Program Review Summary Page

For Instructional Programs

Program or Area(s) of Study under Review: Career Education

Term/Year of Review: Fall 2020

Summary of Program Review:

A. **Major Findings**
    1. **Strengths:**
        - We are enrolling 20-22 students per course
        - To ensure students are taking math DDGT, Welding and Machine Tool Technology students are enrolling in these courses
        - Most students are improving in some areas of math conceptualization
        - The instructors believe more than70% of students pass both courses
        - Foundational math principles which can translate into needed knowledge in multiple career fields

    2. **Areas for Improvement:**
        - Develop Student Learning Outcomes in support of student success.
        - Possibly look to redesign these courses for Career Education or find other course that provide the needed skills for success in DDGT, Machine Tool Technology and Welding.
        - Update the textbooks to ensure instructors are teaching to the level and need of industry standards.
        - Seek insight from industry professionals to determine the correct math needed to garner success as students obtain jobs.
        - Make sure these courses are technologically updated as well.

    3. **Projected Program Growth, Stability, or Viability:**

        - Based on pre-2020 (and pre-pandemic usage), fewer students are enrolled in some classes, however once we return to normal, the courses will continue with the 20-22 student average.

B. **New Objectives/Goals:**
    1. Ascertain if these courses are needed or others might suffice
    2. If Career Education leaders decide to keep these courses, ensure curriculum is updated and students are aware of the necessity for these courses.
    3. Develop Student Learning Outcomes in alignment with Career Education student necessity
    4. Update the textbook.
    5. Find instructors who want to teach this course in Fall and Spring.
    6. Ensure all program coordinators support using these courses for certificate/degree purposes.

Program Review Report | Fall 2020 |

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
Area of Study	Technical Math
Courses	TECH-92
	TECH-107

Taxonomy of Programs, July 2020

I.   PROGRAM DATA

A. Demand

1. Headcount and Enrollment

	2017-2018	2018-2019	2019-2020	Change over 3-Year Period
Headcount				
Within the Program	24	24	26	8.3%
Across the Institution	8,843	8,176	8,181	-7.5%
Enrollments				
TECH-92	24	23	24	0%
TECH-107	7	19	16	129%
Within the Program	31	42	40	29.0%
Across the Institution	36,115	32,545	33,102	-8.3%
Source: SQL Enrollment Files				

> *RPIE Analysis:* The number of students enrolled (headcount) in the Career Education Program increased by 8.3% over the past three years, while headcount across the institution decreased by 7.5%. Enrollment within the Career Education Program increased by 29%, while enrollment across the institution decreased by 8.3%.
>
> Enrollment in the following course changed by more than 10% (±10%) between 2017-2018 and 2019-2020:
>
> > Course with enrollment increase:
> > - *TECH-107 (129%)*

Program Reflection:

These courses currently fall in Machine Tool Technology, but have been under DDGT, and Welding in the past. In recent history (2016-2017) these courses were inactivated by the welding program coordinator as he felt other courses could provide the necessary background, conceptualization and skills welders, machine tool technologists and drafters needed.

2. Average Class Size

	2017-2018		2018-2019		2019-2020		Three-Year	
	Sections	Average Size	Sections	Average Size	Sections	Average Size	Average Section Size	Trend
TECH-92	1	24.0	1	23.0	1	24.0	23.7	0%
TECH-107	1	7.0	1	19.0	1	16.0	14.0	129%

Program Average*	2	15.5	2	21.0	2	20.0	18.8	29.0%
Institutional Average*	1,406	25.7	1,313	24.8	1,348	24.6	25.0	-4.3%

Source: SQL Enrollment and Course Sections Files
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:

Total # Enrollments.
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 18.8 students per section. The average class size in the program has been lower than average class size of 25.0 students per section across the institution during this period. Average class size in the program increased by 29% between 2017-2018 and 2019-2020. Average class size at the institutional level decreased by 4.3% over the same period.

Average class size in the following course changed by more than 10% (±10%) between 2017-2018 and 2019-2020:

> *Course with an increase in average class size:*
> o *TECH-107 (129%)*

Program Reflection:

MTT will evaluate these courses as part of its next review cycle.

