**Sinclair Community College**

**Continuous Improvement Annual Update 2015-16**

**Please submit to your Division Assessment Coordinator / Learning Liaison for feedback no later than March 1, 2016**

**After receiving feedback from your Division Assessment Coordinator, please revise accordingly and make the final submission to your dean and the Provost’s Office no later than May 2, 2016**

**Department:** **SME - 0575 - Industrial Engineering / 0576 - Operations Technology**

Year of Last Program Review: FY 2010-2011

Year of Next Program Review: FY 2016-2017

**Section I: 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. Responses from the previous year’s Annual Update are included, if there have been no changes to report then no changes to the response are necessary.

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| **GOALS** | **Status** | **Progress or Rationale for No Longer Applicable** |
| Transition to Semesters  To do this, we analyzed every degree program, certificate program and course offering. We have eliminated courses which had little activity the past few years. We combined others in line with recommendations from our advisory committee to ensure that the program outcomes meet the needs of the community. We added content to certain courses to enhance our industry partners’ needs, and we created a course in quality control (OPT 1112 -World Class Quality Systems and Procedures) to ensure that students get a basic understanding of the quality process and procedures needed in today’s business environment. The higher level quality courses (OPT 2221, 2225, 2267) that provide more in-depth exploration of a topic have been kept as electives and are part of our Quality Control certificate, which will help with enrollment. | In progress  Completed  No longer applicable | Goal completed. |
| Revamped the OPT Advisory Committee  Due to the changes in focus, we have added more non-manufacturing representatives on this committee. We have also added recent graduates of the OPT program. They bring valuable information about how well our programs prepare them for the workplace. | In progress  Completed  No longer applicable | Our Advisory Committee continues to have high industry participation and we are continuing to update and keep it current. |
| Certificates  We will offer under semesters those certificates we offer under quarters and will use this as a strategy to recruit more adult students into the program. And hopefully this will encourage more companies to send employees for additional or continuing education. | In progress  Completed  No longer applicable | Our focus is shifting towards adults seeking skills to enhance their employability. We are working with companies that we know offer tuition reimbursement. This is where many of our current students come from**.** |
| Learning Centers  We are pursuing the opportunities of offering OPT classes at two of Sinclair’s Learning Centers, particularly Courseview and Preble County. They offer potential for growth of the program. In particular, we will address this issue with our OPT Advisory Committee members who are from Warren County. | In progress  Completed  No longer applicable | We have run the OPT 1100 (Metrology) at Preble County Learning Center for three semesters. We are also working closely with the Courseview campus and its Warren County Manufacturing Roundtable. |
| Additional Articulation Agreements  We currently have an agreement with UD on the OPTIO program that will continue. We also have an agreement for the base OPT program with Purdue University-Richmond in their Organization and Leadership Program. We have made initial contact with Ohio University and are actively pursuing that opportunity. We will continue to seek other partners. | In progress  Completed  No longer applicable | After meeting in spring and fall of 2015, Sinclair and UD have revised and updated the articulation agreement between Sinclair’s OPT program and UD’s Industrial Engineering Technology program. The OPT curriculum is currently undergoing significant changes to be effective in fall of 2016. Additional articulation agreements will be pursued at that time. |
| More Minority Students and Women into the Program  Appendix F illustrates that the vast majority of OPT students are white males. We will continue to work with with local high schools, particularly the Ponitz Career Technology Center, to attract more minorities and will continue to work with WISTEM to attract more women into the programs. | In progress  Completed  No longer applicable | We are doing both items mentioned and have a recruiting program aimed at more women and minorities. Still the results are not showing much progress. |
| More involvement with DRMA and their Extreme BOTS competition.  We are a member of the DRMA (Dayton Region Manufacturers Association) and are involved with their Extreme Bots competition. This competition is designed to interest students in careers in manufacturing. In addition to being a “fun” activity, the participants see a connection to a career, particularly in the Industrial Engineering Technology/Quality field. | In progress  Completed  No longer applicable | The BOTS competition is now run by a non-profit organization, MADEinOHIO. The OPT program is still involved with both the BOTS competition and DRMA, as well as the national Manufacturing Day in October. |

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. Responses from the previous year’s Annual Update are included, if there have been no changes to report then no changes to the response are necessary.

