Fullerton College Program Review and Planning
Self-Study for Instructional Programs
Fall 2021

Statement of collaboration

The program faculty members listed below collaborated in an open and forthright dialogue to prepare this Self Study. Statements included herein accurately reflect the conclusions and opinions by consensus of the program faculty involved in the comprehensive self-study.

Participants in the self-study

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Brendon Kirby
Jordon Maxwell
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Authorization

After the document is complete, it must be signed by the Principal Author, the Department Coordinator, and the Dean prior to submission to the Program Review and Planning Committee.

George Bonnand	George Bonnand	3-28-2022
Printed name of principal author	Signature	Date
Dan O'Brien Dan Carter Will Daniels	Dan O'Brien Dan Carter William Daniel	3/25/2022 3/26/2022 3/28/22
Printed name of department coordinator	Signature	Date
Ken Starkman	Ken Starkman	3/20/2022
Printed name of Dean	Signature	Date

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1.0 Executive Summary

The manufacturing departments are made up of 4 main departments, however there are actually 5 departments total. The Metallurgy department has only one course associated with it therefore it is folded into the Machine Technology department for consistency purposes. The 4 main departments are the Drafting Technology, Machine Technology, Technology department, and the Welding department. Information that has been yielded by the Office Institutional Effectiveness (OIE) and the SLOA data base from Elumen is enlightening. There appears to be gaps between certain ethnicities however the population that we serve is mostly the 25+ age group students and the Latinx student group. We used reports from the OIE which presented a data packet for Manufacturing and Elumen reports which consisted of the Course Statistics and Evidence report by department and the Performance Report by programs with courses. The areas of concern were the enrollment numbers or data, the Course Success rates-Equity Analysis for Manufacturing, Course Completion rates-Equity Analysis for Manufacturing, and the Disproportional Impact in TOP 5 Enrolled Courses by Course by Race/Ethnicity/Ancestry graph. I will address these areas of concern one by one below:

- Enrollment data- Enrollment trends from Academic Year (AY) 16/17 to 19/20 has shown an increase in enrollment and headcount due to the manufacturing reshoring efforts in the USA. However, in AY 20/21 the enrollment and headcount decreased significantly due to the Covid-19 pandemic. Enrollment dropped 32.6% from AY 19/20 to AY 20/21. Headcount dropped 32.4% from AY 19/20 to AY 20/21. Again, the Covid-19 pandemic played a major role in this trend.
- Courses Success rates-Equity Analysis for Manufacturing- In reviewing the graph for Course Success (on page 16 graph) it appears that “Latinx” Race/Ethnicity/Ancestry have a gap of negative 112 below average for Course Success rates which represents 49% of our total enrollments. Similarly, the Unknown” Race/Ethnicity/Ancestry have a gap of negative 30 below average for Course Success rates. This negative rate I believe can be attributed to a number of reasons. The first reason is that this trade is filled with employers who want their employees to work overtime on a consistent basis. This means that when the economy is good the overtime for employees (students) is plentiful and our students who are employed in the industry take advantage hence they drop the course or do poorly due to attendance. A second reason may be due to the Covid-19 pandemic and the economic downturn that followed. Another reason may be due to high enrollment of non-majors into manufacturing courses at time for student funding. At this time, no known single factor can explain these negative gaps in it’s entirety hence more investigation will be needed. Further studies and analysis are warranted to determine true problem, causes and proper resolutions for any gaps shown in the graph. Proper training of full time and part time faculty would help in this endeavor.
- Course Completion rates-Equity Analysis for Manufacturing- In reviewing the graph on page 15 for Course Completion it appears that the “Unknown” Race/Ethnicity/Ancestry has a gap of negative 26 below average for Course Completion rates which represents 5.5% of our total enrollments. All other groups seem to be within a normal range. This negative rate I believe can be attributed to a number of reasons. The first reason is that this trade is filled with employers who want their employees to work overtime on a consistent basis. This means that when the

economy is good the overtime for employees (students) is plentiful and our students who are employed in the industry take advantage hence they drop the course or do poorly due to attendance. A second reason may be due to the Covid-19 pandemic and the economic downturn that followed. Another reason may be due to high enrollment of non-majors into manufacturing courses at time for student funding. At this time, no known single factor can explain this negative gap in it's entirety hence more investigation will be needed.

- Disproportional Impact in TOP 5 Enrolled Courses by Course by Race/Ethnicity/Ancestry- The courses listed in the graph on page 18 graph show results for 4 welding courses and one machine technology course. Welding courses seem to be fairly consistent in the data for listed areas of Enrollment, Students Repeating, % of Students who Repeated, Course Completion, Course Success, and Withdraw Rate. The Machine Technology 116 F course shows lower enrollment numbers but the Course Completion rates and Course Success rates are lower for the Machine Technology 116F course than they are for the Welding courses. The Repeat and Withdraw Rate for the Machine Technology 116F is higher than the Welding courses for the Latinx group. This can be partly attributed to the type of course it is and the population it is serving and the Covid-19 pandemic. Since this course is an elective course in many cases enrollment will vary as will the completion and success rates. In the future, more investigation into the data is needed to understand why students are Repeating and Withdrawing as well as why Course Success rates for Latinx has a gap of negative 16. One hypothesis is that the Latinx population in our area accounts for 49% of the students enrolled in the Machine Technology program and it was disproportionally affected by the Covid-19 pandemic. The discrepancies can also be partly attributed to the course being a survey course which currently has enrollment from various majors in the CTE area as well as other non-majors hence real success may be difficult to assess. This course is very popular and seems to fill rather quickly each semester since it is only 2 units by a number of CTE majors and other non-majors.

- New Strategic Action Plans- The following are plans for the future expansion of the Manufacturing departments.
    - **Plan 1-Project Summary**-Our plan is to increase the footprint of the Machine Technology department by expanding into the adjacent 902 lab. This expansion of square footage would allow 2 new machine tools to be purchased to teach Mastercam-Lathe and Mastercam-Mill with multi axis effectively as well as relocated our current CMMs and Laser arms and any new equipment used in Metrology. We estimate, (after the project is complete) that 40 additional certificates will be awarded over a 4-year period between the Machine Technology and Metrology programs.
    - **Plan 2-Project Summary**-Our plan is to increase the footprint of the Machine Technology department by expanding into the adjacent 902 lab. This expansion of square footage would allow in addition to the Plan 1 project, the space needed for the two current robots that we currently have stored in the 905 lab plus 10 more. We estimate, (after the project is complete) that 30 additional certificates will be awarded over a 4-year period between the Machine Technology and Automation programs.

- Request for additional Faculty
    - The Machine Technology division is in need of another full time faculty member to teach the Metrology program courses. This Metrology program dovetails in with the Machine Technology, Welding, and Drafting technology courses as well as Engineering and Technology courses. The Machine Technology department has experienced stable growth over the last 5 years (with the exception of AY 20/21) in our afternoon and night courses. See Figure A. The day and evening students consist of students who have recently graduated from high school along with older students who are seeking a new career and veterans returning home from military service. Our night students also consist of employed individuals who are seeking training in advanced manufacturing technology to improve their knowledge of modern manufacturing practices. The Metrology program is a part of this new advanced manufacturing technology. In order to effectively launch this program and address the needs of the business community it is imperative that we have qualified instructors to teach this subject matter. Staffing these courses has become very difficult since both existing full time instructor are already at load with one at maximum overload. Part time instructors that meet the districts minimum qualifications are difficult to find as most professionals in advanced manufacturing jobs do not possess college degrees and if they do they are only available to teach evening courses on specific days of the week. Trying to find part time instructors to teach day and evening courses is especially challenging hence a full-time instructor would eliminate this issue.
    - In the 2013 and 2014 a full-time instructor was deemed to be required to support the request of the advisory committee to add courses in CNC CMM (Coordinate Measuring Machine) inspection and PCDMIS pc software. This request for a full time Metrology instructor has been echoed and consistent in every Advisory Committee meeting from 2013 to 2021. This request by our industry and committee for metrology has been met in part with the purchase of equipment and software however the full-time instructor head count to help implement this VTEA project fully has not been approved as of yet. The Machine Technology department chair and faculty would like to request an additional full time faculty member for the Metrology program that could also teach other subjects such as Automation and Robotics. Ideally this person would be qualified to teach Drafting as well.
    - A “Rationale for Full-Time Faculty Member Hiring” form has been submitted to the Division Dean in September of 2021 for Machine/Metrology Technology instructor.

Manufacturing Faculty:

Section 3.4.1 Faculty: Using the data provided by the OIE, briefly describe the faculty workload over the past five years: FTF (full-time faculty), PTF (part-time, or "adjunct" faculty), FTEF (full-time equivalent faculty), WSCH per FTEF (weekly student contact hours). (Not all of these measures apply to every program.)

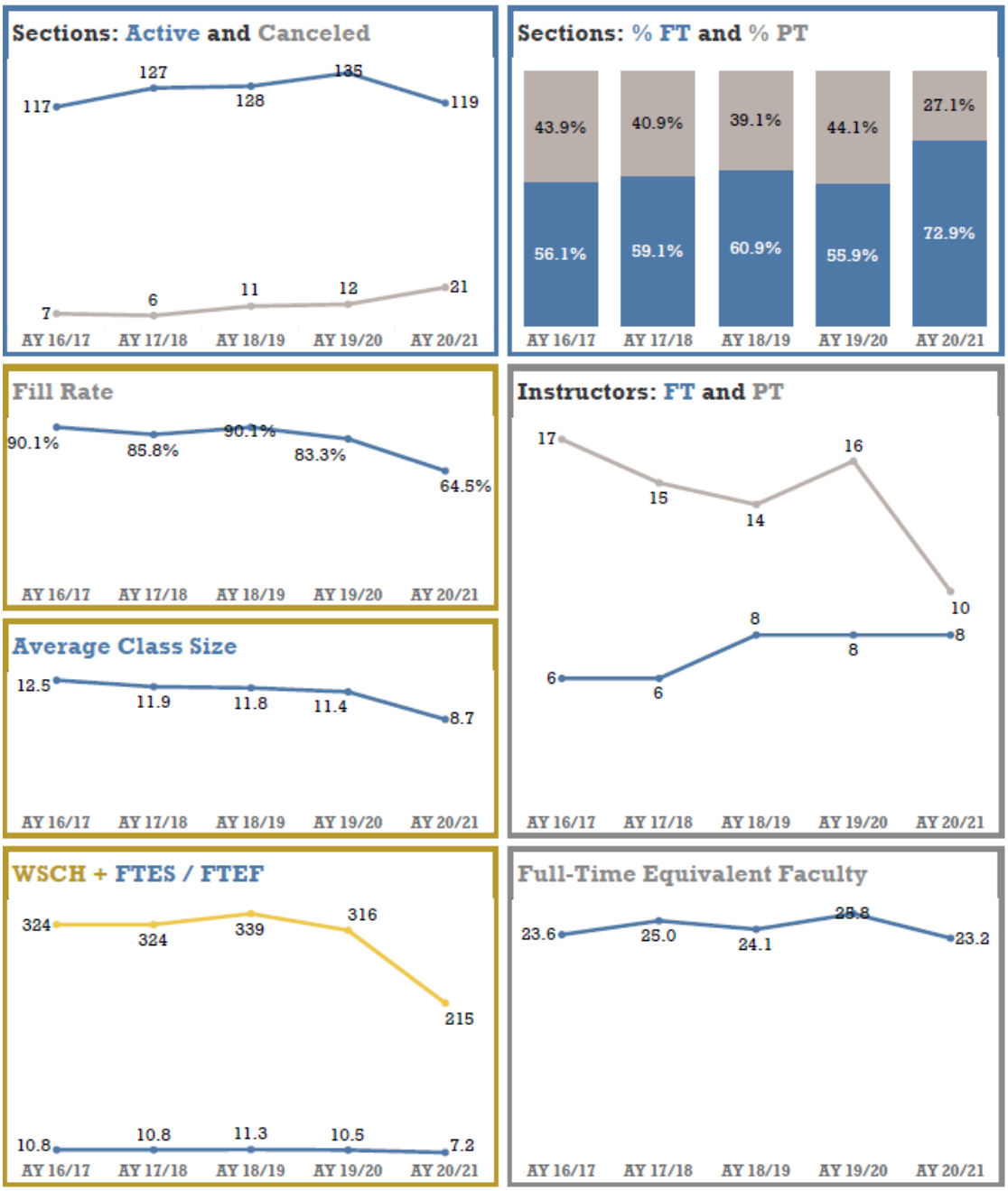


Figure A

2.0 Mission

Please explain briefly how your program contributes to the College's mission, vision, core values, and goals. Highlight any new contributions since your most recent self-study. If your department has a mission statement, please share it. If not then please consider discussing one with your colleagues.

Response: As clarification, the manufacturing area is comprised of 4 main departments. The 4 departments are as follows: Drafting, Machine, Technology, and Welding. (Please note that the Metallurgy department has only one course associated with it and it is taught by a machine technology faculty member. This Metallurgy department is guided by the machine Technology faculty.) In order to simplify matters regarding the mission statement of our 4 departments the following Manufacturing mission statement has been agreed to by our full-time faculty in each department:

General Mission Statement for Manufacturing:

Our mission is to provide our students with true value in all their dealings with us. We will strive to understand our student's needs for skill and knowledge. We will provide economical training in manufacturing, and will strive to meet or exceed our student's expectations. We will apply the principles of development, advanced technology investment, experience and ingenuity to assist our students in achieving their career goals and objectives in an economical and cost-effective manner.

Fullerton College Mission Statement:

Fullerton College advances student learning and achievement by developing flexible pathways for students from our diverse communities who seek educational and career growth, certificates, associate degrees, and transfer. We foster a supportive and inclusive environment for students to be successful learners, responsible leaders, and engaged community members.

Upon review of the Manufacturing mission statement and the Fullerton College mission, vision, core values and goals we feel the spirit of the Manufacturing mission statement is in alignment. Both mission statements support student needs, expectations, and encourages expansion of a student's horizon in an educational setting. We adopt the Fullerton College mission stated without any reservations.

3.0 Students

Because there is a nearly infinite amount of student data that can be studied, please focus your analysis on the trends that stand out. The Office of Institutional Effectiveness (OIE) is providing data that will help you zero in on bottlenecks, gateways, and student equity issues. As per accreditation standards, OIE data will be broken down by race, ethnicity, gender, and other demographic categories. One of the purposes of this section is to identify inequities and make plans to remedy them.

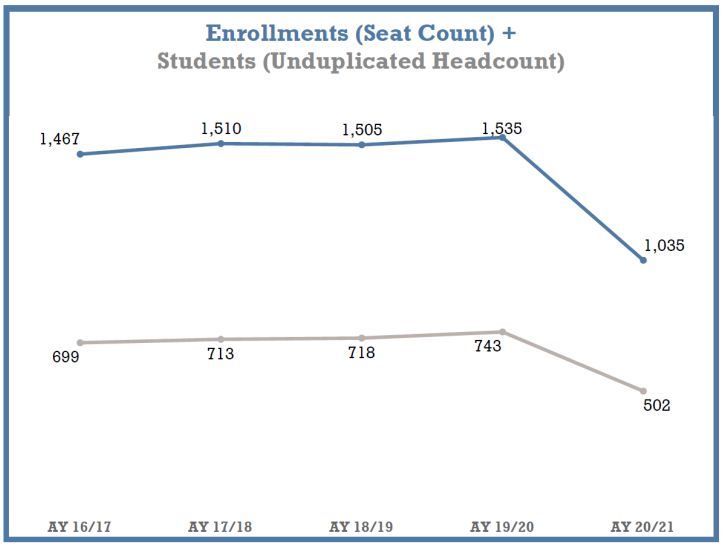
3.1 Enrollment demographics

1. Using the data provided by the OIE, briefly describe the enrollment trends in the program over the past five years.

Response: Enrollment trends from Academic Year (AY) 16/17 to 19/20 has shown an increase in enrollment and headcount due to the manufacturing reshoring efforts in the USA. However, in AY 20/21 the enrollment and headcount decreased significantly due to the Covid-19 pandemic. Enrollment dropped 32.6% from AY 19/20 to AY 20/21. Headcount dropped 32.4% from AY 19/20 to AY 20/21. Again, the Covid-19 pandemic played a major role in this trend.

Manufacturing

SECTION 3.1.1: *Enrollment Demographics*: Using the data provided by the OIE, briefly describe the enrollment trends in your program over the past five years.



The "Enrollments and Students" graph to the left shows the number of **enrollments (seat count)** and the number of **unique students (headcount)** enrolling each academic year in the **Manufacturing** program.

5-Year Change Calculation

The following table calculates the % change in **enrollments** and **headcount** between AY 16/17 and AY 20/21.

Note the table shows the change for "**This Program**" as well as the change for all other programs combined at the College.

5-Year % Change in Enrollments	All Other Programs	-11.7%
	This Program	-29.4%
% Change in Headcount	All Other Programs	-11.4%
	This Program	-28.2%

1-Year Change Calculation

The following table calculates the % change in **enrollments** and **headcount** between AY 19/20 and AY 20/21.

Note the table shows the change for "**This Program**" as well as the change for all other programs combined at the College.

% Change in Enrollments	All Other Programs	-3.2%
	This Program	-32.6%
% Change in Headcount	All Other Programs	-2.9%
	This Program	-32.4%

Figure 1

2. Using the data provided by the OIE, describe the student population the department serves. Do you have a way of determining which students are majors, for example through a gateway course? Please explain.

Response:

Our programs in manufacturing serve a variety of populations in our area. In comparison to all other programs at Fullerton our manufacturing programs most notably serves (per the data below shown in the graph for section 3.1.2) the students desiring certificates in a manufacturing area; the students in career development; the Age 20-24 population; the Age 25+ population; returning students in the manufacturing field; college graduates in manufacturing whether they are from a two-year institution or a 4 year institution; and veterans.

