**Sinclair Community College**

**Continuous Improvement Annual Update 2012-13**

**Please submit to your dean and the Provost’s Office no later than Oct. 1, 2012**

**Department:** 0540 – Fire Science Technology

Year of Last Program Review: FY 2006-2007

Year of Next Program Review: FY 2013-2014

**Section I: Department Trend Data, Interpretation, and Analysis**

**Degree and Certificate Completion Trend Data – OVERALL SUMMARY**

Please provide an interpretation and analysis of the Degree and Certificate Completion Trend Data (Raw Data is located in Appendix A*): i.e. 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 department? What actions have the department taken that have influenced these trends? What strategies will the department implement as a result of this data?*

We have noticed several trends in the completion data. One of the reasons for the large spike in FY 09-10 we feel was due to the discontinuation of the Fire/EMS/ATS degree. Also many students who just enroll in certification classes were identified as "personnel interest" in the system. The ability to identify those students who have completed those classes helped in awarding an increased number of certificates. Also there is a growing feeling of “dread” within the local fire service community. With several fire departments considering layoffs and other budget control strategies, the stream has not been as strong as we would like. However, since Sinclair is a “Pro-Board” agency, the firefighter certifications are transferable to over 20 other states. Sinclair students have been able to find employment fairly easily surprising enough in other parts of the country. These include Georgia, Tennessee, Texas, Alabama, Kentucky, South Carolina, North Carolina, as you would notice, mostly non-rust belt locations. My personal favorite is a call from a student who was transferring his certifications and had some questions he needed help with. When I ask which fire department employed him, he answered, Hilton Head. We believe if we can get potential students thinking past Dayton, Ohio our numbers should increase. The FST degree supports a totally different cliental than the FAO or certificate programs. The FST degree was designed to fulfill the need of the engineering technology and design support occupations. This degree produces very few graduates. Most students who start this program usually end up working for a private company before they finish. They are often short a few courses that are need for completion. When we converted the degree to semesters we tried to minimize the completion obstacles as much as possible. For example the semester math and related science classes were selected because they directly address the knowledge and skills needed in the NICET Level I Designer exam.

**Course Success Trend Data – OVERALL SUMMARY**

Please provide an interpretation and analysis of the Course Success Trend Data (Raw Data is located in Appendix A). Looking at the success rate data provided in the Appendix for each course, please discuss trends for high enrollment courses, courses used extensively by other departments, and courses where there have been substantial changes in success.

The average state certification test scores for the past 3 years are: Firefighter Level I 80.%, Firefighter II 85.4%, Fire Inspector 79.2% and Fire Instructor 81.5%. The best information we have from Columbus places us above the state average in test scores. This is made difficult due to the fact the state is unwilling to publish a formal list or ranking. In the academy certification classes the pass rate for individuals who complete the course falls between 95-100 percent. Those students who make it pass the first couple of weeks have almost a "sure thing" of state certification. In the FST 1120 class, the pass rate is over 95%. This is impressive when one considers the state designed the latest test with a 60% failure rate in mind. Of the 114 classes for the 5 year trends listed in the appendix, 108 or 95% were above the 70% college wide success average. We have noticed that, on average, the more rural the off campus site, the lower the class exam average will be as well as the lower the overall course success rate. This however is only a slight difference. It appears that general academic preparedness is not as strong as urban or suburban student population. One theory is that the more rural communities are less selective in recruiting volunteer personnel those communities closer to an urban center. Also there is no major difference between individual instructors and final scores. The average certification scores for all academy sections are with 1-3 percentage points of each other. There does not seem to be any difference in which lead instructor(s) were assigned to the class. All averages are consistent with past several years. See attachment 1.

Please provide any additional data and analysis that illustrates what is going on in the department (examples might include accreditation data, program data, benchmark data from national exams, course sequence completion, retention, demographic data, data on placement of graduates, graduate survey data, etc.)

