

Construction Engineering Technology: Strategic Plan

CET Program Vision

The Construction Engineering Technology Program is focused on providing distinctive education and experience through its program aiming to serve the educational needs of the construction industry. This major industry includes a variety of large general contracting firms, small specialized contractors, materials suppliers, equipment manufacturers, and the design services of architects and engineers. The wide choice of career opportunities includes estimator, field superintendent, construction scheduler, expeditor, project manager, materials technician, architectural/civil technician, and other similarly related occupations.

The program strives for excellence in teaching and learning, community awareness, professionalism and studying the development and application of new technologies. Each year construction contractors, consulting engineering firms, laboratory testing companies, materials suppliers and government agencies contact the program's director seeking associate and baccalaureate degree graduates for work in the Northeastern Ohio region and in other parts of the country.

Mission

The mission of the Construction Engineering Technology program is to provide opportunities for all students, regardless of age, educational, societal, or cultural background, to reach their educational goals in the area of construction engineering technology. The program shall provide comprehensive, quality technical education that prepares students for careers in construction engineering technology. The program shall provide employers and the public of northeastern Ohio with educated, technologically equipped graduates, able to serve the varied construction industries' needs for solutions to problems facing the public and private sector. Persons enrolled in the program may earn an AAS or a BS. Additionally, the program offers certificate programs in areas of economic demand to both degree and non-degree seeking students.

Core Values

The Construction Engineering Technology Program is committed to:

- Continuous improvement
- Enhancing student learning
- Providing students with the tools to work in continuous improvement and learning beyond graduation
- Providing an environment of committed teaching and application of knowledge
- Keeping state-of-the-art equipment and laboratories conducive toward discovery and application of new technologies
- Encouraging students to become model citizens with strong sense of ethics and duty

Engineering & Science Technology Department
Construction Engineering Technology (CET) Program
Strategic Plan
January 23, 2007, Modified May 29,2007

CET Program Strategic Plan: *[A continuous management strategy detailing specific objectives (broad statements), strategies (specific directives), and plans (details) necessary to accomplish the mission of the CET Program.*

There are CET Program objectives, strategies, and plans within each of the following management areas:

1. Credit Program Management/Accreditation
2. Documentation
3. Non-traditional CET offerings
4. Marketing/Enrollment/Retention
5. Faculty expertise
6. Industry awareness & keeping with current industrial technology
7. Student extra-curricular activities

CET Program Objectives:

The goals and objectives of the Construction Engineering Technology program in response to its mission statement are:

1. Provide students with the best learning environment, concepts and technical education needed for a career in Construction Engineering Technology.
2. Provide students with the knowledge and dexterity to perform effectively in the workplace with the communication skills needed to deal with fellow workers, clients and public.
3. To promote a strong sense of ethics, professionalism, a respect for diversity and a knowledge of contemporary professional, societal, and global issues
4. To make the program, its nature, its objectives, and its effectiveness known to the public.
5. To monitor the success of the program with continuous input from all stakeholders.
6. To provide other CET credit and non-credit educational opportunities to a variety of stakeholders in Northeastern Ohio.
7. To be responsive to the ever-changing technologies of the construction industries by modifying curriculum as necessary in order to offer the most current technologic education possible.
8. To instill in students the desire for and ability to engage in lifelong learning.
9. To follow a well-managed marketing/enrollment/retention plan to, at least maintain, if not, increase enrollment.
10. To provide well-qualified faculty for all CET courses.
11. To provide engineering technology related extra-curricular opportunities for CET students.
12. To apply the latest innovations in technology toward the enhancement of community service, support and students success.

CET Program Strategies:

1. Continuously satisfying the ABET guidelines regarding CET Program requirements.
2. Continuously manage the operation of the CET Program to include the following activities:
 - a) program requirements
 - b) course requirements
 - c) course scheduling
 - d) textbook selection
 - e) directing the CET program budget and all program purchases
 - f) assigning and monitoring all CET faculty
 - g) directing all CET program data collection and analysis and all program assessment initiatives
 - h) directing all CET-related marketing/enrollment/retention initiatives
 - i) directing all CET Program-related articulation/transfer initiatives
 - j) managing any and all CET program-related activities as requested by the department, the college, or the university
3. Continuously collect and manage useful data through surveys, focus groups, formal and informal discussions, and periodic meetings with faculty, students, graduates, advisory committees, and other appropriate groups and individuals.
4. Continuously identify, prepare and deliver non-traditional educational courses to satisfy the needs of the NE Ohio technical community.
5. Develop and manage a program marketing/enrollment/retention plan specific to the CET Program.
6. Develop and maintain CET-related student clubs and other professional relationships for CET students.
7. Create, update and promote programs, options and certificate courses that will aid employers in ensuring continuous learning and improvement of their employees.

