**Sinclair Community College**

**Continuous Improvement Annual Update 2016-17**

**Please submit to your Division Assessment Coordinator / Learning Liaison for feedback no later than March 1, 2017**

**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 1, 2017**

**Department:** **SME –0565 Construction Management Technology**

Year of Last Program Review: FY 2013-2014

Year of Next Program Review: FY 2019-2020

**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| **GOALS** | **Status** | **Progress or Rationale for No Longer Applicable** |
| This budget number was recently separated from a larger conglomeration, and thus there are no goals specific to this budget number. |  |  |

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| **RECOMMENDATIONS** | **Status** | **Progress or Rationale for No Longer Applicable** |
| According to the self-study, “students entering the program are generally ill-prepared in math”. The department is encouraged to consider adding MAT prerequisites to some of its courses early in the program – and perhaps later in the program for higher level MAT courses - based on careful deliberation and data regarding how well students who have not had the proposed prerequisite compare in terms of course completions with those who have had the proposed perquisite. | In progress  Completed  No longer applicable | The department has taken care not to include many prerequisites in introductory courses for fear of turning students off initially. However, the tech math courses once required for the degrees have been changed to MAT1580 Precalculus. This will be beneficial for students as they go on to university and will help them be better prepared for industry. |

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| It is clear that the department is collecting assessment data. The standardization of coursework puts the department at a distinct advantage in this regard relative to many other departments at the college. The department is encouraged to better document this assessment work by formally collecting and analyzing student assignment and exam scores that relate to general education and program outcomes. The self-study provided evidence that assessment data was being collected, but in the next self-study it should be made more clear that this data is being combined, analyzed, reported, and used for improving student learning. The department is strongly encouraged to work with its Divisional Assessment Coordinator / Learning Liaison to explore ways of combining data across sections and analyzing it in relation to general education and program outcomes. | In progress  Completed  No longer applicable | 2016/17 Update: The program underwent an extensive assessment, both of student work and curriculum, by ETAC/ABET. This was the first attempt to accredit the program. Work began nearly two years in collecting student work, analyzing data, writing a two hundred page self-study, and an onsite visit and review of facilities conducted in October 2016. Only minor concerns were identified and those concerns are being voluntarily addressed.  Data continues to be collected and analyzed. Often, recommendations from our industry led advisory board are tested, analyzed and considered before that change is made permanently.  The department is also finalizing the self-studies of the Civil Engineering Technology program which is seeking reaccreditation this fall. The department is also seeking accreditation for the first time for Architectural Technology and Construction Management Technology. |
| Social media, such as LinkedIn, provide new avenues for maintaining connections with graduates and gathering data from students who have moved on to the next phase of their careers. The department is encouraged to consider exploring social media for this reason, and consider whether faculty should be assigned to oversee this. | In progress  Completed  No longer applicable | 2016/17 Update: The department is utilizing Dennis Wilson to showcase department events, such as our annual open house, via social media outlets.  After the department set up both Facebook and Twitter accounts, marketing asked us to take them both down. The department complied with the request. |

