MACHINE TOOL TECHNOLOGY

Summary of Program Review:

A. Major Findings

1. Strengths:

Job placement rates, dedicated faculty, industry alignment, volunteers, partnership with Adult School and K12.

2. Areas for Improvement:

Faculty recruitment and onboarding to ensure viability.

3. Projected Program Growth, Stability, or Viability:

Stability.

B. Program's Support of Institutional Mission and Goals

1. Description of Alignment between Program and Institutional Mission:

This program transforms lives through hands on training and skills for placement and advancement.

2. Assessment of Program's Recent Contributions to Institutional Mission:

This is a vital program to our institution and greater community as it is aligned to labor market needs.

3. Recent Program Activities Promoting the Goals of the Institutional Strategic Plan and Other Institutional Plans/Initiatives:

Cited in summary, alignment with partners.

C. New Objectives/Goals:

Cited in summary, the need to plan for faculty replacement.

D. Description of Process Used to Ensure "Inclusive Program Review"

The current full-time faculty is engaged with industry, Napa educational partners, and his industry volunteers. There is ongoing engagement with the Dean of the area and qualitative feedback from students as well.

This report covers the following program, degrees, certificates, and courses (based on the Taxonomy of Programs on file with the Office of Academic Affairs):

Program	**Machine Tool Technology**
Degrees/Certificates	Machine Tool Technology: AS Machine Tool Technology: CoA Machine Tool Technology: One Year: LC
Courses	MACH 100
	MACH 110
	MACH 111
	MACH 210
	MACH 211

Taxonomy of Programs, February 2025

I. PROGRAM DATA

A. Demand

1. Headcount and Enrollment

	2021-2022	2022-2023	2023-2024	Change over 3-Year Period
Headcount				
Within the Program	**39**	**37**	**41**	**5.1%**
Across the Institution	**6,653**	**6,161**	**6,473**	**-2.7%**
MACH-100	18	13	16	-11.1%
MACH-110	10	11	16	60.0%
MACH-111	10	8	8	-20.0%
MACH-210	9	10	7	-22.2%
MACH-211	9	11	10	11.1%
Within the Program	**56**	**53**	**57**	**1.8%**
Across the Institution	**25,216**	**23,488**	**24,913**	**-1.2%**
Source: SQL Queries for Fall 2024 Program Review				

<u>RPIE Analysis</u>: The number of students enrolled (headcount) in the Machine Tool Technology Program increased by 5.1% over the past three years, while headcount across the institution decreased by 2.7%. Enrollment within the Machine Tool Technology Program increased by 1.8%, while enrollment across the institution decreased by 1.2% over the same period.

Enrollment in the following courses changed by more than 10% (±10%) between 2021-2022 and 2023-2024:

Courses with enrollment increases:

- *MACH-110 (60.0%)*
- *MACH-211 (11.1%)*

Courses with enrollment decreases:

- *MACH-210 (-22.2%)*
- *MACH-111 (-20.0%)*
- *MACH-100 (-11.1%)*

Program Reflection:

What needs to be understood from the above data is that there are two separate tracks presented. MACH-100 is a stand-alone course intended for WELD and DDGT students to meet their degree or certificate requirements. The headcount trend for that course over the academic years presented is mostly based on the student populations from those programs who are seeking a degree or certificate. Bear in mind that there are some who take (for example) certain WELD classes solely to gain American Welding Society (AWS) certifications to bolster their employability within the field. These students tend to not have an interest in pursuing other courses (e.g.; PHOTO, MACH, PHYS, TECH) that lead to a degree or certificate.

Best way to analyze the data for MACH-110 through MACH 211 is to look at the combined MACH-110 and MACH-111 within a particular academic year, and then MACH-210 and MACH-211 in the following academic year. These courses are taken in serial fashion, with one course prerequisite to the next. For example, one can look at MACH-110 and MACH 111 in the 2021-2022 academic year, and then see the same cohort in MACH-210 and MACH 211 in the 2022-2023 academic year. Looking at the data this way, one can see that there are 10 enrolled each semester, with 11 (one returning, I assume) in the final semester, ending up with a net gain of one.

