

* Note: Every department is required to review Master Syllabi and Program Learning Outcomes a minimum of every two years.

The department has four certificate programs: (a) Rescue Technician Certificate, (b) Firefighter Technician (Firefighter II training), (c) Fire Science Technology, and (d) Fire Administration. The Firefighter Technician Certificate also includes a course in Fire Safety Inspector. These certificates serve training needs in four categories: volunteer, experienced firefighters, rescue technicians, and private fire protection. The Fire Administration certificate has been revised to reflect the update of firefighting credit hours to include greater opportunities for practical assessment and reflect the actual time students spend in class.

Also, basic emergency rescue courses are taught for Rescue Technician certification in a nine-module format. The Rescue Technician modules have been articulated as FST courses and are included in the Rescue Technician Certificate. The current Rescue Technician curriculum was updated in 2004 to meet the revised National Fire Protection Association standards for rescue technician.

There is an Advisory Committee for the fire science programs. Feedback from members (mostly local chiefs) concerns both the quality of the program and the ongoing working relationship that Sinclair has with the community. The department follows up on all Advisory Committee concerns. Sinclair's work with the Alliance enhances the quality of the training and insures compliance with state and local requirements.

The program has been expanded outside of Montgomery County. Courses are offered in Miami, Greene, Darke, and Clark counties and training needs in additional counties are being investigated.

The Master Syllabi were reviewed in 2004.

- II. Program Learning Outcomes:** A description of what you intend for students to know (cognitive), think/feel (affective), or do (psychomotor), when they have completed your degree program. A suggested manageable number of outcomes should be in the range of five to ten. Describe Program Learning Outcomes review activities*.

Program Learning Outcomes were reviewed in 2004.

An entry-level graduate with an Associate of Applied Science Degree in Fire Science Technology from Sinclair Community College will be able to:

Learning Outcomes	Related Courses
1. Apply chemistry, mathematics, and physics to solve fire protection problems.	CHE 131 or 141; PHY 131 or 141; 132 or 142; MAT 131 or 116; 132 or 117
2. Use the computer to solve fire protection problems.	FST 103, 201, 204, 210
3. Apply/interpret the National Fire Codes in reviewing plans and detection and suppression systems.	FST 103, 116, 117, 202, 204, 210; SRM 230
4. Evaluate flammables and combustible liquids, solids, and gasses using appropriate scientific test equipment.	FST 101, 204, 210; SRM 151
5. Understand the characteristics of hazardous materials to ensure safe handling, transporting, and storage as well as to deal effectively with spills and fires involving them.	FST 101, 103; SRM 151, 230
6. Investigate a fire to determine point of origin and cause of the fire.	FST 101, 125, 202
7. Develop an understanding of the principles of managing a fire protection organization.	FST 102, 103, 218; PLS 101; SRM 221, 222
8. Apply the principles of fire protection in solving safety problems within the community.	FST 270

An entry-level graduate with an Associate of Applied Science degree in Fire Science Technology, Fire Science Administration option, from Sinclair Community College will be able to:

Learning Outcomes	Related Courses
1. Apply mathematics concepts to solve fire protection problems.	MAT 102, 116, 122
2. Use the computer to solve fire protection problems.	FST 201, 202,204, 210; MET 198
3. Apply/interpret the National Fire Codes in reviewing plans and detection and suppression systems.	FST 115, 116, 202, 204
4. Evaluate flammables and combustible liquids, solids, and gasses using appropriate scientific test equipment.	FST 120, 204
5. Understand the characteristics of hazardous materials to ensure safe handling, transporting, and storage as well as to deal effectively with spills and fires involving them.	FST 102, 204; SRM 151
6. Investigate a fire to determine point of origin and cause of the fire.	FST 120, 125, 202
7. Develop an understanding of the principles of managing a fire protection organization.	FST 201, 251, 252, 253, 254; MAN 205; PLS 103, 104; ACC 111
8. Apply the principles of fire protection in solving safety problems within the community.	FST 120, 125, 209, 251, 252, 253, 254; SRM 151
9. Understand the administrative workings of a fire department including budget preparation, resource allocation, long range planning, and fiscal projections.	FST 251, 252, 253, 254; ECO 201; MAT 122

III. Assessment Method(s): A measurable indicator of success in attaining the stated learning outcome(s). The methodology should be both reliable and valid. Please describe in detail.

- a. Formative Assessment Method(s): a measurable indicator of student in-progress success in attaining the stated learning outcome(s).

The FST program includes formative assessment practices using activity-based methods. Students in FST 103 (Fire Prevention Fundamentals, Codes & Ordinances) participate in fire inspections; students in FST 125 (Fire Investigation Procedures) are out in the community to complete fire investigations; FST 204 (Water Suppression Systems I) includes hands-on projects to utilize fire code research and the National Fire Protection Association (NFPA); FST 251-254 (Fire Officer I-IV) include simulation exercises and group interactions and extensive use of Fire Command and Tactical simulations. Formative assessment is also based on course-by-course evaluations and grades.

