

A 3D architectural rendering of a building's steel frame structure. The image shows a complex network of blue and grey steel beams and columns, with some sections highlighted in red and green. The structure is shown from a low-angle perspective, looking up at the ceiling and upper levels of the building. The background is a solid light green color.

2017

Civil Engineering Technology-  
Construction Management Option  
Assessment and Strategic Plan



Civil Engineering Technology  
Department  
Construction Management  
Option

2017 Assessment and Strategic  
Plan

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## Forward

In September 1968, the Civil Engineering Technology (CET) program was established to address several interrelated needs within the Greater Cincinnati community. The CET program responded to the demand for technically competent and qualified technicians to assist professional engineers from local firms and agencies engaged in civil engineering work. While satisfying industry's need for a technologically proficient workforce, the CET program concurrently provided a specialized educational pathway for area high school graduates at the associate degree level.

The Construction Management Option of the Civil Engineering Technology Department is designed to complement the other CET options and offer Greater Cincinnati students an excellent educational pathway in the field. The academic improvement plan herein will identify the process used for the continuous improvement of the CETC option. The plan identifies competencies needed by the student who is preparing to enter the civil/AEC industry and then quantifies the ability of the CET program to deliver the necessary educational environment such that these competencies are met.

This *2017 Assessment and Strategic Plan* is a revision of the original assessment plan created in 2001 and revised in 2004 and 2011. This plan forms the basis for assessing the stated outcomes of the Construction management Option based on input from relevant constituencies. The plan obtains this input in a cyclical manner, evaluates this data relative to stated outcomes, develops conclusions and, where appropriate, initiates curricular modifications. This year the plan includes a strategic plan which evaluates the strengths, weaknesses, opportunities, and threats facing the program as we move forward into the next decade.

The results from this plan's implementation foster accountability by the Construction Management Option to the college, the industry, and the public at large.

# **Assessment and Strategic Plan Construction Management Option 2017**

## **I. MISSION, OBJECTIVES, AND OUTCOMES**

### **College Mission**

We believe that Cincinnati State Technical and Community College makes an important contribution to the technical and educational status, economic growth, and social well-being of the Tri-State Area. We believe that to continue to serve the community the College must be willing to modify, adapt, and create technical and transfer programs that meet the ever-changing needs of students, business, industry and the professional community. We believe that it is the College's role to help students to learn to think independently, to value logical and tested conclusions, to develop problem solving abilities, to communicate well, and to function effectively with other people. We believe in the dignity and worth of the individual and therefore provide educational opportunities for students regardless of age, economic or social background, or enrollment status. We believe that for continued growth we must display the ability to be creative, to look to the future as well as the past, to strive for excellence, and to exhibit leadership in the expansion of knowledge and skills through the achievements of the faculty and the students. We hope to develop in our students the desire to continue their education throughout their lives. The College's principal concern is its students. This concern is reflected primarily through offering programs of substantial quality with the expectation that students will achieve a high level of competence and understanding in an atmosphere of positive engagement and mutual respect. In order to maintain this atmosphere, the College offers opportunities for students to achieve understanding and appreciation of their own culture and those of others in an environment that recognizes and values the cultural diversity of the College population and the community.

The College has a vital and distinctive mission to perform in addressing the educational and economic needs of the Tri-State Area. The College seeks to implement its philosophy by providing:

- A. Education featuring a combination of theory and practice primarily through appropriate classroom, laboratory, and cooperative/clinical education experiences.
- B. Technical, Arts, and Science Associate degree programs that lead to entry or advanced level employment and/or transfer to a Bachelor's degree program.
- C. Certificate programs, specialized training, and adult continuing education opportunities of less than one-year duration.
- D. Services and educational experience to assist students in determining and reaching their educational objectives.
- E. Opportunities for students to develop the skills needed to enter and succeed in the College's education programs.

F. Technical, science, arts, and general education courses that can be applied toward four-year degree programs.

The College endeavors to provide leadership and services in the promotion of technical, arts, science, and cooperative education.

