



complete the SRM and EVT classes. Prerequisites to some courses were changed resulting in a curriculum that better matches the program learning outcomes.

An entry-level graduate with an Associate of Applied Science Degree in Safety Risk Management 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
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 both the SRM and EVT programs. Students are assessed through completion of course projects which 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. This course is also used for students following the EVT option. Students must incorporate aspects of both SRM and EVT 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.

- 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 in the science of probability of risk. The department faculty members have integrated more math and science into the program coursework to enable students to have enough preparation to complete what is asked of them in the capstone.

The SRM 278 course may be re-organized in the future so that group sizes will be smaller to make it easier to determine the level of technical expertise for each student. There are some concerns about students who may not pass as individuals but do so when they work with others as a team.

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.

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

The EVT option was approved as the Environmental Engineering Technology associate degree program in March 2000.

The department 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 plans to monitor program learning outcomes and make revisions as necessary.

Modules are in the process of development for automotive safety, electrical safety, and mechanical safety.

A grant has been received from FEMA and the State of Ohio to train urban search and rescue teams in Ohio. The FST/SRM department is training firefighters in two areas: Awareness and Basic Emergency Rescue Refresher Training. It is planned for courses to fulfill these training needs to be available on the Web by Fall, 2001. These courses will be offered in conjunction with a planned program of practical training.

**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 in all EVT courses and in these SRM courses: 110, 212, 217, 221, 222, 278. Exams also include essay questions.

The evaluation checklist for written communication is not currently used in SRM and EVT courses. Emphasis on general education skills is on a course-by-course basis; evaluation of these skills is done by the individual instructor.

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

Oral communication exercises are included in EVT 110, 200 and 210 through class presentations. Oral skills are practiced through team discussion and team reports in SRM 101, 110, 212, 221, 222, and 278.

The evaluation checklist for oral communication is not currently used in SRM and EVT courses. Emphasis on general education skills is on a course-by-course basis; evaluation of these skills is done by the individual instructor.

- 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 EVT courses include creative thinking and problem solving exercises. Students use thinking skills in SRM 101 to explain concepts. Students discuss controversial issues in SRM 110, 200, 210. Students complete essay questions involving critical thinking in SRM 211, 212, and 222. Students use critical thinking skills to complete a case study in SRM 215.

Emphasis on general education skills is on a course-by-course basis; evaluation of these skills is done by the individual instructor.

- \* Note: The oral communication checklist and the written communication checklist developed by the General Education Committee were adopted for college-wide use during the 1997-98 academic year by Academic Council. Thinking Guidelines developed by the General Education Committee are being piloted by faculty during the 1998-99 academic year.

- 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 210, EVT 110, SRM 211 and SRM 212, 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.

Emphasis on general education skills is on a course-by-course basis; evaluation of these skills is done by the individual instructor. Faculty members are currently working to integrate the Core Competencies of the Engineering & Industrial Technology Division, including citizenship and professionalism, into the curriculum.

**VII. Recommendation(s)/Comment(s):**