**Sinclair Community College**

**Continuous Improvement Annual Update 2013-14**

**Please submit to your dean and the Provost’s Office no later than Oct. 1, 2013**

**Department:** 0570 – Computer Aided Manufacturing

Year of Last Program Review: FY 2008-2009

Year of Next Program Review: FY 2015-2016

**Section I: Department Trend Data, Interpretation, and Analysis**

**Degree and Certificate Completion Trend Data – OVERALL SUMMARY**

Please provide an interpretation and analysis of the Degree and Certificate Completion Trend Data (Raw Data is located in Appendix A*): i.e. What trends do you see in the above data? Are there internal or external factors that account for these trends? What are the implications for the department? What actions have the department taken that have influenced these trends? What strategies will the department implement as a result of this data?*

*Fall enrollment data for CAM Program*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2009 | 2010 | 2011 | 2012 | 2013 |
| 406 | 334 | 328 | 387 | 377 |
|  |  |  |  |  |
|  |  |  |  |  |

**The graduation numbers for both degrees and certificates have been**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 09-10 | 10-11 | 11-12 | 12-13\* |
| Degrees | 23 | 15 | 18 | 6 |
| Certificates | 72 | 40 | 29 | 41 |
| STEP II\* | **42** | **16** | **12** | **17** |
| Short term | 24 | 22 | 17 | 17 |
| Total degrees/Certificates | **95** | **55** | **47** | **47** |

* STEP II included in certificates, broken out to show impact
* \*Academic Year

**Trends**

Looking at the trend data in the above graph (which for FY 2012-2013 is 33 but for AY is 47) you can see that we have dropped from a high of 95 in 09-10 to the upper 40's currently. The current enrollment for 2013 (see above chart) is slightly lower than last year’s, but still above the 10-11 and11-12. Enrollment for fall 2009 was 406, while 2013 is 377, still less than the peak, but better than the low in 2011 which was 328. As the general economy improves and the demand for skilled workers continues to rise, we are starting to see more students enroll in the program. We have surveyed every student this fall and discovered that 90%+ entered the program through word of mouth referrals from friends and family and from the general good news in the media about the availability of jobs in this area. We (faculty and staff of CAM department) have also visited most high school career days, local companies and DEV 84 classes to enroll students. We do no prescreening to eliminate potential candidates, but let the course work screen out those who cannot meet the requirements (see completion data in next section). We have had many discussions as a department, that argue, if we screened candidates we would have a higher success rate, but the negative side of that argument, is the potential for excluding students who would succeed. We do, however, test potential co-op students with the NTMA skills test which assesses basic mechanical aptitude, math and general reasoning skills. Only those students who pass the test are allowed to participate in co-op. We have kept the co-op program as we moved on to semesters and after just one year the response has been favorable. The employers like having the students for 16 weeks. We had six students complete the co-op and all were offered full-time employment upon graduation. We are in discussions now with several companies (including two of the area’s largest employers (UTC and GE) who are looking for co-op students, particularly those who wish to continue their education and complete at least a 2 year degree.

Our goal as a department is to create so much interest and demand for the program, that we will be forced to go to a waiting list or start screening. For fall of 2013 sections offered are at 78% capacity. We had to offer a second STEP II section because of the demand. We were unable to offer any more sections due to the new restrictions on Adjuncts. This was due to having a viable candidate pass away suddenly and an instructor who decided at the last minute not to teach this fall. The result is now finding enough qualified instructors to handle those classes. To address this we have hired one new instructor for spring and will have a retired instructor come back on a supplemental contract. We have replaced the retired instructor with a new Tenure Track faculty.

We are also working with Preble County and Warren County to try to address demand in those areas. Currently, we do not have physical facilities to allow us to run any machining classes in those areas, but we are working on that issue with Workforce Development through a grant for Preble county and local industries, and looking at working with the Courseview facility to lease machining space and equipment in that area.. All the data we look at and gather from our industry sources tells us that this is a long term trend, not just a blip. The rationale behind such forecasts takes into account current shortages of skilled machinists, unemployment rate, potential wages, and the impending retirement of numerous "Baby Boomers" which will only exacerbate the current shortages. The biggest challenge now is to attract more current high school graduates into the Program. We are doing this working with Tech Prep to create pathways and allowing credits for work done on machining in high school to count towards our degrees and certificates.