**II. CETCO Mission and Educational Objectives:** The mission of the Civil Engineering Technology's Construction Management option at Cincinnati State Technical and Community College (CSTCC) is to develop technically competent and professional graduates for successful careers within the construction profession. The primary objective of the CETCO option is to provide the community with a qualified graduate that possesses a broad understanding of basic technical fundamentals coupled with the knowledge of the most current advancements in the profession. A second objective of the CETCO option is to prepare its graduates for the possibility of pursuing further educational opportunities in construction management/construction technology or related fields. To achieve success in fulfilling these objectives the program must be dedicated to continuous improvement of the current curriculums, equipment, software, and educational delivery systems.

The program has formalized educational objectives that our student's should possess within several years of graduation. These educational objectives form the strategy for guiding the program to deliver a quality educational product and are as follows:

- Prepare Civil Engineering Technology - Construction Management graduates to successfully enter and pursue baccalaureate degrees.
- Prepare Civil Engineering Technology - Construction Management technicians to enter and advance professionally in technical and management positions in the local construction industry.

### **Academic Goals:**

The goals and objectives of the Construction Management option are as follows:

- Provide pathways to baccalaureate programs such that a student has a smooth transition from Cincinnati State. This will be measured by the percentage of graduates pursuing advanced degrees and their satisfaction with the transition (on the 1-yr Graduate Survey).
- Provide a quality education that is both relevant and rigorous such that a student has a smooth transition into the construction workforce. This will be measured by the percentage of graduates answering such a question on the 1-yr Graduate Survey.

- Provide a quality education that allows advancement into an organization or the industry. This will be measured by the average salary ranges between the 1-yr and 3-yr Graduate Survey.
- Increase visibility of the program within the local Cincinnati area, state, and national level. This will be measured by the participation of faculty on industry boards, accreditation bodies, delivery of presentations, and writing of articles/papers.

**III. Program Outcomes:** The mission of the Civil Engineering Technology-Construction Management option is to develop technically competent and professional graduates for successful careers within their chosen profession. The primary objective of each specific option within the CET program is to provide the community with a qualified graduate that possesses a broad understanding of basic technical fundamentals coupled with the knowledge of the most current advancements in the profession. Broad areas of the curriculum are shared by each of the three options (Architectural, Construction management and Surveying) although the specific technical skills for each are understandably divergent. The following is a list of the learning outcomes specific to the Construction Management option.

### **Construction Management Option Outcomes**

The program also has formalized thirteen student learning outcomes based on the American Council for Construction Education standards for associate degree programs. These student learning outcomes reflect a level of skills and competencies that is desired for a student should have at the time of graduation. These are as follows:

1. Demonstrate effective communication, both orally and in writing.
2. Demonstrate the ability to estimate quantities and costs for the bidding process in a construction project.
3. Demonstrate the ability to schedule a basic construction project.
4. Demonstrate the ability to use current technology related to the construction process.
5. Interpret construction documents (contracts, specifications, and drawings) used in managing a construction project.
6. Apply basic principles of construction accounting.
7. Use basic surveying techniques used in building layout.
8. Discuss basic principles of ethics in the construction industry.
9. Identify the fundamentals of contracts, codes, and regulations that govern a construction project.
10. Recognize basic construction methods, materials and equipment.
11. Recognize basic safety hazards on a construction site and standard prevention measures.
12. Recognize the basic principles of structural design.

13. Recognize the basic principles of mechanical, electrical and piping systems.

## **II. ASSESSMENT**

### **General**

The assessment plan for the Engineering Technologies Division has been in existence since 2004, the Civil Engineering Technology program has had a formal continuous improvement plan since January 2001. This process which the Construction Management Option (CETCO) has had in place has been “meshed” with the divisional model and CET department model. The CETCO improvement plan is used to identify competencies needed by the student who is preparing to enter the construction industry and shaping the CETCO curriculum to meet that need. This two-tiered assessment approach focuses on the six aforementioned CETCO outcomes. By utilizing both program level (in-process) and post- program level (outcomes) assessment tools, the CETCO option is able to identify areas for improvement. This information provides feedback which is thoughtfully considered as adjustments to the curriculum are contemplated.