In the spring, the department completed the 5 year fire training charter review process for the Ohio Department of Public Safety, the governing body of our training charter. The state review the teaching outlines, assessment tools, testing procedures, student management systems and course content for the following courses Volunteer Firefighter (FST 1101) Firefighter Level I (FST 1102) Firefighter Level II (FST 1103) Firefighter level I and II (FST 1104), Fire Safety Inspector (FST 1120) and Fire Instructor (FST 2209). The department received another 5 year renewal. Finally, as in years past, we have been told by the Ohio Department of Public Safety, that we are the highest volume provider of firefighter certifications in the state as well the best overall pass rates and test averages. Again this is verbal, due to the fact that the state will not lease any official data. It has been our experience that if students can pass the Pro-Board test, there is a 99% chance of them passing the state certification exam. In conversations with students, everyone, without exception, stated that the state exam was easier than the Pro-Board examination.

**Section II: 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.

|  |  |  |
| --- | --- | --- |
| **GOALS** | **Status** | **Progress or Rationale for No Longer Applicable** |
| Our students have responded that they want more outreach courses. The class sizes are increasing in these courses. Several years ago some of our classes struggled to have ten students per class while now almost all of our outreach courses have double digit enrollees. | In progress  Completed  No longer applicable | Several courses were offered at off site locations. These include, Trotwood, New Lebanon, and Vandalia, Washington Twp. New Madison, and Bethel Twp Fire Departments, Discussions are under way with several Warren County sites as well as the City of Celina/ Mercer County area. |
| We have combined courses such as FST 117 and 210 into one FST 220 Fire Protection Design course to streamline our design courses and prevent duplication of education efforts. | In progress  Completed  No longer applicable | This course will better prepare students when it comes time for them to take the NICET Fire Protection System Designer Level I Examination. We also included some elements of levels II and III in the course. |

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.

