**Sinclair Community College - Continuous Improvement Annual Update 2010-11**

**Program:** Engineering Technology Design

**Section I: Trend Data**

1. **Program Trend Data**

|  |  |
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| **DRT + EMT + ETD + IDGT + MEGT.AAS Degree Programs** | |
| Average Age: 26 | |
| African-American Male | 8% |
| African-American Female | 2% |
| Caucasian Male | 74% |
| Caucasian Female | 11% |
| Other Male | 5%, |
| Other female | 1% |

1. **Interpretation and Analysis of Trend Data** *Suggestions of questions that might be addressed in this section: 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 program or department? What actions have the department taken that have influenced these trends? What strategies will the department implement as a result of this data?*

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

1. What was the fiscal year of the most recent Program Review for this program? 2008-2009
2. Briefly summarize the goals that were listed in Section IV part E of the most recent Program Review Self-Study (this section of the Self-Study asks “What are the department’s/program’s goals and rationale for expanding and improving student learning, including new courses, programs, delivery formats and locations”)?

Continued work with Project Lead the Way

Continued development of grants

1. Have these goals changed since your last Program Review Self-Study?  If so, please describe the changes.

Add a more robust capstone experience

1. What progress has been made toward meeting any of the goals listed above in the past year?

Continue as Ohio’s Project Lead the Way Coordinator – have fully implemented the mechanical Project Lead the Way Curriculum into the mechanical program and this will continue under semesters.

This past year was the first of a 3-year capstone experience class where students design a Mini-Baja vehicle from the ground up. Year one included the frame, and the front and rear suspensions.

Continued work on grants enabled us to adopt the STEM Guitar project as the project for the “first year capstone”, ETD 110.

1. What Recommendations for Action were made by the review team to the most recent Program Review? What progress has been made towards meeting these recommendations in the past year?
2. Review the value and need for the AAS degree in MET when students have the option of pursuing the Engineering Transfer degree – the MET AAS provides an option for the student who cannot handle the higher math of the traditional engineering program. Enrollment in the two-year University Transfer degree (MEGT) continues to increase while the stand-alone degree (ETD) decreases. The draft of the semester curriculum eliminates the ETD degree but includes an elective in the MEGT degree to allow for additional design software classes for students who are not immediately university-bound.
3. Confer with the mathematics department to explore means of improving student success – an evaluation of success in statics and the correlation with the math and physics courses the students have taken and grades in those courses shows no apparent correlation between success in math and physics and success in statics. We will continue to study this issue over the next year.
4. Examine degree and certificate programs and identify those with low completion rates and either revise them to attract and graduate more students or discontinue them – the Mechanical maintenance certificate is being discontinued.

**Section III: Assessment of Outcomes**

The Program Outcomes for this program are listed below. **At least one-third of your program outcomes must be assessed as part of this Annual Update, and across the next three years all of these program outcomes must be assessed at least once**.

