**Sinclair Community College**

**Continuous Improvement Annual Update 2019-20**

**Please submit to your Division Assessment Coordinator / Learning Liaison for feedback no later than March 1, 2020**

**Please submit to your Division Dean for feedback no later than April 1, 2020**

**After receiving feedback from your Division Assessment Coordinator and Dean, please revise accordingly and make the final submission to the Provost’s Office no later than May 1, 2020**

**Department:** **SME - 0561 - Electronic Technology 0572-Automation & Control Technology 0560-ATI**

Year of Last Program Review: FY 2017-2018

Year of Next Program Review: FY 2021-2022

**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.

|  |  |  |  |
| --- | --- | --- | --- |
| **GOALS** | **Status** | **Previous Years’ Progress or Rationale for No Longer Applicable** | **FY 2019-20 Update** |
| **Electronics Engineering Technology (EET)**  EGR 2131 Engineering Digital Design has been developed to run in the Fall of 2017. We expect this course to need to run two sections per semester to keep up with the demand. | In progress 🞏    Completed 🞏  No longer applicable 🞏 | We plan to run this course in the Fall of 2018.  2019 update: (1) section ran fall ‘18 and (1) section ran spr ’19.  Based upon enrollment in Fall 2018 and Spring 2019, do the numbers suggest that offering two sections in Fall 2019 would be reasonable? – as of 5/1/19 currently have a day and an evening section scheduled this coming fall with (7) out of a total (20) slots available for the two sections. JP |  |
| **Electronics Engineering Technology (EET)**  The EET department will improve processes and procedures to improve retention and completion of students in EET curriculums with an emphasis on improving and documenting faculty advising | In progress 🞏    Completed 🞏  No longer applicable 🞏 | The department process will be reviewed and revised at department meetings in the spring of 18 and the fall of 18. The new procedure will be implemented in Spring of 19  2019 update: faculty will hand out course of study during class, remind students to register for fall classes, answer questions the week registration opens. |  |
| **Automation and Controls Technology w/Robotics (ACT)**  The ACT department will continue to expand the number of ACT courses offered at the Mason Courseview campus to meet the needs of current and future Mason ACT students and employers in the Warren, Butler, and Northern Cincinnati areas. | In progress X    Completed 🞏  No longer applicable 🞏 | The Industrial Maintenance Cert. courses are starting to attract more students. Also the Festo courses are going strong. The emphasis is on getting more students into our existing courses. We will review the need to offer more courses at Mason next year.  2019 update: co-hort 5 begins this fall for FESTO (how many students? – 8 promised by FESTO as of April 2019. JP). Currently proposing a new FESTO certificate offering this fall that would include (7) ACT courses at courseview campus.  What stage is this certificate program proposal in at this point? Has it been submitted to council for approval? Is the proposal paperwork complete but hasn't been submitted to council yet? - We met with FESTO, Lou Morales, on Apr 24, will re-submit plan of study on May 9. JP | The ACT program has definitely expanded the number of courses offered as a result of a significant increase in the number of ACT apprenticeship students by 48%.  This demographic has grown from 18 students in the 18/19 FY to 35 students in the 19/20 FY. In this area, some of this increase resulted from a decrease in participation in the Festo program of 24% as these students joined the Sinclair’s ACT program directly. As a result, ATS degree students under this program increased from 13 to 25 and the ACT degree students increased from 1 to 6 from 18/19 FY to the 19/20 FY. As a result of an increase in ACT program participation across the board, plans are underway with investments in building infrastructure, equipment, and associated resources to expand the entire ACT program to the Mason campus. The plan has been entitled the Mason ACT Program Reboot. This will begin with offering the Industrial Maintenance Technician Short-term Certification at the Mason campus. EET 1120 Intro to AC/DC Circuits and EGR 1128 Robotics in Computer Integrated Manufacturing (CIM) are scheduled to be offered at the Mason Campus starting in Fall 2020. ***(See Attachment 1)*** |
| **Automation and Controls Technology w/Robotics (ACT)**  The ACT department will improve processes and procedures to improve retention and completion of students in ACT curriculums with an emphasis on: Improving and documenting faculty advising. | In progress X    Completed 🞏  No longer applicable 🞏 | The department process will be reviewed and revised at department meetings in the spring of 18 and the fall of 18. The new procedure will be implemented in Spring of 19  2019 update: faculty will hand out course of study during class, remind students to register for fall classes, answer questions the week registration opens. | In addition to an ACT New Student Orientation Guide being given to and reviewed in detail with all ACT students across three courses, in the Spring 2020 semester, an ACT Program Review Presentation was conducted for all SME academic advisors where the program was reviewed and discussed in detail. The Orientation Guide, ACT Program and short-term certifications curriculum listings, and the recently updated ACT program marketing flyer. |
| **Automation and Controls Technology w/Robotics (ACT)**  Work with D Max to develop an apprentice program. | In progress 🞏    Completed 🞏  No longer applicable 🞏 | DMax has switched to the Sinclair sponsored apprenticeship model for their electrical apprentices. They have also started a mechanical apprenticeship program.  2019 update: Currently (7) students in DMax Electrical program & (6) students in DMax Mechanical program. Fantastic | We had been successful in this area as Dmax students make up a significant part of the increase in ACT course enrollment. Participation of DMax students in the ACT program with respect to their specialized electrical and mechanical ATS degrees has increased from 13 to 26 students from the 18/19 FY to the 19/20 FY. |

