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

**Program:** Automation & Control Technology (ACT / EGR)

**Section I: Trend Data**

1. **Program Trend Data**

**Enrollment:** Enrollment in the ACT program saw a real increase due to downturn in economy in FY 2009-10 although FTEs have remained the same. A considerable number of dislocated workers completed the ACT program and hence contributing to a double digit number of graduates.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ACT Active Students Fall 2006-2010** | | | | |
| **06-FA** | **07-FA** | **08-FA** | **09-FA** | **10-FA** |
| **44** | **50** | **75** | **166** | **134** |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **ACT (EGR) FTE Data 2004-2010** | | | | | | | |
| **Subject** | **Term** | **FY 04-05** | **FY 05-06** | **FY 06-07** | **FY 07-08** | **FY 08-09** | **FY 09-10** |
| EGR | TOTAL | 115.5 | 101.3 | 117.3 | 113.8 | 133.3 | 136.0 |

**ACT Program Graduates FY 2006-2010**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Term** | **FY 05-06** | **FY 06-07** | **FY 07-08** | **FY 08-09** | **FY 09-10** |
| **TOTAL** | 4 | 8 | 3 | 6 | 12 |

For Fall 2010, Montgomery County accounted for 47% of the enrollment followed by Greene and Warren counties at 9% each. Rest of the students were from all over the state. There are 74% Caucasian males, 4.5% African Americans and 2.2% females in the program.

Success rates are very high due to small class size, varying between 76% to 100%. Retention data for Fall 2010 is not available in DAWN report set.

NOTE: Data above includes students in Industrial Robot and Industrial Maintenance Technician Short-term Certificate programs which have all the courses derived from the EGR pool of courses.

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?*

ACT program is one of the most advanced and up-to-date robotics programs serving the needs of local and surrounding area industries. Due to the nature of the skills needed, many students find it difficult to handle the modern technology without sufficient background in mathematics and programming skills. However ACT graduates are employed very quickly post graduation and has proven to be an excellent retraining program for displaced workers. This explains the increase in enrollment Fall 2009. Large number of students who graduated were funded by special programs like TAA. Enrollment trend has continued due to the special efforts of the former ACFs, Gene Gilliat and Dan Green, who have established excellent partnerships with local high schools by offering college level courses through *Project Lead The Way* and *QuickStart* programs. Every quarter EGR courses are being offered at Centerville, Kettering-Fairmont and Stebbins high schools. These partnerships will help the program regain active students as well as maintain FTEs. It appears that minorities are not attracted to the program due to the nature of working environment and rigor needed to graduate. Special efforts are planned for the next year to attract minorities to the ACT program.

A downturn in the program enrollment was result of ACT program not having any full-time faculty for the last two years when Jeff Donbar left and both ACF positions were eliminated. This has negatively impacted the program as it has a common chair with electronics program and no real experts in the field of automation. This has been rectified by hiring a full-time tenure track faculty since September 1, 2010.

Closing of manufacturing companies in Dayton area has also resulted in short term gain in enrollment but the numbers have started declining short-term.

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

1. What was the fiscal year of the most recent Program Review for this program?

FY 2008-09

1. 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”)?

No program report could be found for goals from the previous self-study. However the ACT program has definite goals to continue improving student learning:

* Adopt latest software and technology such as Human Machine Interface (HMI) and Machine Vision, EGR 220.
* Expand the applications of automation to *Autonomous Robots* which are finding an increase in the Police and Homeland Security areas.
* The Sensors course, EGR 144, has been totally updated by incorporating latest sensor technology. This has direct impact on improved employability for the graduates due to a tremendous growth of sensor related technology in the Dayton area.
* Update the industrial networking course EGR 255.
* Introduce latest troubleshooting and repair techniques in EGR 231 and EGR 232 courses.

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

None.

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

Since Fall 2010 full-time faculty has taken up updating the EGR courses on a two-year schedule which will also support Q2S conversion of courses; establishing a well defined assessment plan for continuous improvement. Following courses have already been updated:

EGR 144: Sensors

EGR 231: Intro’ to Troubleshooting Automated Systems

EGR 232: Advanced Troubleshooting of Automated Systems

EET 281: Programmable Logic Controllers (Shared course with EET program)

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?

No report is available.

**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**.

|  |  |  |  |
| --- | --- | --- | --- |
| **Automation & Control Technology**  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)** Repair electromechanical systems. | EGR 100, EGR 231, EGR 232, EGR 244, EET 139, EET 166 |  |  |
| **2)** Troubleshoot electronic & mechanical systems. | EGR 100, EGR 231, EGR 232, EGR 244, EGR 278 |  | * Performance appraisals * Working systems |
| **3)** Use CAD modeling tools. | ETD 101, ETD 128 |  |  |
| **4)** Program robots. | EGR 128, EET 281, EET 282, EGR 210, EGR 255, EGR 278 |  |  |
| **5)** Set up industrial control systems. | EGR 100, EGR 144, EGR 252, EET 281, EET 282, EGR 244, EGR 278, OPT 211 |  | * Performance appraisals |
| **6)** Use PLCs and sensors. | EGR 144, EGR 220, EET 281, EET 282 |  |  |

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?

A new assessment plan was developed in Fall 2010. Data is being collected to assess the impact of changes to EGR 144, EGR 231, EGR 232 and EGR 278. Program did not collect any data in the absence of any full-time faculty for two years. Results will be summarized, analyzed and assessed in the second year to measure the effectiveness of changes.

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?

Due to lack of a full-time faculty assigned to the program, no meaningful assessment could be done.

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

Nothing significant to report.

**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.

Primarily kept the ACT program serving the displaced workers, and high school students. Program completely depended on adjunct faculty and hence no real changes to courses were made.

The labs were kept up-to-date through acquisition of two HMI displays and establishing course materials for the Machine Vision course EGR 220. A lot of work was completed by the full-time tech who is very conversant with the modern technology and did teach a course in the evenings. Richard Davis, Dan Green and Gene Gilliat (former ACFs) served as adjunct faculty with extra load to keep the classes running and maintained the high school linkages.

Adjunct faculty Ed Leonard updated the Troubleshooting and Maintenance courses EGR 231 and EGR 232.

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?

* Convert all EGR courses to semester format. Update all the course and program outcomes.
* To increase the enrollment in the ACT program through aggressive marketing, high school and industry linkages.
* Attract K-12 students through innovative programs such as *Lego League, TechFest*, and other college bound programs, especially minorities.
* League for Innovation grant for *WaterBotics* will help run summer programs for high school students to expose them to the exciting field of robotics, automation and control. Summer 2011 program has 17 students registered.
* Ponitz CTC has requested several courses through *QuickStart* program and will definitely boost the enrollment as they are all Sinclair bound students.
* Offer *SkillsTrac* program in partnership with Workforce development which will ultimately bring more students to complete the ACT program.
* Explore cross-functional activities with manufacturing program to connect CNC machines and robots. This is new technology on the horizon.

NOTE: Lack of a full-time faculty for two years has hurt the program but it is rebounding very well. Good results are anticipated for the next cycle.

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.