The primary emphasis of the Construction Management Option’s assessment plan is to collect relevant data for the evaluation of the previously stated outcomes and objectives. Among entering the program, students are assessed in the following manners;

1. Co-op Evaluations (Performance Appraisals) – Each student participating in the co-op component is required to complete an evaluation of their experience. Similarly, each co-op employer will complete an evaluation of the student detailing their skills, competencies and work habits. These employer evaluations provide input about performance, abilities, basic knowledge, and other qualities that our students possess. These evaluations are extremely valuable because they give instantaneous feedback on student outcomes while students are still progressing through the program.
2. Capstone Course (Project and Oral Presentation) – An effective method of instruction utilized in all three CET options is a project-oriented capstone course. The capstone course in CETCO is CET 285 Construction Management Capstone. Taught in the final school term, this course strives to create a comprehensive educational experience synthesizing previously learned material, a team approach to problem solving, effective communication techniques, and external practitioner involvement. This courses requires students in the various options to complete projects such as a project proposal/presentation for a construction project. Students are assembled into project teams and work in a company-like atmosphere that gives them the sense of responsibility, professionalism and deadlines. The courses typically culminate with an oral presentation that has been regularly attended by faculty, college guests, and possibly practicing professionals.



### 3. Advisory Board (Focus Group)

The Civil Engineering Technology program has an advisory committee composed of individuals representing the various constituencies of the CET program. Each of the three options (Architectural, Construction Management and Surveying) has several members with a background specifically related to that discipline. Additionally, the advisory board contains a student member from the CET program, a university representative from an institution regularly accepts CET transfer students, and a representative from a local high school.

The Civil Engineering Technology program's advisory board meets at least annually, typically in the Fall, to discuss the state of the program and to address the needs of industry, our other constituencies, and the program. The smaller "subcommittee" that exists for each of the three CET options may meet more often throughout the year to discuss issues more specific to their own discipline. The program chair also has compiled an "e-mail" list of the advisory board members and typically sends out updates to the members concerning special events or items throughout the year. The issues discussed include curricular issues, new initiatives, student activities, student preparedness, and student recruitment and retention. While these activities do not generally produce a quantitative measure of professional quality, they provide valuable qualitative information on the quality of our students and our programs.

The advisory committee has assisted the program in several manners throughout its existence. Primarily the industry advisory board provides both formal and informal input regarding curricular content with the program. Although such matters are continually scrutinized by the program faculty it is often helpful to receive "real-world" advice on matters concerning the changing skills and competencies demanded by our constituents. Secondly, many of the advisory board members from industry assist the program by participating in the cooperative education component of the curriculum. This participation of local companies has been an integral component of the CET program since its inception and provides the student an experience that cannot be replicated in the classroom. Additionally, this experience provides further feedback on student performance that aids both the program and industry as they collaboratively focus on the development of the student through his/her time spent at Cincinnati State.

Post-Program Level – Among entering the program students are assessed in the following manners;

1. Multiple assessment processes, coordinated by the Office of Institutional Research & Planning, allow the College to capture perspectives from alumni. Continuous feedback obtained by using several mechanisms enables the program faculty to keep pace with the rapid changes in technology and the needs of the business community. These mechanisms include the ACT Alumni Survey. Administered by ACT each

year using a set of validated questions, this survey provides an independent measure of our performance. It is sent to all College graduates, six to eight months after they have been out of school. A response rate of 35% is typical. The survey presents a series of questions in four areas: background information, continuing education, educational experience, and graduate employment. Normative (national) data based on responses from more than 16,000 alumni of two-year institutions nationwide is provided by ACT for comparison. In addition the College also administers a “Graduating Student Survey” on an annual basis which is given out to the program chairs and then directed to the classes (and students) that are in their final term(s).

2. CETCO Graduate Survey – The Construction Management option conducts annual surveys of its graduates in a one and three year cycle to assess and monitor graduate success. The one-year survey (hereafter referred to as the CETCO Graduate Survey) is sent out to all students graduating in the previous academic year to elicit feedback on the curriculum and current plans. The CETCO Graduate Survey is administered in the Fall term such that responses and trends can be considered for curriculum development. The CETCO Graduate Survey has been administered under the direction of the program chair of CET since the 1999 – 2000 graduating class. The students are also sent a follow-up survey during the third anniversary year (hereafter referred to as the Three-Year CETCO Graduate Survey) to provide feedback on their growth within the industry and/or further educational pursuits in that time period. These surveys are administered every year near the end of the calendar year.