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.

|  |  |  |  |
| --- | --- | --- | --- |
| **RECOMMENDATIONS** | **Status** | **Previous Years’ Progress or Rationale for No Longer Applicable** | **FY 2019-20 Update** |
| During the meeting with the Review Team, the possibility of an orientation of some kind for students at the beginning of these programs was discussed, to help them better understand the expectations of the programs and what will be required on their part to be successful. Any orientation that is developed needs not be longer than a couple of hours, and hopefully would not be too resource-intensive for the department to accomplish. The department is strongly encouraged to explore the possibility of orientation meetings associated with these programs. Consider using the Psychology Department’s orientation as a reference or a template, or contact another department on campus that currently utilizes an orientation for degree program students. | In progress 🞏    Completed X  No longer applicable 🞏 | After some discussion at a department meeting the faculty opted to add a program orientation module into the entry level courses.  Tillie Watts Brown will prepare the module for EET program for these courses. EET 1116 & EET 1150  Jake Fullard will prepare the module for ACT program for these courses. EGR 1128 & EGR 1217  We plan to implement fall 2018.  2019 update: roll out EET this year (<-When?... Fall 2019?).Prep this summer, rollout this fall -JP ACT module in place since fall ’18. | An ACT New Student Orientation Guide is given to and reviewed in detail with all ACT students in three courses to include: EET 1120, EGR 1128, and EGR 1217. This includes detailed instructions relating to consulting with advisors within the first month of each semester to plan for the next semester as well as retention, completion, and academic success. This has been in place since the Fall 18 semester. |
| In the meeting with the Review Team, there was a great deal of discussion regarding confusion surrounding the subject codes associated with courses in the EET, ACT, and other programs that use EET and EGR courses. The department is strongly encouraged to work with the Manager of Curriculum, Transfer, and Articulation, along with appropriate representatives from Academic Advising and the division dean’s office, to revise subject codes for courses such that they better align with the programs for which they are included in the curriculum, and to reduce student confusion. | In progress X    Completed 🞏  No longer applicable 🞏 | This will be reviewed with the faculty, dean and the Associates Provost to see if this is feasible. We would be looking to make EET, EGR and ACT the course names.  When will this review process take place? Spring 2019? Fall 2019? later? Contacted Clay Pittman about possibility of converting UAS courses to an AVT code in October, Here are my suggestions:  EET 1121 = AVT 1111  EET 1158 = AVT 1158  EET 2220 = AVT 2220  EET 2221 = AVT 2221 - JP | THE ACT/EET department chair, John Pax has addressed this issue and while Clay Pittman has been contacted with respect to course under his domain, it is still in progress. |
| For several of the General Education and program outcomes, statements were made such as “No data at this time – will review for the 16-17 year.” For other outcomes, it appeared that assessment work was just beginning. The department is strongly encouraged to continue its work to improve assessment of General Education and program outcomes, such that there will be multiple years of data to report for each outcome in the next Program Review in five years. | In progress 🞏    Completed 🞏  No longer applicable 🞏 | **The department is working to improve this process. Steps have been taken collect date.**  **More detail is needed here. What, specifically, are these "steps"? due to changes this spring with ABET student outcomes we started process of evaluating what needs to be done for next ABET review cycle. We will propose our plan of action at fll advisory board meeting. JP** |  |
| Automation and Control Technology with Robotics may not be the most descriptive title for the program in terms of helping potential students understand the jobs it can prepare them for. The department is encouraged to consider a name change for the program to something more descriptive and intuitive. | In progress 🞏    Completed X  No longer applicable 🞏 | After many long discussions the department feels this name describes the program better than any other.  2019 update: ACT program outcomes have been updated via Advisory Board sub-committee. Will be submitted for approval at spring Advisory Committee meeting. | New ACT Program Outcomes have been adopted and were approved in the Spring 2019 ACT Advisory Board meeting. A copy of the new outcomes will be provided upon request. |
| It is not likely that there will be increases in marketing resources for individual departments in the near future: given the need to attract more students to the EET and ACT programs to meet local employer need, the department is encouraged to attempt to develop its own marketing approaches, particularly in terms of utilization of social media. Some institutional supports exist for this, and the department is encouraged to explore utilizing these supports. The department should also explore recruitment efforts of similar programs at other institutions – are there approaches being used by other colleges that we could adopt? | In progress X    Completed 🞏  No longer applicable 🞏 | An ACT/EET Marketing Strategy session has been scheduled to explore enhancing our current marketing efforts  The department is looking into creating social media to promote the department.  Tillie Watts Brown is investigating for EET and Jake Fullard for ACT.  2019 update: EET website has been updated. Update of EET/ACT marketing flyers are in process (currently first draft complete). Promotional video made in 2018 for EET, currently airing on TV and on Facebook page. | Professor Fullard consulted with two employers who employ numerous ACT graduates. These companies not only agreed to support our radio and TV based marketing efforts but also agreed to let Sinclair actually come into their manufacturing facilities and film.  The resulting marketing outcome was extremely disappointing. It took 9 months to make one 30 seconds commercial which only ran for three days between 6AM and 7AM in the morning last fall. To rebound from this subpar result, the plan is to have the Marketing Department film this year’s ACT Capstone Project Presentations and System Verification event which can then hopefully be formatted for TV and social media dissemination. |
| Finally, the outcome assessment that was reported was clearly better for the EET program than the ACT program in the self-study, due in large measure to the fact that EET is ABET accredited, and ACT is not. The Review Team recommends that the department thoughtfully and honestly weigh the pros and cons of pursuing ABET accreditation for the ACT program, particularly in terms of the impact on students, and develop a rationale to justify its decision that can be included in future Annual Update submissions and the next Program Review. | In progress 🞏    Completed 🞏  No longer applicable 🞏 | **All ACT outcome assessment mechanisms have been clearly identified. Data collected has already begun, will continue, and current results are cited in the designated areas within this report. Upon review, it has been decided that ABET accreditation for the ACT two-year program will not be pursued at this time as it would provide no viable benefit in terms of student enrollment, completion, internship, or job opportunities for our graduates.** |  |