Our strategy is to work the channels we are currently working:

* Working on increasing the Advertising of the program (including degrees and certificates) with Sinclair’s Marketing and Admissions Department. Currently Sinclair does not market individual programs, but we are looking at ways to get the word about our Machining program to the general public. This has included work with our industry partners working with high school instructors and guidance counselors educating them about career opportunities in this field.
* Modifying the CAM Degrees and Certificates so they could be completed in less time.
* Conducting more machining classes at local high schools or making better connections through Tech Prep to encourage those high school graduates to continue their education at Sinclair. We are currently offering classes at Ponitz Career Academy, Mound Street Academy and looking to start at Belmont HS. We are working with Miami Valley CTC, Stebbins and other Tech Prep high schools to give their tech prep students articulation credits or allow them to get “Y” credits for selected courses based on what they have taken in high school
* We are continuing to host the Regional SKILLS USA machining contest and for the third straight year hosted the SKILLS USA statewide contest for manual machining. This was also our the second year hosting the CNC Lathe/Mill programming contest. This gives great exposure to our program statewide.
* We have worked with Academic advising so that our STEP II coordinator will do most of the advising and scheduling for our STEP II students. This is in addition to hosting several “information sessions” about STEP II and taking prospective students and parents on tours of our facilities (basically a one on one recruiting session).
* Working closely with the DRMA (Dayton Region Manufacturers Association -formerly the DTMA) to recruit current workers to enhance their skills. This is where there are some problems since most employers now have their employees working more than 40 hours per week which leaves them no time for school. Dayton Progress is one example of a company who still encourages continuing education and roughly 25% of their employees take classes at Sinclair related to the machining field.
* The success rates of these courses lead to more detailed analysis of the content. CAM 1107 and 1109 are introductory courses that are taken by students other than CAM. CAM 1107 is basic print reading and drawing interpretation with AutoCAD. Without this skill a person has no chance of becoming a machinist. We are evaluating some of the activities to help make the material clearer to the students without sacrificing proficiency.
* The CAM 1161 and 1162 series is the key for the STEP II program. Typically we measure the number of students who start in CAM 1161 with the number who successfully complete CAM 1162. This is indicative of how the students succeed in STEP II. Currently we are around 60% (roughly 75% of the students complete CAM 1161 and move on to 1162, where 75 % complete that one, yielding ~60% completing the certificate). We would like to see that number be higher, but we feel it reflects non-pre-testing of our students. We are looking at substituting CAM 2700 (co-op) for the 1162. This would allow students to complete their certificate without having to come back and go to school 4 days per week at 8 hours per day to complete 1162 during the summer. Since all but one co-op student who graduated had a job offer, going back to school was not looked favorably upon by our industry partners and could have negatively impacted our completion rate.
* CAM 2780 is the capstone course for the CNC degree. This ran at 82% the first year under semesters and we feel it is indicative of the students in the program. Typically, STEP II is for people entering the trade, while CNC is for people who have had some experience. We feel that is indicated in the success rates. We are also exploring a capstone for the Precision Machining Degree and a co-op for the CNC degree.

**Course Success Trend Data – OVERALL SUMMARY**

Please provide an interpretation and analysis of the Course Success Trend Data (Raw Data is located in Appendix A). Looking at the success rate data provided in the Appendix for each course, please discuss trends for high enrollment courses, courses used extensively by other departments, and courses where there have been substantial changes in success.

Looking at the data in the above graph, we can see that roughly 3/4 of our students are successful in the classes they take in our program. From the data in Appendix A, it can be seen that CAM 1107, CAM 2114 (Jig and Fixture Design) and CAM 2225 (Tool Design) have the lowest success rate. These are print reading/CAD classes and our analysis and data showed many students taking the CAM 1107 course lacked necessary computer skills to succeed. To address this, we added MET 1131 as a prerequisite for this course. After 2 semesters, the success rate was up to 64% from around 50%. While there is not as much data that we would like to look at, the trend seems favorable. The other two classes are under study to see what can be done to improve completion w/o sacrificing quality of content.

The other classes are a bit harder to evaluate, since we combined many classes in the switch to semesters. If we look at the trend data on the graph it seems to remain fairly stable and in fact seems to increase under semesters. We are above both the SME and Sinclair averages, so the initial thought is we did a good job of reconfiguring our classes for semesters while not lowering the integrity of our Program. We are in the process of revising our curriculum and trying to break certificates and degrees into smaller units, so a student can gain enough knowledge to get a job, but continue on the path of continuing education to upgrade skills while increasing our completion rate.