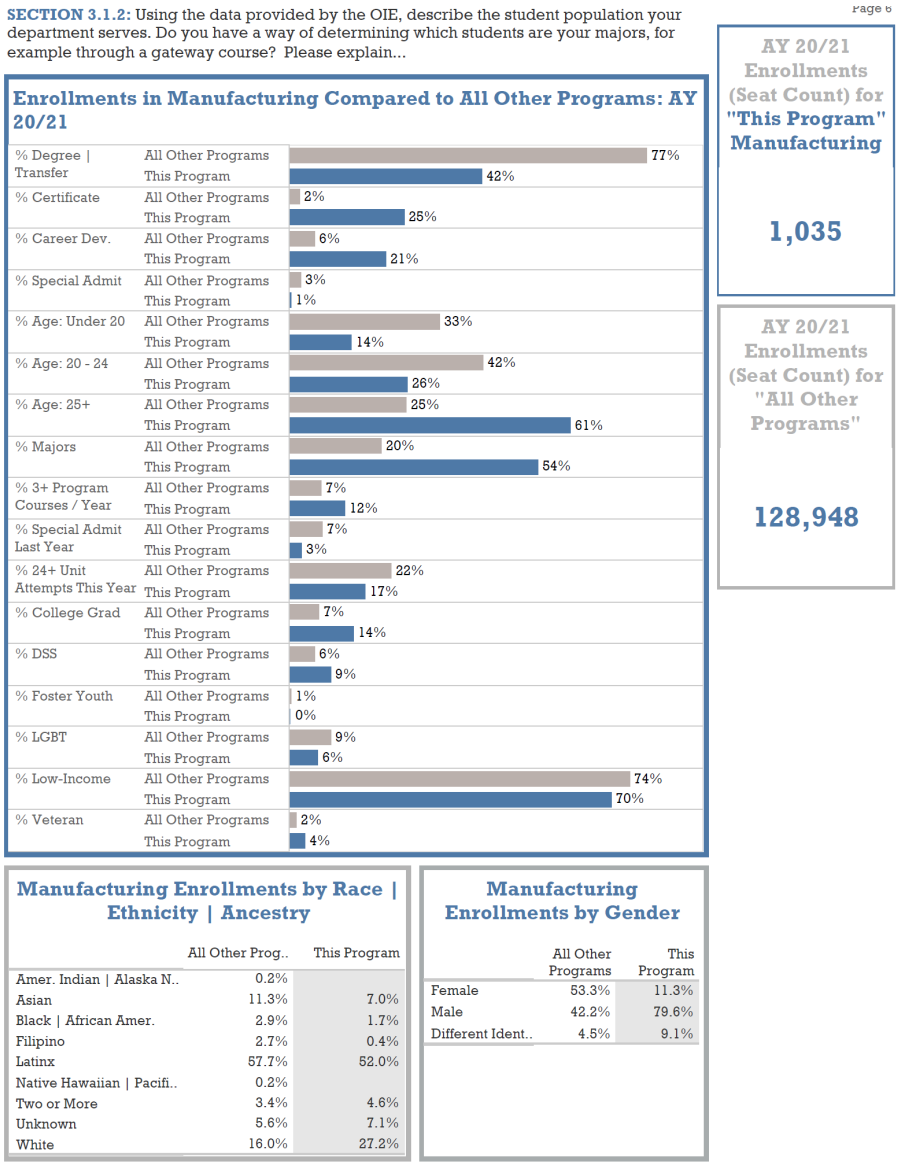
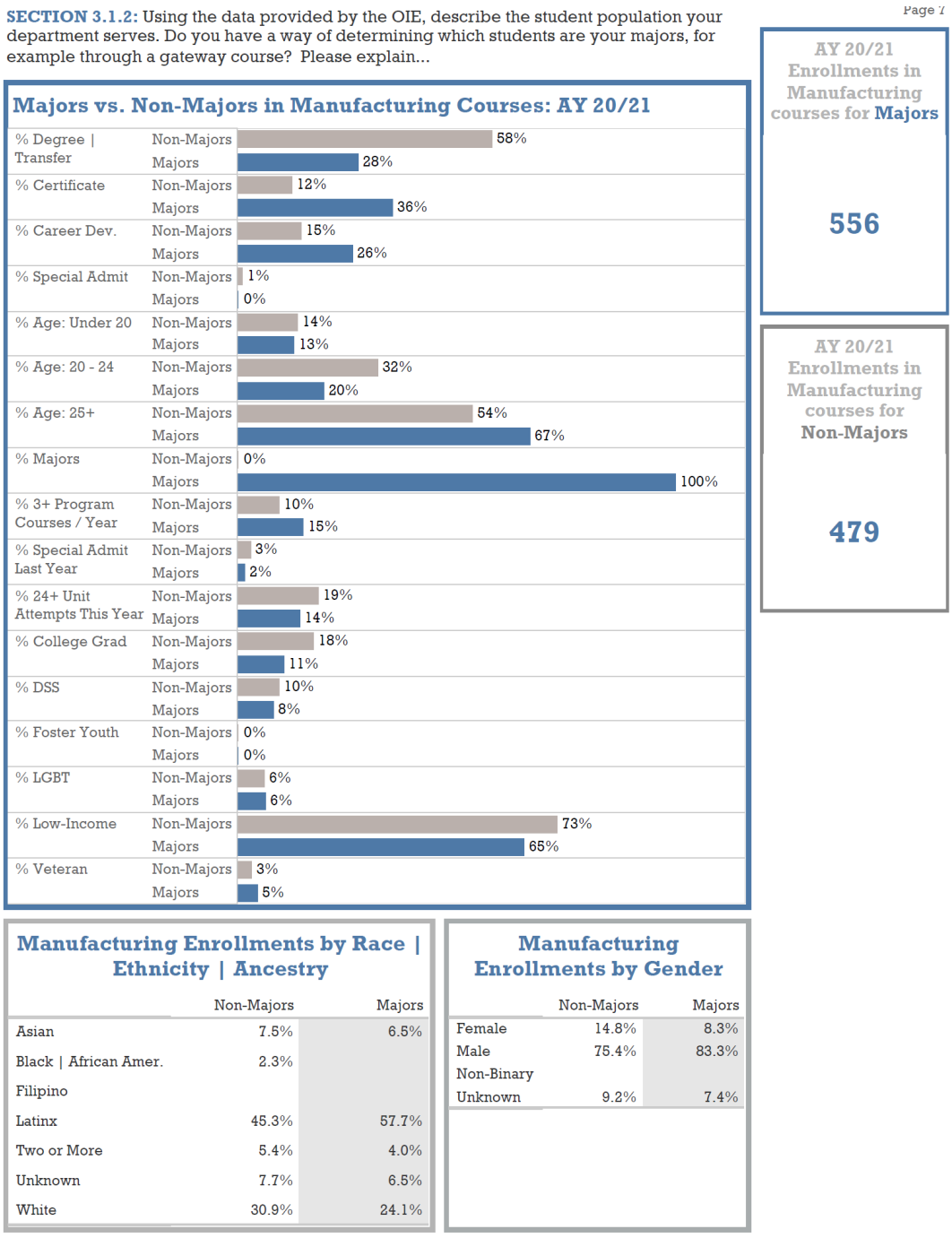


Figure 2

At this time, there are no real gateway courses that dictate a student's major. We as instructors in manufacturing encourage students to take different courses in the manufacturing CTE area to explore what each has to offer. Courses in the Drafting, Machine, Technology, and Welding departments vary in their prerequisite requirements. However, as a rule we limit the number of prerequisites or eliminate them entirely in our beginning courses in an attempt to bring more students into the Manufacturing programs/courses from various populations since we are strongly linked to business cycles.



Page 7

SECTION 3.1.2: Using the data provided by the OIE, describe the student population your department serves. Do you have a way of determining which students are your majors, for example through a gateway course? Please explain...

Majors vs. Non-Majors in Manufacturing Courses: AY 20/21

% Degree | Transfer	Non-Majors	58%
	Majors	28%
% Certificate	Non-Majors	12%
	Majors	36%
% Career Dev.	Non-Majors	15%
	Majors	26%
% Special Admit	Non-Majors	1%
	Majors	0%
% Age: Under 20	Non-Majors	14%
	Majors	13%
% Age: 20 - 24	Non-Majors	32%
	Majors	20%
% Age: 25+	Non-Majors	54%
	Majors	67%
% Majors	Non-Majors	0%
	Majors	100%
% 3+ Program Courses / Year	Non-Majors	10%
	Majors	15%
% Special Admit Last Year	Non-Majors	3%
	Majors	2%
% 24+ Unit Attempts This Year	Non-Majors	19%
	Majors	14%
% College Grad	Non-Majors	18%
	Majors	11%
% DSS	Non-Majors	10%
	Majors	8%
% Foster Youth	Non-Majors	0%
	Majors	0%
% LGBT	Non-Majors	6%
	Majors	6%
% Low-Income	Non-Majors	73%
	Majors	65%
% Veteran	Non-Majors	3%
	Majors	5%

AY 20/21 Enrollments in Manufacturing courses for **Majors**

556

AY 20/21 Enrollments in Manufacturing courses for **Non-Majors**

479

Manufacturing Enrollments by Race | Ethnicity | Ancestry

	Non-Majors	Majors
Asian	7.5%	6.5%
Black | African Amer.	2.3%	
Filipino		
Latinx	45.3%	57.7%
Two or More	5.4%	4.0%
Unknown	7.7%	6.5%
White	30.9%	24.1%

Manufacturing Enrollments by Gender

	Non-Majors	Majors
Female	14.8%	8.3%
Male	75.4%	83.3%
Non-Binary		
Unknown	9.2%	7.4%

Figure 3

3. Which classes have the highest demand and why? Are they offered regularly -- at different times of the day and week, in different formats (in-person, on-line, hybrid)? Please explain.

Response: Beginning manufacturing courses and sections numbers have been offered on a regular basis every semester during day and evening hours. The number of sections for courses have increased or decreased according to demand for them each semester. In the Welding department the number of sections have been increased due to high demand in the industry hence the large number of enrollments and sections in the last 5 years. Machine and Drafting enrollments have maintained steady enrollments from AY 16/17 to AY 19/20. However, since the mandate to teach only on-line in March 2020 (Spring 2020) for the remaining part of the semester, enrollments and headcounts have declined. Since most manufacturing courses require in-person instruction to be effective the Covid-19 pandemic has affected us greatly. We feel strongly as a group that in-person lab based instruction is a necessary ingredient in order for students to be successful in the manufacturing field.

5 Courses with Most Enrollments
(5 Year Totals)

Course	Enrollme..	Sections	% Online	% Evening
WELD 121AF	428	21	0%	56%
WELD 091AF	427	42	0%	41%
WELD 091BF	362	42	0%	40%
WELD 091CF	306	39	0%	42%
MACH 116 F	278	18	0%	0%

Average* Number of Sections Offered and Enrollment by Semester
**(5-Year Avg.)*

	Avg. Sections	Avg. Enrollments
Summer	4	39
Fall	60	697
Spring	59	675

Figure 4

4. Please describe how course offerings match students' preparation and goals.

Response: Courses and programs are developed based on industry requirements, which allow students to seek employment locally as well as nationally. In the manufacturing departments, advisory group meetings are required every year for each department. The advisory group is made of industry professionals and guide instructors on what to teach students so that they can be employed in the field. The course outline of record and program outline of record are shared and reviewed with the advisory group. If changes are necessary they are made through the curriculum process. In addition, the curriculum process requires every department to review and revise their courses and programs every 6 years through the curriculum process, which we have done. In addition, all of the instructors in the manufacturing area have years of industry experience which allows students to benefit from this experience when preparing for a job. Courses in general are geared towards skills and abilities required to obtain entry or advanced jobs in the manufacturing field.

5. Does enrollment vary by semester? Please describe how course offerings are adjusted to meet student demand and help students reach their academic goals.

Response: As mentioned earlier the manufacturing programs and courses are strongly linked to business cycles. We have found over the years that when business demands are high (economy is in an up-swing) our enrollment is lower than normal and when the business demands are low (economy is in a down swing) our enrollment is higher than normal. Hence enrollment varies substantially from year to year. However, there is a concentrated and consistent effort to maintain essential course offerings every semester in all departments to serve all students as shown in the graphs below. Please note that some courses that are below the 100 level have been recently revised to make them 100 level or above hence the numbers have changed since 2018. (Example: MACH 050 F through to MACH 093F have been revised to MACH 101F through to MACH 156F and WELD 121AF and BF are now WELD 100F). See Figure 5 and 6.

Number of Summer, Fall, and Spring Terms, respectively, a course has been offered in the last 5 years.

(5 = Course has been offered every Fall term in the last 5 years; 4 = Course has been offered 4 of the last 5 fall semesters, etc.)

Course	Summer	Fall	Spring
DRAF 070 F		2	2
DRAF 101 F		3	3
DRAF 140 F		5	5
DRAF 141 F	3	2	
DRAF 143 F	1		2
DRAF 171 F		5	5
DRAF 173 F		5	5
DRAF 944 F		5	5
DRAF 945 F		3	3
MACH 050 F		2	2
MACH 052 F		2	2
MACH 060 F		2	2
MACH 062 F		2	2
MACH 086 F		2	2
MACH 087 F		2	2
MACH 088 F		2	2
MACH 090 F		1	2
MACH 091 F		2	2
MACH 092 F		2	2
MACH 093 F		2	2
MACH 101 F		3	3
MACH 102 F		3	3
MACH 103 F		3	3
MACH 110 F		3	3
MACH 115 F		3	3

Number of Summer, Fall, and Spring Terms, respectively, a course has been offered in the last 5 years.

(5 = Course has been offered every Fall term in the last 5 years; 4 = Course has been offered 4 of the last 5 fall semesters, etc.)

Course	Fall	Spring	Summer
MACH 116 F	5	5	
MACH 120 F	3	3	
MACH 130 F	1		
MACH 140 F		1	
MACH 150 F	3	2	
MACH 152 F	3	3	
MACH 154 F	3	1	
MACH 156 F	2	1	
MACH 180 F	2	3	
MACH 182 F	2	2	
MACH 184 F	1	2	
MACH 185 F		2	
METL 192 F	5	5	
TECH 080 F	1	1	
TECH 081 F	5	3	2
TECH 108 F	1	5	
TECH 127 F	2	2	
TECH 131 F	4	2	
TECH 132 F		4	
TECH 135 F	4		
TECH 136 F		4	
TECH 137 F	2	1	1
TECH 138 F		2	
TECH 150 F	2	2	
TECH 151 F	2	1	1

Figure 5

Continued

Course	Fall	Spring	Summer
TECH 158 F	1		
TECH 199 F	5	5	4
TECH 299 F	2	1	
WELD 091AF	5	5	
WELD 091BF	5	5	
WELD 091CF	5	5	
WELD 091DF	5	5	
WELD 095 F	4	4	
WELD 096 F	3	3	
WELD 098 F	4	3	
WELD 100 F	2	2	
WELD 120 F	2	2	
WELD 121AF	3	3	3
WELD 121BF	3	3	1

Figure 6

3.2 Student Achievement and Equity (and student demographic profile)?

1. Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: completion, success, degrees/certificates, transfer, licensing, job placement, wage improvements (not all of these measures apply to every program).

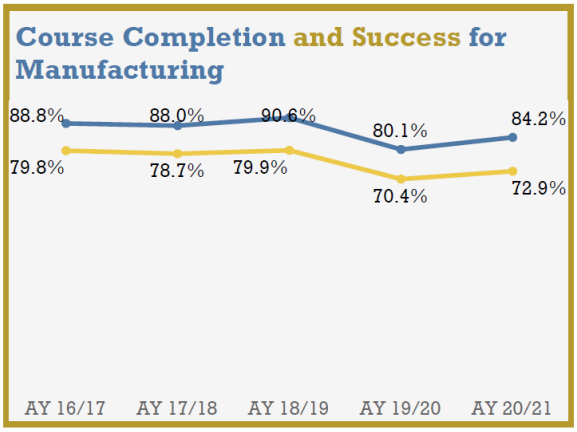
Response: As shown by the graphs below, course completion and success rates (page 10) have been steady from AY 16/17 to AY 20/21 showing an approximate 10% gap difference. This gap difference is normal and expected since most students work in different industries when they begin the transition to the manufacturing field. However, in AY 19/20 and AY 20/21 the completion and success rates have taken a dip due to the Covid-19 pandemic. Students did not complete programs and courses since a number of students experienced hardships causing many of them to drop courses mid-year which resulted in the completion and success rate decreasing. See graph below in Figure 7. The completion and success rates in manufacturing in the past have been above those seen in other programs. See graph below in Figure 8.

Course Completion + Course Success

Section 3.2.1: Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: **completion, success**, degrees/certificates, transfer, licensing, job placement, wage improvements (not all of these measures apply to every program).