3. **Fill Rate and Productivity**

Fill Rate*			
	Enrollments*	**Capacity**	**Fill Rate**
2017-2018	31	49	63.3%
2018-2019	42	49	85.7%
2019-2020	40	49	81.6%
Three-Year Program Total	113	147	76.9%
Institutional Level	91,739	112,746	81.4%
Productivity*			
	FTES	**FTEF**	**Productivity**
2017-2018	3.1	0.4	7.8
2018-2019	4.2	0.4	10.5
2019-2020	3.8	0.4	9.5
Three-Year Program Total	11.1	1.2	9.3
Source: SQL Enrollment and Course Sections Files			

RPIE Analysis: Fill rates within the Career Education Program fluctuated over the past three years. The three-year fill rate at the program level is lower than the fill rate at the institutional level. [Compare program-level rate of 76.9% to institution-level rate of 81.4% over the past three years.] Between 2017-2018

Program Reflection:

MTT will evaluate these courses as part of its next review cycle.

4. **Labor Market Demand**

This section does not apply to the Career Education Program, as the two courses included in this program support other Career Technical Education programs. Labor market data is provided as part of the program review process for those programs.

B. **Momentum**

1. **Retention and Successful Course Completion Rates**

Level	Retention Rates (Across Three Years)			Successful Course Completion Rates (Across Three Years)		
	Rate	Course Rate vs. Program Rate		Rate	Course Rate vs. Program Rate	
		Above	Below		Above	Below
TECH-92	88.7%		X	73.2%		X
TECH-107	100%	*X*		100%	*X*	
Program Level	92.8%			82.9%		
Institutional Level	90.5%			76.3%		

Source: SQL Enrollment Files
-- 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.
Note: Spring 2020 grades of EW (Excused Withdrawal) 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 higher than the rate at the institutional level. (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 in the 58th percentile among program-level retention rates (across 59 instructional programs, over the past three years).*

Over the past three years, the successful course completion rate for the Career Education Program was higher than the rate at the institutional level. (The difference was not statistically significant.) The successful course completion rate for TECH-107 was significantly higher than the program-level rate. The successful course completion rate for the Career Education Program falls in the 64th percentile among program-level retention rates (across 59 instructional programs, over the past three years).

Over the past three years, the difference between retention and successful course completion at the program level (9.9%) was lower than the difference at the institutional level (14.2%). (The difference was not statistically significant.) This figure represents the proportion of non-passing grades assigned to students (i.e., grades of D, F, I, NP).

The following Career Education Program course claimed a difference (between retention and successful course completion) that exceeded 10%:
- *TECH-92 (15.5%)*

Program Reflection:

It has been agreed by Science, Mathematics and Engineering and the Technical Division Chairs that it is appropriate and in the best interests of students, to move this course from Science, Mathematics and Engineering into the Technical Division for programmatic purposes.

The Course Outlines of Record (CORs) are dramatically different as Tech 92 focuses on general math problem solving while TEC 107 describes the use of geometry and trigonometry as the course objectives. These courses may need a full comparison and evaluation to determine where both fit into the career education curriculum. Since Tech 92 is a prerequisite for TECH 107 a deeper evaluation of the contents of both course will provie beneficial.

2. **Student Equity**

	Retention Rates (Across Three Years)		Successful Course Completion Rates (Across Three Years)	
	Program Level	Institution Level	Program Level	Institution Level
Black/African American	--	86.4%	--	65.3%
Hispanic			78.0%	73.9%

First Generation			80.4%	75.0%

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

Within the Career Education Program, the successful course completion rates were higher than the rates at the institutional level for Hispanic and First Generation students. (The differences were not statistically significant).

This pattern reflects the findings from the comparison of successful course completion at the program vs. institutional level, where the program-level rate exceeded the institution-level rate for successful course completion. (See Section I.B.1 above).

Note: Rates are not reported for Black/African American students, as there were not any Black/African American students enrolled in courses affiliated with the Career Education program over the past three years.

Program Reflection:

MTT will evaluate these courses as part of its next review cycle.

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 2017-2018 and 2019-2020.

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.*

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

> *This section does not apply to the Career Education Program, as the discipline is not included in the Perkins IV/Career Technical Education data provided by the California Community Colleges Chancellor's Office, and licensure exams are not required for jobs associated with the discipline.*

II. **CURRICULUM**

   A. **Courses**

Subject	Course Number	Approval Date	Has Prerequisite* Yes/No	In Need of Revision *Indicate Non-Substantive (NS) or Substantive (S)* **& Academic Year**	To Be Archived *(as Obsolete, Outdated, or Irrelevant)* **& Academic Year**	No Change
DISC						
DISC						

*As of fall 2018, prerequisites need to be validated (in subsequent process) through Curriculum Committee.