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

As many of you know, in FY 2017-18 the Computer Literacy General Education Outcome was discontinued. However, it is still expected that computer skills instruction will occur for the specific needs of a program. For the FY 2018-19 year, as part of the Annual Update each department is asked to describe how the computer skills education required for your graduates to be successful in their chosen field is addressed and assessed at the program level.

**ACT 19/20 FY SUBMISSION:**

What computer skills will your students need to possess in order to be successful after graduation? Please provide answers to the questions in the 3 sections located below.

1. Do your program students need to be competent or proficient in word processing, spreadsheets, and/or presentation software (e.g. Office Suite-style programs such as Word, Excel, PowerPoint)?

Yes  No  (**If no, please proceed to question # 2**).

If Yes:

Program(s) contain BIS 1120 or MET 1131 where these skills will be acquired and assessed.  
 Program(s) do not contain BIS 1120 or MET 1131. These skills will be assessed in the following manner:

Course(s): **EGR 1144 Sensors and Vision Systems**

Assessment Method / Assignment(s) (Please be specific**): A technical project presentation and report is used to assess this area. Students attained an average of 79% on presentation/technical reports using computer software packages to employ computer-based research based on project specification provided to include the following technical areas:**

* **Sensor functional physiology (Light waves, sound waves, electromagnetic/electrostatic fields, etc.)**
* **Manufacturer’s component specification sheet**
* **Wiring diagrams**
* **Sensor product pricing**

**While computer and software literacy were more than adequately displayed, introduction**

**of a detailed grading rubric (*See Attachment 2*) allowed the assessment criteria relating to**

**body language, eye contact, and presentation preparation/practice as needing extra**

**attention to increase overall presentation scores.**

1. Upon graduation, all Sinclair students must be competent or proficient in Information Literacy (gathering, analyzing, and synthesizing information, which can often be digital in nature, and using that information effectively and ethically).