|  |  |  |  |
| --- | --- | --- | --- |
| **Engineering Technology Design**  Program Outcomes | In which courses are these program outcomes addressed? | Which of these program outcomes were assessed during the last fiscal year? | Assessment Methods  Used |
| **1)** Communicate effectively orally and, in writing and graphically, on an interdisciplinary team, as a design technician using appropriate CADD tools. | ETD 101, ETD 110, ETD 118, ETD 128, ETD 198, ETD 230, ETD 238, ETD 245, ETD 270, ETD 278, ETD 280, ETD 291 CAT 218, COM 211, ENG 111, ENG 112 |  | Faculty and Advisory Committee assessment of ETD 278 Capstone Course  Core competency survey at the time of graduation  Graduate Exit Interviews  Employer Surveys  Faculty review of student comments from course evaluations |
| **2)** Organize and Manage: As an interdisciplinary team member empowered to develop products, processes, solve problems, project planning, time estimates, ethics, and make sound decisions. | COM 211, OPT 105, ETD 118, ETD 101, ETD 102, ETD 110, ETD 238, ETD 270, ETD 278, CAT 218, EGR 128 |  | Faculty and Advisory Committee assessment of ETD 278 Capstone Course  Core competency survey at the time of graduation  Graduate Exit Interviews  Employer Surveys  Faculty review of student comments from course evaluations |
| **3)** Design in detail individual parts from functional sketches provided by an engineer, and model them using a three-dimensional parametric modeler. (i.e. 3D CAD). | OPT 101, MAT 131, MAT 132, PHY 131, PHY 132, ETD 101, ETD 110, ETD 118, ETD 213, ETD 222, ETD 230, ETD 238, ETD 245, ETD 270, ETD 278, CAT 218 |  | Faculty and Advisory Committee assessment of ETD 278 Capstone Course  Core competency survey at the time of graduation  Graduate Exit Interviews  Employer Surveys  Faculty review of student comments from course evaluations |
| **4)** Analyze parts for important product properties: Use mathematical and scientific skills to analyze product properties including form, function, fit, strength, thermal, fluid, etc. | OPT 101, OPT 201, INT 113, HVA 286, MAT 131, MAT 132, PHY 131, PHY 132, ETD 101 ETD 102, ETD 110, ETD 118,ETD 132, ETD 213, ETD 214, ETD 222, ETD 230, ETD 245, ETD 238, ETD 261, ETD 278, ETD 291 CAT 218 |  | Faculty and Advisory Committee assessment of ETD 278 Capstone Course  Core competency survey at the time of graduation  Graduate Exit Interviews  Employer Surveys  Faculty review of student comments from course evaluations |
| **5)** Desk-top manufacturing of models, or patterns using solid model data as input to drive rapid prototyping or N/C machining equipment. | ETD 128, ETD 110, ETD 228, ETD 238, ETD 278, CAT 218 |  | Faculty and Advisory Committee assessment of ETD 278 Capstone Course  Core competency survey at the time of graduation  Graduate Exit Interviews  Employer Surveys  Faculty review of student comments from course evaluations |
| **6)** Document the product/process model using appropriate means. (multi-view drawings, pictorials, catalog/manual illustrations, charts/graphs, shaded image, animation, etc.). | ETD 128, ETD 280, ETD 101, ETD 102, ETD 230, ETD 245, ETD 258, ETD 110, ETD 238, ETD 291, ETD 270, ETD 278, EET 198, EGR 128 |  | Faculty and Advisory Committee assessment of ETD 278 Capstone Course  Core competency survey at the time of graduation  Graduate Exit Interviews  Employer Surveys  Faculty review of student comments from course evaluations |
| **7)** Recognize professional, ethical and societal responsibilities, respect diversity and commit to lifelong learning. | ETD 101, ETD 110, ETD 118, ETD 121, ETD 128, ETD 278, CAT 218, COM 211, SOC ELET, HUM ELET |  | Faculty and Advisory Committee assessment of ETD 278 Capstone Course  Core competency survey at the time of graduation  Graduate Exit Interviews  Employer Surveys  Faculty review of student comments from course evaluations |

a) For the assessment methods listed in the table above, what were the results? What changes are planned as a result of the data? How will you determine whether those changes had an impact?

Assessments of these items were at the “good” level. We have done the following:

Increased the complexity of some of the case studies in the ethics class.

Student analysis of ethics cases is improving to show more “deep thinking” about the cases.

Added more writing and presentation assignments across the technical curriculum.

The quality of both student written and oral presentations has improved, with the Capstone presentations much better than the prior year.

b) What other changes have been made in past years as a result of assessment of program outcomes? What evidence is there that these changes have had an impact?

Addition of the guitar project in the ETD 110 class has given the students a better chance to practice project management skills – project management of the capstone activities continues to improve.

c) Describe general education changes/improvements in your program/department during this past academic year (09-10).

Added additional material into ETD 121 on critical thinking.

**Section IV: Improvement Efforts for the Fiscal Year**

1. **FY 09-10:** What other improvement efforts did the department make in FY 09-10?  How successful were these efforts?  What further efforts need to be made? If your department didn’t make improvement efforts during the fiscal year, discuss the strengths and weaknesses of the department over the last year and how the department plans to address them in the coming year.

The biggest improvement was in the implementation of the more robust capstone project. This project has required students to use more teamwork and communication skills along with their technical skills. The project was an overall success and communication among the student teams was better in this, the second year than in the first year, however, more improvement needs to be made.

1. **FY 10-11:** What improvement efforts does the department have planned for FY 10-11? How will you know whether you have been successful?

Continued work on teamwork and collaboration. Success will be apparent if these items are improved in the capstone project.

Questions regarding completion of the Annual Update? Please contact the Director of Curriculum and Assessment at 512-2789 to schedule a time to review the template and ask any questions.