Please provide any additional data and analysis that illustrates what is going on in the department (examples might include accreditation data, program data, benchmark data from national exams, course sequence completion, retention, demographic data, data on placement of graduates, graduate survey data, etc.)

Data from our Industry partners, while anecdotal, provide a good insight into the quality of our program and our graduates. The fact that 6 out of 7 students who opted for the co-op option received job offers and the fact that in one- on- one conversations with the employers, indicating they are quite happy with our graduates, seems to support this position. We make good use of our Advisory Committee and Departmental meeting to seek advice and divergent opinions. Right now we are in the process of working with two large local suppliers (UTC Aerospace in Troy and GE in Evandale) to supply them with more co-op students and embark on some interesting directions, which are in preliminary stages and will not be discussed in detail here.

Our faculty though has analyzed the first two semesters and found some weaknesses in the way we created some courses and combined materials. These were primarily in the CNC area where we combined 3 courses to make one (CAM 1213). We were overly ambitious in this area, and the faculty felt we were trying to cover more material than a student could absorb in a single class and feedback from employers indicated this was more than students needed. We are in the process of redoing that class. Also, feedback from industry and the Program Review Committee indicated that we could shorten up our degree Programs and certificates and we are in the process of getting that ready to submit and be effective Fall 2014.

**Section II: Progress Since the Most Recent Review**

Below are the goals from Section IV part E of your last Program Review Self-Study. Describe progress or changes made toward meeting each goal over the last year.

|  |  |  |
| --- | --- | --- |
| **GOALS** | **Status** | **Progress or Rationale for No Longer Applicable** |
| Distance Learning: The CAM department is exploring distance learning opportunities for some of its manufacturing courses. It may be possible to incorporate some of the web material from Haas Automation. Course enhancements, and hybrids are being considered as well as full web courses.  | In progress [ ] Completed [ ] No longer applicable [x]  | With the move to semesters, the course we used to offer as a web based class (INT 141) has been modified to include additional material, including a lab component which makes distance learning an “iffy” proposition right now, but we are still looking at whether we can make this happen, perhaps as a hybrid course.The “Virtual Haas” grant proved to be unsatisfactory at this time due to software reliability. It did not meet our expectations. However, there have been revisions to the software and website, so we are considering trying to use it again. |
| 4 and 5 Axis Machining: The new Haas CNC machines give us the added capability of 4 and 5 axis programming and machining. The CAM department is beginning to explore how this technology can be incorporated into the curriculum. | In progress [x] Completed [ ] No longer applicable [ ]  | This is one of the areas we are having discussions about. As we revamp our programs and certificates, many feel that a course of this level is not needed. We are placing this on hold to revamp the basics and will address this after that has been completed. |
| Tabletop Simulators: Our new Haas tabletop control simulators may allow us to offer CNC programming courses in different locations.  | In progress [ ] Completed [x] No longer applicable [ ]  | Table top simulators have not proven to be as portable as we would have liked, but we have had Ponitz acquire some of these so this course could be offered there. |
| Bio-Manufacturing: We will explore opportunities in the emerging fields of bio-manufacturing and medical devices.  | In progress [x] Completed [ ] No longer applicable [ ]  | Our students are already getting jobs in these fields and it is questionable whether a high level 5 axis course would be of great value. This will track with the 4 and 5 axis classes discussed above. |

Below are the Recommendations for Action made by the review team. Describe the progress or changes made toward meeting each recommendation over the last year.