Course Completion and Success for Manufacturing

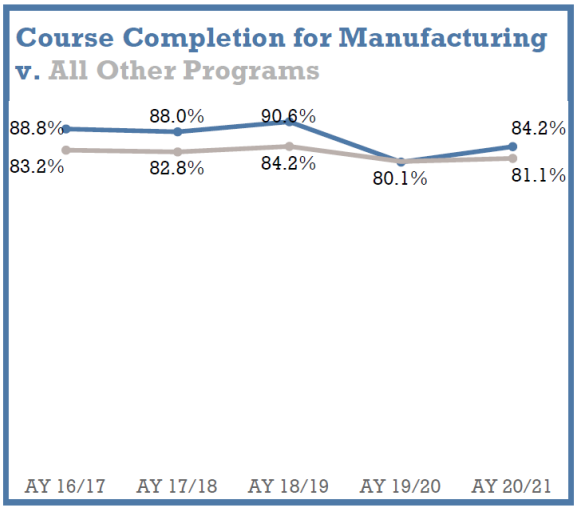
	AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21
Course Completion	88.8%	88.0%	90.6%	80.1%	84.2%
Course Success	79.8%	78.7%	79.9%	70.4%	72.9%



Course Completion and Success for Manufacturing Relative to All Other Programs

Course Completion for Manufacturing

Program Match	AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21
All Other Progra..	83.2%	82.8%	84.2%	80.3%	81.1%
This Program	88.8%	88.0%	90.6%	80.1%	84.2%



Course Success for Manufacturing

Program Match	AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21
All Other Progra..	68.0%	68.6%	70.1%	68.7%	69.1%
This Program	79.8%	78.7%	79.9%	70.4%	72.9%

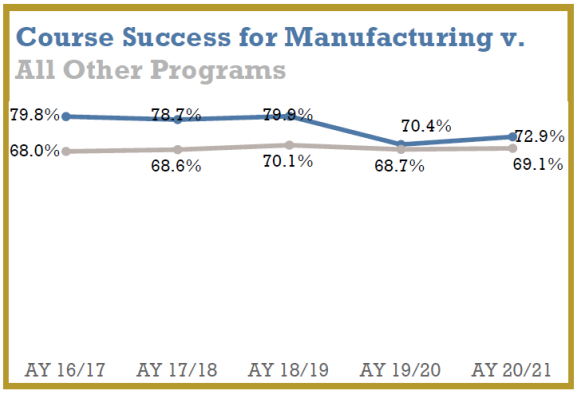


Figure 7

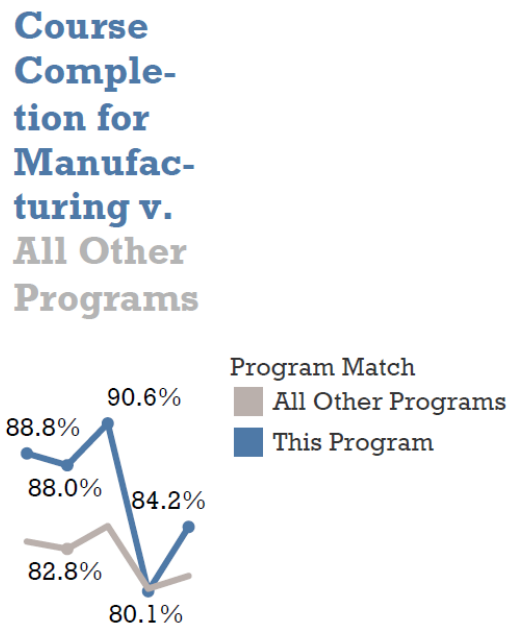


Figure 8

The graphs below depicting degrees/certificates rates (Figure 9) shows a dip in AY 18/19 and then an increase in AY 19/20. The dip in AY 18/19 can be attributed to certain courses and programs going through the curriculum approval process which revised many courses and programs in manufacturing. Certain certificates changed from local certificates to state approved certificates which resulted in a lag in approvals. In AY 19/20 a significant increase in degrees/certificates awarded is shown in the graphs in Figure 10. In AY 20/21 we attribute the decrease in degrees/certificates awarded to the Covid-19 pandemic and low enrollment. We are confident that as enrollment increases the number of degrees and certificates awarded will also increase.

Section 3.2.1: Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: completion, success, **degrees/certificates**, transfer, licensing, job placement, wage improvements (not all of these measures apply to every program).

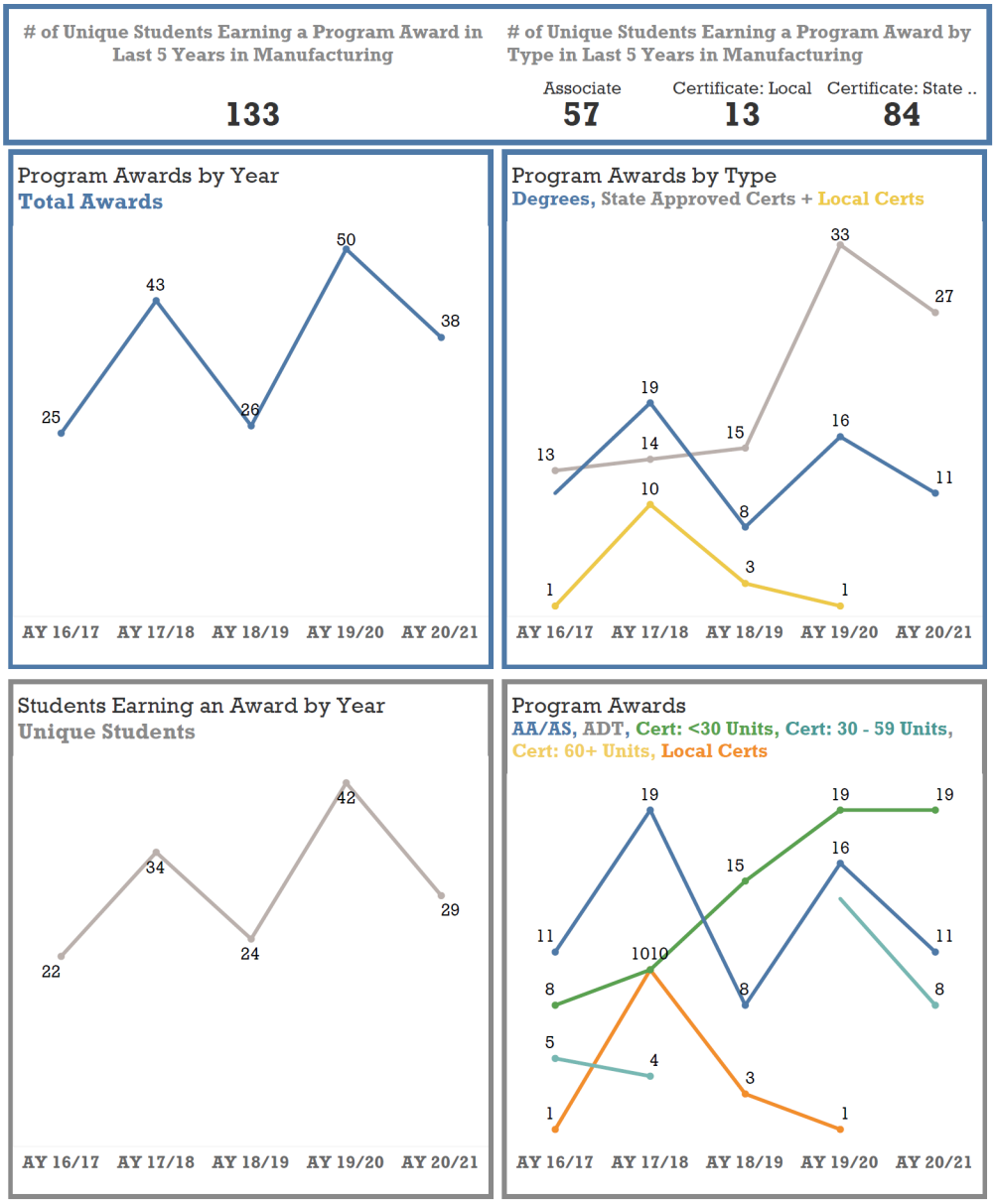


Figure 9

Section 3.2.1: Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: completion, success, **degrees/certificates**, transfer, licensing, job placement, wage improvements (not all of these measures apply to every program).

# of Unique Students Earning a Program Award in Last 5 Years in Manufacturing	Total Program Award in Last 5 Years in Manufacturing
133	182

# of Students Earning a Program Award by Award Type

	Year					
	AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21	Grand Total
Associate	11	16	8	15	10	57
Certificate: Local	1	8	3	1		13
Certificate: State Approv..	12	12	14	28	23	84
Total: Unique Students	22	34	24	42	29	133

Program Award Details for Manufacturing
Unique Students by Award Type by Year

	Year					
	AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21	Grand Total
AS	11	16	8	15	10	57
Cert: 16-29 Units				16	19	35
Cert: 18-29 Units	8	9	14	3		33
Cert: 30-59 Units	4	3		13	7	26
Cert: Local	1	8	3	1		13
Unique Students	22	34	24	42	29	133

Program Award Details for Manufacturing
Total Specific Awards by Year

			AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21	Grand Total
AS	AS Manufacturing Technology	2S03842	3	11	6	14	8	42
	Industrial Drafting	2S03840A	8	8	2	2	3	23
Cert: 16-29 Units	Cert Industrial Drafting Level I	2C10622A				1	5	6
	Cert Machine Technology Level I	2C36522A				8	4	12
	Cert Metrology	2C37762				1	1	2
	Welding Technology	2C08417A				6	9	15
Cert: 18-29 Units	Cert Draft Tech: Ind Draft I	2C10622		2	2	1		5
	Cert Draft Tech: Ind Draft II	2C10623		1	1			2
	Cert Welding Technology	2C08417	8	7	9	2		26
	Machine Technology: Level 1	2C36522			3			3
Cert: 30-59 Units	Cert Machine Tech: Level II	2C10624	3	2		6	3	14
	Draft Tech: Ind Drafting ll	2C10623A				1	2	3
	Mach Tech: Comp Numeric Contro	2C08416	2	2		7	3	14
Cert: Local	Cert Machine Tech: Level 1	2C03843	1	2	3	1		7
	Cert Machine Tech: Mastercam	2C00046		5				5
	Cert Machine Tech:CNC Operator	2C00060		3				3
Total Awards			25	43	26	50	38	182

Figure 10

In the graph below depicting Transfers (Figure 11), it should be noted that the manufacturing area is typically not a route most students take to transfer to a four-year institution hence the low numbers. Few if any CSUs and even fewer UCs have a Baccalaureate manufacturing degree option. This is due to the national decline in manufacturing in the 1970s and 1980s. California also experienced this down-turn in the early 1990s. This decrease in manufacturing resulted in a concentrated effort on the part of the State of California over the past 40 years to eliminate product-based manufacturing businesses and to back more information-based manufacturing businesses. This resulted in a trend that followed suit in the California educational arena with cuts to funding for Industrial Arts and manufacturing programs from K-7 to four-year institutions. The elimination of teacher training in the Industrial Arts field at CSUs in the early 1990's has nearly sealed the fate of teaching manufacturing in California schools. Sadly, today the role of the manufacturing sector in the state's growth is no longer that of the "lead," as it was in the 1940s, 1950s, 1960s and early 1970s. It is perhaps now better characterized as that of a major supporting player or key member of an ensemble cast. With this said, we are playing catch up in getting K-7 through four-year schools to back and promote manufacturing courses and degrees hence the low rate of transfer students today. The re-shoring efforts which began in 2013 and are continuing currently (2021) are having an effect on the manufacturing industry here in the USA. It is our opinion, as a manufacturing department, that this trend will continue if the business and political environment are favorable towards U.S. manufacturing.

Transfer

Section 3.2.1: Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: completion, success, degrees/certificates, **transfer**, licensing, job placement, wage improvements (not all of these measures apply to every program).

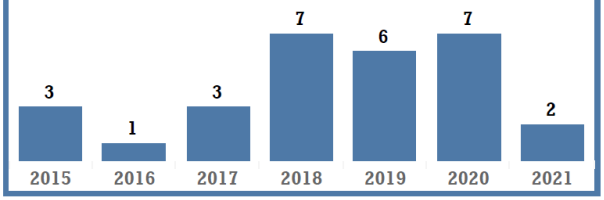
Total Transfer Students from Manufacturing

29

Transfers by Award Earners or Majors

Degree / Cert.	13
Major	16

Starting Year @ 4-Year College



Transfer by Destination

CSU	12
Other	17

Transfer by Race | Ethnicity | Ancestry

	Transfers	%
Latinx	7	24%
Unknown	5	17%
White	17	59%

Transfer by Destination by Award Earner or Major

	Degree / Cert.	Major
CSU	7	5
Other	6	11
Total	13	16

Most Popular 4-Year College Destination (Top 7)

CALIFORNIA STATE UNIVERSITY - FULLERTON	4
CALIFORNIA STATE UNIVERSITY - LONG BEACH	3
CALIFORNIA STATE POLYTECHNIC UNIVERSITY POMONA	3
SOUTHERN NEW HAMPSHIRE- 09WEEK	2
BELLEVUE UNIVERSITY	2
WILMINGTON UNIVERSITY	1
WESTERN GOVERNORS UNIVERSITY	1

Figure 11

In the graph below depicting Job Placement and Wage Improvement (Figure 12), there appears to be a steady and consistent number of students who have completed manufacturing courses/programs in AY 2012 to AY 2019. Of those that completed courses and programs in manufacturing approximately 75% of the students found jobs closely related to the manufacturing field. Of those that did find employment in the manufacturing field it appears approximately 50% attained a living wage per the district county living wage for a single adult following the academic year of exit. The average median annual earnings over a seven-year period was $36,970 for those that exited the community college that did not transfer to any postsecondary institution which represents an approximate average median change in earnings of 32.9%. This statistic does not align with EDD or BLM statistics for manufacturing nation-wide.

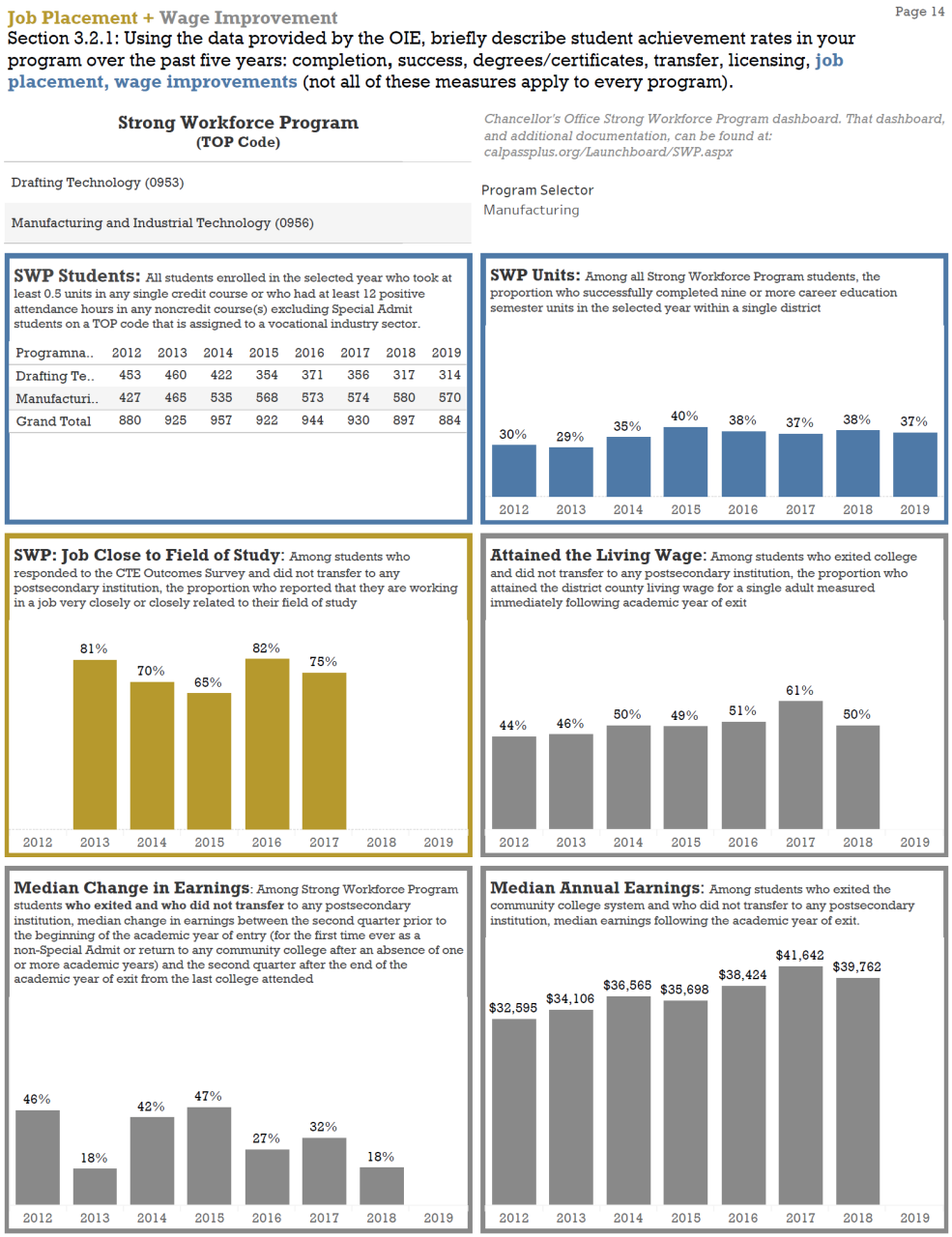
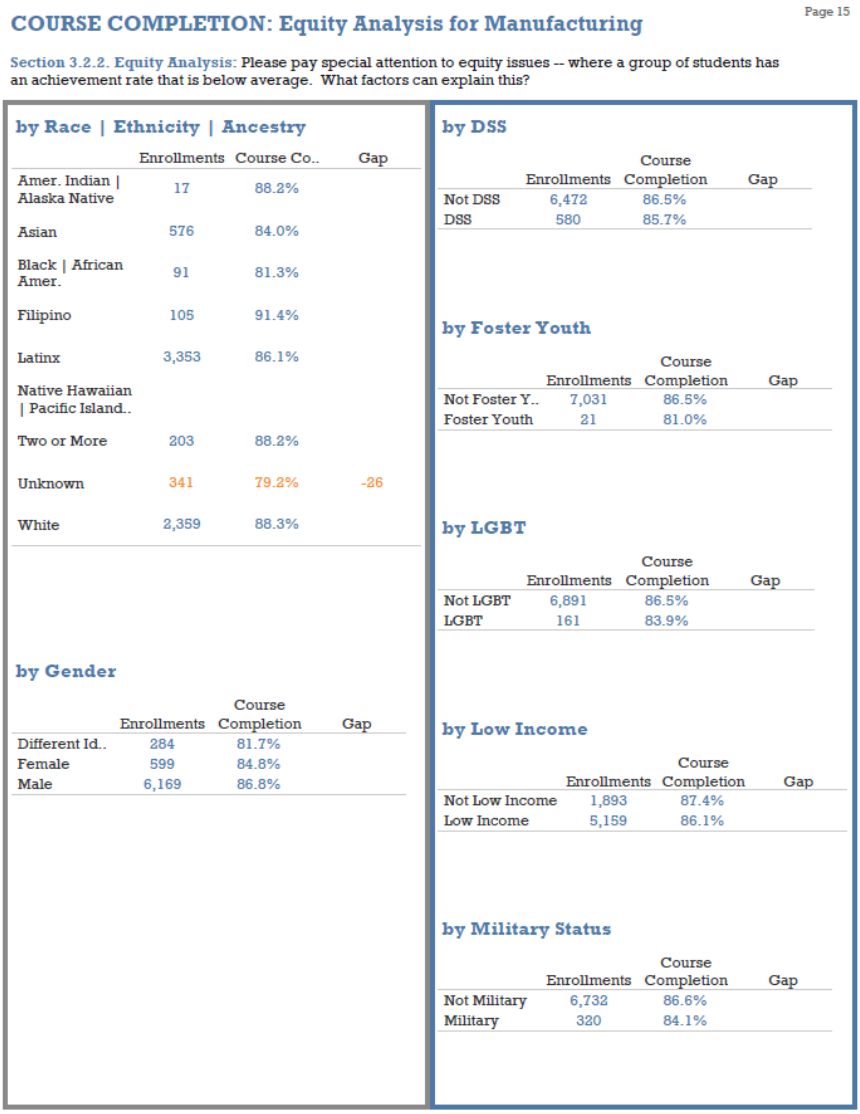


Figure 12

As late as September 2021 the national minimum wage for most entry level positions in the state of California has surpassed $15.00/hour which equates to approximately $30,000 per year for a full time employee. We believe that this graph in Figure 12 is somewhat miss leading when referring to the manufacturing sector jobs.