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| **RECOMMENDATIONS** | **Status** | **Progress or Rationale for No Longer Applicable** |
| Currently the semester curriculum in programs in this department are at the maximum of 73 credit hours and well above the 60 credit hours that would constitute a two-year, full-time program. The department should consider scaling back the program requirements where appropriate to facilitate completion of the degree program by students. This work, of course, should take into careful consideration how to offer a strong program without compromising quality of student learning and their professional preparedness. | In progress  Completed  No longer applicable | The OPT has submitted changes to reduce the total credit hours to under 65 hours, to be effective in the fall of 2015. Furthermore, we are developing plans to get below 60 hours. |
| The department is encouraged to enhance its assessment of program outcomes. The department has considerable professional expertise in continuous quality improvement and thus could serve as a model for other departments on the collection of data on student learning outcomes, the analysis of this data, and the use of results to further improve the quality of student learning. While anecdotal information from students is a valued qualitative source of information about students’ experience in OPT, there is a need for a much more focused and systematic approach to evidence of student learning outcomes, an issue also cited in the TAC/ABET review. | In progress  Completed  No longer applicable | It has been decided that the OPT program will not pursue ETAC/ABET reaccreditation. That changes the program assessment requirements somewhat, although this recommendation is still appropriate. We have developed rubrics and tied outcomes to tests and specific questions. This is a work in progress that has been somewhat hampered by loss of faculty through retirements, but is one of our priorities. We feel we have good data on our keycourses and we will continue torefine these data gathering methods. |
| The department is encouraged to explore options to allow students the ability to maintain employment while working to complete their degree programs. Flexibility in scheduling may be called for to make this a reality for some of our students in these programs who also work full-time. | In progress  Completed  No longer applicable | This has always occurred in our program as we try to offer classes that make it easier for students to enroll in classes while maintaining full or part-time employment. We have discovered by surveying students that we not only need to provide day and evening classes, but also consider students who work second shift and need to be through by 1:00 PM. This is having us offer more morning classes. We have run some Saturday classes to broaden our reach to students, but these have not proven popular. |
| The department has recognized the need to educate students on the opportunities in the field and to combat the misperceptions that there are no jobs in manufacturing. The department is encouraged to explore the use of institutional resources in getting this message out, which may include Marketing, Career Services, and other areas in the institution. It may be a good idea to develop talking points about the program that could be shared in different venues as a means of attracting students to the OPT programs. | In progress  Completed  No longer applicable | We are involved with a new, national effort called “Manufacturing Day,” where manufacturing companies open their doors to area high school classes and try to promote a better understanding of today’s manufacturing employment opportunities.  We have created an OPT banner, tablecloths and have a new recruiting video from IIE (Institute of Industrial Engineers). We have brochures and are buying some “keepsakes” to keep the OPT name in front of potential students. We are sharing these points with many of the areas mentioned. |
| Similarly, the department should work to increase its profile on campus. The department’s expertise in continuous quality improvement could be applied to a number of campus processes, and such opportunities could provide students with practical experience and also raise the department’s profile on campus. | In progress  Completed  No longer applicable | This is on our schedule, but due to lack of personnel, this has taken a back-seat to other initiatives. 10 years ago, the OPT department had 6 tenure track faculty. Now we have one ACF. |
| The high success rates in OPT courses indicate that the department is doing some things that are extremely effective – how can these things be shared and replicated in other departments? The department is encouraged to explore approaches to sharing the techniques that are working so well for them with other departments, perhaps through workshops or Fall Faculty Professional Development Day. | In progress  Completed  No longer applicable | While we feel proud of our success rates, we don’t feel we are doing anything that many other departments are not already doing. Part of our course success rates have to do with the fact that many students are more mature, have a basic understanding of the concepts or are already working in the field and need degrees or certificates to further their careers. Also the fact that many of our students are being paid to attend classes, and need to make a certain grade encourages completion and higher achievements. |
| The self-study submitted for this review focused on ETAC/ABET general education outcomes. Accreditation requirements are crucial, and the department needs to be able to demonstrate it is meeting the ETAC/ABET general education assessment requirements, but Sinclair’s General Education outcomes also must be met. The department is encouraged to explicitly map out the relationships between ETAC/ABET and Sinclair general education outcomes and ensure that they are addressing both in their assessment efforts. | In progress  Completed  No longer applicable | This recommendation is no longer applicable as the OPT program will not be seeking reaccreditation from ETAC/ABET. |
| The department’s mission statement should be revised to be more crisp, concise, and focused. Communicating more clearly the purpose and expertise of the department can be valuable in promoting wider understanding on campus and off of the expertise and programs of the department. | In progress  Completed  No longer applicable | Mission statement has been revised. |
| The department is encouraged to work with RAR to increase the data it has on graduates and industry trends. Ohio Department of Jobs and Family Services data can provide information on graduate employment and earnings, and Career Coach data can provide information on industry trends. RAR is an excellent resource in accessing both of these sources of data. | In progress  Completed  No longer applicable | We are in contact with the groups mentioned and are trying to build a good data base. |
| The department is benefitting from its work with its Advisory Committee, and it is encouraged to keep the committee fresh, replacing inactive members as the need arises. | In progress  Completed  No longer applicable | As mentioned above, we feel our Advisory Committee is one of our real strengths. They work throughout the year assisting in our program, especially in recruiting. We are adding more graduates from our program onto the committee to get fresh, new perspectives of what we could improve. They are also excited about helping the program grow. |
| Finally, the department is encouraged to increase the diversity of faculty and students. | In progress  Completed  No longer applicable | We are exploring every avenue we are aware of and would welcome any help or suggestions that could be provided in this area. |

