Career Education

Summary of Program Review:

A. Major Findings

1. Strengths:

- Enrollments are generally increasing.
- Course content is relevant to the core programs supported.
- Students receive good, solid instruction.

2. Areas for Improvement:

- Textbook needs review and possible replacement.
- CORs and Learning outcomes need to be assessed and reviewed.
- Formalize a Program Coordinator to oversee the courses.

3. Projected Program Growth, Stability, or Viability:

- Given enrollment in the core programs supported, enrollment is forecast to remain at current levels.

B. Program's Support of Institutional Mission and Goals

1. Description of Alignment between Program and Institutional Mission:

- Core CTE Program Coordinators work with respective Administrators and Industry Advisory Board members to ensure alignment with institutional goals and industry needs.

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

- Since last assessment, the program has employed an instructor who has upgraded the curriculum and engages and challenges students toward achievement of needed job skills.

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

- Students were recently challenged to design a wheelchair ramp of varying lengths in accordance with ADA guidelines. This is in line with our Facilities Master Plan for accessibility.

C. New Objectives/Goals:

- Provide more examples of real-world problems to be solved by students.
- Assess, update and revise learning outcomes.
- Source possibilities for a new textbook.

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

This report, wherever possible, is data driven and factually compiled.

Program Review Report Fall 2023

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

Program	Career Education
Courses	TECH-92
	TECH-107

Taxonomy of Programs, July 2022

I. PROGRAM DATA

A. Demand

1. Headcount and Enrollment

	2020-2021	2021-2022	2022-2023	Change over 3-Year Period
Headcount				
Within the Program	**26**	**24**	**26**	**0%**
Across the Institution	**7,193**	**6,653**	**6,155**	**-14.4%**
TECH-92	24	22	22	-8.3%
TECH-107	14	14	9	-35.7%
Within the Program	**38**	**36**	**31**	**-18.4%**
Across the Institution	**30,381**	**25,212**	**23,473**	**-22.7%**
Source: SQL Queries for Fall 2023 Program Review				

RPIE Analysis: The number of students enrolled (headcount) in the Career Education Program remained consistent over the past three years, while headcount across the institution decreased by 14.4%. Over the same period, enrollment within the Career Education Program decreased by 18.4%, while enrollment across the institution decreased by 22.7%.

Enrollment in the following courses changed by more than 10% (± 10%) between 2020-2021 and 2022-2023:

Course with an enrollment decrease:

- *TECH-107 (-35.7%)*

Program Reflection:

The data chart above reflects enrollment numbers, not pass/fail data. The decrease in enrollment in TECH 107 appears to be due to a higher-than-average course failure rate in TECH 92. Incidentally, a new instructor was hired around that time. This is verified by the data in the table in Section B1.
It may be worth noting that the pandemic has tended to shift student priorities away from academics and toward employment, even today. Currently, we are seeing high fail rates in TECH 92 because students simply disappear and stop engaging with the class, many due to work commitments. As of this moment, 8 of the 23 enrolled students have stopped engaging with TECH-92 and will fail because they also have not dropped/withdrawn from the class. Three of these students disappeared in Week 3.

2. Average Class Size

	2020-2021		2021-2022		2022-2023		Three-Year	
	Sections	Average Size	Sections	Average Size	Sections	Average Size	Average Section Size	Trend
TECH-92	1	24.0	1	22.0	1	22.0	22.7	-8.3%
TECH-107	1	14.0	1	14.0	1	9.0	12.3	-35.7%
Program Average*	**2**	**19.0**	**2**	**18.0**	**2**	**15.5**	**17.5**	

								-18.4%
Institutional Average*	**1,199**	**25.3**	**1,112**	**22.7**	**1,009**	**23.3**	**23.8**	**-8.2%**

Sources: SQL Queries for Fall 2023 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.

RPIE Analysis: Over the past three years, the Career Education Program has claimed an average of 17.5 students per section. The average class size in the program is lower than the average class size of 23.8 students per section across the institution during this period. Average class size in the program decreased by 18.4% between 2020-2021 and 2022-2023. Average class size at the institutional level decreased by 8.2% over the same period.

Average class size in the following courses changed by more than 10% (±10%) between 2020-2021 and 2022-2023:

Course with a decrease in average class size:

- *TECH-107 (-35.7%)*

Program Reflection:

As stated in the program reflection section above, this data chart reflects enrollment numbers, not pass/fail data. The decrease in enrollment in TECH 107 appears to be due to a higher-than-average course failure rate in TECH 92. Incidentally, a new instructor was hired around that time. This is verified by the data in the table in Section B1.