2. Average Class Size

	2021-2022		2022-2023		2023-2024		Three-Year	
	Sections	**Average Size**	**Sections**	**Average Size**	**Sections**	**Average Size**	**Average Section Size**	**Trend**
MACH-100	2	9.0	1	13.0	1	16.0	11.8	77.8%
MACH-110	1	19.0	1	21.0	1	23.0	21.0	21.1%
MACH-111	1	19.0	1	19.0	1	18.0	18.7	-5.3%
Program Average*	**4**	**14.0**	**3**	**17.7**	**3**	**19.0**	**16.6**	**35.7%**
Institutional Average*	**1,048**	**24.1**	**954**	**24.6**	**986**	**25.3**	**24.6**	**5.0%**

Sources: SQL Queries for Fall 2024 Program Review for enrollment data, Enrollment Management Division Reports and Concurrent Courses Reports for course-section data.

Average Section Size across the three-year period for courses, and both within academic years and across the three-year period for the program and institutional levels is calculated as:

$$\frac{\text{Total \# Enrollments}}{\text{Total \# Sections}}.$$

It is not the average of the three annual averages.

Notes Regarding Concurrent Sections:

- MACH-110 and MACH-210 treated as concurrent sections.
- MACH-111 and MACH-211 treated as concurrent sections.

<u>RPIE Analysis</u>: Over the past three years, the Machine Tool Technology Program has claimed an average of 16.6 students per section. The average class size in the program is lower than the average class size of 24.6 students per section across the institution during this period. Average class size in the program increased by 35.7% between 2021-2022 and 2023-2024. Average class size at the institutional level increased by 5.0% over the same period.

Average class size in the following courses changed by more than 10% (±10%) between 2021-2022 and 2023-2024:

Courses with increases in average class size:

- *MACH-100 (77.8%)*
- *MACH-110 (21.1%)*

No Machine Tool Technology courses experienced a decrease in average class size of at least 10% over the past three years.

Program Reflection:

As with the previous program review done for MACH, I say "no fair" with the comparison of class sizes between those in MACH with those across the institution. Class cap for MACH classes is 15 students for safety reasons. It also of note that the sections for MACH-100 were reduced from two sections each academic year to one, thus bringing about the increase in class size. I feel that the number of students pursuing degrees or certificates in WELD and DDGT needs to be more closely monitored, so that overcrowding in MACH-110 can be avoided. It may be short-sighted to only have one section of this course each academic year.

Overall, class sizes have remained steady over this time. Retention is key to keeping a viable cohort over a two-year program.

3. Fill Rate and Productivity

Fill Rate			
	Enrollments	**Capacity**	**Fill Rate**
2021-2022	56	60	93.3%
2022-2023	53	45	118%
2023-2024	57	45	127%
Three-Year Program Total	**166**	**150**	**111%**
Productivity			
	FTES	**FTEF**	**Productivity**
2021-2022	19.7	2.7	7.3
2022-2023	20.4	2.3	8.9
2023-2024	21.6	2.3	9.4
Three-Year Program Total	**61.7**	**7.3**	**8.5**
Sources: SQL Queries for Fall 2024 Program Review; SQL Server Reporting Services – Term to Term Enrollment FTES Load Comparison Report (by Credit Course)			

RPIE Analysis: Between 2021-2022 and 2023-2024, the fill rate within the Machine Tool Technology Program ranged from 93.3% to 127%. [The fill rate has not been calculated at the institutional level.] The program-level rate across the three-year period was 111%. Between 2021-2022 and 2022-2023, both enrollment and capacity decreased, resulting in an increase in fill rate (due to a higher rate of decrease in capacity). Between 2022-2023 and 2023-2024, enrollment increased and capacity remained stable, resulting in an increase in fill rate.