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| Related to the above recommendation, the department is encouraged to explore other ways of tracking graduates, and also for tracking co-op experiences. There are currently efforts underway to better document students in all internship and co-op experiences at the college, and hopefully in the next self-study the department will be positioned to describe the number and scope of co-op experiences its students participate in. | In progress  Completed  No longer applicable | The division now has a full time internship coordinator, Chad Bridgman that tracks internship opportunities and students within the program. The coordinator is now tracking data electronically so that it can better be evaluated. |
| The department is encouraged to continue its work with dual enrollment and other high school linkage efforts, funneling students from high school into Sinclair as they begin college. Its efforts in high school linkages have been exemplary, and it is hoped that this will continue in the years to come. | In progress  Completed  No longer applicable | 2016/17 Update: The department is working closely with Melissa Tolle in the College Credit Plus office to identify schools and teachers that align with course offerings within the degree. Partnerships with Stebbins high school have strengthened including offering the CAT2700 internship class.  The department will have taught twelve (12) college credit plus classes this year. The courses include CAT1161 Introduction to Civil and Architectural Technology, CAT1121 Introduction to Revit & BIM, CAT1201 Construction Methods & Materials, CAT1701 Construction/Craft Skills, CAT1741 Residential Electrical Systems, CAT 1761 Interior & Exterior Finishes, MET1151 Guitar Manufacturing using Science, Technology, Engineering & Mathematic Concepts, and MET1231 Introduction to Drafting & Design using Inventor. |
| The department is strongly encouraged to update articulation agreements for semesters and explore whether articulations with new institutions might be appropriate. The Assistant Dean in the division can be a valuable resource in this regard. | In progress  Completed  No longer applicable | 2016/17 Update: Over the past year, the department has focused on agreements with high schools via College Credit Plus. Janeil Bernheisel is helping the department draft agreements.  The department met with Franklin University to work on articulation agreements for Architectural Technology, Civil Engineering Technology, Construction Management Technology, Energy Management Technology, Environmental Engineering Technology, HVAC-R Engineering Technology and Mechanical Engineering Technology. These degrees would transfer into a Bachelor of Science in Applied Management. Details are still being finalized. |
| There appears to be some confusion in the minds of some students regarding which programs are transfer programs and which are designed to result in a terminal degree. The department is encouraged to explore new ways of making students aware of these distinctions – much work has already been done, but it seems that additional efforts are needed. | In progress  Completed  No longer applicable | 2016/17 Update: The department has updated its website to show completion rates, program educational objectives and program outcomes. A refined open house is scheduled for March 15th and will include current capstone students as hosts for interested individuals.  The department is working to educate students about career and educational pursuits after completing a technology degree. Work has been done to update the Sinclair website department and program pages as well as hosting an open house that outlines those possibilities. |
| Moving all of the programs in the department under a single budget number appears to make sense – the department is encouraged to explore this possibility, although care should be taken to identify and address any potential unintended consequences by conferring with the Budget Office. | In progress  Completed  No longer applicable | After years of attempting to separate the department’s seven programs by GL code, as of July 1, 2015 the department now has a GL code for all programs. Tracking, data analysis and budgeting should be much easier as a result. |

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

For the FY 2016-17 Annual Update, departments are asked to provide assessment results for **Information Literacy**.

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| **General Education Outcomes** | Year assessed or to be assessed. | Course identified by the department where this outcome could be assessed | Assessment Methods  Used | What were the assessment results?  (Please provide brief summary data) |
| Information Literacy | **2016-2017** | **CAT2782** - Construction Management Technology Capstone | CAT2782 Construction Management Technology Capstone Expo feedback from Advisory Board Members | Integrated project teams deliver a review of work to faculty advisors, consultants, advisory board members, Sinclair faculty and administrators in a trade show format. Work represented should show project completion.  Advisory board feedback for this outcome is positive and indicates that students are knowledgeable in this area. Students scored 8.5 on a 9 point Likert score concerning the outcome “Employ logical and concise problem-solving techniques to complex problems.”  Specific feedback for the course includes the following comments:   * Good work using tools and data available to you. Work to understand the logic behind the data used to validate the plan that you created * Good use of the tools to help develop schedule and estimate. Challenge your thinking into logic and don't rely solely on the tools. |
| **NEXT YEAR:** | | | | |
| Computer Literacy | **2017-2018** | **CAT2782** - Construction Management Technology Capstone |  |  |

The Program Outcomes for the degrees are listed below. Responses from previous years are provided 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**.