3. Fill Rate and Productivity

Fill Rate			
	Enrollments	**Capacity**	**Fill Rate**
2020-2021	38	49	77.6%
2021-2022	36	49	73.5%
2022-2023	31	49	63.3%
Three-Year Program Total	**105**	**147**	**71.4%**
Productivity			
	FTES	**FTEF**	**Productivity**
2020-2021	3.8	0.4	9.5
2021-2022	3.6	0.4	9.0
2022-2023	3.2	0.4	8.0
Three-Year Program Total	**10.6**	**1.2**	**8.8**
Sources: SQL Queries for Fall 2023 Program Review; SQL Server Reporting Services – Term to Term Enrollment FTES Load Comparison Report (by Credit Course)			

RPIE Analysis: Between 2020-2021 and 2022-2023, the fill rate within the Career Education Program ranged from 63.3% to 77.6%. (The fill rate has not been calculated at the institutional level.) The program-level fill rate decreased across the three-year period. The rate across the three years was 71.4%. Between 2020-2021 and 2021-2022, enrollment decrease while and capacity remained stable, resulting in a decrease in fill rate. Between 2021-2022 and 2022-2023, enrollment decreased while capacity remained stable, resulting in a decrease in fill rate.

Productivity within the Career Education Program ranged from 8.0 to 9.5 over the three-year period. (Productivity has not been calculated at the institutional level.) The three-year program productivity of 8.8 was 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:

Perhaps a better metric would be to compare enrollments in TECH 92/107 to enrollments within the same time periods in Machine Tool Technology, Welding Technology and Digital Design and Graphics Technology, the three core programs from which enrollment in the TECH courses depends upon.

4. Labor Market Demand

This section does not apply to the Career Education Program.

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
TECH-92	71.6%		X	55.2%		X
TECH-107	91.9%	***X***		78.4%	X	
Program Level	**78.8%**			**63.5%**		
Institutional Level	90.0%			72.7%		

Source: SQL Queries for Fall 2023 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.

RPIE Analysis: Over the past three years, the retention rate for the Career Education Program was significantly lower than the retention rate at the institutional level. The retention rate for TECH-92 was lower than program-level rate. (The difference was not statistically significant.) The retention rate for TECH-107 was significantly higher than the program-level rate. The retention rate for the Career Education Program falls within the first quartile (Q1) among program-level retention rates (across 58 instructional programs, over the past three years). The retention rate for Career Education is among the lowest 25% of retention rates among NVC programs.

Over the past three years, the successful course completion rate for the Career Education Program was significantly lower than the rate at the institutional level. The successful course completion rate for TECH-92 was lower than the program-level rate, while the successful course completion rate for TECH-107 was higher than the program-level rate. (Neither difference was statistically significant.) The successful course completion rate for Career Education falls within the first quartile (Q1) among program-level successful course completion rates (across 58 instructional programs, over the past three years). The successful course completion rate for Career Education is among the lowest 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 (15.3%) was lower than the difference at the institutional level (17.3%). (The difference was not statistically significant.) 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).

No Career Education courses claimed a difference (between retention and successful course completion) that exceeded the 17.3% difference found at the institutional level.

Program Reflection:

The content of both courses is up for review to try and better bring about a more consistent flow from learning basic math calculations (TECH 92) to learning trigonometric and geometric functions in TECH 107.

2. Student Equity

	Retention Rates (Across Three Years)		Successful Course Completion Rates (Across Three Years)	
	Program Level	**Institution Level**	**Program Level**	**Institution Level**
African American/Black	*	87.7%	*	65.9%
Pacific Islander	N/A	86.7%		
Latinx/Hispanic			62.2%	69.0%
19 or Younger			60.6%	71.0%
First-Generation			54.5%	69.7%
Not Disabled/Not Reported			***62.8%***	72.5%
Source: SQL Queries for Fall 2023 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 six demographic groups with significantly lower retention and/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 six groups listed above.

[Due to the low number of African Americans/Blacks and Pacific Islanders enrolled in the Career Education Program over the past three years, this analysis does not include comparison of program-level and institution-level retention rates for those two groups.]

[Due to the low number of African American/Black students enrolled in the Career Education Program over the past three years, this analysis does not include comparison of program-level and institution-level successful course completion rates among African American/Black students.]

Within the Career Education Program, the successful course completion rates among Latinx/Hispanic students, students 19 or younger, and first-generation students were lower than the rates at the institutional level. (The differences were not statistically significant.) The program-level successful course completion rate among students without a disability reported was significantly lower than the corresponding rate at the institutional level.

These findings regarding equity groups reflect the findings that emerged from the comparison of successful course completion at the program vs. institutional level, where the program-level successful course completion rate was lower than the institution-level rate, although the differences at the program level were statistically significant. (See Section I.B.1 above.)

Program Reflection:

The data above are accurate. This is in agreement with enrollment data in Machine Tool Technology.

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 Career Education Program, as courses associated with the program were not offered through multiple delivery modes within the same academic year between 2020-2021 and 2022-2023.

C. Student Achievement

1. Program Completion

This section does not apply to the Career Education Program, as there are not any degrees or certificates associated with the program. See Taxonomy of Programs above.

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

This section does not apply to the Career Education Program.