### **Responsible Parties**

Co-op Evaluations (Performance Appraisals) – CET Co-op Coordinator reviews the evaluation of each student (of experience) and each employer (of student). This occurs every term and is reported at meetings throughout the year.

Capstone Courses (Oral Examination / Presentation) – Program Faculty create and monitor the capstone experience in the student’s last term. Capstone course are CET 7950 (Survey Field project), CET 7953 (Construction Management 2), and CET 7969 (Building Systems Design). These course are offered Spring and Summer terms for day students and typically in the Early Fall (alternate years) for the evening students.

Advisory Board (Focus Group) – The Program Chair is responsible for planning and organizing the advisory board meetings as well as recording the minutes. Currently, the group meets with program faculty each year in May and may also meet in the Fall if the situation dictates. Advisory Board members are kept apprised of program activities through periodic emails and web page updates.

ACT Alumni Survey, Graduating Student Survey – Administered by the Office of Institutional Research annually in Spring and Summer. Results are shared via email with Faculty.

CET Graduate Surveys – Administered by the Program Chair. 1-year survey administered in each Fall and 3-year survey is administered each Winter. Results shared with faculty as they are compiled.

Employer Survey – Administered by CIT administration.

Summary of Assessment Implementation

Program Level Assessment Tool	Frequency	Who is responsible	Comments
#1. Course Assessment	Every Term	Faculty	Rubrics in Presentation assignments, Faculty Input, Checkpoint Ratings (every 3 years)
#2. Co-op Evaluations	Every Term	Co-op Coordinator	Evaluations
#3. Capstone Courses	Final Term	Faculty	Industry panel used
#4. Advisory Board	Fall, Spring if needed	Program Chair	Effective feedback
#5. Accreditation Reports and Program Review	Every 5-6 years	Program Chair	
#6. Traditional Methods of Evaluating Students	Every Term	Faculty	Student work
Post Program Level			
#1. College Surveys	Annually	Institutional Research	Effective feedback
#2. CET Graduate Surveys	Annually on 1 and 3 year cycles	Program Chair	CET outcome directed feedback
#3. Employer Survey	Every 5 Years	CIT Administration	

The continuous improvement cycle in the Civil Engineering Technology program was first developed in January 2001, long before the aforementioned CIT model and has evolved to include a broader spectrum of assessment tools. The model depends on inputs from the previously mentioned constituencies and follows an approximate timeline as shown below. It should be stressed that this process is not constrained by the academic year, that is, decisions are actually based on input that may span over several years.

The program chair maintains a record of advisory board meetings, curriculums and their changes, CET graduate survey results and college and divisional survey results. The program chair holds program meetings regularly throughout the year to discuss issues and share information among program faculty. The program discusses inputs from the sources indicated in following timeline such that final decisions are ready to present to the College’s Academic Policies and Curriculum Committee (APCC) in January or February.

CET Continuous Improvement Timeline												
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug

Initiate and Collect CET 1-Yr Graduate Survey (Input)												
Initiate and Collect CET 3-Year Graduate Survey (Input)												
Advisory Board Subcommittees Meetings (as needed) (Input)												
College ACT Alumni Survey Results (Input)												
Full Advisory Board Meeting (Input)												
Program Meetings on Curriculum (Input)												
Course Assessment by Faculty (Input)												
Capstone Courses by Faculty (Input)												

## II. CONSTRUCTION MANAGEMENT OPTION ASSESSMENT RESULTS

### General

The results from the aforementioned assessment plan are summarized by the program chair for review by the faculty and advisory board members. Summaries of the 1-Year CET Graduate Survey, and the college administered Graduating Student Survey are shown in the following pages for the most recent years available. The CET Co-op Employer Survey for the most recent data available is also shown as is data from the Construction Management capstone class for the most recent year available.

