

In 2002 the SRM curriculum was revised to add more room for technical electives. The quarterly breakdown was revised to include more student choice of Safety Engineering Technology electives to allow students greater flexibility for scheduling and career planning and to emphasize the engineering technology aspect of safety. Existing courses were added to the technical elective list and one new course was developed.

In 2004 the department plans to seek national accreditation from TAC-ABET.

The master syllabi will be reviewed in 2003.

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

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*.

SRM learning outcomes were reviewed and revised in 2002 to reflect the professional focus of safety engineering technology.

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

Learning Outcomes	Related Courses
1. Apply mathematics, chemistry, biology, and physics to the technology.	BIO 107; CHE 131; MAT 131, 132
2. Conduct an accident investigation and recommend appropriate corrective measures.	SRM 211, 212, 215, 230, 231
3. Conduct job safety analysis to determine and resolve hazards.	SRM 211, 221, 222
4. Recognize/evaluate/control environmental conditions that can have adverse effects on health or safety.	SRM 110, 211, 215; EVT 260; FST 203

Learning Outcomes	Related Courses
5. Develop and manage a safety risk program.	SRM 101, 110, 221, 270
6. Anticipate, recognize and control hazards in the workplace.	SRM 101, 151, 211, 217, 221; EVT 260
7. Recognize, understand and comply with federal and state occupational, safety and health standards, and environmental regulations.	SRM 110, 211, 230; EVT 110
8. Be proficient in handling hazardous situations, responding to hazardous chemical spills, preparing hazardous wastes for transportation and protecting the environment.	SRM 151; EVT 110, 200, 260

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).

Formative assessment is primarily accomplished through course-by-course evaluation in the SRM program. Students are assessed through completion of course projects that usually consist of working in a team with a deliverable to be completed by the end of the quarter. The projects are designed for students to experience tools and resources that would be used in actual practice. Some projects are completed individually. Course projects may include activities such as field trips, site assessments, compliance assessments, and pollution prevention surveys. Many projects require written reports and oral presentations. Checklists are used for team evaluations for peer and faculty review.

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

Summative assessment is completed via the capstone, SRM 278. Students must incorporate aspects of safety engineering technology in this course. The course is organized so that the students operate as a contractor team and must divide the work and make sure that each necessary aspect is completed. Because they must operate as a team, this capstone builds group skills as well. Evaluation for the course is based on a

checklist, which the instructor shares with students when the project is assigned. Course requirements also include an oral presentation from each student on their piece of the project. Evaluation is given as a group grade. Students are also expected to network with the community by demonstrating their skills to potential employers. This helps students build confidence in their job skills.

Students who completed SRM 278 have completed different capstone projects. Recently, one SRM 278 class designed a landfill hazardous waste disposal facility that incorporated the environmental and safety aspects of the program. Another SRM 278 class, in conjunction with students in a capstone course in the Art Department, developed a video of the safety program at an actual industrial site and also created a safety training video for the site.

To meet TAC-ABET certification requirements, department faculty are exploring the use of additional summative methodologies including: a written survey/questionnaire, portfolios, and performance appraisals.

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

Results indicated that students needed to be more prepared to apply fundamental engineering principles to safety. The department faculty members have integrated more math, science and quality engineering into the program coursework to enable students to have enough preparation to complete what is asked of them in the capstone.

Student projects from SRM 278 are shared at the Engineering Advisory Committees meeting and receive positive feedback.

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.

Based upon input from the industry and the department's advisory committee, the focus of the department curriculum was changed to emphasize safety engineering.

Graduates are increasingly recruited by the community due to active publicity of the program and increased participation by OSHA in industrial safety.

The department faculty made changes to the curriculum to integrate math and science into coursework so that students can complete the capstone course projects as expected.

The department faculty monitored program learning outcomes and made revisions as necessary

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.

Written communication exercises are included and assessed in all required technical courses in this program. Emphasis on general education skills is on a course-by-course basis and the individual instructor evaluates these skills.

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

Oral skills are practiced through team discussion and team reports in SRM 101, 211, 212, 221, 222, and 278 and EVT 110 and 200.

The evaluation checklist for oral communication is currently used in SRM and required EVT courses.

- 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.

All SRM and required EVT courses include creative thinking and problem solving exercises. Students use thinking skills in SRM 101 to explain concepts. Students discuss controversial issues in EVT 110 and 200. Students complete essay questions involving critical thinking in SRM 101, 211, 212, and 222. Students use critical thinking skills to complete a case study in SRM 215 and 217.

- 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.

Many SRM and EVT courses, especially EVT 200, EVT 110, SRM 211, SRM 212, and SRM 22 involve teamwork. Some courses take students out into the community through field trips and research, which involve local organizations. Outside speakers are used extensively in SRM 101, SRM 278 and EVT 110 from community organizations like OSHA and the EPA.

Faculty members have integrated the Core Competencies of the Engineering & Industrial Technology Division, including citizenship and professionalism, and life-long learning, into the curriculum.