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**
TECH	92	Cannot find	No			
TECH	107	Cannot find	Yes			

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

Program Reflection:

Here lies the heart of the problem with TECH 92/107. No one officially owns it; thus no one has pursued updating the CORs, the curriculum, or the text. I took on the program a few years ago when we lost the adjunct instructor and had no one to teach the course. Someone was needed to provide oversight; MTT students, along with Welding Technology and DDGT students depended on passing this curriculum to receive their certificates and degrees, so I stepped in. I've kind of been stuck with it ever since.
Also the TECH courses are not recognized on campus as "MATH" classes. This became more apparent than ever before when the instructor was not allocated 1 paid office hour per week as all other math classes on campus have been this semester. Instead, the instructor was given only 0.5 paid office hours per week as the rest of the campus (non-math). Overall, this curriculum needs to be recognized as a MATH course.

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

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

Program Reflection:

Course Outlines of Record and Student Learning Outcomes need to be established for TECH 92/107.

B. Summary of Learning Outcomes Assessment Findings and Actions

Effective, quantifiable and measurable student learning outcomes need to be formulated.

Program Reflection:

As stated above, ownership of this program needs to be formally established so bring about the changes and upgrades needed to ensure viability.

IV. PROGRAM HIGHLIGHTS

The program-level plan that emerged from the last review (fall 2020) included the following initiatives:

1. Strengthen the Student learning outcomes

2. Evaluate course to ensure they provide the best skills/ tools/ conceptualizations for courses

3. Seek industry leaders to determine what math skill sets are necessary for Welders, Machine tool technologists and Drafters/Graphic artists. Have discussion with Math and Science Chairs to see if TECH 92 and TECH 107 are still necessary or might other courses help prepare students for career education industries.

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

- Arranged for the Math Success Center to recognize and support student assistance with the TECH 92/107 curriculum.
- Brought onboard a good, dedicated and highly qualified adjunct instructor.

B. Recent Improvements

- Instructor has added additional project-based, real-world problems into the curriculum.

C. Effective Practices

- Active communication between the instructor and myself in collectively addressing issues with students who tend to fall behind.

V. PROGRAM PLAN

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.)

Complete Columns A – D of the 3-Year Program Planning Template (Excel file accompanying this report) to outline the three-year plan for the program. For the fall 2023 program review cycle, the 3-year program plan will span 2024-2025 through 2026-2027.

COLUMN A	COLUMN B	COLUMN C	COLUMN D
Program/Service	**Unit-Level Initiative**	**Anticipated Year of Implementation**	**Anticipated Outcome of Initiative**

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:

See program planning template (attached).

B. Complete Columns E – F of the 3-Year Program Planning Template to identify the resources needed in order to implement each unit-level initiative. If more than one type of resource (e.g., operating expenses, technology, supplies, facilities, equipment, etc.) is needed to implement the initiative, list them 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 3-Year Program Planning Template will serve as a draft/starting point for upcoming annual planning and resource allocation cycles.

COLUMN A	COLUMN B	COLUMN C	COLUMN D	COLUMN E	COLUMN F
Program/ Service	Unit-Level Initiative	Anticipated Year of Implementation	Anticipated Outcome of Initiative	Description of Resource Need	Type of Resource Need

CAREER EDUCATION FALL 2023

Completed by Supervising Administrator:

C. Marriott

Date:

Oct. 31, 2023

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

From a Career Education viewpoint, the strengths and success lie in the contextualization of math skills to career fields, based on feedback and needs identified by Advisory Boards and industry standards. A strength also is the Program Coordinator of Machining and Tooling ensuring course alignment and connection to multiple career areas.

Areas of concern, if any:

As cited in the review, there is a need to properly "house" the class to ensure oversight and ongoing viability and success.

Recommendations for improvement:

A dialog with OAA , Math, and CEWD for best next steps.

Additional information regarding resources:

PROGRAM: *Career Education (TECH 92/107)*
PLANNING YEARS: **2024-2025 through 2026-2027**

Program/Service	Unit-Level Initiative	Anticipated Year of Implementation	Anticipated Outcome of Initiative	Description of Resource Need	Type of Resource Need
Identify the Program/Service undergoing review.	*Describe each unit-level initiative (as briefly as possible).*	*Use the drop-down menu to identify the academic year each initiative will be implemented.*	*If the unit-level initiative is implemented, what is the expected result/outcome? How will you know it has been successful? Describe what you expect to happen. Examples: increased performance at the program level, a deliverable, improvement in the student experience*	*Briefly identify the specific resources that are needed to implement each initiative. Examples: 5 tablets, 25 laptops, a laptop cart*	*Use the drop-down menu to identify the type of resource described in Column E. If more than one resource is needed, describe those resources and identify the resource type within the rows immediately following each initiative.*
(Re)write Course Outlines of Instruction.	No CORs exist for TECH 92/107.	2024-2025	Improved direction toward deliverable instruction.	Formalize program ownership.	Staffing
Establish effective and measurable Student Learning Outcomes.	None ecurrently exist.	2024-2025	Improved direction toward deliverable instruction.	Formalize program ownership.	Staffing
If additional rows are needed, copy and paste rows above (to ensure that the formatting of the drop-down menus is maintained across all unit-level initiatives)	*Contact RPIE staff if you need assistance.*				
Once the program plan has been outlined above, the cells within certain columns can be merged together -- so that all resource needed to implement a specific unit-level initiative are linked to that one initiative.	*Contact RPIE staff if you need assistance.*				