

Students in the revised CCT program can earn an associate degree in Civil Engineering or may choose the associate degree Construction Management option with either a surveying or construction skills track. These tracks were developed to offer certificate students a degree opportunity as well as better marketability for employment.

Faculty review curriculum on a quarterly basis. The master syllabi for all courses were reviewed in 2004.

- * 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*.

Program learning outcomes were reviewed and revised in 2004 as a part of the TAC-ABET self study process.

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

Learning Outcomes	Related Courses
1. Communicate effectively and professionally through proper use of oral, written and graphic skills.	COM 206; ENG 121, 122; ARC 138; CCT 102, 103, 105, 203, 216 246, 247, 248, 256, 258, 270, 278; DRT 198; MET 198
2. Employ logical and concise problem solving techniques to complex problems.	MAT 131, 132, 133; PHY 131, 132; MET 203, 207; CCT 102, 103, 105, 203, 206, 216, 245, 246, 247, 248, 256, 258, 278
3. Understand the mechanics of structural design.	MAT 131, 132; PHY 131; MET 203, 207; CCT 105, 206, 245, 278
4. Use surveying equipment and software applications to safely collect data, solve technical problems and layout construction projects.	MAT 131, 132; CCT 102, 103, 246, 247, 248, 203, 278; DRT 198
5. Assist in the management of construction projects with emphasis on safety, quality and continuous improvement.	ARC 138; MET 198; CCT 103, 105, 216, 256, 258, 278
6. Function effectively in teams – demonstrating a cooperative effort to evaluate and solve problems and to develop and implement plans.	COM 206; CCT 102, 105, 245, 248, 278
7. Recognize professional, ethical and societal responsibilities, respect diversity and commit to life long learning.	CCT 102, 105, 247, 248, 256, 258, 278; COM 206; SOC ELE; HUM ELE

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) and Description:** a measurable indicator of student in-progress success in attaining the stated learning outcome(s).

Formative assessment is accomplished via course-by-course evaluations made by individual instructors. Most courses require students to complete projects that draw upon learning outcomes in previous coursework. There are sequenced courses: the structural series culminates in CCT 206, the surveying sequence culminates in CCT 248, and the construction management sequence culminates in CCT 258. At the beginning of the term, faculty typically solicit feedback from students on what they know and remember from earlier classes in the sequence. While there are growing numbers of students in the program informal data gathering is sufficient, and grades earned in earlier courses are one indicator of student achievement. Every quarter every faculty member is evaluated in at least one course.

- b. **Summative Assessment Method(s) and Description:** a measurable indicator of end-of-program success in attaining the stated end-of-program learning outcome(s).

Summative assessment is achieved via the capstone course, CCT 278. CCT 278 is a project-oriented course which mixes one hour of lecture with six hours of lab time. Students complete a major project which is specific to their degree option. There is a formal review process for the capstone projects. Written and oral reports accompany each project and are included in the faculty evaluation of the capstone projects. Students complete self-evaluations of their capstone projects. Program faculty receives feedback from advisory committee members who review the capstone projects and offer suggestions for faculty and program improvement. There is an established rubric that faculty, students and the advisory committee all use to evaluate the capstone projects.

Divisional core competencies are assessed as graduates complete a self-analysis of their growth in these areas. This data is used as a part of the CCT program assessment process.

The department chair interviews each graduate and that data is included in the CCT program assessment process.

Additional data is required for TAC-ABET accreditation. Institutional Planning and Research assisted with the data gathering needs of accreditation.

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

Students who graduate are prepared for jobs in the industry. This is substantiated by graduate and employer surveys. In addition, approximately 25% of graduates go on to a Bachelor Degree programs. History shows these students are well prepared and are successful at this next level.

- 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.

Faculty analysis of the self-study data resulted in minor changes to program outcomes and course master syllabi.

The department Continuous Improvement Plan, developed as a part of the TAC-ABET process, guides the program in the curriculum change process.

Faculty meet at a yearly summer retreat to review assessment data related to the divisional core competencies, capstone course, and graduate and employer feedback from IPR. This analysis is used by faculty as the basis for review of program outcomes and course master syllabi.

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

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

A written report accompanies many CCT courses including the capstone project. The department has identified specific courses where the student must be assessed for either written or oral communication skills. Faculty are encouraged to use the Gen Ed checklist.

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

An oral report accompanies many CCT courses including capstone project. The department does not use the oral communication checklist for assessing oral work. The department has identified specific courses where the student must be assessed for either written or oral communication skills. Faculty are encouraged to use the Gen Ed checklist.

- 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.

Creative and analytical thinking is embedded in all courses. It is assessed formatively in all courses and summatively in the capstone course.

- 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.

A new program outcome specifically related to this area was added in 2004. This program outcome is emphasized in several courses and evaluated in the capstone course. Faculty within the department practice role modeling in order to convey professional behaviors to students. Faculty members continue to integrate the Core Competencies of the Engineering & Industrial Technology Division, including citizenship, professionalism and life-long learning into the curriculum.