**Section II: 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**.

**PLEASE NOTE – FOR THE PREVIOUS YEAR AND THIS YEAR, REPORTING OF GENERAL EDUCATION OUTCOME ASSESSMENT HAS BEEN TEMPORARILY POSTPONED. WE WOULD ASK THAT IN THIS ANNUAL UPDATE YOU IDENTIFY AT LEAST ONE COURSE IN YOUR DEGREE PROGRAM(S) WHERE ASSESSEMENT AT THE MASTERY LEVEL WILL OCCUR FOR THE FOLLOWING GENERAL EDUCATION OUTCOME:**

* **Cultural Diversity & Global Citizenship: Apply knowledge of cultural diversity to real world context by acknowledging, understanding, and engaging constructively within the contemporary world.**

**PLEASE RESPOND TO THE FOLLOWING QUESTIONS:**

**Do you have a required course in your program curriculum where Cultural Diversity & Global Citizenship could be assessed for mastery?**

**Yes No If yes, please list the course: OPT 1126**

**If no, is there an elective course that is listed on your Preferred Program Pathway Template where Cultural Diversity & Global Citizenship could be assessed for mastery?**

**Yes No If yes, please list the course:** Click here to enter text.

**If no, is there another elective course that is an option in your program curriculum where Cultural Diversity & Global Citizenship could be assessed for mastery?**

**Yes No If yes, please list the course:** Click here to enter text.

**If no, where do students master Cultural Diversity & Global Citizenship in your program? Do you need assistance incorporating this General Education outcome into your degree program?**

Click here to enter text.

**NOTE THAT THERE WILL NEED TO BE AT LEAST ONE EXAM / ASSIGNMENT / ACTIVITY IN THIS COURSE THAT CAN BE USED TO ASSESS MASTERY OF THE COMPETENCY.**

**YOU MAY ALSO SUBMIT ASSESSMENT RESULTS FOR THIS GENERAL EDUCATION COMPETENCY IF YOU HAVE THEM, BUT IT WILL BE CONSIDERED OPTIONAL**.