Productivity within the Machine Tool Technology Program ranged from 7.3 to 9.4. [Productivity has not been calculated at the institutional level.] The three-year productivity of 8.5 is lower than the target level of 17.5, which reflects 1 FTEF (full-time equivalent faculty) accounting for 17.5 FTES (full-time equivalent students) across the academic year. (This target reflects 525 weekly student contact hours for one full-time student across the academic year.)

Program Reflection:

Fill rates over these years looks good. However, I feel that the 17.5 FTE benchmark doesn't apply here. Again, I cite safety concerns for having smaller class sizes.

4. Labor Market Demand

Economic Development Department Standard Occupational Classification Description Codes: 49-9041	Numeric Change in Employment (Baseline Year to Projected Year)	Projected Growth (% Change in Positions; 2020 Base Employment vs. 2030 Projected Employment)	Projected Number of Positions (Total Job Openings)
Napa County (2020-2030)	60	37.5%	220
Bay Area[A] (2020-2030)	940	21.6%	5,030
California (2020-2030)	5,000	17.1%	29,430

Source: Economic Development Department Labor Market Information, Occupational Data, Occupational Projections (http://www.labormarketinfo.edd.ca.gov)
[A]Bay Area counties include: Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma. Figures also include San Benito County (reported with projections for Santa Clara County).

RPIE Analysis: The figures reported in the table above pertain to the Standard Occupational Classification for the following position:

- *Industrial Machinery Mechanics (49-9041)*

The Economic Development Department projects that the number of positions within Napa County will increase by 37.5 (60 positions) between 2020 and 2030. The number of positions in the Bay Area (not including Napa County) is expected to increase by 21.6% (940 positions) between 2020 and 2030. The number of positions across the state is expected to increase by 17.1% (5,000 positions) between 2020 and 2030.

Program Reflection:

The long-term job market looks very good for those entering the skilled trades in general. As for machinists/industrial machinery mechanics, the job market is wide open for those with that skill set. I receive several emails from potential employers each week looking for either skilled or entry-level workers in the field. With an aging workforce retiring in record numbers, these numbers will only increase.

B. Momentum

1. Retention and Successful Course Completion Rates

	Retention Rates (Across Three Years)			Successful Course Completion Rates (Across Three Years)		
Course	Rate	Course Rate vs. Program Rate		Rate	Course Rate vs. Program Rate	
		Above	Below		Above	Below
MACH-100	83.0%		X	78.7%		X
MACH-110	97.3%	X		86.5%	--	
MACH-111	96.2%	X		96.2%	X	
MACH-210	96.2%	X		96.2%	X	
MACH-211	86.7%		X	76.7%		X
Program Level	91.0%			85.5%		
Institutional Level	90.9%			**73.2%**		

Source: SQL Queries for Fall 2024 Program Review
-- Indicates a value that is within 1% of the program-level rate.
Bold italics denote a statistically significant difference between the course-level rate and the program-level rate.
Bold denotes a statistically significant difference between the program-level rate and the institutional rate. The lower of the two rates is highlighted in bold.
Note: Grades of EW (Excused Withdrawal) for spring 2020 and beyond are not included in the calculations of the three-year retention and successful course completion rates reported above. This approach reflects the standard recommended research practice of not including EWs in either the numerator or the denominator for these rates.

<u>RPIE Analysis</u>: Over the past three years, the retention rate for the Machine Tool Technology Program reflected the retention rate at the institutional level. There were not any statistically significant differences between course-level retention rates and the program-level rate. The retention rate for the Machine Tool Technology Program falls within the second quartile (Q2) among program-level retention rates (across 60 instructional programs, over the past three years). The retention rate for Machine Tool Technology is among the lowest 50% of retention rates among NVC programs.

Over the past three years, the successful course completion rate for the Machine Tool Technology Program was significantly higher than the rate at the institutional level. There were not any statistically significant differences between course-level successful course completion rates and the program-level rate. The successful course completion rate for Machine Tool Technology falls within the fourth quartile (Q4) among program-level successful course completion rates (across 60 instructional programs, over the past three years). The successful course completion rate for Machine Tool Technology is among the highest 25% of successful course completion rates among NVC programs.