|  |  |  |
| --- | --- | --- |
| **RECOMMENDATIONS** | **Status** | **Progress or Rationale for No Longer Applicable** |
| The existing certificates and programs in the department fail to show an adequate number of completions. Based on the information shared during the review meeting, the department has an immediate opportunity to create short-term certificates that align with the student and community needs. | In progress  Completed  No longer applicable | Students are now being properly identified as FST majors instead of general interest, thus increasing number of certificates. |
| Use of quantitative and qualitative evidence to improve student learning and student success was notably absent from the self-study documents. The department should immediately develop a systematic assessment plan to collect and analyze data on student learning and make improvements to curriculum and instruction based on this evidence. | In progress  Completed  No longer applicable | The department is tracking student’s paths within certification levels. The department is also developing a tracking system to determine student success once the student is employed in the field. For example: In one recent civil service promotional examination, all top candidates were Sinclair students. We are trying to develop a system to track these success stories in a more timely matter. |
| The department should use the Curriculum Management Tool (CMT) to incorporate the specific outcomes for general education competencies and build assessment tasks into each course in their inventory in support of their assessment of student learning. Currently the CMT assessment report shows that assessment is missing from the majority of courses: 14 EVT courses (0 %); 28 SRM courses (14%); 40 FST courses (13%). | In progress  Completed  No longer applicable | The EVT and SRM courses are no longer part of the FST department. In the FST 1120, 2209, 2251, 2252, 2253 and 2254, the course skill assessments sheets have grammar and related communication skills check offs. |
| Formalize the FST articulation with Wright State University so that both institutions can clearly communicate their expectations to degree seekers who need to plan their programs for transfer. | In progress  Completed  No longer applicable | Due to the fact that several institutions were undergoing semester conversion work. Most schools we contacted were undergoing conversion. Communication was sporadic at best. |
| Continue to seek partnerships to promote education of students through collaborations with Wright Patterson Air Force Base, Bowling Green University, Ohio State University, University of Cincinnati and Eastern Kentucky University and the local community. | In progress  Completed  No longer applicable | Due to the fact that several institutions were undergoing semester conversion work. Most schools we contacted were undergoing conversion. Communication was sporadic at best. |
| Promote students’ awareness of the value of degree and certificate completion, not just short term course work. | In progress  Completed  No longer applicable | The counseling of students during the certification classes have resulted in an increasing number of students continuing into the academic programs once certifications are achieved. At one time during very certification class the chair or the tenure track faculty addresses the class as to degree and career options. |
| Integrate the ABET findings and recommendations with the program review process so that one informs and improves the other. Incorporate the ABET-initiated departmental actions into the plans and actions emanating from this review. | In progress  Completed  No longer applicable | ABET was an initiative for the EVT and SRM programs which are no longer part of the FST program. These courses were retained by the SME Division during the reorganization |
| Enlist the assistance of Research, Analytics and Reporting (RAR) to identify and analyze the predominant curriculum pathways of students in EVT, FST, and SET to improve completion rates. | In progress  Completed  No longer applicable | As mentioned before, EVT and SRM are no longer part of the FST program. Using the information from a variety of sources, students who were near completion were identified and advising provided as to their options and course work needs. |
| Implement programming associated with the continuing education opportunities created by the recently passed CE legislation discussed during the review. | In progress  Completed  No longer applicable | The program actively participates in the Miami Valley Fire/EMS Alliance, the Southwest Ohio Fire Safety Council and the Southwest Ohio Chapter of the Society of Fire Protection Engineers. The FST program also actively participates in delivering Con-Ed activities via the Adobe Connect Webinar system to the fire service of the Miami Valley region. |
| Formalize the evaluation of students who complete their programs of study (STC); create mid-point assessments to better understand students’ needs and improve instruction based on this assessment. | In progress  Completed  No longer applicable | The department is assessing the implementation of an oral “Board of Review” process at midpoint of a student's degree path. Just how this would actually work, or type of questions asked, isn’t known yet, but several fire service leaders have been approached as to test the waters and if they would b willing to participate in the process. |
| Analyze the apparent disconnect between labor predictions and student perception in EVT& FST. Use CC Benefits, exit interviews, advisory committees and community contacts. | In progress  Completed  No longer applicable | To better address the student’s understanding of job market (labor predictions) and benefits of the FST degree programs, a student tracking initiative was undertaken for current and former students. We even have some retired individuals on the list, as far back as the YCMCA days. Currently over 400 have been indentified and listed. |