Program(s) contain ENG 1201 or PSY 1100 or ALH 1101 where these skills will be acquired and assessed.

Program(s) do not contain ENG 1201 or PSY 1100 or ALH 1101. These skills will be acquired and assessed in the following manner:

Course(s): **EGR 2278 ACT Capstone Course**

Assessment Method / Assignment(s) (Please be specific): A **Assessment methods include: Technical Reports, Block Diagrams, Flow Charts, Gantt Chart-based Work Schedules, Technical Team-based Presentations, and Process Verification Demonstrations. Students are given five independent control systems to integrate to produce a simulated manufacturing process. This requires the hardwire integration and program of all 5 systems which requires employing the Engineering project methodology, of planning, designing, creating, testing, and verification. 85% of students satisfied all course and project requirements.**

1. In order to be successful after graduation, our program students will need to be competent or proficient in computer skills beyond those listed above.

Yes  No  (If no, section is complete).

Please list additional computer skills program students will need to be successful after graduation: **ACT students are required to be proficient in numerous technical programming software methodologies to include: Programmable Logic Controller(PLC Ladder Logic programming), Cognex Vision Systems In-Sight EasyBuilder Software programming, and Robotic Teach Pendant programming.**

In which course(s) will these additional computer skills be assessed?

**See Item 2 (While these additional advanced manufacturing programming languages are taught and assessed in individual courses, overall assessment for graduation is accomplished in the capstone course)**

Assessment Methods / Assignment(s) (Please be specific):

**See item 2**

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

As many of you know, in FY 2017-18 the Computer Literacy General Education Outcome was discontinued. However, it is still expected that computer skills instruction will occur for the specific needs of a program. For the FY 2018-19 year, as part of the Annual Update each department is asked to describe how the computer skills education required for your graduates to be successful in their chosen field is addressed and assessed at the program level.

**EET 19/20 FY SUBMISSION**

What computer skills will your students need to possess in order to be successful after graduation? Please provide answers to the questions in the 3 sections located below.

1. Do your program students need to be competent or proficient in word processing, spreadsheets, and/or presentation software (e.g. Office Suite-style programs such as Word, Excel, PowerPoint)?

Yes  No  (**If no, please proceed to question # 2**).

If Yes:

Program(s) contain BIS 1120 or MET 1131 where these skills will be acquired and assessed.  
 Program(s) do not contain BIS 1120 or MET 1131. These skills will be assessed in the following manner:

Course(s): Click here to enter text.

Assessment Method / Assignment(s) (Please be specific): Click here to enter text.

1. Upon graduation, all Sinclair students must be competent or proficient in Information Literacy (gathering, analyzing, and synthesizing information, which can often be digital in nature, and using that information effectively and ethically).

Program(s) contain ENG 1201 or PSY 1100 or ALH 1101 where these skills will be acquired and assessed.

Program(s) do not contain ENG 1201 or PSY 1100 or ALH 1101. These skills will be acquired and assessed in the following manner:

Course(s): Click here to enter text.

Assessment Method / Assignment(s) (Please be specific): Click here to enter text.

1. In order to be successful after graduation, our program students will need to be competent or proficient in computer skills beyond those listed above.

Yes  No  (If no, section is complete).

Please list additional computer skills program students will need to be successful after graduation: Click here to enter text.

In which course(s) will these additional computer skills be assessed?

Click here to enter text.

Assessment Methods / Assignment(s) (Please be specific):

Click here to enter text.

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**. Assessment results from previous years are in red font – if you assess those outcomes again this year, please add the additional assessment data in black font.

