

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 and the University's Career Center 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 February 4, 2014

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 all CET program data collection and analysis and all program assessment initiatives
 - f) directing all CET Program-related articulation/transfer initiatives
 - g) 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 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.
2. **Employer Survey**
 - Periodically, 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. **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.

4. **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 scholarships for all sponsoring agencies. This 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 number of graduating seniors each semester

5. **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.

6. **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 a student chapter of CMAA (Construction Management Association of America) 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

<p style="text-align: center;">AAS CET Program Educational Objectives</p> <p><i>[Broad statements that describe the career and professional accomplishments that the CET credit program is preparing graduates to achieve during the first few years following graduation.]</i></p> <p>Graduates of the AAS CET Program will have:</p>	<p style="text-align: center;">AAS CET Related Program Outcomes (required to meet PEOs)</p> <p><i>[Statements that describe what units of knowledge or skill students are expected to acquire from the CET credit program to prepare them to achieve the Program Educational Objectives. These are demonstrated by the student and measured by the CET Program at terminal course level prior to graduation.]</i></p> <p>The CET Program must demonstrate that graduates of the CET Program have the ability to:</p>	<p>CET Program Courses:</p> <p>[Each course below contains numerous specific course learning outcomes that satisfy the corresponding CET Program Outcomes.]</p>
<p>MASTERY OF KNOWLEDGE AT AAS LEVEL: After graduation, students of the AAS CET program will have appropriate technical expertise to practice in the field as construction engineering technologist, construction inspectors, and to assist with cost estimating and project coordination. To do this, graduates of the AAS program will possess professional skill in the following areas:</p>	<p style="text-align: center;">AAS CET Related Program Outcomes (required to meet PEOs)</p>	
<p>1. Identifying, performing and evaluating ASTM testing of concrete materials, aggregates and soils as appropriate for the quality control of these materials when used in construction;</p>	<p>utilize measuring methods, hardware, and software that are appropriate for field, laboratory, and office processes related to construction; (ABET “c”)</p> <p>apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to construction engineering. (ABET “d”)</p>	<p>Materials Testing II (Belcher)</p> <p>Materials Testing I (Belcher)</p>
<p>2. Recognizing the conventional construction methods related to both residential and commercial buildings and infrastructure;</p>	<p>estimate costs, estimate quantities, and evaluate materials for construction projects; (ABET “b”)</p>	<p>Construction Estimating (Belcher)</p>
<p>3. Utilizing and interpreting basic construction documents and codes</p> <p>Approved Advisory Board Meeting April 22, 2015</p>	<p>utilize techniques that are appropriate to administer and evaluate construction contracts, documents, and codes; (ABET “a”)</p>	<p>Elements of Structures (Belcher)</p>

<p align="center">BS CET Program Educational Objectives</p> <p><i>[Broad statements that describe the career and professional accomplishments that the CET credit program is preparing graduates to achieve during the first few years following graduation.]</i></p> <p>Graduates of the BS CET Program will have:</p>	<p align="center">BS CET Related Program Outcomes (required to meet PEOs)</p> <p><i>[Statements that describe what units of knowledge or skill students are expected to acquire from the CET credit program to prepare them to achieve the Program Educational Objectives. These are demonstrated by the student and measured by the CET Program at terminal course level prior to graduation.]</i></p> <p>The CET Program must demonstrate that graduates of the CET Program have the ability to:</p>	<p>CET Program Courses:</p> <p>[Each course below contains numerous specific course learning outcomes that satisfy the corresponding CET Program Outcomes.]</p>
<p>MASTERY OF KNOWLEDGE AT BS LEVEL: After graduation, students of the BS CET program will have appropriate technical expertise to practice in the field as construction managers, project estimators, project planners/schedulers and field engineers. To do this, graduates of the CET BS program will possess professional skill (beyond the competencies achieved at the AAS level) in the following areas:</p>	<p align="center">BS CET Related Program Outcomes (required to meet PEOs)</p>	
<p>1. Participating effectively in projects as innovative solution providers through planning, monitoring and managing construction in their chosen sector of the industry.</p>	<p>apply appropriate principles of construction management, law, and ethics, and; (ABET “h”)</p>	<p>Construction Management Capstone Project (Ciraldo)</p>
<p>2. Communicating effectively to achieve project goals.</p>	<p>g perform economic analyses and cost estimates related to design, construction, and maintenance of systems associated with construction engineering; (ABET “f”).</p>	<p>Advanced Estimating (Ballou)</p>
<p>3. Applying basic technical concepts to the solution of construction problems (ei. hydraulics, geotechnics, structures, construction scheduling and management, and construction safety).</p> <p>Approved Advisory Board Meeting April 22, 2015</p>	<p>utilize techniques that are appropriate to administer and evaluate construction contracts, documents, and codes; (ABET “a”)</p> <p>select appropriate construction materials and practices; (ABET “g”)</p> <p>produce and utilize design, construction, and operations documents (ABET “e”);</p> <p>perform standard analysis and design in at least one sub-discipline related to construction engineering. (ABET “i”)</p>	<p>Construction Specifications & Contracts (Belcher)</p> <p>Green & Sustainable Building Practices (Rawlings)</p> <p>Foundations (Wise)</p> <p>Foundations (Wise)</p>