|  |  |  |
| --- | --- | --- |
| **RECOMMENDATIONS** | **Status** | **Progress or Rationale for No Longer Applicable** |
| The department could consider developing additional methods of recruiting students, including use of the web-site and possibly forming partnerships with career technical programs. | In progress [x] Completed [ ] No longer applicable [ ]  | We are working with industry partners to develop recruitment strategies which include work-study and scholarships. We are also working with tech prep to offer some “Y” credits to students who have completed selected high school classes. We are also looking to expand offerings into Warren County. |
| There is a need to build adjunct faculty ranks to manage projected enrollment growth, and the department should develop strategies that will facilitate this process. | In progress [x] Completed [ ] No longer applicable [ ]  | We are bringing back a retired faculty member on a supplemental contract, have hired a former graduate of our program who is also doing part-time technician work for us and have hired a new employee for Spring 2014. This is leading us in the right direction, but the ACA restrictions are a challenge. So far we have been able to staff all the classes we have offered, have been able to add some and are continuing to search for qualified candidates. |
| If there is a threat posed by emerging competition from for-profit organizations and career technology centers, the department should seek ways to publicly differentiate the Sinclair program and what it has to offer from others. | In progress [x] Completed [ ] No longer applicable [ ]  | We continue to do this by utilizing our HAAS connection, our partnerships with Tech Prep High schools and industry partners. The fact that we now offer the co-op program for STEP II has a huge impact on our industry partners and our planned initiatives with both UTC and GE will give us a strategic advantage that none of our competition has. It is significant that they both approached us with these initiatives. The fact that we also host the State of Ohio SKILLS USA Precision Machining and CNC programming competition also separates us from our competition. |
| The faculty is encouraged to consider alternative delivery strategies, e.g. non-credit courses and short-term certificates, to meet the community’s need for workforce development and to plan future approaches to meeting needs related to new applications in areas such as bio-manufacturing and manufacturing of medical devices. | In progress [x] Completed [ ] No longer applicable [ ]  | We are working with Workforce Development to develop and deliver classes to the workforce and are in the process of updating and revising both degrees and certificates in our program to shorten completion time. The CNC Short term will now be a two semester rather that a three semester certificate. |
| While it is clear that excellent learning experiences designed to facilitate the achievement of general education outcomes as well as program outcomes are in place, there is no documented evidence that those outcomes are being met. If needed, support is available through the College-Wide Assessment Committee to design methods for collecting, analyzing, and documenting data regarding these outcomes. | In progress [x] Completed [ ] No longer applicable [ ]  | With the move to semesters, it has been harder to generate much data. We have identified the outcomes and the assessment methods tied to specific courses. We are in the process of gathering data. We will try to go deeper in our assessment strategies by using more assessment rubrics and specific projects/portfolios tied to specific outcomes. We are particularly interested in using these for the Gen Ed outcomes. |

**Section III: Assessment of General Education & Degree Program Outcomes**

The Program Outcomes for the degrees are listed below. **All program outcomes must be assessed at least once during the 5 year Program Review cycle, and assessment of program outcomes must occur each year**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **General Education Outcomes** | To which degree(s) is this program outcome related? | Year assessed or to be assessed. | Assessment MethodsUsed | What were the assessment results? (Please provide brief summary data) |
| Critical Thinking/Problem Solving | All programs | **2012-2013** | Using the CAM 2780 Capstone project as a benchmark for critical thinkingand problem solving | 80% of the students who took this course passed. The entire capstone Project is to be used to develop and measure critical thinking and problem solving. |
| Values/Citizenship/Community | All programs | **2013-2014** |  |  |
| Computer Literacy | All programs | **2014-2015** |  |  |
| Information Literacy | All programs | **2015-2016** |  |  |
|  |  |  |  |  |
| **Program Outcomes** | To which course(s) is this program outcome related? | Year assessed or to be assessed. | Assessment MethodsUsed | What were the assessment results? (Please provide brief summary data) |
| Demonstrate technical engineering skills appropriate to program requirements. | CAM 1109,1213,2145,2204,2212,2214,2780 | 2012-2013 | * Simulations
* Performance appraisals
 | We are in the process of tying outcomes to assessment measures more specifically using the model developed for OPT in their TAC/ABET Assessment. We are not yet at that point due to the personnel changes made in the department the last year.. However, using the results of the classes CAM 1109, 1213,2145, 2204,2212,and 2780 80% of the students scored above a “C” on the tests and projects. |
| Analyze manufacturing engineering problems (general and technical) and make appropriate decisions. | CAM 1107, 2145,2204,2212,2213,2214, OPT 1100, MET 1131, OPT 2240 | 2012-2013 | * Simulations
* Performance appraisals
* Exams
 | In this area, the only course that caused some concern was CAM 1107 where only 65% of the students were successful. All the other courses had 80% of students get a “C” or better in Assessment methods mentioned in the previous column. |
| Demonstrate mathematical skills required for occupation. | MAT 1270, CAM 1141,1142, OTM Physical Sci, | 2014-15 | * Exams
 | In process of designing methods to capture data more directly tied to outcome, ie. specific questions on exams or a rubric that would list or tie to the outcome. |
| Identify new changes in career field and build personal skills to maintain state-of-the-art competencies. | CAM 2212,2213,2214, COM 2206, OTM SOC, OTM Art/HUM, SCC 1101, ENG 1101 | 2015-16 | * Exams
* Performance Appraisals
* Employer feedback
 | In process of designing methods to capture data more directly tied to outcome, ie. specific questions on exams or a rubric that would list or tie to the outcome. |
| Demonstrate applied competencies in the areas of machining applications, drafting techniques and blueprint interpretation. | CAM 1107,2114,2212,2213,2214,2225, OPT 1113 | 2016-17 | * Performance Appraisals
 | In process of designing methods to capture data more directly tied to outcome, ie. specific questions on exams or a rubric that would list or tie tothe outcome. |