Thirty-six critical tasks in the fire-fighting courses are assessed utilizing performance-based assessments. Students must meet performance criteria for all critical tasks in order to pass the courses.

In the academic courses students must meet standards as established by the National Fire Protection Association.

- b. Summative Assessment Methods: a measurable indicator of end-of-program success in attaining the stated program learning outcomes.

FST 210 (Water Suppression Systems II) and FST 218 (Fire Safety Plans Review) are used for summative assessment of the Fire Science Technology program. FST 254 (Fire Officer IV) is used for summative assessment of the Fire Science Administration Option. Students are asked to provide solutions to problems, which would be encountered in the workplace; students typically will need to draw on content from previous courses in order to do well in the class. The FST 251 through 254 course sequence uses simulation exercises and group interactions.

The FST program was accredited by the National Board on Fire Service Professional Qualifications as a training organization for the fire officer series, Fire Officer I to IV in 2004. The FST program was the second training organization in the State of Ohio to receive this Pro Board certification.

IV. Results: A description of the actual results of overall student performance gathered from the summative assessment(s). (see III.b.)

There are a limited number of students who are enrolled in the capstone courses of the Fire Science programs (usually 4 or 5). All students have successfully completed the capstone course.

Informal feedback from students indicates that the capstone courses (especially FST 254) are useful for them in their job setting. Students also report that they have

improved communication skills and a greater understanding of the operation of their fire department.

Firefighter II training, followed by SRM 151 (which has OSHA certificate embedded in it) builds team skills. The trainees become a close group and are very team-oriented when they finish the program. Team building is achieved within the context of what they need to learn to be effective in the workplace.

Students who have completed the Fire Science Administration Option report they have a much better chance of promotion with that option than with the technical option. The department keeps a list of both Fire Science Technology and Administration Option graduates.

The pass rate on the Firefighter I and II examinations, Fire Safety Inspectors examination, and Fire Safety Instructor certification is close to 96%.

- V. **Analysis/Actions:** From analysis of your summative assessment results, do you plan to or have you made any adjustments to your program learning outcomes, methodologies, curriculum, etc.? If yes, describe. If no, explain.

A Pro Board validated test bank has been purchased for student use.

Faculty continue to monitor professional changes and developments in the field at both the national and state levels.

Through the leadership of the Miami Valley Fire/EMS Alliance Sinclair has standardized training throughout the Miami Valley.

Career firefighters see medics as fire-fighting medics. SCC is providing the necessary training so that all new paramedics can be certified as firefighters. Many local employers desire full paramedic certification for all firefighters.

The department has developed courses for Fire Officer I, II, III and IV certification. Presently the power to award these certifications is only held by the State of Ohio. The department is seeking national accreditation for SCC to award these certificates.

- VI. **General Education:** A description of where and how within the major the three primary general education outcomes* (communication, thinking, values/citizenship/community are assessed.)

- a. Where within the major do you assess written communication? Describe the assessment method(s) used. Describe assessment results if available.

Writing is required and evaluated in every course. Most courses require a term paper or a project paper. FST 254 requires a written report and an oral presentation.

- b. Where within the major do you assess oral communication? Describe the assessment method(s) used. Describe assessment results if available.

Oral communication skills are required in some of the courses. Courses that require oral presentations include FST 209 (Fire Service Instructor), 251, 252, 253, and 254 (Fire Officer I-IV). Courses that require small group communication skills for teamwork include FST 180, 181, 191, 192 and 193 (Volunteer Firefighter and Firefighter I and II). Students in FST 193 must communicate effectively while wearing a mask. Evaluation of these skills is on faculty-by-faculty basis.

- c. Where within the major do you assess thinking? Thinking might include inventing new problems, seeing relationships and/or implications, respecting other approaches, demonstrating clarity and/or integrity, or recognizing assumptions. Describe the assessment method(s) used. Describe assessment results if available.

Thinking skills are evident in every course, especially the Firefighter II training. Problem solving and creative thinking are emphasized in FST 120, 180, 181, 191, 192, 193, 209, 251, 252, 253, and 254. A city model is used to simulate interactive roles where students are given a complex problem to solve. Students in FST 253 and 254 address a variety of complex administrative issues.

Courses involving national codes and standards now involve the student in using computers, the Internet, CD ROM, and other high technology vehicles.

- d. Where within the major do you assess values/citizenship/community? These activities might include behaviors, perspective, awareness, responsibility, teamwork, ethical/professional standards, service learning or community participation. Describe the assessment method(s) used. Describe assessment results if available.

Elements of values/citizenship/community are included in all courses. Safety issues are included in all courses. Students must work as teams in all courses. A military-type training environment, which builds character, trust and discipline, is used in the practical skills courses (FST 180 and 190 series).