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| **Program Outcomes** | To which course(s) is this program outcome related? | Year assessed or to be assessed. | Assessment Methods  Used | What were the assessment results?  (Please provide brief summary data) |
| Demonstrate appropriate technical communication skills (written, verbal and drawing). | OPT 1126,2216,2780, ENG 1101, MET 1221 | 2012-13 | Written Survey – Using the OPT 2278 Capstone Reflection Survey, at least 80% of students rated question #3 as a 3 or 4  External Examiner – Using the OPT 2278 Employer Assessment of Capstone Student Performance, at least 80% of the students met or exceeded requirements on items 14-17.  Locally Developed Exams – Using the OPT 1126 Mid-Term Exam, at least 80% of the students scored 80% or better on the questions related to technical communications: #’s 13-20.  Portfolio/Project Appraisal – Using the OPT 2278 Project Rubric, at least 80% of teams scored a 4 or5 on items A, B, C, D, E, F, G  Portfolio/Project Appraisal – Using the OPT 1126 Project Rubric, at least 80% of teams scored a 4 or 5 on items A, B, C, D, E, F, G  Portfolio/Project Appraisal – Using the OPT 2216 Project Rubric, at least 80% of teams scored a 4 or 5 on items A, B, C, D, E, F, G | 2012/2013 - In the OPT 2278 Capstone Employer Assessment, employers indicated that 100% of the students in SP 2013 met or exceeded requirements in questions regarding communication skills (questions 14, 15, 16 and 17). The Capstone rubric mirrors the employers input in that 100% of the teams scored 4 or higher on items A,B,C,D,E,F,G.  In the 1126 project 100% of the teams did the same on their project rubric.  2013/2014 Update: In the OPT 1126 Test 1 for Fall 2013, 89% of the communications questions were answered correctly.  There was no data for 2216.  It is harder to assess what they have done specifically in other classes outside of OPT. This is something we plan on addressing this year as a department. |
| Use continuous improvement techniques to reduce operational waste, improve cost efficiency and increase system productivity. | OPT 1101,1130,2207,2240,2780 | 2012-13 | Written Survey – Using the OPT 2278 Capstone Reflection Survey, at least 80% of students rated questions #2 and 4 as a 3 or 4  Archival Records – At least 80% of OPT 240 students earned their Six Sigma Green Belt Certificate upon completion of the course  Portfolio/Project Appraisal – Using the OPT 2780 Project Rubric, at least 80% of teams scored a 4 or 5 on items C and G  Portfolio/Project Appraisal – Using the OPT 1130 Project Rubric, at least 80% of teams scored a 4 or 5 on items C and G | This outcome for these classes mimic what we have seen above. Results in these classes in this area exceed 80% The OPT 2278 Capstone Reflection Survey showed that 100% of the responses showed that students rated competent or highly competent in the areas of continuous improvement (#2), and quality (#4) and more than 80% on the other areas.  For the Six Sigma Greenbelt course, 88% of students received their certificate.  The rubrics for the Capstone , OPT 2780 had all the teams (100%) score 4 or higher on the rubric. The same was true for OPT 1130. It is true there was limited data, but there were also no red flags. We will continue to monitor. |
| Document, monitor, evaluate and improve product and process quality through the use of a variety of quality tools and techniques. | OPT 1100,1101,1112,1113,1125,2201,2240,2780 | 2013-2014 | Written Survey – Using the OPT 2780  Capstone Reflection Survey, at least 80% of students rated question #4 as a 3 or 4  Archival Records – At least 80% of OPT 2240 students earned their Six Sigma Green Belt Certificate upon completion of the course  Locally Developed Exams – Using the OPT 1125 Final Exam, at least 80% of the students scored 80% or better on the questions related to Quality: #’s 3 and 6.  Locally Developed Exams – Using the OPT 2201 Final Exam, at least 80% of the students scored 80% or better on the questions related to Quality: all questions | In 2013/2014, 100% of students taking the OPT 2278 Capstone Reflection Survey rated question #4 as a 3 or 4.  In 2013/2014, 90.5% of students taking the OPT 2240 earned their Six Sigma Green Belt Certificates upon completion of the courses. |