**Note: The college (and CETCO) switched to a semester-based calendar in Fall 2012 and so assessment based on student course work and faculty/practitioner feedback made comparison to courses in the previous calendar system difficult. In addition to this ACCE substantially changed its standards to incorporate student learning outcomes as a primary cornerstone of assessment. As such, this report will show the most recent data collected for the student learning outcomes, the most recent co-op appraisals of construction management students based on other program outcomes and the most recent college-wide and program graduate survey results.**

### **ACCE Student Learning Outcomes Summary**

The results show that the CETCO outcomes based on the new ACCE standards are being met. These are being summarized currently for the major's upcoming ACCE accreditation review and will be published immediately thereafter.

### **Recent CET 1-year Graduate Survey Summary Results**

The survey summary is as follows:

1. 100% of the respondents spent at least 2 semesters on co-op.
2. 50% of the respondents were continuing their education in a related field, 50% of the respondents were working (half of those working were also continuing their education).
3. Those that were project managers were making between \$35,000 and \$40,000 at graduation. Other occupations only somewhat related were making approximately \$25,000.
4. 75% of the respondents said the curriculum prepared them very well or well for their occupation.
5. 75% of the respondents said the curriculum prepared them very well continuing their education.
6. Second year CM courses had an average rating of 4.25 out of 5 (with 5 being excellent) regarding quality of education.
7. Co-op education had an average rating of 4.33 out of 5 (with 5 being excellent) regarding quality of the experience.

## Most Recent CET Graduating Student Survey Results (College-Administered)

GRADUATING STUDENT SURVEY - 2016												Civil Engineering (Sample Size 12)									
Question Topic	Number						Percent														
<b>Demographics</b>																					
36 Gender	Male	Female	Transg	Total			Male	Female	Transg	Total											
	9	2	0				11	82%	18%	0%											
37 Age group	18 &<	19-22	23-24	25-29	30-39	40-49	50+	Total		< 22	> 22	Total									
	0	4	2	2	1	1	2	12	4	8			12								
	0%	33%	17%	17%	8%	8%	17%	100%	33%	67%			100%								
38 Ethnic group	Am In	As	Afr Am	His/Lat	Hi/Pi	Multi	Cau/Wh	Other	Total												
	1	1	1	2	1	0	6	0	12												
	8%	8%	8%	17%	8%	0%	50%	0%	100%												
39 Primary enrollment status	FT		PT		Total			FT		PT		Total									
	7	4					11	64%	36%				100%								
40 Location primarily took courses	Clifton	Midtown	Harrison	Online	Other	Total		Clifton	Midtown	Harrison	Online	Other	Total								
	10	1	0	1	0	12		83%	8%	0%	8%	0%	100%								
41 Primary time class of attendance	Day	Even	Both	Online	Total			Day	Even	Both	Online	Total									
	3	3	4	0	10			30%	30%	40%	0%	100%									
<b>Future Plans</b>																					
	None	Cert	Assc	Bach	mas/Do	Other	Total														
4 Highest degree plan to pursue after graduation from CS	2	0	1	6	1	0	10														
	20%	0%	10%	60%	10%	0%	100%														
5 Feel education prepped for continued learning in field of stud	VMuch	Some	VLit	None	NA	Total		VMuch	Some	VLit	None	Total									
	11	0	1	0	0	12		92%	0%	8%	0%	100%									
6 Feel prepared to take licensure/certification exams	5	5	0	1	0	11		45%	45%	0%	9%	100%									
7 Overall satisfaction with program of study at CS	VSat	Sat	Neu	Dis	VDis	Total		VSat	Sat	Neu	Dis	VDis	Total								
	7	3	1	0	1	12		58%	25%	8%	0%	8%	100%								
8 How likely to recommend CS to other potential students	VLikely	SLikely	Neut	SUnlikely	NLikely	Total		VLikely	SLikely	Neut	SUnlikely	NLikely	Total								
	9	1	2	0	0	12		75%	8%	17%	0%	0%	100%								