Over the past three years, the difference between retention and successful course completion at the program level (5.5%) is significantly lower than the difference at the institutional level (17.7%). This figure represents the proportion of non-passing grades assigned to students at the end of the semester (i.e., grades of D, F, I, NP).

The following Machine Tool Technology course claimed a difference (between retention and successful course completion) that exceeded the 5.5% difference at the program level:

- *MACH-110 (10.8%)*

Program Reflection:

The data point that stands out the most to me is in the narrative that states that the Machine Tool Tech Program is among the lowest 50% of retention rates among NVC programs. I'm finding it difficult to address this, given the data that shows the program retention rates and course completion rates to be higher than those at the institutional level.

2. Student Equity

	Retention Rates (Across Three Years)		Successful Course Completion Rates (Across Three Years)	
	Program Level	**Institution Level**	**Program Level**	**Institution Level**
Unknown Gender			*	69.3%
19 or Younger			80.0%	71.1%
African American/Black			*	68.2%
Latinx/Hispanic			84.4%	***69.4%***
First-Generation			86.1%	***69.4%***
Not Disabled			86.0%	***73.0%***
Non-Veteran	91.0%	90.9%		

Source: SQL Queries for Fall 2024 Program Review

Bold italics denote a statistically significant difference between rates at the program and institutional levels, with the lower of the two rates in ***bold italics***.

*Data suppressed due to low N (<10 students in cohort).

Notes:

Grades of EW (Excused Withdrawal) for spring 2020 and beyond are not included in the calculations of the three-year retention and successful course completion rates reported above. This approach reflects the standard recommended research practice of not including EWs in either the numerator or the denominator for these rates.

The age groupings are based on the student's age of August 15 of each academic year.

The shaded cells in the table do not have data reported because evidence of disproportionate impact was not found at the institutional level (for those demographic group – metric combinations).

RPIE Analysis: This analysis of student equity focuses on the seven demographic groups with significantly lower retention or successful course completion rates found at the institutional level (vs. the corresponding rates among all other demographic groups, combined) over the past three years. Tests of statistical significance were conducted to compare program-level and institution-level rates among the seven groups listed above.

Within the Machine Tool Technology Program, the retention rate among non-veterans reflected the rate at the institutional level. (The difference was not statistically significant.)

Within the Machine Tool Technology Program, the successful course completion rates Latinx/Hispanic students, first-generation students, and students without a disability reported were significantly higher than the corresponding rates at the institutional level. (The difference between the rates among students ages 19 and younger at the program and institutional levels was not statistically significant.)

These findings regarding equity reflect the findings that emerged from the comparison of retention and successful course completion at the program vs. institutional level, where the program-level retention rate reflected the institution-level rate and the program-level successful course completion rate was significantly higher than the institution-level rate. (See Section I.B.1 above.)

Program Reflection:

It appears that the course completion rates of the groups highlighted reflect the general retention rates outlined in Section B.1. I'm glad these rates are comparable to the institution level.

3. Retention and Successful Course Completion Rates by Delivery Mode (of Courses Taught through Multiple Delivery Modes, i.e., In-Person, Hybrid, and Online)

This section does not apply to the Machine Tool Technology Program, as all course sections offered over the past three years were in-person.

C. Student Achievement

1. Program Completion

	2021-2022	2022-2023	2023-2024
Degrees			
AS Degrees: MACH.AS	2	4	5
Certificates of Achievement: MACH/CERT	0	3	1
Institutional: AS Degrees	**306**	**287**	**227**
Institutional: Certificates of Achievement	**409**	**384**	**341**
Source: SQL Queries for Spring 2025 Program Review			

RPIE Analysis: The Machine Tool Technology Program conferred 11 degrees and 4 certificates between 2021-2022 and 2023-2024. The Machine Tool Technology Program accounted for 1.3% of the AS degrees awarded by NVC across the three-year period and less than 1% of the certificates conferred over that period. In 2021-2022, the program accounted for 0.7% of AS degrees conferred by NVC. In 2023-2024, the program accounted for 2.2% of AS degrees conferred. The number of degrees awarded by the Machine Tool Technology Program increased by 150% over the three-year period, while the number of AS degrees awarded by the institution decreased by 25.8%.