2. Please pay special attention to equity issues -- where a group of students has an achievement rate that is below average. What factors can explain this?

Response: In reviewing the graph below (Figure 13) for Course Completion it appears that the "Unknown" Race/Ethnicity/Ancestry has a gap of negative 26 below average for Course Completion rates which represents 5.5% of our total enrollments. All other groups seem to be within a normal range. At this time, no known factors can explain this negative 26 below average gap hence more investigation will be needed. One possible reason is the high enrollment of non-majors into manufacturing courses at times for student funding.



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COURSE COMPLETION: Equity Analysis for Manufacturing

Section 3.2.2. Equity Analysis: Please pay special attention to equity issues -- where a group of students has an achievement rate that is below average. What factors can explain this?

by Race | Ethnicity | Ancestry

	Enrollments	Course Co..	Gap
Amer. Indian | Alaska Native	17	88.2%	
Asian	576	84.0%	
Black | African Amer.	91	81.3%	
Filipino	105	91.4%	
Latinx	3,353	86.1%	
Native Hawaiian | Pacific Island..			
Two or More	203	88.2%	
Unknown	341	79.2%	-26
White	2,359	88.3%	

by Gender

	Enrollments	Course Completion	Gap
Different Id..	284	81.7%	
Female	599	84.8%	
Male	6,169	86.8%	

by DSS

	Enrollments	Course Completion	Gap
Not DSS	6,472	86.5%	
DSS	580	85.7%	

by Foster Youth

	Enrollments	Course Completion	Gap
Not Foster Y..	7,031	86.5%	
Foster Youth	21	81.0%	

by LGBT

	Enrollments	Course Completion	Gap
Not LGBT	6,891	86.5%	
LGBT	161	83.9%	

by Low Income

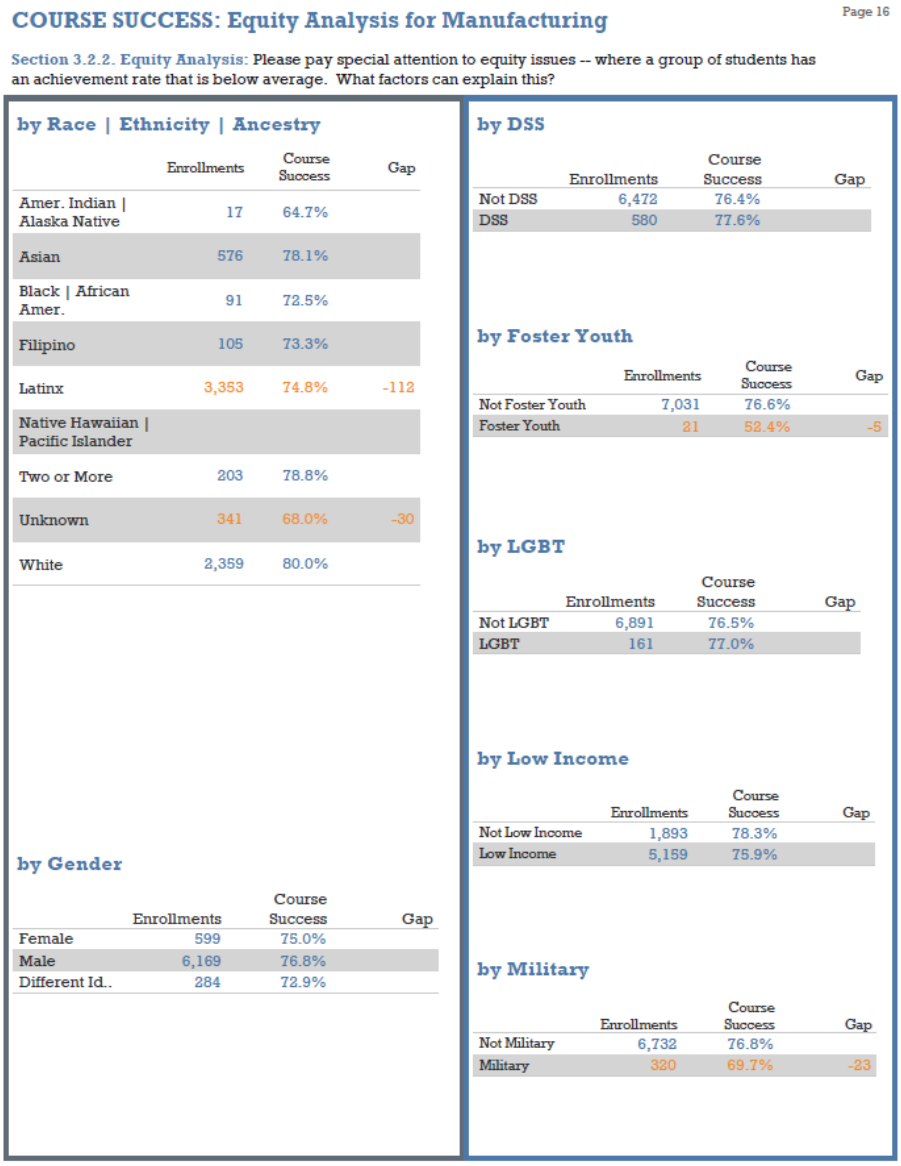
	Enrollments	Course Completion	Gap
Not Low Income	1,893	87.4%	
Low Income	5,159	86.1%	

by Military Status

	Enrollments	Course Completion	Gap
Not Military	6,732	86.6%	
Military	320	84.1%	

Figure 13

In reviewing the graph below for Course Success (Figure 14) it appears that “Latinx” Race/Ethnicity/Ancestry have a gap of negative 112 below average for Course Success rates which represents 49% of our total enrollments. Similarly, the Unknown” Race/Ethnicity/Ancestry have a gap of negative 30 below average for Course Success rates. This negative rate I believe is attributed to a number of reasons. The first reason is that this trade is filled with employers who want their employees to work overtime on a consistent basis. This means that when the economy is good the overtime for employees (students) is plentiful and our students who are employed in the industry take advantage hence they drop the course or do poorly due to attendance. A second reason may be the Covid-19 pandemic and the economic downturn that followed. Further studies and analysis are warranted to determine the true problem, causes and proper resolutions for any gaps shown in the graph. In Figure 15 the data shows no gaps in students attaining degrees and certificates across Ethnicity.



COURSE SUCCESS: Equity Analysis for Manufacturing

Page 16

Section 3.2.2. Equity Analysis: Please pay special attention to equity issues -- where a group of students has an achievement rate that is below average. What factors can explain this?

by Race | Ethnicity | Ancestry

	Enrollments	Course Success	Gap
Amer. Indian | Alaska Native	17	64.7%	
Asian	576	78.1%	
Black | African Amer.	91	72.5%	
Filipino	105	73.3%	
Latinx	3,353	74.8%	-112
Native Hawaiian | Pacific Islander			
Two or More	203	78.8%	
Unknown	341	68.0%	-30
White	2,359	80.0%	

by Gender

	Enrollments	Course Success	Gap
Female	599	75.0%	
Male	6,169	76.8%	
Different Id..	284	72.9%	

by DSS

	Enrollments	Course Success	Gap
Not DSS	6,472	76.4%	
DSS	580	77.6%	

by Foster Youth

	Enrollments	Course Success	Gap
Not Foster Youth	7,031	76.6%	
Foster Youth	21	52.4%	-5

by LGBT

	Enrollments	Course Success	Gap
Not LGBT	6,891	76.5%	
LGBT	161	77.0%	

by Low Income

	Enrollments	Course Success	Gap
Not Low Income	1,893	78.3%	
Low Income	5,159	75.9%	

by Military

	Enrollments	Course Success	Gap
Not Military	6,732	76.8%	
Military	320	69.7%	-23

Figure 14

Degrees + Certificates: Equity Analysis for Manufacturing

Section 3.2.2. Equity Analysis: Please pay special attention to equity issues -- where a group of students has an achievement rate that is below average. What factors can explain this?

of Unique Students Earning a Program Award by Type in Last 5 Years in Manufacturing

Associate	Certificate: Local	Certificate: State Approved
57	13	84

Manufacturing Majors in Manufacturing Courses
vs.
Manufacturing Award Earners

Enrollments Among Manufacturing Majors by Race | Ethnicity | Ancestry

American Indian | Alaska Na..	0%
Asian	8%
Black | African American	1%
Filipino	2%
Latinx	49%
Native Hawaiian | Pacific Isl..	0%
Two or More	3%
Unknown	4%
White	33%

Program Awards in Manufacturing by Race | Ethnicity | Ancestry

	Total Awards	% of Total Awards
Asian	18	10%
Latinx	80	44%
Two or More	5	3%
Unknown	7	4%
White	72	40%

Figure 15

3. Does the department have regular discussions about equitable grading, attendance, late-work, and extra credit policies, or about other strategies for helping students succeed? Could reforming classroom policies help more students succeed? Please explain.

Response: At this time, there are no regular discussions about equitable grading, attendance, late-work and extra credit policies between our manufacturing departments (Drafting, Machine, Technology, and Welding). We do however have regular individual department meetings and follow college guidelines for grading, attendance, late-work and extra credit work to help students and maintain consistency. Strategies for helping students succeed is a discussion point in many department meetings among full time and part time faculty. A more structured approach to discuss equitable grading, attendance, late-work and extra credit policies among faculty has been discuss at flex day activities.

4. Please write a brief Equity Action Plan. What strategies can you implement to close this gap in student achievement within the next five years? What professional learning, curriculum development, or other forms of support does your department need?

Response: In order to implement strategies to close any gap in student achievement within the next five years requires further study and analysis to determine the true problem, causes and proper resolutions. Proper training of full time and part time faculty may help in this endeavor. On a short-term basis, a more open approach to helping affected groups is warranted and should be implemented as part of a division plan.

3.3 Student Achievement and Pathways

1. Using the data provided by the OIE, briefly describe how students have moved through the program over the past five years: unit accumulation, prerequisites, corequisites, substitutions, gateway courses, and bottleneck courses. (Not all of these measures apply to every program.)

Response: The courses listed in the graph below (Figure 16) show results for 4 welding courses and one machine technology course. Welding courses seem to be fairly consistent in the data for listed areas of Enrollment, Students Repeating, % of Students who Repeated, Course Completion, Course Success, and Withdraw Rate. The Machine Technology 116 F course shows lower enrollment numbers but the Course Completion rates and Course Success rates are lower for the Machine Technology 116F course than they are for the Welding courses. The Repeat and Withdraw Rate for the Machine Technology 116F is higher than the Welding courses for the Latinx group. This can be partly attributed to the type of course it is and the population it is serving and the Covid-19 pandemic. Since this course is an elective course in many cases enrollment will vary as will the completion and success rates. In the future, more investigation into the data is needed to understand why students are Repeating and Withdrawing as well as why Course Success rates for Latinx has a gap of negative 16. One hypothesis is that the Latinx population in our area accounts for 49% of the students enrolled in the Machine Technology program and it was disproportionally affected by the Covid-19 pandemic. The discrepancies can also be partly attributed to the course being a survey course which currently has enrollment from various majors in

the CTE area as well as other non-majors hence real success may be difficult to assess. This course is very popular and seems to fill rather quickly each semester by a number of CTE majors and other non-majors since it is only 2 units and a requirement for the AS degree in manufacturing.

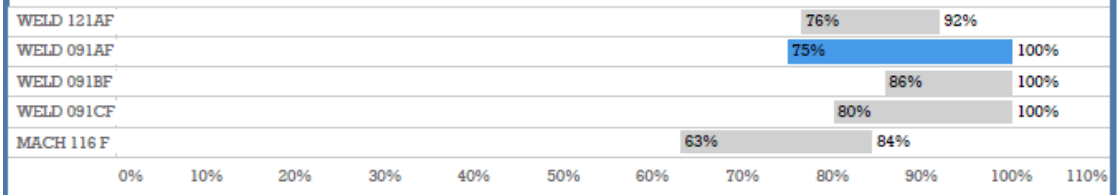
Section 3.3.1: Gateway Course Information. Using the data provided by the OIE, briefly describe how students have moved through your program over the past five years: unit accumulation, prerequisites, corequisites, substitutions, gateway courses, and bottleneck courses. (Not all of these measures apply to every program.)

5 Most Enrolled Courses in Manufacturing

NOTE: 5-year totals

	Enrollments	Students Repeating	% of Students who Repeated	Course Completion	Course Success	Withdraw Rate
WELD 121AF	428	5	1.2%	92%	82%	8%
WELD 091AF	427	3	0.7%	94%	86%	6%
WELD 091BF	362	9	2.5%	94%	89%	6%
WELD 091CF	306	10	3.4%	95%	86%	5%
MACH 116 F	278	9	3.3%	85%	74%	15%

Range of Success Rates by Section:
20th Percentile v. 80th Percentile
(At least 10 Sections Offered)



Disproportion Impact in Top 5 Enrolled Courses by Course by Race | Ethnicity | Ancestry

NOTE: Only Identities with Calculated Disproportion Impact Appear

		Enrollments	Course Success	Gap
MACH 116 F	Latinx	146	68.5%	-16

Figure 16

In reviewing the graph below for Bottleneck Analysis (Figure 17), it appears that many of the courses shown are more advanced courses which requires mastery of skills and good attendance. As in any CTE course which has labs associated with it, attendance is of particular importance in order to attain and master the skill level required to pass the course. Hence non-att

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Section 3.3.1: Bottleneck Analysis: Using the data provided by the OIE, briefly describe how students have moved through your program over the past five years: unit accumulation, prerequisites, corequisites, substitutions, gateway courses, and bottleneck courses. (Not all of these measures apply to every program.)

Within the last 5 years, courses by course success rate (ascending 5 courses).

MACH 140 F	0.0%
WELD 120 F	49.2%
MACH 182 F	50.0%
TECH 299 F	50.0%
MACH 060 F	55.3%

Within the last 5 years, the 5 courses with highest % of students repeating the course (NOTE: Some courses may allow for repeat enrollment)

MACH 184 F	13.3%
MACH 102 F	12.9%
WELD 120 F	11.3%
MACH 185 F	10.0%
MACH 092 F	9.8%

Within the last 5 years, the 5 courses with the highest # of withdrawals

MACH 110 F	48
DRAF 140 F	44
MACH 116 F	42
DRAF 944 F	42
DRAF 171 F	40

Within the last 5 years, the 5 courses with the highest % of withdrawals

MACH 140 F	57.1%
TECH 131 F	34.0%
MACH 110 F	31.6%
WELD 120 F	31.1%
MACH 182 F	27.1%

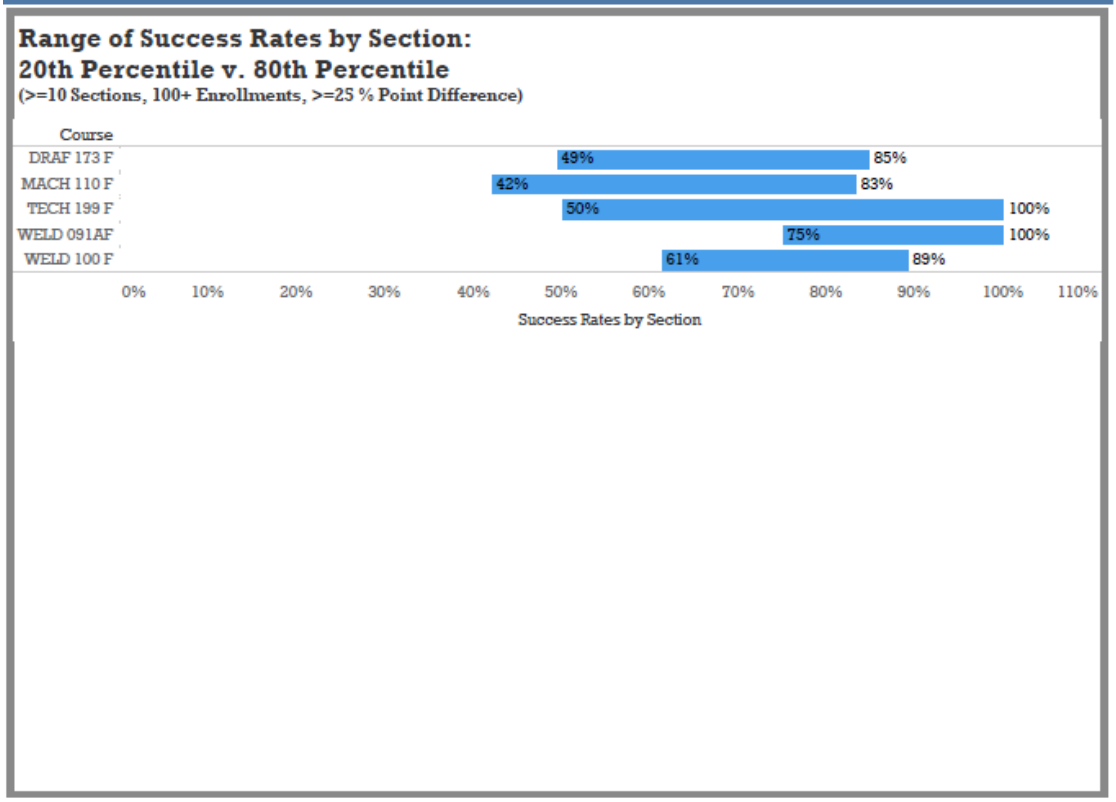

Figure 17

2. For transfer degree programs: Are your current requirements in line with the Transfer Model Curriculum, or have you added extra steps, such as prerequisites? If you added extra steps, please explain.

Response: In the Manufacturing departments there are currently no transfer degrees. A limited number of students do transfer to a 4 years schools however there are no transfer degrees at this time.