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Cooperative Education													
10	Received advanced standing for all/part co-op credit	Yes	No	NA		Total	Yes	No				Total	
		6	4	2		10	60%	40%				100%	
11	Obtained course substitution for all/part of co-op credit	1	10	0		11	9%	91%				100%	
12	Number of semesters of co-op	1	2	3	4-5	>5	Total	1	2	3	4-5	>5	Total
		2	5	1	2	2	12	17%	42%	8%	17%	17%	100%
13	Number of different companies worked during co-op	1-2	3-4	>4	NA		Total	1-2	3-4	>4			Total
		10	1	0	0		11	91%	9%	0%			100%
14	Rate assistance received in obtaining co-op placement	VMuch	Some	VLit	None		Total	VMuch	Some	VLit	None		Total
		5	2	2	0		9	56%	22%	22%	0%		100%
15	How much learned in academic program on co-op placement	6	3	2	0		11	55%	27%	18%	0%		100%
16	How much co-op experience help you make career choice	7	2	1	1		11	64%	18%	9%	9%		100%
17	Satisfaction with cooperative education experience	VSat	Sat	Neu	Dis	VDis	Total	VSat	Sat	Neu	Dis	VDis	Total
		6	2	2	1	0	11	55%	18%	18%	9%	0%	100%
Internships													
18	Number of internships at different organizations	1	2	>2	NA		Total	1	2	>2			Total
		0	1	0	2		1	0%	100%	0%			100%
19	Did internships help you make your career choice	VMuch	Some	VLit	None	NA	Total	VMuch	Some	VLit	None		Total
		1	0	0	0	0	1	100%	0%	0%	0%		100%
20	Satisfaction with internship placements	VSat	Sat	Neu	Dis	VDis	Total	VSat	Sat	Neu	Dis	VDis	Total
		1	0	0	0	0	1	100%	0%	0%	0%	0%	100%
Clinical/Directed Practice Experiences													
21	Extent used what learned in program on clinical experience	VMuch	Some	VLit	None	NA	Total	VMuch	Some	VLit	None		Total
		0	0	0	0	0	0						
22	Extent clinical helped make career choice	0	0	0	0	0	0						
23	Satisfaction with clinical or directed practice experience	VSat	Sat	Neu	Dis	VDis	Total	VSat	Sat	Neu	Dis	VDis	Total
		0	0	0	0	0	0						

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Developmental Education													
27	Overall satisfaction with developmental education instruction	VSat	Sat	Neu	Dis	VDis	Total	VSat	Sat	Neu	Dis	VDis	Total
		1	3	1	0	0	5	20%	60%	20%	0%	0%	100%
Curriculum													
24	Program improved ability to think critically and solve problems	VMuch	Some	VLit	None	NA	Total	VMuch	Some	VLit	None		Total
		5	7	0	0	0	12	42%	58%	0%	0%		100%
25	How communication skills improved while at CS	6	6	0	0	0	12	50%	50%	0%	0%		100%
26	How math skills improved at CS	5	6	1	0	0	12	42%	50%	8%	0%		100%
Facilities													
28	Satisfaction with:	VSat	Sat	Neu	Dis	VDis	Total	VSat	Sat	Neu	Dis	VDis	Total
	Learning materials available in the classroom	4	6	0	0	0	10	40%	60%	0%	0%	0%	100%
	Equipment available in the laboratories	4	4	1	0	0	9	44%	44%	11%	0%	0%	100%
	Access to Internet and other electronic media	5	4	2	0	0	11	45%	36%	18%	0%	0%	100%
	Technical assistance in the computer labs	3	3	3	0	0	9	33%	33%	33%	0%	0%	100%
	Library services and facilities	6	1	0	0	0	7	86%	14%	0%	0%	0%	100%
Faculty and Academic Advising													
9	Satisfaction with:	VSat	Sat	Neu	Dis	VDis	Total	VSat	Sat	Neu	Dis	VDis	Total
	Quality of instruction in your major area of study	5	5	2	0	0	12	42%	42%	17%	0%	0%	100%
	Attitude of faculty toward students	7	3	1	1	0	12	58%	25%	8%	8%	0%	100%
	Availability of faculty outside of classroom	5	4	1	0	1	11	45%	36%	9%	0%	9%	100%
	Availability of advisor when needed assistance	6	3	1	0	1	11	55%	27%	9%	0%	9%	100%
	Accuracy of advisor about requirements, prerequisites, etc.	6	3	1	0	1	11	55%	27%	9%	0%	9%	100%
	Caring, trusting, and open atmosphere provided by advisor	7	3	1	0	0	11	64%	27%	9%	0%	0%	100%
Special Needs													
29	With physical needs, rating of needs being met	VSat	Sat	Neu	Dis	VDis	Total	VSat	Sat	Neu	Dis	VDis	Total
		0	0	0	0	0	0						
30	With special needs, satisfaction with learning needs being met	2	0	1	0	0	3	67%	0%	33%	0%	0%	100%
Employment													
34	Current employment status	FT	PT	Not Emp		Total	FT	PT	Not Emp		Total		Total
		4	1	5		10	40%	10%	50%		100%		100%
31	Continuing current full-time employment after graduation	Yes	No	Not Emp		Total	Yes	No	Not Emp		Total		Total
		6	1	5		12	50%	8%	42%		100%		100%
32	Co-op placement, internship, or clinical led to job	Yes	No	NA		Total	Yes	No			Total		Total
		4	1	5		5	80%	20%			100%		100%
35	Current Hourly Salary	<\$19.999	\$20,000-\$29.999	\$30,000-\$39.999	\$40,000-\$49.999	0-\$59.99	>60.00						Total
		3	2	0	0	1	1						7
		43%	29%	0%	0%	14%	14%						100%