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| **Construction Management Technology 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) |
| Recognize professional, ethical and societal responsibilities, respect diversity and commit to lifelong learning. | CAT2411  CAT2700  CAT2782  EGV2351  MET2711  OTM/Social & Behavior Science | 2014-2015 | Challenger case and KC Skywalk case w/ written rubrics for Professionalism  NSPE Ethics quiz for ethical responsibilities  Diversity, Risky Tank case w/written rubric  Capstone Integrated Project Design | Challenger Case:  Average score: 91.1% (spring) 100% (fall)  Students achieving 70% threshold:  90% (spring) 100% (fall)  KC Skywalk Case:  Average score: 81.3% (spring) 82% (fall)  Students achieving 70% threshold:  90% (spring) 100% (fall)  NSPE Ethics Quiz  Average score: 82.6% (spring) 84% (fall)  Students achieving 70% threshold:  91% (spring) 100% (fall)  Risky Tank (Diversity:  Average score: 72.4% (spring) 91.2% (fall)  Students achieving 70% threshold:  64% (spring) 100% (fall)  Capstone Integrated Project:  This work is assessed formally throughout the capstone course by faculty who provide written and oral feedback utilizing a rubric which is distributed prior to the assignment due date. Some assignments are due weekly, allowing faculty and students to recognize trends and make significant improvement.  At the conclusion of the capstone, faculty and advisory board members are asked to assess student work against a variety of outcomes.  The data is gathered electronically and analysis is provided by Research, Analytics and Reporting. The department utilizes the RAR input to help guide improvements to the capstone course annually.  Advisory board members consistently rate the work of our capstone students as meeting or exceeding expectations, including embedded general education outcomes.  Since 2011, one data point was below the 70% threshold of 6.3 on a 9 point Likert Scale. There was no additional feedback from the employer as to the low rating.  Exit interviews are conducted with students nearing completion.  Course evaluation data is used by faculty to partially gauge delivery and mastery success. |

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| Interpret construction documents, develop a cost estimate and project schedule with assigned resources. | CAT Elective  CAT1401  CAT2401  CAT2782 | 2014-2015 | Capstone Integrated Project Design | This work is assessed formally throughout the capstone course by faculty who provide written and oral feedback utilizing a rubric which is distributed prior to the assignment due date. Some assignments are due weekly, allowing faculty and students to recognize trends and make significant improvement.  At the conclusion of the capstone, faculty and advisory board members are asked to assess student work against a variety of outcomes. The data is gathered electronically and analysis is provided by Research, Analytics and Reporting. The department utilizes the RAR input to help guide improvements to the capstone course annually.  Advisory board members consistently rate the work of our capstone students as meeting or exceeding expectations, including embedded general education outcomes.  Though the program outcome was changed in 2012, the Research Analytics and Reporting instrument used at the Capstone Dinner and Expo did not update until 2015. Redefining this program outcome showed an increase in graduation level assessment by the advisory board.  Exit interviews are conducted with students nearing completion.  Course evaluation data is used by faculty to partially gauge delivery and mastery success. |
| Communicate effectively and professionally through proper use of oral, written and graphic skills. | CAT1101  CAT1121  CAT1201  CAT1401  CAT2401  CAT2782  COM2211  ENG1101  MET1131  MET2711 | 2015-2016 | Oral communication: real-world ethics case presentation graded by rubric  Written communication, final case graded by rubric  Capstone Integrated Project Design | Real-world ethics case oral presentation: Average score: 87.6% (spring) 95.3% (fall)  Students achieving 70% threshold:  91% (spring) 100% (fall)  Final ethics case: Average score: 84% (spring) 88.2% (fall)  Students achieving 91% threshold:  100% (spring) 100% (fall)  Student work is accessed at milestones and midterms throughout the semester based on rubrics of this outcome. Work is accessed by both faculty and advisory board members.  Advisory board members are surveyed at the Capstone Dinner and Expo and rank student success in this outcome. Advisory board feedback for this outcome a dramatic increase in achievement from the previous year, most likely because RAR finally changed the outcome to reflect the proper communicate outcome, not the Civil Engineering Technology outcome of using surveying equipment. Student achievement was rated at 8.5 on a 9 point Likert Scale.  Exit interviews are conducted by the department chair to get students perspectives on the program, its outcomes and improvements that can be made.  Faculty meet weekly to discuss student work and progress toward course and program objectives. Any perceived deficiencies are discussed with prerequisite course coordinators. |
| Function effectively in teams by demonstrating a cooperative effort to evaluate and solve problems and to develop and implement plans. | CAT Elective CAT1501  CAT2401  CAT2700  CAT2782 | 2015-2016 | Capstone Integrated Project Design | Student work is accessed at milestones and midterms throughout the semester based on rubrics of this outcome. Work is accessed by both faculty and advisory board members.  Survey results from employers who hosted internship students showed an average rating of 8.6 on a 9 point Likert Scale. There were no responses below the 70% threshold of 6.3.  Advisory board members are surveyed at the Capstone Dinner and Expo and rank student success in this outcome.  According to the aggregated data, Construction Management Technology students consistently demonstrate satisfactory problem solving skills as applied to construction related challenges. Capstone Expo attendees rated the performance of the students as high as 8.50 on a 9 point Likert scale.  Exit interviews are conducted by the department chair to get students perspectives on the program, its outcomes and improvements that can be made.  Faculty meet weekly to discuss student work and progress toward course and program objectives. Any perceived deficiencies are discussed with prerequisite course coordinators. |