3. Please provide an update on the curriculum mapping you have done, perhaps in collaboration with Counseling. Are all programs (degrees and certificates) mapped? Based on course offerings for the last two to three years, could a student complete the map(s) you have created? If so, please demonstrate this with some facts from your schedules. If not, how will you address these discrepancies?

Response: At this time all Machine Technology certificates and degrees have been mapped in accordance with and in collaboration with the Counseling department and Workgroup #4 members assigned to mapping. As an example, please see the mapping chart below (Figure 18) for the Machine Technology I and II certificate. As evidence Section 3.2.1 graph (Figure 19) below the mapping chart shows 12 certificates have been issued for the Machine Technology Level I certificate for AY 19/20 and AY 20/21. Other departments in the manufacturing area are either complete or well on their way to being completed according to timelines given out by the Guided pathways group #4.

ProgramMapper Map Changes

Name of Program: Machine Technology Level I; or

1st SEMESTER	2nd SEMESTER	3rd SEMESTER	4th SEMESTER
MACH 110 F (3)	MACH 102 F (5)	Weld 100 F (3)	TECH 108 F (3)
MACH 101 F (5)	MACH 115 F (3)	MACH 103 F (5)	METL 192 F (3)
DRAF 101 F (2) and DRAF 173 F (2) -8 wk	MACH 150 F and/or MACH 154 F (3)	MACH 120 F (3)	MACH 130 F (3) and TECH 127 F (2)
DRAF 171 F (2)	DRAF 140 F (3)	MACH 152 F and/or MACH 156 F (3)	MACH 116 F (2)
TECH 081 F (3)			
Tota Units: 17	**Tota Units:** 14-17	**Tota Units:** 14-17	**Tota Units:** 13

Figure 18

Section 3.2.1: Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: completion, success, **degrees/certificates**, transfer, licensing, job placement, wage improvements (not all of these measures apply to every program).

# of Unique Students Earning a Program Award in Last 5 Years in Manufacturing	Total Program Award in Last 5 Years in Manufacturing
133	182

# of Students Earning a Program Award by Award Type

	Year					
	AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21	Grand Total
Associate	11	16	8	15	10	57
Certificate: Local	1	8	3	1		13
Certificate: State Approv..	12	12	14	28	23	84
Total: Unique Students	22	34	24	42	29	133

Program Award Details for Manufacturing
Unique Students by Award Type by Year

	Year					
	AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21	Grand Total
AS	11	16	8	15	10	57
Cert: 16-29 Units				16	19	35
Cert: 18-29 Units	8	9	14	3		33
Cert: 30-59 Units	4	3		13	7	26
Cert: Local	1	8	3	1		13
Unique Students	22	34	24	42	29	133

Program Award Details for Manufacturing
Total Specific Awards by Year

			AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21	Grand Total
AS	AS Manufacturing Technology	2S03842	3	11	6	14	8	42
	Industrial Drafting	2S03840A	8	8	2	2	3	23
Cert: 16-29 Units	Cert Industrial Drafting Level I	2C10622A				1	5	6
	Cert Machine Technology Level I	2C36522A				8	4	12
	Cert Metrology	2C37702				1	1	2
	Welding Technology	2C08417A				6	9	15
Cert: 18-29 Units	Cert Draft Tech: Ind Draft I	2C10622		2	2	1		5
	Cert Draft Tech: Ind Draft II	2C10623		1	1			2
	Cert Welding Technology	2C08417	8	7	9	2		26
	Machine Technology: Level 1	2C36522			3			3
Cert: 30-59 Units	Cert Machine Tech: Level II	2C10624	3	2		6	3	14
	Draft Tech: Ind Drafting II	2C10623A				1	2	3
	Mach Tech: Comp Numeric Contro	2C08416	2	2		7	3	14
Cert: Local	Cert Machine Tech: Level 1	2C03843	1	2	3	1		7
	Cert Machine Tech: Mastercam	2C00046		5				5
	Cert Machine Tech:CNC Operator	2C00060		3				3
Total Awards			25	43	26	50	38	182

Figure 19

4. Do the data reveal differences among your AA, ADT, or certificate programs (in enrollment, completion, or success, for example)? Please explain.

Response: The manufacturing departments do not offer ADT degrees. AS degrees and certificates comprise the majority of programs in manufacturing. Certificates seem to be favored by students who wish to have a quick turn around in their studies. AS degrees seem to be favored by students who want to transfer to a four-year school and/or have a desire to obtain a solid footing in the skilled manufacturing trades area.

3.4 Faculty

- Using the data provided by the OIE, briefly describe the faculty workload over the past five years: FTF (full-time faculty), PTF (part-time, or "adjunct" faculty), FTEF (full-time equivalent faculty), WSCH per FTEF (weekly student contact hours). (Not all of these measures apply to every program.)

Response: The graph below for Manufacturing Faculty-Section 3.4.1 graph (Figure 21) indicate that all numbers seem to be fairly steady for AY 16/17 through middle AY 19/20. However, from middle 19/20 to AY 20/21 the data numbers seem to take a downward dip. This trend can be attributed to the Covid-19 pandemic and the school closure. In addition, many part-time faculty stopped teaching their lab courses since they were unsure of the Covid-19 affect and transmission of this virus. Many part time instructors felt it was useless to teach the manufacturing courses unless the lectures and labs were in person. Others felt it was too dangerous to continue teaching and stopped teaching since they were only part time instructors. This behavior and type of thinking as of late (August 2021) has been vetted out and debunked in our departments.

The number of part-time instructors and their load seems to be increasing since 2016 with the exception of the AY 20/21. The Machine Technology division is in need of another full-time faculty member to teach the Metrology program courses. This Metrology program dovetails in with the Machine Technology, Welding, and Drafting technology courses as well as Engineering and Technology courses. The Machine Technology department has experienced stable growth over the last 5 years (with the exception of AY 20/21) in our afternoon and night courses. The day and evening students consist of students who have recently graduated from high school along with older students who are seeking a new career and veterans returning home from military service. Our night students also consist of employed individuals who are seeking training in advanced manufacturing technology to improve their knowledge of modern manufacturing practices. The Metrology program is a part of this new advanced manufacturing technology. In order to effectively launch this program and address the needs of the business community it is imperative that we have qualified instructors to teach this subject matter. Staffing these courses has become very difficult since both existing full-time instructors are already at load with one at maximum overload. Part time instructors that meet the districts minimum qualifications are difficult to find as most professionals in advanced manufacturing jobs do not possess college degrees and if they do they are only available to teach evening courses on specific days of the

week. Trying to find part time instructors to teach day and evening courses is especially challenging hence a full-time instructor would eliminate this issue. (Figure 20)

The machine tool program was awarded a three-year VTEA project in advanced manufacturing to include modern inspection technologies (Metrology) that are currently in use in the local industry. The project added computer-controlled coordinate measuring machines, inspection software, portable inspection devices and advanced multiple process machine tools. It also added new curriculum, courses and certificates in advanced manufacturing that require an additional full -time person to oversee and lead the program.

The job market is very good for the machining industry. The industry has a need for many more machinists, inspectors, CNC operators, CNC set-up technicians, CMM operators, and CNC programmers than the qualified candidates currently available. The average worker in all nonfarm industries earned $71,390. Looking specifically at wages, the average manufacturing worker earned more than $28.92 per hour in August, not including benefits, or for production and nonsupervisory workers, the average in the sector was $22.82. (Source: Bureau of Economic Analysis and Bureau of Labor Statistics) Manufacturing in California represents 10.67% of the total gross state product in 2019 with over 35,000 manufacturing establishments. Over 1.3 million California state residents are employed in manufacturing with an average annual compensation of $109,875.

In the 2013 and 2014 a full-time instructor was deemed to be required to support the request of the advisory committee to add courses in CNC CMM (Coordinate Measuring Machine) inspection and PCDMIS pc software. This request for a full time Metrology instructor has been echoed and consistent in every Advisory Committee meeting from 2013 to 2021. This request by our industry and committee for metrology has been met in part with the purchase of equipment and software however the full-time instructor head count to help implement this VTEA project fully has not been approved as of yet. The Machine Technology department chair and faculty would like to request an additional full-time faculty member for the Metrology program that could also teach other subjects.

By Discipline…

	FTEF Load	FTEF Overload	FTEF Adjunct	Total FTEF	Adjunct %	# Adjuncts
Fall 2020	**1.67**	**1**	**1.44**	**4.11**	**66.67**	**4**
	Total Sections		**Total Sections Taught by Adjuncts**		**% Sections Taught by Adjuncts**	
Fall 2020	**53**		**11**		**20.8**	
	Average Census Class – Size		**Certificates Issued 2020 – 2021**		**Degrees Awarded 2020 – 2021**	
Fall 2020	7		11		8	

Figure 20

Manufacturing Faculty:

Section 3.4.1 Faculty: Using the data provided by the OIE, briefly describe the faculty workload over the past five years: FTF (full-time faculty), PTF (part-time, or "adjunct" faculty), FTEF (full-time equivalent faculty), WSCH per FTEF (weekly student contact hours). (Not all of these measures apply to every program.)

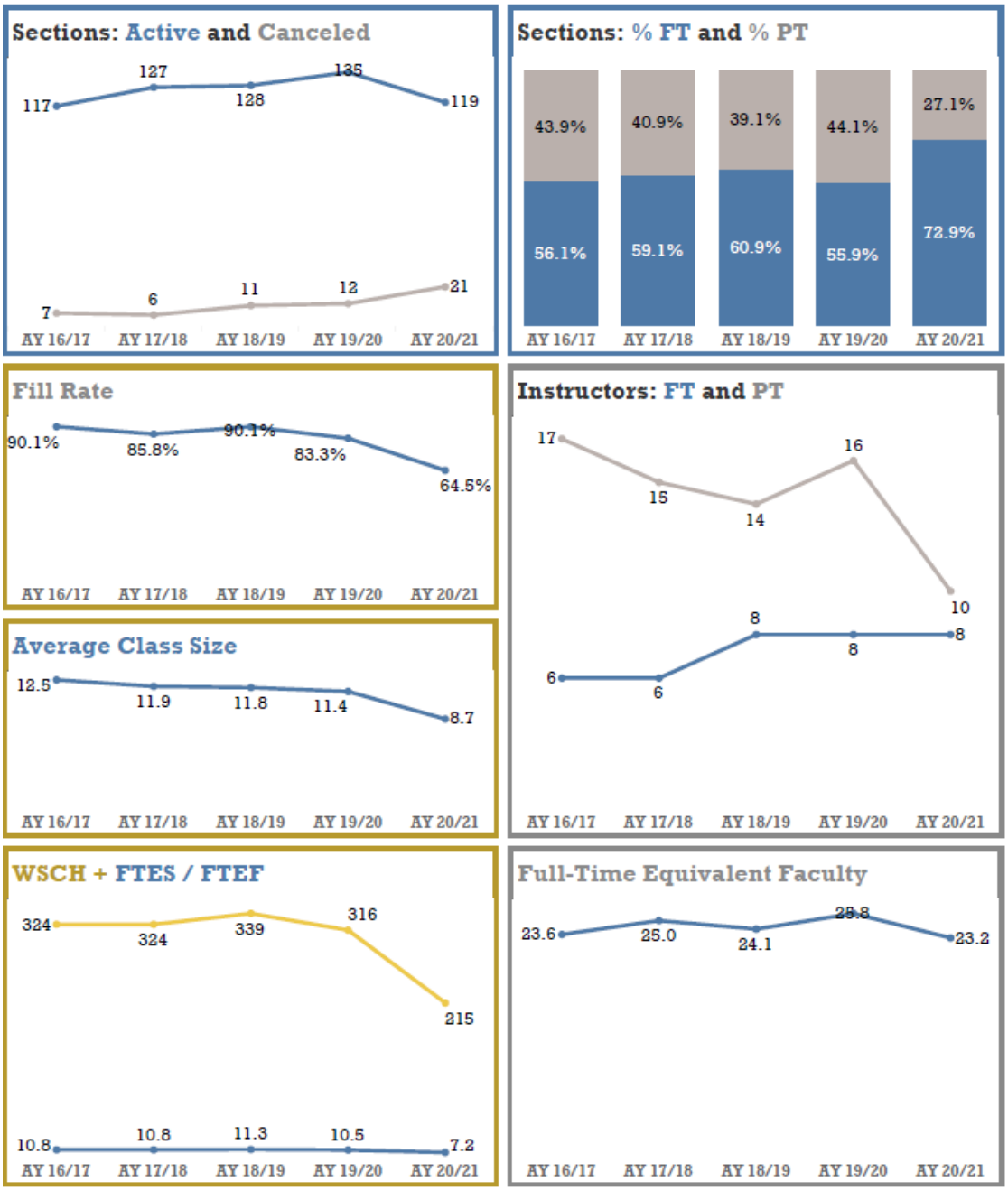

Figure 21

Manufacturing General Education:
Section 5.1: Your Department and General Education.

% of Enrollments Over the Last 5 Years in GE Courses

	% of Enrollments	Enrollments
Non-GE Enrollments	100.0%	7,052

Courses that Fulfill CSU General Education Requirements or the Intersegmental General Education Transfer Curriculum (IGETC)
(CSU and IGETC: 1 = Yes; 0 = No)

Figure 22

3.5 Covid-19

Using the data provided by the OIE, briefly describe how the Covid-19 pandemic affected your department and how your department has adjusted. Did you make temporary changes? Or have you adopted new, long-lasting practices that enhance teaching?

Response: Many manufacturing courses (in March 2020 on) made temporary changes to adopt to this pandemic however some courses were simply shut down and were not offered again until much later in 2021. The use of zoom for lectures is a tool that is useful in some cases but not all. In courses which have lecture and no lab the on-line lectures using zoom and on-line homework seems to be an alternative way of teaching the courses. With that said the jury is still out as to how effective it is in the overall learning of the subject. We have seen that some students do not pay attention in online synchronous zoom sessions and have a difficult time comprehending the subject matter unless they can see it in person. As students progress through the program we have seen gaps in their knowledge and skills and believe that on-line teaching has substantial limitations. In the manufacturing trades, adults learn by doing. This has long been the case in this field and will continue to be the case as we progress forward.

3.6 What has not been asked?

Please tell us about other ways your department has been successful, ways that the previous questions might have missed.

Response: Here are a couple of questions that might be interesting to ask or do a study on.

- Some courses that were allowed to go back (in the Fall of 2020 on) and do labs in person had a smaller class size associated with it. Classes that normally had a class size of 20 were now allowed to go back with a class size of 10 due to lab space. Did attendance and learning improve for those students?
  Answer: Our findings seem to indicate that learning and attendance are at a all time high for certain courses depending on the course and lab. Students success is improved with smaller class sizes and the resulting increase in student instructor interaction. Additionally, student participation increased which appears to result in an increase in student learning.

- For those courses that had a combination of online lecture (zoom) and in-person labs how did students react to this?
  Answer: Our findings seem to indicate that students liked coming back to campus for the lab although they still did not like the synchronous on-line zoom sessions. Students seemed to prefer the in-person instruction over the on-line zoom sessions. Students who participated in asynchronous lecture and on-campus lab classes experienced high levels of success and indicated enjoyment of this format.

4.0 Outcomes

4.1 Program Student Learning Outcomes (PSLOs)

Since the last self-studies, the College adopted new Institutional Student Learning Outcomes (ISLOs) and new design principles for PSLOs. Please describe your department's PSLO revisions to date, and your PSLO plans.

Response: Here is a break down of the current status for each manufacturing department:

- Drafting department-Program of Record Outlines have been printed and are under review. Department is awaiting instructions from Program Review and SLOA committees for further instructions.
- Machine Technology department- Program of Record Outlines have been printed and are under review. Department is awaiting instructions from Program Review and SLOA committees for further instructions. New PSLOs have been forwarded for tentative review.
- Technology department- Program of Record Outlines have been printed and are under review. Department is awaiting instructions from Program Review and SLOA committees for further instructions.
- Welding department- Program of Record Outlines have been printed and are under review. Department is awaiting instructions from Program Review and SLOA committees for further instructions.

The manufacturing department's plan is to review all PSLOs for compliance with guidelines from the Guided Pathways groups and the Student Learning Outcome and Assessment Committee. Once they are reviewed and/or revised they will be forwarded via a form to the SLOA committee for approval and further implementation into the Curriculum process.

4.2 PSLO Assessment

The new PSLO design principles encourage departments to use PSLOs as a way of gauging student learning once they have completed a degree or certificate, not just when they have completed a single course. Please describe how PSLOs are assessed or will be assessed in your department.

Response: Here is a break down of how PSLOs will be assessed by Manufacturing departments:

- Drafting department- Program Student Learning Outcomes in Drafting Technology will be assessed using a combination of direct and indirect methods. Capstone projects and comprehensive exams for Drafting Technology have been implemented. Portfolios, focus group interviews methods will be reviewed and implemented as necessary.
- Machine department-Program Student Learning Outcomes in Machine Technology will be assessed using a combination of direct and indirect methods. Capstone projects and comprehensive exams for Machine Technology have been implemented. Portfolios, focus group interviews methods will be reviewed and implemented as necessary.
- Technology department- Program Student Learning Outcomes in Technology department will be assessed using a combination of direct and indirect methods. Capstone projects and comprehensive exams for Technology-related have been implemented. Portfolios, focus group interviews methods will be reviewed and implemented as necessary.
- Welding department- Program Student Learning Outcomes in Welding Technology will be assessed using a combination of direct and indirect methods. Capstone projects and comprehensive exams for Welding Technology have been implemented. Portfolios, focus group interviews methods will be reviewed and implemented as necessary.

Example Types of assessments for Programs:

1. *ePortfolios*
2. *Metacognitive reflections*
3. *Exit surveys*
4. *Focus groups*
5. *Capstone assignments*
6. *Collaborative projects*
7. *Student Conference*

Direct measures require that students demonstrate their knowledge, skills, abilities, etc., for faculty to then assess whether/how well they are achieving/achieved a program outcome. Direct measures can include exams, project artifacts, artistic work products, capstone experiences, case studies, exams, juried performances, oral presentations, papers, and portfolios.

Indirect measures gather perceptions of how well students are achieving/achieved a learning outcome. They can include alumni, employer, or student surveys, exit or focus group interviews, enrollment and retention data, and job placement data. Indirect measures complement the data collected from direct measures but cannot stand alone as a sole measure of student performance and program success.