Codes: VMuch=Very Much, Some=Somewhat, VLit=Very Little, NA=Not Applicable, VSat=Very Satisfied, Neu=Neutral, Dis=Dissatisfied, VDis=Very Dissatisfied VInt=Very Interested, VInt=Very Little, VMuch=Very Much

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## Most Recent Construction Management Co-op Employer Surveys

Every Construction Management student who participates in co-op is evaluated by the co-op employer. This information over the most recent semesters has been collected and displayed in the tables below. The scoring is a standard 1 – 5 Likert range with 1 being poor ability and 5 indicating excellent ability.

<b>(CETC Only ) Co-op Employer Survey of ABET Outcomes - Spring 2017</b>	
	Average Score
A - Ability to apply modern tools and skilled to narrowly defined Eng. Technology problem	4.00
B - Ability to apply math, science knowledge to engineering technology problems	3.73
C - Ability to conduct standard test and to conduct and interpret experiments	3.85
D - Ability to function effectively on a team	4.56
E - Ability to identify and solve narrowly defined Engineering Technology problems	3.50
F - Ability to apply oral and written instructions	3.69
G - Understanding to need to engage in professional development	4.19
H - Commitment to professional and ethical responsibilities; diversity	4.31
I - Commitment to timeliness, quality improvement	4.38

<b>(CETC Only) Co-op Employer Survey of ABET Outcomes - Summer 2017</b>	
	Average Score
A - Ability to apply modern tools and skilled to narrowly defined Eng. Technology problem	4.25
B - Ability to apply math, science knowledge to engineering technology problems	4.12
C - Ability to conduct standard test and to conduct and interpret experiments	4.08
D - Ability to function effectively on a team	4.26
E - Ability to identify and solve narrowly defined Engineering Technology problems	3.87
F - Ability to apply oral and written instructions	3.88
G - Understanding to need to engage in professional development	4.00
H - Commitment to professional and ethical responsibilities; diversity	4.28
I - Commitment to timeliness, quality improvement	4.26

<b>(CETC Only) Co-op Employer Survey of ABET Outcomes - Fall 2017</b>	
	Average Score
A - Ability to apply modern tools and skilled to narrowly defined Eng. Technology problem	4.50
B - Ability to apply math, science knowledge to engineering technology problems	3.92
C - Ability to conduct standard test and to conduct and interpret experiments	3.88
D - Ability to function effectively on a team	4.08
E - Ability to identify and solve narrowly defined Engineering Technology problems	3.40



F - Ability to apply oral and written instructions	3.55
G - Understanding to need to engage in professional development	4.00
H - Commitment to professional and ethical responsibilities; diversity	4.00
I - Commitment to timeliness, quality improvement	4.17