**Section III: 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**.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **General Education Outcomes** | To which degree(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) |
| Oral Communication | | All programs | **2011-2012** | The FST 2251 and 2252 courses have specific oral communication skill requirements based on the NFPA 1021 standard. The FST 2253 and 2254 classes used a performance based "assessment center style" assessment tool, again based on the NFPA 1021 standard. The FST 1120 and FST 2209 courses have state required oral communications assessment objectives | The students were able to meet the communication requirements of the NFPA 1021 1031, and 1041 standards as determined by outside evaluators and meet state objectives. |
| Written Communication | | All programs | **2011-2012** | The FST 2251 and 2252 courses have specific written communication skill requirements based on the NFPA 1021 standard The FST 2553 and 2254 classes used a performance based "assessment center style" assessment tool The FST 1120 and FST 2209 have state required written communications assessment objectives | The students were able to meet the communication requirements of the NFPA 1021, 1031 and 1041 standards as determined by outside evaluators and meet state objectives. |
| Critical Thinking/Problem Solving | | All programs | **2012-2013** |  |  |
| Values/Citizenship/Community | | All programs | **2013-2014** |  |  |
| Computer Literacy | | All programs | **2014-2015** |  |  |
| Information Literacy | | All programs | **2015-2016** |  |  |
|  | |  |  |  |  |
| **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) |
| Design fire protection suppression and detection systems for a variety of hazards. | | FST 1011,  FST 2011,  FST 2041,  FST 2201,  MAT 1470,  MAT 1570,  PHY 1100,  CHE 1111,  MET 1221,  CAT 1131 | 2011-2012 | Tracking learning outcomes from the NICET elements (standards) and what was needed to be included in the redesign of the semester version of the courses. | The courses were over 90% compliant before conversion. |
| Demonstrate knowledge of fire prevention concepts, hazard mitigation and fire/building code compliance. | | FST 1113,  FST 2202,  FST 1102,  FST 1103,  FST 1115,  FST 2205,  FST 2206,  FST 1112,  FST 2203,  FST 1125,  FST 1126,  FST 2233,  FST 2230,  FST 1555 | 2012-2103 |  |  |
| Demonstrate knowledge of building construction and fire behavior. | | FST 1011,  FST 2202 | 2012-2013 | (Note FST class should read 1111 not 1011) |  |
| Demonstrate the role of the fire professional in local, state and national organizations. | | SOC/BEH Science Elective,  HUM Elective,  FST 2700 | 2013-2014 |  |  |
| Demonstrate effective communication, both written and orally. | | ENG 1101,  COM 2211 | 2011-2012 | Students successfully completed various state required oral and written communications assessment objectives | The students were able to meet the communication requirements of the NFPA 1021, 1031 and 1041 standards as determined by outside evaluators and meet state objectives |
| Demonstrate the basics of firefighter safety and survival on the emergency scene. | | FST 1111  FST 2230  FST 2202 | 2012-2013 |  |  |
| Demonstrate the basics of fire service organization and fire department operations. | | FST 1112  FST 1100,  FST 1101,  FST 1102,  FST 1103,  FST 1115,  FST 1125,  FST 1126,  FST 2203,  FST 2205,  FST 2206,  FST 2228,  FST 2233,  FST 2230,  FST 1555  FST 2252,  FST 2253,  FST 2254,  FST 2209  MAN 2150 | 2011-2012 |  |  |
| Identify and determine fire cause and factors contributing to fire spread. | | FST 1111  FST 2202  FST 1100,  FST 1101,  FST 1102,  FST 1103,  FST 1115,  FST 1125,  FST 1126,  FST 2203,  FST 2205,  FST 2206,  FST 2228,  FST 2233,  FST 2230,  FST 1555  FST 2252,  FST 2253,  FST 2254,  FST 2209 | 2012-2013 |  |  |
| Demonstrate the basics of fire prevention and inspection. | | FST 1113  FST 1100,  FST 1101,  FST 1102,  FST 1103,  FST 1115,  FST 1125,  FST 1126,  FST 2203,  FST 2205,  FST 2206,  FST 2228,  FST 2233,  FST 2230,  FST 1555  FST 2252,  FST 2253,  FST 2254,  FST 2209 | 2011-2013 | We reviewed program using national curriculum and performance standards as the yardstick. Also the FST program has the highest pass rate in the State of Ohio on the State Fire Inspector Certification exam as well as the highest class average score. | Continue to monitor |
| Demonstrate operation and maintenance of fire protection systems. | | FST 2201  FST 2204 | 2011-2012 | Tracking learning outcomes from the NICET elements (standards) and what was needed to be included in the redesign of the semester version of the courses. | The courses were over 90% complinat before conversion |
| Demonstrate professional communication skills, both written and orally. | | ENG 1111  COM 2211  BIS 1120 | 2011-2012 | The FST 2251 and, 2252 have specific communication skill assessments, FST 2253 and 2254 classes used a performance based "assessment center style" assessment tool which includes communication skills. The FST 1120 and FST 2209 have state oral and written communications assessment objectives | The courses were over 90% complinat before conversion |
| Demonstrate professionalism, ethics and relationships with other public and private organizations. | | SOC/BEH Science Elective,  Natural Science Elective,  Arts & Hum Elective | 2011-2012 | Covered in the program’s Humanities and General Education requirements | The students were able to meet the communication requirements of the NFPA 1021, 1031 and 1041 standards as determined by outside evaluators and meet state objectives. |

**General Education Outcomes**

1. Are changes planned as a result of the assessment of general education outcomes? If so, what are those changes?

With the total redesign of the core courses, as well as the different track electives, the program became FESHE compliant, once completed, no change in general education outcomes is expected in near future. However the skill assessment tools for the FST 1120, 2209, 2251, 2252, 2253 and 2254 courses were re-designed to incorporate more communication, written as well as oral skill assessments.