4.3 CSLO Assessment

Briefly describe the timeline your department uses to assess CSLOs on a regular basis and how you use the results to make improvements. This discussion should be based on SLO data, which is available on Elumen. (Your division's SLO reps can help with this.) Please include relevant CSLO charts or graphs in an Appendix. Since the last self-study, you should have assessed the CSLOs of every course that you have taught, at least once. If that is not the case, please describe how you will accomplish this as soon as possible.

Response: Here is a break down of CSLO assessments by Manufacturing departments:

- Drafting department- The Drafting Technology department attempts to assess at least one section of all courses every semester. As a result, the department chair and faculty discuss results on an on-going basis every semester informally. For a five-year period it appears that 6 of the 8 courses have been scored. Two courses were not scored due to light or no offerings during this period.

Fullerton College

Course Statistics And Evidence using counts-2016-2021

Drafting Technology Dept.

Date: 09-06-2021

Terms: Spring 2021, Fall 2020, Summer 2020, Spring 2020, Fall 2019, Summer 2019, Spring 2019, Fall 2018, Summer 2018, Spring 2018, Fall 2017, Summer 2017, Spring 2017, Fall 2016, Summer 2016

Summary

Statistic	Number of Courses	Courses
Courses in the Department	8	DRAF101 F, DRAF140 F, DRAF141 F, DRAF143 F, DRAF171 F, DRAF173 F, DRAF944 F, DRAF945 F
Courses with CSLOs	8	DRAF101 F, DRAF140 F, DRAF141 F, DRAF143 F, DRAF171 F, DRAF173 F, DRAF944 F, DRAF945 F
Courses without CSLOs	0	
Courses with CSLOs mapped to PSLOs	8	DRAF101 F, DRAF140 F, DRAF141 F, DRAF143 F, DRAF171 F, DRAF173 F, DRAF944 F, DRAF945 F
Courses without CSLOs mapped to PSLOs	0	
Courses with direct assessment of PSLOs	0	
Courses with CSLOs mapped to ISLOs	8	DRAF101 F, DRAF140 F, DRAF141 F, DRAF143 F, DRAF171 F, DRAF173 F, DRAF944 F, DRAF945 F
Courses without CSLOs mapped to ISLOs	0	
Courses with direct assessment of ISLOs	0	
Courses with at least one planned Assessment	6	DRAF101 F, DRAF140 F, DRAF171 F, DRAF173 F, DRAF944 F, DRAF945 F
Courses with planned Assessments scored	6	DRAF140 F, DRAF171 F, DRAF173 F, DRAF944 F, DRAF101 F, DRAF945 F
Courses with some Assessments scored	0	
Courses without any Assessment scored	0	
Courses with no planned Assessments	2	DRAF141 F, DRAF143 F
Courses with at least one planned Action Plan	0	
Courses with Action Plan Responses	0	
Courses with some Action Plan Responses	0	
Courses without Action Plan Responses	0	
Courses with no planned Action Plans	8	DRAF101 F, DRAF140 F, DRAF141 F, DRAF143 F, DRAF171 F, DRAF173 F, DRAF944 F, DRAF945 F

Figure 23

As evidence the Course Report Totals from the SLO Performance Report- By Division, Course, CSLO- Drafting 2016-2021 shows the following data which indicates 7 semesters (F,S) from the past 5 years have been assessed.

Report Totals:

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations		N/A		Total	
Spring 2021	0	0.00%	0	0.00%	158	79.00%	0	0.00%	10	5.00%	32	16.00%	200	100.00%
Fall 2020	0	0.00%	0	0.00%	183	88.83%	0	0.00%	14	6.80%	9	4.37%	206	100.00%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2020	0	0.00%	0	0.00%	161	82.14%	0	0.00%	5	2.55%	30	15.31%	196	100.00%
Fall 2019	0	0.00%	0	0.00%	156	82.11%	0	0.00%	15	7.89%	19	10.00%	190	100.00%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2019	0	0.00%	0	0.00%	164	91.11%	0	0.00%	5	2.78%	11	6.11%	180	100.00%
Fall 2018	0	0.00%	0	0.00%	243	88.04%	0	0.00%	23	8.33%	10	3.62%	276	100.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2018	0	0.00%	0	0.00%	1	100.00%	0	0.00%	0	0.00%	0	0.00%	1	100.00%
Fall 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Totals	**0**	**0.00%**	**0**	**0.00%**	**1066**	**85.35%**	**0**	**0.00%**	**72**	**5.76%**	**111**	**8.89%**	**1249**	**100.00%**

Figure 24

- Machine Technology department (including Metallurgy department)-The Machine Technology department attempts to assess at least one section of all courses every semester. As a result, the department chairman and faculty discuss results on an on-going basis every semester informally. See Figure below of Course Statistics and Evidence Summary data and Report Totals for the Machine Technology department for the last 5 years (2016-2021). There were 3 courses in which no assessments were conducted however these courses were offered on a limited basis during the 5-year span hence part time instructors did not assess the course even though they were asked to do so.

Fullerton College

Course Statistics And Evidence using counts-2016-2021

Machine Tools Dept.

Date: 08-30-2021

Terms: Spring 2021, Fall 2020, Summer 2020, Spring 2020, Fall 2019, Summer 2019, Spring 2019, Fall 2018, Summer 2018, Spring 2018, Fall 2017, Summer 2017, Spring 2017, Fall 2016, Summer 2016

Summary

Statistic	Number of Courses	Courses
Courses in the Department	14	MACH101 F, MACH102 F, MACH103 F, MACH104 F, MACH110 F, MACH115 F, MACH116 F, MACH120 F, MACH130 F, MACH140 F, MACH150 F, MACH152 F, MACH154 F, MACH156 F
Courses with CSLOs	14	MACH101 F, MACH102 F, MACH103 F, MACH104 F, MACH110 F, MACH115 F, MACH116 F, MACH120 F, MACH130 F, MACH140 F, MACH150 F, MACH152 F, MACH154 F, MACH156 F
Courses without CSLOs	0	
Courses with CSLOs mapped to PSLOs	13	MACH101 F, MACH102 F, MACH103 F, MACH110 F, MACH115 F, MACH116 F, MACH120 F, MACH130 F, MACH140 F, MACH150 F, MACH152 F, MACH154 F, MACH156 F
Courses without CSLOs mapped to PSLOs	1	MACH104 F
Courses with direct assessment of PSLOs	2	MACH150 F, MACH154 F
Courses with CSLOs mapped to ISLOs	14	MACH101 F, MACH102 F, MACH103 F, MACH104 F, MACH110 F, MACH115 F, MACH116 F, MACH120 F, MACH130 F, MACH140 F, MACH150 F, MACH152 F, MACH154 F, MACH156 F
Courses without CSLOs mapped to ISLOs	0	
Courses with direct assessment of ISLOs	0	
Courses with at least one planned Assessment	13	MACH101 F, MACH102 F, MACH103 F, MACH110 F, MACH115 F, MACH116 F, MACH120 F, MACH130 F, MACH140 F, MACH150 F, MACH152 F, MACH154 F, MACH156 F
Courses with planned Assessments scored	11	MACH116 F, MACH102 F, MACH103 F, MACH110 F, MACH115 F, MACH120 F, MACH150 F, MACH152 F, MACH154 F, MACH156 F, MACH101 F
Courses with some Assessments scored	0	
Courses without any Assessment scored	2	MACH130 F, MACH140 F
Courses with no planned Assessments	1	MACH104 F

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Figure 25

As evidence the Course Report Totals from the SLO Performance Report- By Division, Course, CSLO-Machine 2016-2021 shows the following data which indicates 8 semesters (F,S) from the past 5 years have been assessed. It should be noted that in 2018 the Machine Technology department underwent a change in course numbering to elevate all courses above the 100 level. As a result, all courses assessed prior to 2018 are not included in the Report Totals.

Report Totals:

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations		N/A		Total	
Spring 2021	0	0.00%	0	0.00%	187	85.78%	0	0.00%	31	14.22%	0	0.00%	218	100.00%
Fall 2020	0	0.00%	0	0.00%	200	85.11%	0	0.00%	35	14.89%	0	0.00%	235	100.00%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2020	0	0.00%	0	0.00%	317	71.24%	0	0.00%	97	21.80%	31	6.97%	445	100.00%
Fall 2019	0	0.00%	0	0.00%	489	85.94%	0	0.00%	80	14.06%	0	0.00%	569	100.00%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2019	0	0.00%	0	0.00%	498	92.57%	0	0.00%	40	7.43%	0	0.00%	538	100.00%
Fall 2018	0	0.00%	0	0.00%	496	91.51%	0	0.00%	46	8.49%	0	0.00%	542	100.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2018	0	0.00%	0	0.00%	64	100.00%	0	0.00%	0	0.00%	0	0.00%	64	100.00%
Fall 2017	0	0.00%	0	0.00%	52	100.00%	0	0.00%	0	0.00%	0	0.00%	52	100.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Totals	0	0.00%	0	0.00%	2303	86.48%	0	0.00%	328	12.35%	31	1.16%	2663	100.00%

Figure 26

- Technology department-The Technology department does not have a full-time instructor and the courses in the Technology department are made up a myriad of courses from various disciplines which are typically taught by part time instructors. Responsibility for department courses is split between the Machine Technology faculty and other departments. As a result, the Machine Technology department attempts to encourage assessment of Technology related courses by part time and full-time instructors that teach the courses with sporadic success.

Fullerton College

Course Statistics And Evidence using counts-2016-2021

Technology Related Courses Dept.

Date: 09-06-2021

Terms: Spring 2021, Fall 2020, Summer 2020, Spring 2020, Fall 2019, Summer 2019, Spring 2019, Fall 2018, Summer 2018, Spring 2018, Fall 2017, Summer 2017, Spring 2017, Fall 2016, Summer 2016

Summary

Statistic	Number of Courses	Courses
Courses in the Department	14	TECH080 F, TECH081 F, TECH108 F, TECH127 F, TECH131 F, TECH132 F, TECH135 F, TECH136 F, TECH138 F, TECH150 F, TECH151 F, TECH155 F, TECH158 F, TECH199 F
Courses with CSLOs	14	TECH080 F, TECH081 F, TECH108 F, TECH127 F, TECH131 F, TECH132 F, TECH135 F, TECH136 F, TECH138 F, TECH150 F, TECH151 F, TECH155 F, TECH158 F, TECH199 F
Courses without CSLOs	0	
Courses with CSLOs mapped to PSLOs	4	TECH081 F, TECH108 F, TECH150 F, TECH151 F
Courses without CSLOs mapped to PSLOs	10	TECH080 F, TECH127 F, TECH131 F, TECH132 F, TECH135 F, TECH136 F, TECH138 F, TECH155 F, TECH158 F, TECH199 F
Courses with direct assessment of PSLOs	0	
Courses with CSLOs mapped to ISLOs	11	TECH080 F, TECH127 F, TECH131 F, TECH132 F, TECH135 F, TECH136 F, TECH138 F, TECH151 F, TECH155 F, TECH158 F, TECH199 F
Courses without CSLOs mapped to ISLOs	3	TECH081 F, TECH108 F, TECH150 F
Courses with direct assessment of ISLOs	0	
Courses with at least one planned Assessment	13	TECH080 F, TECH081 F, TECH108 F, TECH127 F, TECH131 F, TECH132 F, TECH135 F, TECH136 F, TECH138 F, TECH150 F, TECH151 F, TECH158 F, TECH199 F
Courses with planned Assessments scored	9	TECH081 F, TECH199 F, TECH108 F, TECH127 F, TECH131 F, TECH135 F, TECH132 F, TECH136 F, TECH138 F
Courses with some Assessments scored	3	TECH080 F, TECH150 F, TECH151 F
Courses without any Assessment scored	1	TECH158 F
Courses with no planned Assessments	1	TECH155 F
Courses with at least one planned Action Plan	0	
Courses with Action Plan Responses	0	
Courses with some Action Plan Responses	0	
Courses without Action Plan Responses	0	

Figure 27

As evidence the Course Report Totals from the SLO Performance Report- By Division, Course, CSLO-Technology 2016-2021 shows the following data which indicates 8 semesters from the past 5 years have been assessed. It should be noted that many new courses were added during the 5-year period hence some of the assessments were not performed.

Report Totals:

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations		N/A		Total	
Spring 2021	0	0.00%	0	0.00%	112	86.15%	0	0.00%	18	13.85%	0	0.00%	130	100.00%
Fall 2020	0	0.00%	0	0.00%	59	93.65%	0	0.00%	4	6.35%	0	0.00%	63	100.00%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2020	0	0.00%	0	0.00%	50	96.15%	0	0.00%	2	3.85%	0	0.00%	52	100.00%
Fall 2019	0	0.00%	0	0.00%	21	100.00%	0	0.00%	0	0.00%	0	0.00%	21	100.00%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2019	0	0.00%	0	0.00%	128	95.52%	0	0.00%	6	4.48%	0	0.00%	134	100.00%
Fall 2018	0	0.00%	0	0.00%	39	92.86%	0	0.00%	0	0.00%	3	7.14%	42	100.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	90	95.74%	0	0.00%	4	4.26%	0	0.00%	94	100.00%
Fall 2016	0	0.00%	0	0.00%	44	97.78%	0	0.00%	1	2.22%	0	0.00%	45	100.00%
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Totals	**0**	**0.00%**	**0**	**0.00%**	**543**	**93.46%**	**0**	**0.00%**	**35**	**6.02%**	**3**	**0.52%**	**581**	**100.00%**

Figure 28

- Welding department- The Welding Technology department attempts to assess at least one section of all courses every semester. As a result, the department chair and faculty discuss results on an on-going basis every semester informally.

Fullerton College

Course Statistics And Evidence using counts-2016-2021

Welding Dept.

Date: 09-13-2021

Terms: Spring 2021, Fall 2020, Summer 2020, Spring 2020, Fall 2019, Summer 2019, Spring 2019, Fall 2018, Summer 2018, Spring 2018, Fall 2017, Summer 2017, Spring 2017, Fall 2016, Summer 2016

Summary

Statistic	Number of Courses	Courses
Courses in the Department	10	WELD091AF, WELD091BF, WELD091CF, WELD091DF, WELD095 F, WELD096 F, WELD098 F, WELD100 F, WELD120 F, WELD121AF
Courses with CSLOs	10	WELD091AF, WELD091BF, WELD091CF, WELD091DF, WELD095 F, WELD096 F, WELD098 F, WELD100 F, WELD120 F, WELD121AF
Courses without CSLOs	0	
Courses with CSLOs mapped to PSLOs	7	WELD091AF, WELD091BF, WELD091CF, WELD091DF, WELD100 F, WELD120 F, WELD121AF
Courses without CSLOs mapped to PSLOs	3	WELD095 F, WELD096 F, WELD098 F
Courses with direct assessment of PSLOs	0	
Courses with CSLOs mapped to ISLOs	3	WELD095 F, WELD096 F, WELD098 F
Courses without CSLOs mapped to ISLOs	7	WELD091AF, WELD091BF, WELD091CF, WELD091DF, WELD100 F, WELD120 F, WELD121AF
Courses with direct assessment of ISLOs	0	
Courses with at least one planned Assessment	10	WELD091AF, WELD091BF, WELD091CF, WELD091DF, WELD095 F, WELD096 F, WELD098 F, WELD100 F, WELD120 F, WELD121AF
Courses with planned Assessments scored	9	WELD091AF, WELD091BF, WELD091CF, WELD091DF, WELD095 F, WELD098 F, WELD121AF, WELD100 F, WELD120 F
Courses with some Assessments scored	1	WELD096 F
Courses without any Assessment scored	0	
Courses with no planned Assessments	0	

Figure 29

As evidence the Course Report Totals from the SLO Performance Report- By Division, Course, CSLO-Welding 2016-2021 shows the following data which indicates 10 semesters from the past 5 years have been assessed.

Report Totals:

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations		N/A		Total	
Spring 2021	0	0.00%	0	0.00%	274	95.80%	0	0.00%	12	4.20%	0	0.00%	286	100.00%
Fall 2020	0	0.00%	0	0.00%	285	95.32%	0	0.00%	14	4.68%	0	0.00%	299	100.00%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2020	0	0.00%	0	0.00%	286	100.00%	0	0.00%	0	0.00%	0	0.00%	286	100.00%
Fall 2019	0	0.00%	0	0.00%	321	93.04%	0	0.00%	24	6.96%	0	0.00%	345	100.00%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2019	0	0.00%	0	0.00%	328	88.65%	0	0.00%	42	11.35%	0	0.00%	370	100.00%
Fall 2018	0	0.00%	0	0.00%	328	91.11%	0	0.00%	32	8.89%	0	0.00%	360	100.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2018	0	0.00%	0	0.00%	292	93.59%	0	0.00%	20	6.41%	0	0.00%	312	100.00%
Fall 2017	0	0.00%	0	0.00%	326	93.14%	0	0.00%	24	6.86%	0	0.00%	350	100.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	282	95.92%	0	0.00%	12	4.08%	0	0.00%	294	100.00%
Fall 2016	0	0.00%	0	0.00%	114	98.28%	0	0.00%	2	1.72%	0	0.00%	116	100.00%
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Totals	**0**	**0.00%**	**0**	**0.00%**	**2836**	**93.97%**	**0**	**0.00%**	**182**	**6.03%**	**0**	**0.00%**	**3018**	**100.00%**

Figure 30

4.4 SLO Equity Analysis

1. Looking at CSLO attainment data, do you find significant differences by race, ethnicity, gender, and other categories? Please include some illustrations of this data in the Appendix. Describe here what the data shows. What strategies will you use to close the attainment gaps among groups of students? What kinds of professional learning would help?

Response: There is a myriad of information presented in the Elumen data base which is used to track and report on Student Learning Outcome Assessment. This data can be divided up into many ways. In order to effectively demonstrate CSLO attainment data by ethnicity, gender and other categories we will use course data from two courses from two different departments within manufacturing with the most enrollment as shown in section 3.1.5 of the Manufacturing Data packet provided by the OIE. The Weld 121AF course has the most enrollments in the Welding department with 21 sections and 428 enrollments over a 5-year period. The Machine 116F course has the most enrollments for the Machine Technology department with 18 sections and 278 enrollments over a 5-year period. The following graphs (Figure 31 and 32) below shows the demographic data from Elumen over that same period of time. We find the data presented in the "Overall by Term for Demographic Category: Ethnicity" graphs for both courses show a significant number of students meet expectations semester to semester (with the exception of Spring 2020). We find the data presented in the "Overall by Demographic Element for Demographic Category: Ethnicity" graphs for both courses show a significant number of students meet expectations for the most part from each ethnicity. The Unknown category and African American category for the Machine 116F shows that over 66% do not meet expectations. We attribute the high number of students that do not meet expectations to the low number of Unknown (4) and African American (3) students enrolled in the Machine Technology program overall.