CET Program Plans:

1. **Course & Program Analysis & Evaluation**
 - Use the standard Summit College Evaluation Form for ALL CET courses.
 - Each full time faculty member must collect other course improvement data for each course taught.
 - Manage informal program-improvement data. This shall include random student/faculty discussions, phone calls from local industry, graduates, etc.
 - All graduating seniors shall complete an exit survey to evaluate the usefulness of courses for broad range of aspects like those listed in 2a(i-vi) below.
2. **Employer Survey**
 - Periodically (at least once every three years) surveys will be sent to employers of the program graduates to obtain their input in issues like:
 - i. The ability of graduates to solve technological problems.
 - ii. The level of preparedness of graduates to function at entry level.
 - iii. The ability and willingness of graduates to engage in lifelong learning

- iv. The ability to function effectively in diverse work teams
- v. The understanding and application of ethics in job related decisions.
- vi. The ability to communicate effectively.
- Information gathered from these surveys will help to determine strengths and weaknesses of the program in order to establish method of improvement. These data can be used in conjunction with input from alumni survey and input from the Industrial Advisory Committee.

3. **Alumni Survey**

- Periodically (at last once every three years) a CET graduate survey will be sent to graduates.
- Data will be analyzed and submitted to the Assessment Committee for review.

4. **Faculty expertise data**

- The Department of Engineering & Science Technology gathers information on all faculty (tenured, tenure track and part-time) regarding licensure, certifications, educational background, scholarly & professional activities, Department/College/University Service, organization membership, awards, publications, and community and consulting services.
- With the appropriate university administrative support, manage all CET Program faculty through the following:
 - i. Maintain a yearly updated list of qualified potential CET faculty.
 - ii. Monitor the performance of all CET faculty each semester.
 - iii. Promote professional development of faculty through participation in seminars, conferences and training courses.

5. **Enrollment & Retention**

With the appropriate university administrative support, the CET Program shall:

- Collect and analyze all University of Akron statistical sources regarding the CET program.
- Work with the appropriate marketing/enrollment/retention groups to maintain or increase the current level of CET enrollment.
- A CET program member will actively serve on the appropriate Engineering & Science Technology Department marketing/enrollment/retention committee each academic year.
- The CET program shall administer student scholarship for all sponsoring agencies. There shall include the timely distribution of forms for all students and a centralized location for obtaining and submitting application shall be maintained.
- To help develop semester schedules and to monitor the program strategic plan, enrollment data shall be kept that indicates:

- i. The number of student credit hours taken by students enrolled in the program per semester
- ii. The courses offered every semester
- iii. The courses cancelled (including reasons for cancellation)
- iv. The number of graduating seniors each semester
- v. The number of students enrolled in the construction club (student organization).

6. **Industrial Advisory Committee (IAC)meetings**

- Faculty members of the department shall have at least one annual meeting with the IAC to obtain input on curriculum updating, latest trends in the industry and latest technology, equipment and software used.
- Minutes of these meetings shall be kept in the department's office files.
- The program shall recruit engineers and construction management experts from local industry to serve on the IAC.
- The data shall be used to align the education provided in the program with industry needs and trends.
- A record shall be kept of all academic affairs proposal and changes that resulted from suggestions of IAC.

7. **Student Professional/Community Awareness & Extra-curricular Activities**

- The Construction Program shall maintain at least one student focus group per academic year.
- Students will be provided with opportunities, through the Construction program, to participate in community service events doing work related to their field.
- With the appropriate university administrative support, the Construction program faculty shall perform the following CET student extra-curricular activities:
 - i. Advise and maintain the Society of Students in Construction (SSIC) on a yearly basis.
 - ii. Provide an active faculty advisor for this student club.
 - iii. Encourage membership in all professional society appropriate for CET student participation. (Can include engineering technology honor societies, technology and engineering professional societies, other university clubs, organizations, and groups.)
 - iv. Encourage student participation in all appropriate career fairs and activities. (Can include engineering technology career days, use of the Center for Career Management (CCM), co-op and intern opportunities, etc.)