1. How will you determine whether those changes had an impact?

We will be getting feedback from the assessors. In our Pro-Board courses FST 251, 2252, 2253, and 2254 there is an outside assessment process. Pro-board believes whoever teaches a student a skill, cannot assess the skill. We are using various representatives from our advisory committee as well as seasoned command officers. For example, a skill assessment might be to write a after action report of an incident, the final assessment of the students paper will be a fire service professional who not only will look at fire stuff, but also professionalism of the presentation/writing style. Hopefully as time goes by the feedback will show a growing improvement in skills and abilities.

**Program Outcomes**

1. Are changes planned as a result of the assessment of program outcomes? If so, what are those changes?

The general changes in the program that were made during the semester conversion process were driven by the desire of the Ohio Board of Regents and its desire to have all 2 year programs in the state following the Fire and Emergency Services in Higher Education (FESHE) curriculum model. Most of our courses were over 90% compliant with FESHE material content before we started conversion. Also the department is hoping to apply for Pro-Board accreditation for Fire officer III (FST 2253) and Fire officer IV (FST 2254). We are hoping to extend the accreditation of out Fire Instructor course (FST2209) to cover Instructor II accreditation as well as the current Instructor I. This past year the skill assessment sheets were re-designed to cover all items within the standard. These were pilot tested in the spring and winter, and feedback was used to fine tune the skill assessment sheets.

1. How will you determine whether those changes had an impact?

Monitor state certifications scores, Pro-Board written tests and practical skill assessment scores, NICET success rates, and the hiring and promotion of students. If we continue to do what we are doing, any changes should be noticeable

**Improvement Efforts**

1. What were the results of changes that were planned in the last Annual Update? Are further changes needed based on these results?

The program was successful in incorporating more engineering elements into the following courses FST 1111, 1113, 2201, 2204 and 2228. The program also redesigned the practical skill assessment sheets for the following courses FST 1102, 1103, 1104, 2251, 2252, 2253, and 2254.

1. Are there any other improvement efforts that have not been discussed in this Annual Update submission?

We have increased the use of the Adobe Connect Virtual Classroom system for program delivery to outlining areas and on duty personnel. One of the challenges we are facing is the current state of the economy as it influences career firefighters. The "old" days firefighters were able to get 2-3 hours leave time during a 24 duty shift rotation, or arrange a duty shift trade for a couple of hours, to attend a class. Currently that is not possible. Budget cuts and staffing shortages in most communities have put an end to it. Obviously this has influenced on headcount. This economic reality has caused us to rethink how we are conducting classes. One of our strategies is the use of the Abode Connect, Go to Meeting program. If a firefighter is on a 24 hour shift the day he is scheduled for class, he/she can log in via the live web stream and actively participate as if he was in person. If a call comes, in he can simply watch the recording when he returns to quarters. Currently FST 1111, 1112, 1113, 2201, 2204, 2251, 2252, 2254 and 2254 are our Adobe classes. Plans for the upcoming year are to add 1125, 2202, 2205, 2206, and 2230, assuming some support and Adjunct Instructor training issues can be solved.