Program Reflection:

I find the comparison of degrees to certificates to be surprising. Historically, most students opt for the pursuit of a certificate rather than a degree. Their focus tends to be job-readiness at the completion of the program. Regardless, I'm pleased by the 150% increase in degrees.

2. Program-Set Standards: Job Placement and Licensure Exam Pass Rates

Measure	Program-Set Standard* (& Stretch Goal)	Recent Performance			
		Year 1	Year 2	Year 3	Three-Year Total
Job Placement Rate	60% (75%)	*	*	*	78.9%
Licensure Exam Pass Rate	Licensure exams are not required for this program.				
Sources: Perkins IV Core 4 Employment data for Program (TOP Code: 095630 Machining and Machine Tools) for job placement rates (https://misweb.cccco.edu/perkins/Core_Indicator_Reports/Summ_CoreIndi_TOPCode.aspx). **Data are suppressed due to low N (< 10 students in annual cohorts).*					

RPIE Analysis: The job placement rate among Machine Tool Technology students was 78.9% over the past three years. This rate exceeds both the program-set standard and the stretch goal. [Job placement rates for individual years are not reported due to the small number of students in recent Machine Tool Technology cohorts.]

Program Reflection:

One strength of the program is that there is a strong network of employers in the local area who reach out to me as needed whenever they have (especially entry-level) positions to fill. Those who finish the Machine Tool program who want to go to work usually have a selection of several employers from which to choose.

II. CURRICULUM

A. Courses

Subject	Course Number	Date of Last Review & Approval by Curriculum Committee *(Courses with last review dates of 6 years or more must be scheduled for immediate review)*	Has Prerequisite/ Corequisite* *Yes/No* & Date of Last Review	In Need of Revision *Indicate Non-Substantive (NS) or Substantive (S)* & Academic Year Anticipated	To Be Archived *(as Obsolete, Outdated, or Irrelevant)* & Academic Year Anticipated	No Change
MACH	100	12/12/2019		Yes		X
MACH	110	5/8/2007		Yes		X
MACH	111	5/8/2007	Yes	Yes		X
MACH	210	5/8/2007	Yes	Yes		X
MACH	211	3/12/2020	Yes	Yes		X

*Note: Prerequisites need to be validated (in subsequent process) through Curriculum Committee.

Program Reflection:

The curriculum of each of the Machine Tool Tech courses is solid. Plus, potential employers like what is taught in the curriculum. It's very relevant to the "job shop" environment for machinists/millwrights/industrial mechanics in this area (e.g., oil refineries, shipyards) as opposed to more of a manufacturing environment found in, say, Silicon Valley.

B. Degrees and Certificates+

Degree or Certificate & Title	Implementation Date	Has Documentation *Yes/No*	In Need of Revision+ *and/or Missing Documentation* & Academic Year Anticipated	To Be Archived* *(as Obsolete, Outdated, or Irrelevant)* & Academic Year Anticipated	No Change
Machine Tool Technology: AS	Before Fall 2006	No	Yes		X
Machine Tool Technology: COA	Before Fall 2006	No	Yes		X
Machine Tool Technology-One Year: Local Certificate	Spring 2010 BOT	No	Yes		X

*Note: Discontinuance or archival of degrees or certificates must go through the Program Discontinuance process or the Program Archival Task Force.

+Degrees and Certificates cannot be implemented until the required courses in them are approved and active.

Program Reflection:

One potential area of change that is being discussed in CTE is the possible establishment of a specialized curriculum leading to a certificate for a dedicated Industrial Maintenance Mechanic qualification. This would incorporate existing CTE curricula, but would include other topics covering subjects like Electricity & Electronics, Controls & Automation, Pneumatics/Hydraulics, etc. This curriculum would meet the ever-increasing need for an all-around maintenance mechanic for wineries and other manufacturers in the area.