**EET**

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**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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) |
| Apply principles of DC and AC circuits, analog and digital electronics, microcontroller fundamentals and circuit assembly for analysis, basic design, circuit simulation, problem solving, assembly, troubleshooting and repair of electrical and electronic systems. (EET.S.AAS) | EET 2278 | 2017-2018 | SME EET Proficiency Test in Capstone course | National average was 44% Sinclair students attained 45% class average  Does every single question on this exam relate directly to the Program Outcome listed? If not, can specific questions be isolated that address the specific topics listed in the outcome? Then student responses to those questions be assessed, allowing teaching faculty to determine which principles/topics/etc. require additional or alternative teaching methods to improve student success. I have attached a copy of the spr 19 results, as can be seen the results are broken down into topics/skill sets … not specific questions, I have not had time to see previous year’s results but Sinclair results are typical of all EET courses nationwide, A need for emphasis on fundamental theory and test/measurement skills, A mtg was held with dept in April to start addressing and aligning better these fundamentals with courses EET1116, 1150, 1155. - JP |
| Apply principles of mathematics and physics to solve engineering technology problems. (EET.S.AAS) | EET 2278 | 2018-2019 | SME EET Proficiency Test in Capstone course | Will this assessment data be collected in the Spring 2019 semester? – yes completed February 2019. JP |
| Demonstrate a commitment to address professional and ethical responsibilities, including a respect for diversity; impact of engineering technology solutions in a societal and global context. (EET.S.AAS) | MET 2711 | 2021-2022 |  |  |
| Demonstrate programming skills using a graphical language, assembly language or ladder logic to create computer solutions of engineering problems. (EET.S.AAS) | EET2259, EET2281,  EET2261 | 2019-2020 | For EET 2259 & EET 2261 Pre test and post test  For EET 2281  Programmable Logic Controllers (PLCs) Direct Application Labs |  |
| Use various software packages to simulate, analyze and develop schematics and layouts of electronic circuits; technical communication skills for group work. (EET.S.AAS) | EET1150 | 2020-2021 | Labs 6-10 |  |

Click here to enter text.

**Automation & Control Technology (ACT)**

**Program Outcomes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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) |
| Conduct simple mechanical repairs on typical electromechanical systems, from replacing wiring, fluid power valving, piping, electromechanical devices, and other items that were original to the equipment, to installing new system modifications, then returning the system to operational specifications. (AMCT.S.AAS) | EGR 1217 | 2017 - 2018 | **EGR 1217**  Fluid Power  Direct Application Labs  (Pneumatics, Hydraulics, & PLCs) | **Labs:** **Students attained a 91% average on the completion of 21 direct application labs within the course**  Same comment as above. Can a deeper dive be done into the data to identify areas of weakness where instructional changes can be made to improve student learning? |
| Diagnose electronic system problems using appropriate test instrumentation, schematics, and technical reference manuals and determine if fault is electrical, electronic, software, or mechanical in nature. Recommend appropriate repair process and initiate repair. (AMCT.S.AAS) | EET 1166 | 2018-2019 | Project is to build a functioning electrical panel. | Will this assessment data be collected in the Spring 2019 semester? |
| Integrate electronic control equipment into typical small CIM environment so that overall system performs to specification. Equipment includes: discrete devices, PLCs, sensors, robot application programming, communication hardware/software, and computer related hardware. (AMCT.S.AAS) | EGR 2278 | 2020-2021 | Team-based projects |  |
| Integrate into work cell the appropriate Fanuc robot for the application. Select necessary end-of-arm tooling, and develop/edit motion control program for the application, using available software features and/or options. (AMCT.S.AAS) | PHY 1131,  EGR 1144, EGR 2252,  EGR 2270, EGR 2278 | 2021-2022 | Team-based projects |  |
| Repair electrical and electronic systems, from devices, subsystems, wiring/cabling to circuit board level, and return to correct operation after testing. (AMCT.S.AAS) | EET 1166 | 2019-2020 | Project is to build a functioning electrical panel. | **Students attained a 93% average on the completion of the control panel build project. Given a set of control panel wiring electrical prints and all required hardware and components, students completed the control panel building project in accordance with safe electrical wiring practices, Lockout/Tryout procedures, and NFPA 79 guidelines, OSAH guidelines and specifications for constructing and wiring control panels. (See Attachment 3 for grading rubric)** |

|  |  |
| --- | --- |
| **Are changes planned as a result of the assessment of program outcomes? If so, what are those changes?** |  |
| **How will you determine whether those changes had an impact?** |  |

**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.