**APPENDIX – PROGRAM COMPLETION AND SUCCESS RATE DATA**

**Degree and Certificate Completion**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Department | Department Name | Program | FY 07-08 | FY 08-09 | FY 09-10 | FY 10-11 |
| 0540 | Fire Science Tech | FAO.AAS | 6 | 5 | 7 | 9 |
| 0540 | Fire Science Tech | FCO.STC | . | 17 | 14 | 18 |
| 0540 | Fire Science Tech | FEO.STC | . | 3 | 14 | 9 |
| 0540 | Fire Science Tech | FST.AAS | 2 | 3 | 2 | . |
| 0540 | Fire Science Tech | PFC.STC | 60 | 92 | 125 | 71 |
|  |  |  |  |  |  |  |

**Course Success Rates**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Department | Department Name | Course | FY 07-08 | FY 08-09 | FY 09-10 | FY 10-11 | FY 11-12 (excludes Spring) |
| 540 | Fire Science Tech | FST-101 | 93.5% | 79.4% | 83.7% | 89.2% | 84.2% |
| 540 | Fire Science Tech | FST-102 | 66.7% | 69.6% | 73.9% | 81.3% | 70.0% |
| 540 | Fire Science Tech | FST-103 | 73.9% | 76.9% | 50.0% | . | 100.0% |
| 540 | Fire Science Tech | FST-115 | 86.7% | 83.0% | 75.0% | . | . |
| 540 | Fire Science Tech | FST-116 | 90.0% | 92.3% | 75.0% | 77.8% | 100.0% |
| 540 | Fire Science Tech | FST-120 | 100.0% | 95.8% | 97.4% | 95.6% | 97.2% |
| 540 | Fire Science Tech | FST-125 | 98.3% | 80.6% | 82.7% | 89.7% | 88.2% |
| 540 | Fire Science Tech | FST-173 | 100.0% | . | . | . | . |
| 540 | Fire Science Tech | FST-174 | 100.0% | . | . | . | . |
| 540 | Fire Science Tech | FST-176 | 100.0% | . | . | . | . |
| 540 | Fire Science Tech | FST-177 | 100.0% | . | . | . | . |
| 540 | Fire Science Tech | FST-181 | 87.1% | 86.5% | 84.1% | 81.8% | 82.2% |
| 540 | Fire Science Tech | FST-190 | . | 81.8% | 92.9% | . | . |
| 540 | Fire Science Tech | FST-191 | 78.0% | 28.6% | 54.5% | 66.7% | 100.0% |
| 540 | Fire Science Tech | FST-192 | . | 78.4% | 90.0% | . | . |
| 540 | Fire Science Tech | FST-193 | 89.6% | 90.2% | 95.2% | 90.5% | 82.7% |
| 540 | Fire Science Tech | FST-194 | 100.0% | . | . | . | . |
| 540 | Fire Science Tech | FST-201 | 100.0% | 87.5% | 72.7% | 77.8% | . |
| 540 | Fire Science Tech | FST-202 | 82.9% | 77.6% | 62.7% | 85.0% | 73.5% |
| 540 | Fire Science Tech | FST-204 | 100.0% | 100.0% | 90.5% | 66.7% | 100.0% |
| 540 | Fire Science Tech | FST-209 | 87.5% | 100.0% | 95.7% | 93.8% | 100.0% |
| 540 | Fire Science Tech | FST-218 | 100.0% | . | 100.0% | 80.0% | . |
| 540 | Fire Science Tech | FST-220 | 100.0% | 100.0% | . | 50.0% | . |
| 540 | Fire Science Tech | FST-251 | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| 540 | Fire Science Tech | FST-252 | 93.8% | 100.0% | 100.0% | 94.7% | 88.9% |
| 540 | Fire Science Tech | FST-253 | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| 540 | Fire Science Tech | FST-254 | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| 540 | Fire Science Tech | FST-270 | 100.0% | . | 100.0% | 100.0% | 100.0% |
| 540 | Fire Science Tech | FST-278 | 100.0% | 100.0% | 100.0% | 100.0% | . |
| 540 | Fire Science Tech | FST-297 | 98.6% | 100.0% | 100.0% | 50.0% | . |