III. LEARNING OUTCOMES ASSESSMENT

A. Status of Learning Outcomes Assessment

Learning Outcomes Assessment at the Course Level

	Number of Courses with Outcomes Assessed		Proportion of Courses with Outcomes Assessed	
Number of Courses	Over Last 4 Years	Over Last 6 Years	Over Last 4 Years	Over Last 6 Years
7	5	5	71%	71%

Learning Outcomes Assessment at the Program/Degree/Certificate Level

Degree/Certificate	Number of Outcomes*	Number of Outcomes Assessed		Proportion of Outcomes Assessed	
		Over Last 4 Years	Over Last 6 Years	Over Last 4 Years	Over Last 6 Years
Machine Tool Technology	5	0	1	0	20%

Program Reflection:

Looking at the PLOs and SLOs in Nuventive, it's clear that these have to be cleaned up and brought up to date. For example, items like shop safety, precision measurement, blueprint reading, and math calculations are repeated throughout each course in the four-semester MACH curriculum. It should be implied that these are acquired skills that are practiced throughout the coursework. I will get with the Learning Assessment Coordinator straight away to remedy this, and to make sure that all assessments are up to date.

B. Summary of Learning Outcomes Assessment Findings and Actions

Learning outcomes in general are in need of revision. Several SLOs are repeated from semester-to-semester. I will meet with the Learning Outcomes Coordinator first chance to bring these up to date.

Program Reflection:

IV. PROGRAM HIGHLIGHTS

The program-level plan that emerged from the last review in 2022 included the following initiatives:

- Outreach to area high schools
- Night class offerings
- Hire a new Machine Tool Shop Technician

- **Accomplishments/Achievements Associated with Most Recent Three-Year Program-Level Plan**

  - Outreach efforts are ongoing. I reach out annually to the entire student body Valley Oak HS (will do this again May 2) and to Napa HS Machine Shop and Robotics students. This has proven to be successful in the past, and I'm hopeful to gain new students from these programs in the fall. I also host student groups who come through the Machine Shop on tours. Outreach efforts could be expanded, however, targeting schools such as American Canyon HS, for example.
  - MACH-100 is being taught in the evenings this semester. Class cap is overloaded by about three students. This has traditionally been a good feeder class to recruit students into the two-year, four-semester program. Again, I'm hopeful for the fall.
  - A new Machine Tool Shop Technician started in the fall, 2024 semester. I welcome this person's good assistance, helping with ensuring safe behaviors in the Machine Shop, and aiding in hands-on instruction of project work.

- **Recent Improvements**

Since the last review period in 2022:

- We installed a new 5-axis CNC milling machine, giving us greater advanced manufacturing capability.
- Two of my volunteers (I'm blessed to have them) and I took the DDGT 130 *Introduction to 3-D Printing* course from Professor Gary Strommen to better learn to use Autodesk Fusion 360, a CAD/CAM program used to design and execute advanced CNC work.
- We replaced two World War II-vintage milling machines with one new horizontal/vertical spindle milling machine, giving us more accurate capability for multiple-spindle work, and for horizontal milling work, especially in the execution of cutting precision gears.
- We replaced an old and unreliable surface grinder with a newer one. This gives us precision grinding accuracy down to 0.0001" (one ten-thousandth) of an inch.
- Funding sources through NVC Foundation grants targeting Machine Tool Technology students and equipment have recently come forward.

- **Effective Practices**

  - Detailed, hands-on instruction with manual machine tool practices and techniques, and CNC machine tool programming and operations.
  - Shop safety, priority one.
  - Modern machine tools in good and precise working order.
  - Job placement with about-to-graduate, graduated, and students currently in the program.
  - Ongoing community outreach, and in-house tours.

V. PROGRAM PLAN

A. Based on the information included in this document, the program is described as being in a state of:

- ○ Viability
- ○ Stability
- ○ Growth

*Please select ONE of the above.

This evaluation of the state of the program is supported by the following parts of this report:

(Identify key sections of the report that describe the state of the program. Not an exhaustive list, and not a repeat of the report. Just key points.)