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| Define the methods, materials and techniques used in the construction process with an emphasis on safety, quality, and continuous improvement. | CAT Elective  CAT1101  CAT1121  CAT1201  CAT1211  CAT1241  CAT1401  CAT2401  CAT2411  CAT2782  EGV2351 | 2016-2017 |  | 2016/17 Update: Advisory Board feedback from the CAT2782 Construction Management Technology shows that students scored 8.7 out of 9.0 on a Likert scale concerning mastery of this outcome.  Though the program outcome was changed in 2012, the Research Analytics and Reporting instrument used at the Capstone Dinner and Expo did not update until 2015. Redefining this program outcome showed an increase in graduation level assessment by the Capstone Expo attendees. |

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| Employ logical and concise problem-solving techniques to complex problems. | CAT Elective  CAT1101  CAT1121  CAT1201  CAT1241  CAT1401  CAT2401  CAT2782  MAT1580  PHY1141 | 2017-2018 |  | Survey results from employers who hosted internship students averaged 7.5 on a 9 point Likert scale. Two responses indicated student ability was less than the 70% threshold of 6.3.  According to the aggregated data (Appendix E, Graph E-8), Construction Management Technology students consistently demonstrate satisfactory problem solving skills as applied to construction management problems. Capstone Expo attendees rated the performance of the students as high as 8.33 on a 9 point Likert scale. |

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| **Are changes planned as a result of the assessment of program outcomes? If so, what are those changes?** | Based on the feedback of our onsite accreditation visit from ETAC/ABET, we will be modifying our Program Educational Objectives. Currently they read:   * Graduates have the knowledge and skills necessary to function as a design technician or closely related position in industry. * Graduates have the knowledge and skills necessary to transfer into a baccalaureate degree program.   These were deemed to generic and should represent what students will be doing in 3-5 years after graduation. The department is working with advisory board members to address and change. |
| **How will you determine whether those changes had an impact?** | Approval from advisory board members.  Students will be engaged in stated activities 3-5 years after graduation.  ETAC/ABET deems the objectives acceptable upon next review. |

**OPTIONAL:**

Please use the space below to keep track of any annual data that your department wishes to maintain. This section is completely optional and will not be reviewed by the Division Assessment Coordinators.

1. Program Educational Objectives (PEO’s) and Program Outcomes last approved by Advisory Board on 23 September 2017.
2. Changes in PEO’s and Program Outcomes entered into CMT in December 2015. It is anticipated that the PEO’s will be updated in December 2017.
3. Prerequisite check completed and changes input to CMT in September 2016.
4. Website changes verified in October 2016.