| Analyze the cost, performance and value of operations. | OPT 1198,2206,2207,2780, MAT 1280,1290, PHY 1141 | 2013-2014 | Portfolio/Project Appraisal – Using the OPT 2207 final Systems Analysis Project, 80% of the students to score 80% or better.  Locally Developed Exams – Using the OPT 2208 (Engineering Economics and Cost Analysis) Final Exam, at least 80% of the students scored 80% or better. All questions on this exam are related to this program outcome.  Written Survey – Using the OPT 2780 Capstone Reflection Survey, 80% of the students should score question #5 a 3 or higher. | In 2013/2014, 90% of students taking OPT 2207 scored 80% or better on their final Systems Analysis project.  In 2013/2014, 88% of students taking the OPT 2208 final exam scored 80% or better.  In 2013/2014, 100% of students taking the OPT 2278 Capstone Reflection Survey rated question #5 as a 3 or 4. |
| Demonstrate principles of human integration into technical operations through ergonomics, workplace safety and supervision. | OPT 1101,1110,1125,1126,2205,2216,2780,COM 2206/2211, MET 2711,OTM SOC, OTM HUM | 2014-2015 | Written Survey – Using the OPT 2780 Capstone Reflection Survey, at least 80% of students rated questions 3,6, 7, 8 as a 3 or 4  External Examiner – Using the OPT 2780 Employer Assessment of Capstone Student Performance, at least 80% of the students met or exceeded requirements on items 3, 8, 10, 18, 19.  Archival Records – At least 80% of OPT 2205 students earned their OSHA 10 Hour Card upon completion of the course  Locally Developed Exams – Using the OPT 1126 Final Exam, at least 80% of the students scored 80% or better on the questions related to human interaction: all questions.  Portfolio/Project Appraisal – Using the OPT 1126 Project Rubric, at least 80% of teams scored a 4 or 5 on items A, B, C, E, and G. | In 2014/2015, 87% of students taking the OPT 2205 earned their OSHA 10-hour card.  In 2014/2015, 82% of students taking the OPT 1126 final exam scored 80% or better.  In 2014/2015, on the OPT 1126 Team Project Rubric, 100% of teams scored a 4 or 5 on items A, B, C, E and G.  Data not available yet for 2014/2015 OPT 2780 Capstone. |
| Demonstrate the math and science skills required for Industrial Engineering Technology functions. | MAT 1280,1290 PHY 1141,1142 OPT 2201,2208 | 2015-2016 | Locally Developed Exams – Using the OPT 2208 Final Exam, at least 80% of the students scored 80% or better on the questions related to Engineering Economics calculations:  Locally Developed Exams – Using the OPT 2201 Final Exam, at least 80% of the students scored 80% or better on the questions related to Quality calculations: | In 2015-2016 – In OPT 2208, 93% of students scored 80% or better on the final exam questions related to engineering economics calculations.  OPT 2201 is currently being revised, and will be studied in Fall of 2016 for math outcomes.  We are looking into developing ways to capture OPT student performance in other department’s classes. We are looking at surveying outside classes for input. |

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| **Are changes planned as a result of the assessment of program outcomes? If so, what are those changes?** | We are considering the addition of MET 2271 (Ethics for Engineering Technology Professionals) to the OPT program to strengthen the Gen Ed competency of Cultural Diversity and Global Citizenship. The competency is addressed in OPT 1126 (Supervision and Project Management) in a chapter on “Supervising a Diverse Workforce,” but we may want to add MET 2271 to allow students to achieve a higher level of mastery. |
| **How will you determine whether those changes had an impact?** | We will study the assessment results for OPT 1126 and review with our Advisory Committee. |