B. Outline the three-year plan for the program by completing Columns A – D of the Three-Year Program Planning Template (the Excel file that will accompany the Program Review Report). For the fall 2024 program review cycle, the 3-year program plan will span 2025-2026 through 2027-2028.

VI. RESOURCES NEEDED TO IMPLEMENT PROGRAM PLAN

A. Describe the current state of program resources relative to the plan outlined above. (Resources include: personnel, technology, equipment, facilities, operating budget, training, and library/learning materials.) Identify any anticipated resource needs (beyond the current levels) necessary to implement the plan outlined above.

Description of Current Program Resources Relative to Plan:

We currently have SWP support for new technology and upgrades.

B. Identify the resources needed in order to implement each component of the three-year plan for the program by completing Columns E – F of the Three-Year Program Planning Template (the Excel file that will accompany the Program Review Report). If more than one type of resource (e.g., operating expenses, technology, supplies, facilities, equipment, etc.) is needed to implement the initiative, list each need on consecutive rows following the unit-level initiative.

Note: Resources to support program plans are allocated through the annual planning and resource allocation process (not the program review process).

The completed Three-Year Program Planning Template will serve as a draft/starting point for upcoming annual planning and resource allocation cycles.

A	B	C	D	E	F
PROGRAM:	*Machine Tool Technology*				
PLANNING YEARS:	**2025-2026 through 2027-2028**				
Program/Service	**Unit-Level Initiative**	**Anticipated Year of Implementation**	**Anticipated Outcome of Initiative**	**Description of Resource Need**	**Type of Resource Need**
CNC Machine Tool Operations	Increase state-of-the-art CNC machine tool capabilities.	2025-2026	Increased capability and complexity of student projects. Increased reliability of machine tool.	New CNC lathe with live tooling	Equipment (other than Technology)
CNC Machine Tool Operations	Increase reliability of 3-axis CNC milling capability.	2026-2027	Increased reliability of machine tool. Increased accuracy of student projects.	New 3-axis CNC milling machine	Equipment (other than Technology)
Replacement Hire for Instructor	Professor/Program Coordinator is retiring in May, 2026.	2026-2027	Continuance of Machine Tool Technology program.	HR to advertise and collect a list of eligible candidates for inerview. Selection committee to interview and hire replacement instructor.	Staffing

PROGRAM **SPRING 2025**

Completed by Supervising Administrator:

Dr. Douglas C. Marriott

Date:

April 24, 2025

Strengths and successes of the program, as evidenced by analysis of data, outcomes assessment, and curriculum:

The strengths and successes of the program are attributable to the dedication of the current full-time faculty member. He has engaged with both industry and community partners to promote the program and to help create pipelines with both our educational and business partners. He is often in the shop in off hours to attend to the machines with our volunteers (whom he as recruited) and for "open house" type visits. There are limitations on enrollments due to safety, but it is encouraging to see both completion increases as we are well aware of industry placements from qualitative feedback from both students and business partners. The current shop is well organized and provides current machines, tools, and technology for learning but the industry is constantly changing and we should be aware of updates and alignment.

Areas of concern, if any:

For the next academic year we have a major concern. Our decade-long instructor will be retiring in the Spring of 2026. We need to proactively work on recruitment and replacement of the position while he is still with us to ensure viability and a smooth transition. This concern is a priority while other concerns can be addressed with the Dean and faculty member from week to week.

Recommendations for improvement:

We should prioritize the replacement and hiring process for the area, create multiple standard operating and maintenance procedures for the new faculty replacement as well as best practices for industry engagement, Foundation scholarship disbursement, high school partnership, and alignment with both WELD and DDGT to ensure continuity and minimize the loss of institutional knowledge in the area.

Additional information regarding resources:

We are in the process of capital purchases with SWP to ensure alignment with advanced manufacturing. We may need curriculum support as well to nurture through the Industrial Maintenance Technician certificate while we still have the full-time faculty member who has listened to industry partners about this area of need for some ten years.