CONSTRUCTION ENGINEERING TECHNOLOGY PROGRAM ACADEMIC OBJECTIVES/OUTCOMES/COURSE MATCHING

Program Education Objectives	→ Related Program Outcomes
<p>To develop in students a sound understanding of the concepts of construction engineering and the technical skills needed for successful employment in the Construction Engineering Technology field and related areas of employment.</p>	<p>Demonstrate an appropriate mastery of the knowledge, techniques, skills and modern tools of their disciplines, [ABET Program Outcome "a"]</p> <p><i>a. associate degree-appropriate technical expertise includes utilizing modern instruments, methods and techniques to implement construction contracts, documents, and codes; evaluating materials and methods for construction projects; utilizing modern surveying methods for construction layout; determining forces and stresses in elementary structural systems; estimating material quantities and costs; and employing productivity software to solve technical problems.</i></p> <p><i>b. bachelor degree-appropriate technical expertise includes (in addition to the above) producing and utilizing design, construction, and operations documents; performing economic analyses and cost estimates related to design, construction, and maintenance of systems in the construction technical specialties; selecting appropriate construction materials and practices; applying principles of construction law and ethics; applying basic technical concepts to the solution of construction problems involving hydraulics and hydrology, geotechnics, structures, construction scheduling and management, and construction safety; and performing standard analysis and design in at least one recognized technical specialty within construction engineering technology that is appropriate to the goals.</i></p> <p>Conduct, analyze, and interpret experiments and apply experimental results to improve processes; [ABET Program Outcome "c"]</p> <p>Demonstrate the ability to apply creativity in the design of systems, components or processes appropriate to program objectives, [ABET Program Outcome "d"]</p>
<p>To develop in students an appropriate level of broad-based technical expertise.</p>	<p>Demonstrate an ability to apply current knowledge and adapt to emerging applications of mathematics, science, engineering and technology, [ABET Program Outcome "b"]</p> <p>Use current technological concepts, equipment, and software to identify, analyze, and solve problems; [ABET Program Outcome "f"]</p>
<p>To develop in students the knowledge and dexterity to perform effectively in the workplace with the communication skills needed to deal with fellow workers, clients and the public.</p>	<p>Write clear and effective engineering technology-related reports, proposals, and other business correspondence;</p> <p>Prepare and interpret the appropriate graphical communications methods including engineering drawings, graphs, and charts;</p> <p>Prepare and deliver technical oral reports and presentations; [ABET Program Outcome "g"]</p>

<p>To develop in students the ability to function appropriately in a diverse and changing business environment</p>	<p>Work individually and function effectively on teams [ABET Program Outcome “e”]</p> <p>Understand the importance of diversity in the workplace, social responsibility, and an awareness of global issues; [ABET Program Outcomes “i” and “j”]</p>
<p>To develop in students a strong sense of ethics, professionalism, a respect for diversity and a knowledge of contemporary professional, societal, and global issues.</p>	<p>Understand the importance of diversity in the workplace, social responsibility, and an awareness of global issues; [ABET Program Outcomes “i” and “j”]</p>
<p>To develop in students the ability to function as a professional and a responsible person</p>	<p>Demonstrate a knowledge of, and an appreciation for, and a commitment to the following topics: professionalism, codes and standards, safety, ethics, quality, timeliness, and continuous improvement; [ABET Program Outcome “k”]</p>
<p>To develop in students the desire for and ability to engage in lifelong learning.</p>	<p>A recognition of the need for, and an ability to engage in lifelong learning, [ABET Program Outcome “h”]</p>

CET Program Assessment Plan:

The following personnel and tools will be used for the continuous assessment and improvement of the CET Program including all required courses within the program:

1. There will be created a CET Industrial Advisory Committee comprised of the following stakeholders in the CET Program: five local professionals involved in the CET field, all full-time CET faculty, one part-time CET faculty member, one CET graduate, one current CET student. At least 1/3 of the Committee membership will be changed every third year.
2. The CET Industrial Advisory Committee will communicate (via meetings, e-mail, phone or mail) at least once per semester and will meet personally at least once per year. The primary responsibility of this committee is to set the Program Educational Objectives and the Program Outcomes, to provide advice on current trends, equipment, and methods, and to provide input regarding individual course learning outcomes. Written minutes of all meetings will be produced.
3. The content of the Program Educational Objectives and the Program Outcomes will be reviewed for modification at least every third year.
4. There will be a CET Assessment Committee, which will be comprised of at least two full-time CET faculty members and at least one other individual to be chosen by the CET Program Director. This committee will meet once per semester. Written minutes of all meetings will be produced.
5. Each CET Faculty member will analyze at least one CET course per semester to match and verify course learning outcomes with the Program Outcomes and with Program Educational Objectives. Results of student performance (portfolios, test results, assignments, laboratory activities, videos of oral presentations, reports, etc.) will be accumulated and organized. An outlined report displaying the results of this analysis will be prepared by the faculty member and shared with the CET Program Assessment Committee. Each CET course will be evaluated at least once per three year cycle beginning Spring 2007.
6. Each CET faculty member will use the Summit College Evaluation Form for all courses taught.
7. At the end of each Spring Semester, the CET Assessment Committee will review and modify all learning outcomes as needed based on the recommendations from items 5 and 6 above. Written minutes of all meetings will be produced.
8. The CET Program will continuously participate in The University of Akron/Summit College/Department of Engineering Science & Technology/Construction Engineering Technology Program Undergraduate Academic Program Assessment Plan.