**General Education Outcomes**

1. Are changes planned as a result of the assessment of general education outcomes? If so, what are those changes?

We are not planning any changes to General Education Outcomes as of this point. We feel the students are performing at the level we wish them to. Our goal is to increase completion rates while still maintain integrity of the program**.**

1. How will you determine whether those changes had an impact?

**Program Outcomes**

1. Are changes planned as a result of the assessment of program outcomes? If so, what are those changes?

From limited data under semesters, we think the outcomes are fine for now. As we assess and make the changes mentioned above, we will revisit the Outcomes and see if they need to be changed. Our Advisory committee will have a lot ofinput into this area.

1. How will you determine whether those changes had an impact?

**Improvement Efforts**

1. What were the results of changes that were planned in the last Annual Update? Are further changes needed based on these results?

We have revamped both degrees and both certificates and plan to have them effective Fall 2014.

1. Are there any other improvement efforts that have not been discussed in this Annual Update submission?

We had one full-time tenured faculty retire and replaced him with a new Tenure track faculty who was our STEP II Coordinator. We than replaced our STEP II Coordinator with one of our Adjuncts. This, coupled with the changes we have made presents both challenges and opportunities which we are attempting to exploit as we move forward. We are now in the process of reassigning course coordinators, and bring the new STEP II coordinator up to speed.

**APPENDIX – PROGRAM COMPLETION AND SUCCESS RATE DATA**

**Degree and Certificate Completion**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Division | Department | Department Name | Program | FY 07-08 | FY 08-09 | FY 09-10 | FY 10-11 | FY 11-12 | FY 12-13 |
| SME | 0570 | Tooling & Machining Tech | CAMCT.AAS | . | 4 | 6 | 9 | 10 | 1 |
| SME | 0570 | Tooling & Machining Tech | CAMCT.S.AAS | . | . | . | . | . | 3 |
| SME | 0570 | Tooling & Machining Tech | CAMPM.AAS | 5 | 1 | 13 | 6 | 7 | 1 |
| SME | 0570 | Tooling & Machining Tech | CAMPS.CRT | 3 | 20 | 42 | 16 | 12 | 4 |
| SME | 0570 | Tooling & Machining Tech | CAMPS.S.CRT | . | . | . | . | . | 7 |
| SME | 0570 | Tooling & Machining Tech | CAMTD.CRT | . | 1 | 3 | . | . | . |
| SME | 0570 | Tooling & Machining Tech | CNC.S.STC | . | . | . | . | . | 7 |
| SME | 0570 | Tooling & Machining Tech | CNC.STC | . | . | 24 | 22 | 17 | 10 |
| SME | 0570 | Tooling & Machining Tech | CTGMA.STC | . | 7 | . | . | . | . |
| SME | 0570 | Tooling & Machining Tech | IDMT.STC | 1 | . | . | . | . | . |
| SME | 0570 | Tooling & Machining Tech | MO.AAS | . | 1 | . | . | . | . |
| SME | 0570 | Tooling & Machining Tech | TD.CRT | . | 2 | 2 | . | . | . |
| SME | 0570 | Tooling & Machining Tech | TGMA.STC | 4 | . | . | . | . | . |
| SME | 0570 | Tooling & Machining Tech | TMO.AAS | 2 | . | 1 | . | . | . |
| SME | 0570 | Tooling & Machining Tech | TMTMT.AAS | 6 | 4 | 3 | . | 1 | . |
| SME | 0570 | Tooling & Machining Tech | TMTPS.CRT | 18 | 3 | 1 | 1 | . | . |
| SME | 0570 | Tooling & Machining Tech | TMTTD.CRT | 1 | . | . | 1 | . | . |