   B. **Degrees and Certificates+**

Degree or Certificate & Title	Implementation Date	Has Documentation Yes/No	In Need of Revision+ *and/or Missing Documentation* **& Academic Year**	To Be Archived* *(as Obsolete, Outdated, or Irrelevant)* **& Academic Year**	No Change

*As of fall 2018, discontinuance or archival of degrees or certificates must go through the Program Discontinuance or Archival Task Force.

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

Program Reflection:

The current curriculum may be dated and need revision. The faculty and administration will seek insight from industry professionals to determine what skills and abilities are needed mathematically for students to be successful.

Based on the feedback, the faculty will update or redesign the curriculum to best meet the student needs as it pertains to career education. This includes possibly substituting other courses if it is determined other courses in math will provide the needed skills.

III.   LEARNING OUTCOMES ASSESSMENT

A. Status of Learning Outcomes Assessment
Learning Outcomes Assessment at the Course Level

Number of Courses	Number of Courses with Outcomes Assessed		Proportion of Courses with Outcomes Assessed	
	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:

There are no current Student Learning Outcomes

B. Summary of Learning Outcomes Assessment Findings and Actions

Assessment of SLO #1 TECH 92- Since no SLO's exist, should this course continue, faculty will need to establish effective, measurable, and quantifiable student learning outcomes.

Assessment of SLO # 2 TECH 92- Since no SLO's exist, should this course continue, faculty will need to establish effective, measurable, and quantifiable student learning outcomes.

Assessment of SLO #1 TECH 107- Since no SLO's exist, should this course continue, faculty will need to establish effective, measurable, and quantifiable student learning outcomes.

Assessment of SO #2 TECH 107- Since no SLO's exist, should this course continue, faculty will need to establish effective, measurable, and quantifiable student learning outcomes.

Program Reflection:

SLOs will be established.

IV.   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 the table below to outline a three-year plan for the program, within the context of the current state of the program.

Program: _____

Plan Years: _____

Strategic Initiatives Emerging from Program Review	Relevant Section(s) of Report	Implementation Timeline: Activity/Activities & Date(s)	Measure(s) of Progress or Effectiveness
1. Strengthen the Student learning outcomes	Outcomes Assessment	Evaluate current course offerings and determine action Spring 2021	Students and Instructors are aware of Student Learning Outcomes and are working toward achieving them
2. Evaluate course to ensure they provide the best skills/ tools/ conceptualizations for courses	Curriculum	Seek feedback and opinions from industry professionals to determine needed math skills. Review other courses offered at NVC to see if any other math courses could suffice for the skills needed in career education industries, specifically Drafting/Graphic Design,	Updated course content or students placed in other existing courses that might meet needed industry skill levels.

		Machine tool Technology and Welding.	
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.	Major Findings	Review current math courses to determine if other math courses sufficiently prepare students for career education industries in Drafting/Graphic Design, Machine Tool Technology and Welding.	Demonstrated achievement of information literacy outcomes, based on regular assessments

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.

Note: Resources to support program plans are allocated through the annual planning and budget process (not the program review process). The information included in this report will be used as a starting point, to inform the development of plans and resource requests submitted by the program over the next three years.

Description of Current Program Resources Relative to Plan:

The current FY 2020-21 enrollment for these courses are trending negative. However, we are not sure if the courses are low enrolled because of course content or COVID-19 results. Regardless, faculty and administrators must ensure these are the best courses which offer our students the most current information as to improve their overall chance of success.

TECH 92 and TECH 107 need further evaluation as to necessity and content. It could be determined to revise and update these courses or possibly find other existing courses which may be as or more favorable for career education students to take to prepare them for specific careers in Drafting/Graphic arts, Machine Tool Technology or Welding.

V.   PROGRAM HIGHLIGHTS

A.   Recent Improvements

B.   Effective Practices

Feedback and Follow-up Form

Completed by Supervising Administrator:

Date:

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

Areas of concern, if any:

Recommendations for improvement:

Anticipated Resource Needs:

Resource Type	Description of Need (Initial, Including Justification and Direct Linkage to State of the Program)
Personnel: Faculty	
Personnel: Classified	
Personnel: Admin/Confidential	
Instructional Equipment	
Instructional Technology	
Facilities	
Operating Budget	
Professional Development/ Training	
Library & Learning Materials	