

decreased the amount of section offerings to bring productivity and efficiency up per class. We have also increased our marketing and outreach efforts to the high schools and the community. We are also promoting concurrent/enrollment courses at the high schools. Through various external funding sources, the program has acquired newer equipment and tools to align our courses and programs to meet the skills needed by the industry and employers. The program will evaluate and re-strategize, if necessary, should the desired enrollment outcomes are not attained to increase acceptable or better productivity numbers.

Relevance and Currency: Most of the curriculum is out of date. The program has submitted all out of date courses to the Curriculum Committee in Fall 2018 for their review and approval. This impacts SLOs and PLOs as well. The information on the catalog for this program has been reviewed and is accurate.

Response: Machinist Technology has submitted to the Curriculum Committee new and revised curriculum for the following programs: Machinist Standard, Computer Numerical Control *CAD/CAM, Tool and Die, *CNC Machine Operator, Conventional Machine Operator, Basic Operation Computer Numerical Control, Machine Technology, Machine Tool Builder and Integrator, Mechanical Drafting, Mechanical Craft, Industrial Maintenance, and Quality Control. The faculty in the program has been attending curriculum meetings and has been making needed revisions to have the curriculum approved. All curriculum has been submitted and will be an on-going collaboration with the curriculum committee as they are scheduled in the curriculum approval process.

*CAD= Computer Aided Drafting CNC= Computer Numerical Control CAM= Computer Aided Manufacturing

Challenges: The program plans to address weaknesses and trends such as low enrollment and equipment issues. Departmental/Program goals include increasing marketing and outreach, establishing and maintaining partnerships with community organizations which should help increase enrollment. The program has taken advantage of the trend of more funding for CTE programs to obtain new machines which will help students apply what they have learned. The program still needs more up to date equipment which we continuously apply for funding through various external funding sources such as the Strong Workforce Program and Perkins.

VI: Questions Related to Strategic Initiative: Provide Exceptional Facilities

	Does Not Meet	Meets	Exceeds
Facilities	The program <u>does not provide an evaluation</u> that addresses the sustainability of the physical environment for its programs.	Program <u>provides an evaluation</u> of the physical environment for its programs and <u>presents evidence</u> to support the evaluation.	In addition to the meets criteria, the program has <u>developed a plan</u> for obtaining or utilizing additional facilities for program growth.

Does Not Meet **Meets** **Exceeds**

Efficacy Team Analysis and Feedback:

Facilities: The program evaluates the physical environment for the program and discusses the negative impact the current facility has on the program. Different elements leading to the

unsustainable environment are discussed; however, qualitative evidence, such as the age of the building and maintenance schedules, is not presented to support the evaluation. The program needs to discuss what type of physical environment is required to sustain the program.

Response: The Machinist Technology program possess many pieces of metrology, conventional machine tools, machine tool set up accessories, and materials. Recently, the program has acquired advanced computer numerical control machine tools, 3D printer, laser, 40 Roll away tool boxes, dual monitor high end graphics card computers and continues to acquire grant funds to purchase additional machine tool technology.

Currently, the space in the building the program is housed in is already at capacity in some areas of the labs and cannot add additional equipment resulting in inadequately teaching basic and specialized machine tool technology due to the lack of space. Also, because the building was built in 1962 and is to be demolished in 5 years, no capital improvement funds will be allocated or used at this time including in-house support for the infrastructure required to make the machine tools operational. For example, new electrical circuits or outlets are needed to run the newer equipment. Since this is a capital improvement, no general funds will be allocated for this work order. This results in new pieces of equipment to sit idle as the yearly program budget is not enough to cover additional cost to cover the labor and materials to install new electrical circuits and outlets. The program needs to explore other funding sources to make this happen so that the new equipment can be operational for use in the labs.

Overall, the program requires the proper infrastructure support, a much larger space to accommodate the necessary equipment, and computer labs to program the machine tools for the current and new pieces of equipment required for existing and new degrees and certificates. Also, the program does not have access to the Applied Technology building maintenance schedules. These needs may be addressed when the proposed new building for the Applied Technology Division is implemented due to the passing of the CC Bond Measure and supplemental funding support from the State Chancellor's Office.

VII: Previous Does Not Meets Categories

Does Not Meet **Meets** **Exceeds**

Efficacy Team Analysis and Feedback:

Previous Does Not Meets: The program does address some of the previous does not meet comments from the 2016 mini-review. Labor Market data is presented to demonstrate demand for the program. Fill rates and actual demand for courses need to be addressed. The program presents data on the demand for the program in the region. There is some discussion of enrollment figures in the EMP and the Student Success area, but demand for the program at the college level should also be addressed, as it was mentioned in the Team Report for spring 2016.

Response: As the manufacturing continues to be shaped by new technologies, there is a high demand for well-trained machinist in the industry. To fill this gap, community colleges have introduced machining classes equipping students with the skills they need to get started in their different fields. One of the main reasons for adding machining classes is the high demand of CNC skills in the market. Across the United States, colleges and technical institutes are becoming a pipeline to the profession for CNC machinists, the pathway to a long-lasting career as a CNC machinist now lies through a post-secondary education specializing in this discipline

There are six out of ten open skilled production jobs currently open, over 500,000 unfilled positions now available, over the next decade 3.5 million job needed 2 million will go unfilled in manufacturing.

According to the bureau of labor statistics JOB OPENINGS AND LABOR TURNOVER – JANUARY 2019 report approximately 100+ jobs go unfilled to new job openings each month

In relationship to fill rates, it appears that students seeking jobs in this occupation will have no problem acquiring a job as many manufacturing jobs go unfilled everyday

In 2009, all Machine shop programs in the Inland Empire were closed, in recent years, a small handful of high schools in the area have begun to offer Machine shop classes. Most of the general public especially the youth do not understand what Machinist do, increasing demand will entail educating the public and prospective students about the demand for graduates and the distinctive outcomes associated with the program and occupation.

Newer and more advanced curriculum, and equipment is in the process of being put in place to provide students the needed skills to achieve higher paying jobs.

Curriculum approval, and the excitement of new advanced machine tools being acquired should increase demand for the program at the college level, however without strong marketing strategies the public will continue to be oblivious about the great opportunities this program offers. We continue to increase awareness of our program to the community and to the various feeder high schools.

Table A. Job openings, hires, and total separations by industry, seasonally adjusted

Category	Job openings			Hires			Total separations		
	Jan. 2018	Dec. 2018	Jan. 2019 ^P	Jan. 2018	Dec. 2018	Jan. 2019 ^P	Jan. 2018	Dec. 2018	Jan. 2019 ^P
LEVELS BY INDUSTRY (in thousands)									
Total.....	6,591	7,479	7,581	5,525	5,717	5,801	5,317	5,469	5,550
Total private.....	6,025	6,860	6,902	5,194	5,353	5,430	4,983	5,122	5,190
Mining and logging ¹	26	29	40	34	39	38	30	34	33
Construction ¹	245	299	302	354	399	428	329	369	391
Manufacturing.....	436	435	452	365	351	356	347	342	342

<https://www.bls.gov/news.release/pdf/jolts.pdf><https://www.automechanicschooledu.org/cnc-machinist-jobs/>

<https://www.core77.com/posts/80831/US-Manufacturers-Lack-Skilled-Labor-So-Heres-a-CNC-Training-Scholarship>

<https://www.hfomilwaukee.com/blog/7-facts-the-next-generation-of-cnc-shop-employees-should-know>

<http://coecc.net/Search.aspx#idDetailPanel>