**Course Success Rates**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Department** | **Department Name** | **Course** | **FY 07-08** | **FY 08-09** | **FY 09-10** | **FY 10-11** | **FY 11-12** | **FY 12-13** |
| 0570 | Tooling & Machining Tech | CAM-1107 | . | . | . | . | . | 64.0% |
| 0570 | Tooling & Machining Tech | CAM-1109 | . | . | . | . | . | 83.1% |
| 0570 | Tooling & Machining Tech | CAM-1141 | . | . | . | . | . | 87.8% |
| 0570 | Tooling & Machining Tech | CAM-1142 | . | . | . | . | . | 73.5% |
| 0570 | Tooling & Machining Tech | CAM-1161 | . | . | . | . | . | 74.4% |
| 0570 | Tooling & Machining Tech | CAM-1162 | . | . | . | . | . | 75.9% |
| 0570 | Tooling & Machining Tech | CAM-1213 | . | . | . | . | . | 78.0% |
| 0570 | Tooling & Machining Tech | CAM-2114 | . | . | . | . | . | 57.1% |
| 0570 | Tooling & Machining Tech | CAM-2145 | . | . | . | . | . | 71.9% |
| 0570 | Tooling & Machining Tech | CAM-2204 | . | . | . | . | . | 85.3% |
| 0570 | Tooling & Machining Tech | CAM-2212 | . | . | . | . | . | 81.8% |
| 0570 | Tooling & Machining Tech | CAM-2225 | . | . | . | . | . | 54.5% |
| 0570 | Tooling & Machining Tech | CAM-2297 | . | . | . | . | . | 96.3% |
| 0570 | Tooling & Machining Tech | CAM-2780 | . | . | . | . | . | 81.8% |
| 0570 | Tooling & Machining Tech | INT-107 | . | . | 36.4% | 43.9% | 51.5% | . |
| 0570 | Tooling & Machining Tech | INT-109 | 73.0% | 72.5% | 70.4% | 64.2% | 78.4% | 88.6% |
| 0570 | Tooling & Machining Tech | INT-113 | 76.4% | 78.2% | 78.4% | 65.1% | 66.3% | . |
| 0570 | Tooling & Machining Tech | INT-114 | 54.2% | 51.7% | 52.9% | 43.8% | 45.5% | . |
| 0570 | Tooling & Machining Tech | INT-116 | 95.2% | 100.0% | 85.5% | 74.7% | 86.8% | . |
| 0570 | Tooling & Machining Tech | INT-131 | 83.3% | 61.5% | 70.0% | . | . | . |
| 0570 | Tooling & Machining Tech | INT-141 | 74.9% | 84.3% | 73.1% | 76.1% | 75.7% | 100.0% |
| 0570 | Tooling & Machining Tech | INT-142 | 84.4% | 84.1% | 79.1% | 80.0% | 71.9% | . |
| 0570 | Tooling & Machining Tech | INT-143 | 88.9% | 92.0% | 94.4% | 85.2% | 88.9% | 100.0% |
| 0570 | Tooling & Machining Tech | INT-145 | 68.0% | 73.5% | 87.9% | 66.7% | 76.5% | 71.4% |
| 0570 | Tooling & Machining Tech | INT-161 | 75.5% | 78.4% | 54.0% | 67.6% | 69.6% | . |
| 0570 | Tooling & Machining Tech | INT-162 | 52.2% | 86.7% | 78.3% | 61.9% | 82.4% | . |
| 0570 | Tooling & Machining Tech | INT-163 | 87.0% | 87.1% | 100.0% | 87.5% | 90.5% | . |
| 0570 | Tooling & Machining Tech | INT-204 | 100.0% | 89.7% | 82.1% | 84.8% | 60.5% | . |
| 0570 | Tooling & Machining Tech | INT-211 | 93.2% | 95.2% | 81.6% | 73.2% | 83.3% | 72.7% |
| 0570 | Tooling & Machining Tech | INT-212 | 69.0% | 87.0% | 75.0% | 83.3% | 94.4% | . |
| 0570 | Tooling & Machining Tech | INT-213 | 93.3% | 100.0% | 90.0% | 100.0% | 92.9% | . |
| 0570 | Tooling & Machining Tech | INT-225 | 62.5% | 71.4% | 72.7% | 80.0% | 50.0% | . |
| 0570 | Tooling & Machining Tech | INT-226 | 100.0% | . | . | . | . | . |
| 0570 | Tooling & Machining Tech | INT-227 | 66.7% | 100.0% | . | . | . | . |
| 0570 | Tooling & Machining Tech | INT-270 | 94.1% | 94.6% | 100.0% | 83.3% | 50.0% | . |
| 0570 | Tooling & Machining Tech | INT-297 | 94.7% | 91.9% | 100.0% | 90.0% | 100.0% | . |