WELD121AF

Overall by Term for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	128	96.97%	0	0.00%	4	3.03%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	128	91.43%	0	0.00%	12	8.57%
Spring 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2018	0	0.00%	0	0.00%	56	73.68%	0	0.00%	20	26.32%
Spring 2019	0	0.00%	0	0.00%	60	83.33%	0	0.00%	12	16.67%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2021	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Overall by Demographic Element for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
African American	0	0.00%	0	0.00%	4	100.00%	0	0.00%	0	0.00%
American Indian/Alaskan Native	0	0.00%	0	0.00%	8	100.00%	0	0.00%	0	0.00%
Asian	0	0.00%	0	0.00%	32	88.89%	0	0.00%	4	11.11%
Filipino	0	0.00%	0	0.00%	8	100.00%	0	0.00%	0	0.00%
Hispanic	0	0.00%	0	0.00%	164	91.11%	0	0.00%	16	8.89%
Pacific Islander	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	8	100.00%	0	0.00%	0	0.00%
Unspecified	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
White Non-Hispanic	0	0.00%	0	0.00%	148	84.09%	0	0.00%	28	15.91%

Figure 31

MACH 116F

Overall by Term for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	52	100.00%	0	0.00%	0	0.00%
Spring 2018	0	0.00%	0	0.00%	64	100.00%	0	0.00%	0	0.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2018	0	0.00%	0	0.00%	70	75.27%	0	0.00%	23	24.73%
Spring 2019	0	0.00%	0	0.00%	57	82.61%	0	0.00%	12	17.39%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2019	0	0.00%	0	0.00%	78	81.25%	0	0.00%	18	18.75%
Spring 2020	0	0.00%	0	0.00%	34	66.67%	0	0.00%	17	33.33%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2020	0	0.00%	0	0.00%	52	81.25%	0	0.00%	12	18.75%
Spring 2021	0	0.00%	0	0.00%	48	88.89%	0	0.00%	6	11.11%

Overall by Demographic Element for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
African American	0	0.00%	0	0.00%	3	33.33%	0	0.00%	6	66.67%
American Indian/Alaskan Native	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Asian	0	0.00%	0	0.00%	69	95.83%	0	0.00%	3	4.17%
Filipino	0	0.00%	0	0.00%	16	100.00%	0	0.00%	0	0.00%
Hispanic	0	0.00%	0	0.00%	253	83.22%	0	0.00%	51	16.78%
Pacific Islander	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	4	30.77%	0	0.00%	9	69.23%
Unspecified	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
White Non-Hispanic	0	0.00%	0	0.00%	110	85.27%	0	0.00%	19	14.73%

Figure 32

2. Compare the equity analysis in this section to the equity analysis in Section 3.2. Are there some groups who have lower completion and success rates AND lower SLO attainment rates than other groups? Can new departmental strategies close both gaps? Please explain. [For example, many departments found that their SLO attainment gaps are quite a bit smaller than their success gaps (or the gaps don't exist). This might mean that many students who get a D or lower in a course are actually learning the material (i.e. attaining the SLOs) but they are winding up with a failing grade for other reasons: absences, tardies, missed assignments, missed exams, poor performance on high-stakes assignments.]

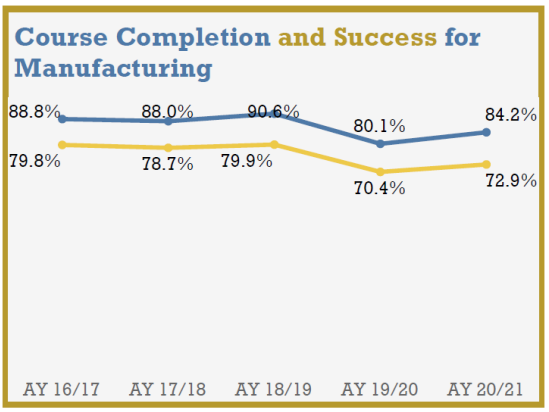
Response: In section 3.2.1 graph (Figure 33) the manufacturing departments seem to be higher in Course Completion and Success rate than other programs for AY 16/17 through AY 18/19. In AY 19/20 there appears to be a slight decline in Course Completion and Success rate which mirrors those of other programs. This reflects the complete shut down in March 2020 of in-person courses in our division. As courses in the Manufacturing area started up again in AY 20/21 with in-person labs the Course Completion and Success rate showed a slight increase. A comparison between the Course Completion and Success rates from the graph 3.2.1 (generated by the OIE) and the SLO attainment rates given in the Performance Report by Program with courses by term and ethnicity (generated by Elumen), shows some variation in SLO attainment rates for Drafting, Machine, Technology and Welding department programs. (See Figures 34, 35, 36, and 37). This could be caused by insufficient data in the Elumen data base for each program to reflect accurate trends. Another possible reason for the difference may be that assessments given during the Covid-19 shut down in Spring 2020 may have affected the overall numbers. With this said, the data reflects that the Manufacturing programs attainment rate were equal to or better than other programs in the college for the most part (see Figures 38, 39, 40, and 41). Certificates and degrees awarded in each department show that we have a high number of students obtaining their certificates and degrees overall.

Course Completion + Course Success

Section 3.2.1: Using the data provided by the OIE, briefly describe student achievement rates in your program over the past five years: **completion, success**, degrees/certificates, transfer, licensing, job placement, wage improvements (not all of these measures apply to every program).

Course Completion and Success for Manufacturing

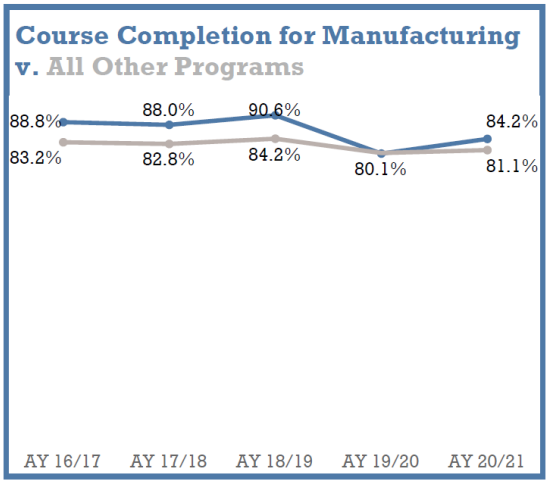
	AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21
Course Completion	88.8%	88.0%	90.6%	80.1%	84.2%
Course Success	79.8%	78.7%	79.9%	70.4%	72.9%



Course Completion and Success for Manufacturing Relative to All Other Programs

Course Completion for Manufacturing

Program Match	AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21
All Other Progra..	83.2%	82.8%	84.2%	80.3%	81.1%
This Program	88.8%	88.0%	90.6%	80.1%	84.2%



Course Success for Manufacturing

Program Match	AY 16/17	AY 17/18	AY 18/19	AY 19/20	AY 20/21
All Other Progra..	68.0%	68.6%	70.1%	68.7%	69.1%
This Program	79.8%	78.7%	79.9%	70.4%	72.9%

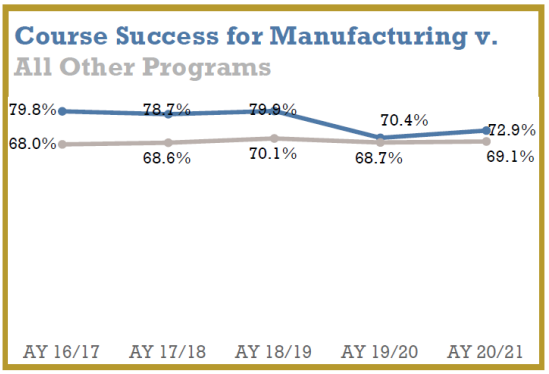


Figure 33

Machine Tools -Performance Report by CSLOs Demographics-Ethnicity

Overall by Term for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	52	100.00%	0	0.00%	0	0.00%
Spring 2018	0	0.00%	0	0.00%	64	100.00%	0	0.00%	0	0.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2018	0	0.00%	0	0.00%	608	91.02%	0	0.00%	60	8.98%
Spring 2019	0	0.00%	0	0.00%	598	93.73%	0	0.00%	40	6.27%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2019	0	0.00%	0	0.00%	529	85.05%	0	0.00%	93	14.95%
Spring 2020	0	0.00%	0	0.00%	375	79.11%	0	0.00%	99	20.89%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2020	0	0.00%	0	0.00%	190	85.97%	0	0.00%	31	14.03%
Spring 2021	0	0.00%	0	0.00%	198	84.62%	0	0.00%	36	15.38%

Overall by Demographic Element for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
African American	0	0.00%	0	0.00%	47	73.44%	0	0.00%	17	26.56%
American Indian/Alaskan Native	0	0.00%	0	0.00%	22	100.00%	0	0.00%	0	0.00%
Asian	0	0.00%	0	0.00%	344	91.01%	0	0.00%	34	8.99%
Filipino	0	0.00%	0	0.00%	81	93.10%	0	0.00%	6	6.90%
Hispanic	0	0.00%	0	0.00%	1332	85.17%	0	0.00%	232	14.83%
Pacific Islander	0	0.00%	0	0.00%	14	82.35%	0	0.00%	3	17.65%
Unknown	0	0.00%	0	0.00%	43	76.79%	0	0.00%	13	23.21%
Unspecified	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
White Non-Hispanic	0	0.00%	0	0.00%	731	93.12%	0	0.00%	54	6.88%

Figure 34

Drafting- Performance Report by CSLOs Demographics-Ethnicity

Overall by Term for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
Fall 2014	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2018 *	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2018	0	0.00%	0	0.00%	203	92.27%	0	0.00%	17	7.73%
Spring 2019	0	0.00%	0	0.00%	139	97.89%	0	0.00%	3	2.11%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2019	0	0.00%	0	0.00%	139	92.05%	0	0.00%	12	7.95%
Spring 2020	0	0.00%	0	0.00%	135	99.26%	0	0.00%	1	0.74%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2020	0	0.00%	0	0.00%	139	95.86%	0	0.00%	6	4.14%
Spring 2021	0	0.00%	0	0.00%	132	97.06%	0	0.00%	4	2.94%

*Too few to report

Overall by Demographic Element for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
African American	0	0.00%	0	0.00%	10	100.00%	0	0.00%	0	0.00%
American Indian/Alaskan Native	0	0.00%	0	0.00%	3	75.00%	0	0.00%	1	25.00%
Asian	0	0.00%	0	0.00%	134	97.10%	0	0.00%	4	2.90%
Filipino	0	0.00%	0	0.00%	25	89.29%	0	0.00%	3	10.71%
Hispanic	0	0.00%	0	0.00%	446	94.89%	0	0.00%	24	5.11%
Pacific Islander	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	12	100.00%	0	0.00%	0	0.00%
Unspecified	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
White Non-Hispanic	0	0.00%	0	0.00%	257	95.90%	0	0.00%	11	4.10%

Figure 35

Technology- Performance Report by CSLOs Demographics-Ethnicity

Overall by Term for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	41	97.62%	0	0.00%	1	2.38%
Spring 2017	0	0.00%	0	0.00%	80	95.24%	0	0.00%	4	4.76%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2018	0	0.00%	0	0.00%	39	100.00%	0	0.00%	0	0.00%
Spring 2019	0	0.00%	0	0.00%	125	95.42%	0	0.00%	6	4.58%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2019	0	0.00%	0	0.00%	21	100.00%	0	0.00%	0	0.00%
Spring 2020	0	0.00%	0	0.00%	50	96.15%	0	0.00%	2	3.85%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2020	0	0.00%	0	0.00%	59	93.65%	0	0.00%	4	6.35%
Spring 2021	0	0.00%	0	0.00%	112	86.15%	0	0.00%	18	13.85%

Overall by Demographic Element for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
African American	0	0.00%	0	0.00%	25	89.29%	0	0.00%	3	10.71%
American Indian/Alaskan Native	0	0.00%	0	0.00%	15	100.00%	0	0.00%	0	0.00%
Asian	0	0.00%	0	0.00%	40	100.00%	0	0.00%	0	0.00%
Filipino	0	0.00%	0	0.00%	9	81.82%	0	0.00%	2	18.18%
Hispanic	0	0.00%	0	0.00%	229	92.34%	0	0.00%	19	7.66%
Pacific Islander	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	10	100.00%	0	0.00%	0	0.00%
Unspecified	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
White Non-Hispanic	0	0.00%	0	0.00%	199	94.76%	0	0.00%	11	5.24%

Figure 36

Welding- Performance Report by CSLOs Demographics-Ethnicity

Overall by Term for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	39	95.12%	0	0.00%	2	4.88%
Spring 2017	0	0.00%	0	0.00%	72	93.51%	0	0.00%	5	6.49%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	65	92.86%	0	0.00%	5	7.14%
Spring 2018	0	0.00%	0	0.00%	43	81.13%	0	0.00%	10	18.87%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2018	0	0.00%	0	0.00%	253	92.00%	0	0.00%	22	8.00%
Spring 2019	0	0.00%	0	0.00%	283	90.13%	0	0.00%	31	9.87%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2019	0	0.00%	0	0.00%	297	93.10%	0	0.00%	22	6.90%
Spring 2020	0	0.00%	0	0.00%	252	100.00%	0	0.00%	0	0.00%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2020	0	0.00%	0	0.00%	285	95.32%	0	0.00%	14	4.68%
Spring 2021	0	0.00%	0	0.00%	272	95.77%	0	0.00%	12	4.23%

Overall by Demographic Element for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
African American	0	0.00%	0	0.00%	24	82.76%	0	0.00%	5	17.24%
American Indian/Alaskan Native	0	0.00%	0	0.00%	30	96.77%	0	0.00%	1	3.23%
Asian	0	0.00%	0	0.00%	72	93.51%	0	0.00%	5	6.49%
Filipino	0	0.00%	0	0.00%	24	100.00%	0	0.00%	0	0.00%
Hispanic	0	0.00%	0	0.00%	1027	93.96%	0	0.00%	66	6.04%
Pacific Islander	0	0.00%	0	0.00%	2	50.00%	0	0.00%	2	50.00%
Unknown	0	0.00%	0	0.00%	72	97.30%	0	0.00%	2	2.70%
Unspecified	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
White Non-Hispanic	0	0.00%	0	0.00%	605	93.51%	0	0.00%	42	6.49%

Figure 37

Drafting Certificate by Term and Ethnicity

Overall by Term for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2018	0	0.00%	0	0.00%	2	100.00%	0	0.00%	0	0.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2018	0	0.00%	0	0.00%	116	87.88%	0	0.00%	16	12.12%
Spring 2019	0	0.00%	0	0.00%	56	100.00%	0	0.00%	0	0.00%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2019	0	0.00%	0	0.00%	58	93.55%	0	0.00%	4	6.45%
Spring 2020	0	0.00%	0	0.00%	56	100.00%	0	0.00%	0	0.00%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2020	0	0.00%	0	0.00%	48	100.00%	0	0.00%	0	0.00%
Spring 2021	0	0.00%	0	0.00%	40	100.00%	0	0.00%	0	0.00%

Overall by Demographic Element for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
African American	0	0.00%	0	0.00%	8	100.00%	0	0.00%	0	0.00%
American Indian/Alaskan Native	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Asian	0	0.00%	0	0.00%	80	95.24%	0	0.00%	4	4.76%
Filipino	0	0.00%	0	0.00%	16	100.00%	0	0.00%	0	0.00%
Hispanic	0	0.00%	0	0.00%	168	94.38%	0	0.00%	10	5.62%
Pacific Islander	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	4	100.00%	0	0.00%	0	0.00%
Unspecified	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
White Non-Hispanic	0	0.00%	0	0.00%	100	94.34%	0	0.00%	6	5.66%

Figure 38

Machine Technology AS degree by Term and Ethnicity

Overall by Term for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	52	100.00%	0	0.00%	0	0.00%
Spring 2018	0	0.00%	0	0.00%	64	100.00%	0	0.00%	0	0.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2018	0	0.00%	0	0.00%	70	75.27%	0	0.00%	23	24.73%
Spring 2019	0	0.00%	0	0.00%	57	82.61%	0	0.00%	12	17.39%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2019	0	0.00%	0	0.00%	78	81.25%	0	0.00%	18	18.75%
Spring 2020	0	0.00%	0	0.00%	34	66.67%	0	0.00%	17	33.33%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2020	0	0.00%	0	0.00%	52	81.25%	0	0.00%	12	18.75%
Spring 2021	0	0.00%	0	0.00%	48	88.89%	0	0.00%	6	11.11%

Overall by Demographic Element for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
African American	0	0.00%	0	0.00%	3	33.33%	0	0.00%	6	66.67%
American Indian/Alaskan Native	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Asian	0	0.00%	0	0.00%	69	95.83%	0	0.00%	3	4.17%
Filipino	0	0.00%	0	0.00%	16	100.00%	0	0.00%	0	0.00%
Hispanic	0	0.00%	0	0.00%	253	83.22%	0	0.00%	51	16.78%
Pacific Islander	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	4	30.77%	0	0.00%	9	69.23%
Unspecified	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
White Non-Hispanic	0	0.00%	0	0.00%	110	85.27%	0	0.00%	19	14.73%

Figure 39

Technology degrees (Industrial Technology AS degree) by Term and Ethnicity

Note: Limited data exist for these programs since they are made up of various courses from different departments.

Overall by Term for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
Spring 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2019	0	0.00%	0	0.00%	34	94.44%	0	0.00%	2	5.56%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Spring 2021	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Overall by Demographic Element for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
African American	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
American Indian/Alaskan Native	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Asian	0	0.00%	0	0.00%	4	100.00%	0	0.00%	0	0.00%
Filipino	0	0.00%	0	0.00%	2	100.00%	0	0.00%	0	0.00%
Hispanic	0	0.00%	0	0.00%	16	88.89%	0	0.00%	2	11.11%
Pacific Islander	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	2	100.00%	0	0.00%	0	0.00%
Unspecified	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
White Non-Hispanic	0	0.00%	0	0.00%	9	100.00%	0	0.00%	0	0.00%

Figure 40

Welding Certificate by Term and Ethnicity

Overall by Term for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
Summer 2016	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2016	0	0.00%	0	0.00%	50	100.00%	0	0.00%	0	0.00%
Spring 2017	0	0.00%	0	0.00%	240	96.00%	0	0.00%	10	4.00%
Summer 2017	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2017	0	0.00%	0	0.00%	267	93.36%	0	0.00%	19	6.64%
Spring 2018	0	0.00%	0	0.00%	268	96.40%	0	0.00%	10	3.60%
Summer 2018	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2018	0	0.00%	0	0.00%	274	90.73%	0	0.00%	28	9.27%
Spring 2019	0	0.00%	0	0.00%	266	90.48%	0	0.00%	28	9.52%
Summer 2019	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2019	0	0.00%	0	0.00%	277	93.58%	0	0.00%	19	6.42%
Spring 2020	0	0.00%	0	0.00%	228	100.00%	0	0.00%	0	0.00%
Summer 2020	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Fall 2020	0	0.00%	0	0.00%	240	94.49%	0	0.00%	14	5.51%
Spring 2021	0	0.00%	0	0.00%	228	95.00%	0	0.00%	12	5.00%

Overall by Demographic Element for Demographic Category: Ethnicity

	Greatly exceeds expectations.		Exceeds expectations		Meets expectations		Does not meet expectations but developing		Does not meet expectations	
African American	0	0.00%	0	0.00%	23	82.14%	0	0.00%	5	17.86%
American Indian/Alaskan Native	0	0.00%	0	0.00%	41	97.62%	0	0.00%	1	2.38%
Asian	0	0.00%	0	0.00%	110	91.67%	0	0.00%	10	8.33%
Filipino	0	0.00%	0	0.00%	24	100.00%	0	0.00%	0	0.00%
Hispanic	0	0.00%	0	0.00%	1219	93.63%	0	0.00%	83	6.37%
Pacific Islander	0	0.00%	0	0.00%	4	66.67%	0	0.00%	2	33.33%
Unknown	0	0.00%	0	0.00%	98	100.00%	0	0.00%	0	0.00%
Unspecified	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
White Non-Hispanic	0	0.00%	0	0.00%	819	95.45%	0	0.00%	39	4.55%

Figure 41

5.0 Other Areas of Program Effectiveness

5.1 Your Department and General Education

1. Using the data provided by the OIE, please look at students who take your courses for GE credit.

Response: At this time, no courses in the manufacturing departments are taken for GE credit.

2. What role does your department play in helping students complete the GE pathway?

Response: At this time, no courses in the manufacturing departments are taken for GE credit. However, this may be investigated further in the future.

3. Do you offer GE courses at a variety of time slots and at a frequency that allows students to fulfill GE requirements?

Response: At this time, no courses in the manufacturing departments are taken for GE credit.

4. Please take into account daytime, evening, weekend, and online classes to provide a brief sketch of your GE course availability.

Response: At this time, no courses in the manufacturing departments are taken for GE credit.

5.2 Outside Influences on Your Department

1. Describe any laws, regulations, trends, policies, procedures, or other influences that have an impact on your program. Please include any other data that may be relevant to student achievement, learning, and trends within your Basic Skills, CTE, or Transfer Education programs.

Response: All manufacturing departments have a yearly advisory committee meeting which advises and guides faculty on curriculum, purchases, equipment, donations, strategies, recruitment, trends, student feedback, regulations, laws/regulations and policies/procedures that may be necessary. Third party certifications provide valuable documentation of student skill achievement and should be supported and encouraged by all levels of college staff.

2. Make sure you are including all degree and certificate programs, including the College's GE program.

Response: All courses, certificate and degree programs are covered during the Advisory Committee meetings.

3. Please also consider not only your courses, but also prerequisite and corequisite courses that might be offered by a different department.

Response: At this time, prerequisite and corequisite courses are evaluated by each department coordinator. Since the manufacturing departments have unique skills and abilities for each there are a limited number prerequisite and corequisite requirements.

4. If AB 705 applies to the program then how are you meeting its mandates?

Response: This requirement really does not apply to manufacturing type courses at this time.

5.3 Your Program's Active and Applied Learning and High-Impact Practices

1. The College wants to create an inventory of faculty efforts to make learning active and applied. Please briefly describe opportunities your students have to apply and deepen knowledge and skills through projects, internships, co-ops, clinical placements, group projects outside of class, service learning, study abroad, and other experiential learning activities that you intentionally embed in coursework, or elsewhere in your program.

Response: We have found that projects and exercises work effectively for teaching manufacturing skills which incorporate advanced concepts in assembly and fabrication of piece parts that require critical thinking skills. In the Machine Technology department we provide students with all materials and tools necessary to complete our projects and assignments with little or no cost to the student. We have embarked on aligning with apprenticeship councils (California Machining and Tooling Apprenticeship Association) in the Machine Technology department which provide and coordinate training and employment opportunities to students. We have also welcomed into our manufacturing program organizations (such as network kinection.com) funded by strong workforce grants to help all students with internship and employment opportunities throughout. The Welding department is a certified weld test lab for LA department of building and safety and they are also AWS (American Welding Society) QC1 code certified. These certifications which are embedded into the courses allow students (once certified) to obtain gainful employment using their specialized skills. In the Drafting department, all students who have completed the Solidworks courses are given the opportunity to take the Solidworks sponsored CSWA certification exam for free. Throughout the Fullerton College Solidworks courses, the curriculum is structured to focus on successfully passing the CSWA exam. If the exam is awarded, the students has a powerful prerequisite, recognized worldwide when applying for employment positions.

2. Are there institutional barriers hindering your department's ability to offer or enhance these learning experiences for students? Please explain.

Response: Improved support for faculty professional development is needed. Full and part time instructors often times are hindered by the paperwork for traveling, and professional development. We have to submit paperwork ahead of time to get compensated however sometimes these learning opportunities come and go quickly. In addition, reimbursement for items necessary to teach (small tools and materials) is sometimes necessary to bridge the gap during a course for items that either we run out

of or did not get in time from a PO order. A more flexible approach should be warranted here for reimbursement as well as petit cash reimbursement. Another area which is a barrier is the hook up and seismic mounting requirement for new equipment. The time required to do this is extensive and, in some cases, can take up to approximately 1 year to complete. The cost is high and presents a negative when buying any equipment to enhance the student learning experience.

6.0 Planning

6.1 Progress on Previous Strategic Action Plans

1. Please briefly describe the goals (Strategic Action Plans, SAPs) from your last self-study. How much progress have you made on them? If you have reached a goal, explain how it allows ongoing improvement, especially if you received additional funding.

Response: No changes were warranted in our last self-study analysis, hence no strategic action plan was given in the last self-study performed in November 2020 for the manufacturing departments.

2. If additional funds were NOT allocated to you in the last review cycle, how did the LACK of funds have an impact on your program?

Response: No funds were requested and none were given based on the Covid-19 pandemic situation in AY 20-21. The funds we received during the AY 2015 to AY 2019 have been enough thus far to sustain our program however more funding and manpower will be necessary to maintain and sustain the grown of the program in manufacturing.

6.2 New Strategic Action Plans

Please write brief, concrete plans that you will accomplish over the next four years. Your plans might include requests for additional funds. The Program Review Committee will read these and either endorse the request or ask for more information. Please keep in mind that the Committee's endorsement does not guarantee additional funding. The President's Advisory Council and Faulty Allocation Committee play major roles in allocating funds and prioritizing new faculty hires.

Please number each of your plans. This will help keep to track of them. Also, make sure that each funding request includes the following elements:

1. It is supported by the data and analysis in previous sections of this self-study.
2. It fulfills a part of the College mission, vision, goals, or objectives.
3. It explains how the request helps the College attain student equity.
4. There is a measurable way to tell if the extra funding will be effective.
5. It considers whether you can reach this goal (or parts of it) without additional funding.
6. Please give a dollar amount, or best estimate. If you can identify a funding source, then please name it. If you can put the request into one of the following categories, please do so:

Personnel, Facilities, Equipment, Supplies, Computer Hardware, Computer Software, Training, Other.

Response: The following are plans for the future expansion of the Machine Technology, Metrology, Robotic and Automation programs. These plans can be done separately or together depending on funding.

Plan 1-Machining/Metrology Improvement and Expansion Initiative

Demand-The job market is very good for the machining industry. The industry has a need for many more machinists, inspectors, CNC operators, CNC set-up technicians, CMM operators, and CNC programmers than the qualified candidates currently available. The average worker in all nonfarm industries earned $71,390. Looking specifically at wages, the average manufacturing worker earned more than $28.92 per hour in August, not including benefits, or for production and nonsupervisory workers, the average in the sector was $22.82. (Source: Bureau of Economic Analysis and Bureau of Labor Statistics) Manufacturing in California represents 10.67% of the total gross state product in 2019 with over 35,000 manufacturing establishments. Over 1.3 million California state residents are employed in manufacturing with an average annual compensation of $109,875. Note: 80% of the manufacturing employees in the USA are between the ages of 45 and 65.

Project Summary-Our plan is to increase the footprint of the Machine Technology department by expanding into the adjacent 902 lab. This expansion of square footage would allow 2 new machine tools to be purchased to teach Mastercam-Lathe and Mastercam-Mill with multi axis effectively as well as relocated our current CMMs and Laser arms and any new equipment used in Metrology. Currently the room in the Machine Technology where some of this equipment is stored is too small to teach these metrology courses effectively. In addition, the social distancing rule associated with Covid pandemic has made it all but impossible to teach in that room. The alternative plan of using the room in the 700 building is simply not effective since the arms must be assembled and disassembled for every session. This has led to broken arms with expensive cost to fix, not to mention downtime. The addition of the 902 lab would greatly benefit students and increase our enrollment numbers without significantly affecting current students in the Printing department. We estimate, (after the project is complete) that 40 additional certificates will be awarded over a 4-year period between the Machine Technology and Metrology programs.

Providing additional space for the metrology lab would enhance the educational experience for students in the manufacturing field. The expansion would open up new opportunities and increase workforce training opportunities in the field such as metrology and overall inspection areas in the manufacturing area. Metrology is the science of measurement hence critical thinking skills are vital in this field. Courses in this field enhance the possibilities of employment opportunities in the manufacturing field by providing up to date technology. The approved Metrology certificates allows students to either complete a mini certificate and/or to pursue a more in-depth certificate.

Personnel-In order to teach Metrology effectively an additional headcount is necessary for the Machine Technology department. A justification has been submitted to the Dean of Technology and Engineering on 9-14-21 for review and approval.

Facilities-Our plan is to move into the 902 lab which is currently the Printing department. The Printing department has assimilated with DART courses and other Fine Art courses since the curriculum are similar. Printing equipment not used or outdated can be surpluses to provide room for the current and new Metrology equipment as well new CNC equipment. Approximate machine moving cost 125K

Equipment-The following equipment is necessary:

- 2 new laser arms-to augment and act as back-up for equipment that is down. Approximate cost 120K
- 2 new CMM machines-Approximate cost 110K
- 1 HAAS lathes/mill with multi axis capabilities-Approximate cost 120K
- 1 HAAS vertical mill with multi axis capabilities-Approximate cost 120K
- All tables and chairs from the 714 room currently fitted with adapters for the Laser Arms.
- Necessary power utility to power equipment (I believe this is there already however I am mentioning to high light the importance.) Approximate cost 50K

Supplies-The following supplies are necessary:

- Tooling and supplies for Metrology-25K
- Tooling and supplies for new CNC machine-25K

Computer Hardware-The following Computer Hardware is necessary:

- 20 tower computers with the latest version of Mastercam-Lathe and Mastercam-Mill-40K

Computer Software-The following Computer Software is necessary:

- 20 licenses for Mastercam-Lathe-no cost
- 20 licenses for Mastercam-Mill-no cost
- 20 licenses for Fusion-no cost

Training-Training on new equipment will be necessary for both CNC and Metrology equipment. Approximate cost 25K.

Other-Ancillary supplies associated with CNC and metrology. Approximate cost 10K

Funding Source-At this time we have not identified any funding sources other than Strong Workforce.

Total Approximate Cost: $880K

Plan 2-Robotics and Automation

Demand-Exhibit 1 shows the five-year occupational demand projections for these automation occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to decrease by 2% through 2024. However, there will be more than 260 job openings per year through 2024 due to retirements and workers leaving the field.

Table 1

Exhibit 1: Occupational demand in Los Angeles and Orange Counties 3 Geography	**2019 Jobs**	**2024 Jobs**	**2019-2024 Change**	**2019-2024 % Change**	**Annual Openings**
Los Angeles	1,699	1,644	(54)	(3%)	165
Orange	981	983	2	0%	97
Total	**2,679**	**2,627**	**(52)**	**(2%)**	**262**

Note: This report includes employment projection data by Emsi which uses EDD information. Emsi's projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy, during the projection period, will be at approximately full employment. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the impacts of COVID-19 into account.

Project Summary-Our plan is to increase the footprint of the Machine Technology department by expanding into the adjacent 902 lab. This expansion of square footage would allow in addition to the Plan 1 project, the space needed for the two current robots that we currently have stored in the 905 lab. Currently the room in the Machine Technology where some of this equipment is stored is too small to teach these robot courses effectively. In addition, the social distancing rule associated with Covid-19 pandemic has made it all but impossible to teach in that room. The alternative plan of using the room in the 700 building is simply not effective since the area necessary to safely run the robots is not currently possible given the requirements. The addition of the 902 lab would not only allow the current 2 robots to be moved and used but would allow us to expand our program and take the lead in this field. The addition of the 902 lab would greatly benefit students and increase our enrollment numbers without significantly affecting current students in the Printing department. We estimate, (after the project is complete) that 30 additional certificates will be awarded over a 4-year period between the Machine Technology and Automation programs.

Personnel-In order to teach Robotics and Automation effectively an additional headcount is necessary for the Machine Technology department. A justification has been submitted to the Dean of Technology and Engineering on 9-14-21 for review and approval.

Facilities-Our plan is to move into the 902 lab which is currently the Printing department. The Printing department has assimilated with DART courses and other Fine Art courses since the curriculum are similar. Printing equipment not used or outdated can be surpluses to provide room for the current and new Robotic and Automation equipment as well new CNC equipment. Approximate machine moving cost 125K.

Equipment-The following equipment is necessary:

- 10 new Robots to augment and act as back-up for equipment that is down. Approximate cost 350K
- All tables and chairs from the 714 room currently fitted with computers can be used.
- Necessary power utility to power equipment. (I believe this is there already however I am mentioning to high light the importance.) Approximate cost 50K

Supplies-The following supplies are necessary:

- Tooling and supplies for Robots and end of arm tooling. Approximate cost 25K
- Tooling and supplies for general set-up and repair. Approximate cost 25K

Computer Hardware-The following Computer Hardware is necessary:

- 20 tower computers with the latest version of the programming and simulation software.

Computer Software-The following Computer Software is necessary:

- 20 licenses for the programming and simulation software. No cost

Training-Training on new equipment will be necessary for both robots and automation equipment. Approximate cost 25K.

Other Ancillary supplies associated with automation and robots. Approximate cost 15K

Funding Source-At this time we have not identified any funding sources other than Strong Workforce.

Total Approximate Cost 615K

Note: Please see earlier justification for Full time Metrology instructor in section 3.4.

6.3 Optional: Long-Term Plans

Your department might have more plans than just immediate requests for funding. If so, please describe them here.

Response: Our long term plan is to expand our Manufacturing program to include an integrated Metrology and Robotic/Automation program to our current manufacturing mix. This would add two more departments to our division. One department would be devoted to Metrology (METRO) courses and the other department would be devoted to Robotics and Automation (ROBAUT) courses. See section 6.2 of this document for more details.

7.0 Executive Summary

Please provide the reader with a brief overview of the highlights, themes, and key elements of this self-study. Please don't include new information you did not discuss earlier. Although you will likely write this section last, please remember to put this summary at the front of your report.

Response: Please see first page.

8.0 Publication Review

The College wants to maintain integrity in all representations of its mission, programs, and services. Please help this effort by reviewing your publications: professional social media profiles, websites, brochures, pamphlets, etc. Please tell us the date they were last reviewed and if you found them to be accurate in all representations of the College and program missions and services. Information on the college's graphic standards is available here.

1. For each of your program's publications, please provide the URL where the publication can be viewed. If the publication cannot be accessed via the Internet, please contact Lisa McPheron, Director of Campus Communications at lmcpheron@fullcoll.edu.

Response: Please see following links for each department:

Drafting- Industrial Drafting - Fullerton College (fullcoll.edu)
Machine- Fullerton College | Machine Technology (fullcoll.edu)
Technology-No link is available at this time.
Welding- Welding Technology - Fullerton College (fullcoll.edu)

2. If you find an inaccurate publication, please explain how you will make corrections.

Response: Incorrect information on publications or links are reported to the Dean of Technology and Engineering for correction and/or protocol for correction.

3. If your department maintains a social media presence then please describe it here. What do you use it for? How do you monitor it? Who is in charge of it? In what ways is it benefiting the College and your program? Does it follow the District's social media guidelines?

Response: At this time, we use the following social media links:

- Drafting- No social media links exist for the Drafting Technology department at this time.
- Machine (57) Fullerton College Machine Technology: Company Page Admin | LinkedIn
- Machine (20+) Fullerton College Machine Technology Department | Facebook
- Technology-No social media links exist for the Technology Related department at this time.
- Welding- No social media links exist for the Welding Technology department at this time.

4. If your program regularly communicates with the wider community, please describe how. What feedback do you get from the community?

Response: All manufacturing departments have a yearly advisory committee meeting with industry representatives. This meeting is designed to share vision comments, trends on technology, feedback on students hired, suggestions for improvement, curriculum improvements, equipment needs, validation of information/needs, and other important information necessary to maintain, sustain and move all programs forward to meet the needs of the community. Minutes are published and distributed to all attendees and participants. A record of the meeting agenda and minutes is maintained by all departments.

Signature: Kenneth Starkman (Mar 21, 2022 08:25 CDT)
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Signature: Dan O'Brien (Mar 25, 2022 15:27 PDT)
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