### **III. CET Construction Management Strategic Plan**

The purpose of this Strategic Plan is to establish a comprehensive vision for managing Civil Engineering Technology – Construction Management Option’s resources in a manner that supports and promotes the fulfillment of its mission. This document sets out a plan to establish the strategy that CETC will pursue over the next five years. That strategy will result in a net growth of the Civil Engineering Technology – Construction management and a solidification of its role in the civil/construction arena in Greater Cincinnati. This plan aims to describe the mission statements and outline the strengths, weaknesses, opportunities and threats which will need to be addressed in order to reach our goals. The plan will describe the personnel that will be involved, the data that will be collected, and outline the implementation plan, general timeline, and evaluation procedures.

#### **Internal Factors**

Internal characteristics of the Civil Engineering Technology – Construction Management currently are as follows:

**Faculty** – The faculty are all tenured veterans who have a passion for their particular area of expertise and the well-being of the program in general is a STRENGTH. Average age among faculty is approximately 59 years old and, therefore, several are within a five years or so from possible retirement and the advancing age of the faculty carry risks to continuity (THREAT). One long-time CM faculty member retired in 2015 and that faculty position has not yet been replaced due to budgetary restrictions (WEAKNESS).

**Facilities** – The newly renovated Room 142 area gives the CET department a good amount of dedicated space (Room 143, Room 130, concrete lab) which will serve the program well into the future (STRENGTH). This room and all others are “SMART” which is a great advantage to utilize various mediums in course delivery (STRENGTH). The college has opened the ATLC building in 2004 which is viewed favorably by students and gives them decent opportunities for food and recreation (STRENGTH).

**Calendar** – The college has changed to a semester-based system starting in fall 2012. There is the possibility that our students will have difficulty adapting to the extended length of a semester from an academic and financial perspective which could lead to higher rates of attrition (THREAT). The co-op program in CET may benefit from the change to semesters as some employers may favor the extended time period which requires less turnover (OPPORTUNITY). Although the semester system essentially runs concurrently with those from NKU and UC the co-op market has been strong over the last several years.

**Technology** – Building Information Modeling is impacting the civil/construction industry in a very large way. The college has always supplied CET computer labs with the latest version of AutoCAD and now this extends to Revit. This positions the CET program favorably for addressing the needs of industry in the next 5 years (STRENGTH). The college needs to invest in other equipment so that the program is really a leader in BIM technology. Items such as point cloud capture, scanners, 3D printing and drone use should all be areas of investment (OPPORTUNITY).

## **External Factors**

Important external factors which the Civil Engineering Technology – Construction Management is currently facing and will face in the near term are:

**Economy** – Since 2013 the construction economy in the Greater Cincinnati area has been good to very good. As the region emerges from the great recession, the industry is attractive again but this with a decrease in high school age students has led to an overall decrease in numbers. Although the larger economy is beyond our control, an OPPORTUNITY exists for marketing as construction has become “attractive” again.

**State Budget** – Related to the economy, the state budget is typically always cutting subsidies to higher education. The budget bill last year froze tuition with the promise of being able to raise tuition this year. We will have to see if this really materializes. This is coupled with the college budget situation which has been poor for three years now, necessitating cutbacks throughout the college. The CETCO option has been impacted by this yet but this as they have not been able to fill a vacant faculty position. This remains a serious THREAT which could impact the ability to keep current with technology and professional development.

Based upon this analysis, it is reasonable that we should try to reduce or eliminate the impact of threats facing the CET program while embracing the opportunities over the next five years.

### Responding to Threats and Opportunities

The good economy and the smaller pool of high school graduates form a threat to the enrollment of CETCO. To reduce the threat posed by these items we will have to (1) focus on retaining students, especially in the first year, (2) invest in new technology especially BIM, and (3) maintain curricular quality.

Although the threat posed by possible budget cuts from the state may not be reduced by our actions, we should increase outreach to industry organizations to help supplement funding for scholarships, equipment and supplies. We should work to make industry aware of the potential impact on the program of possible cuts. More importantly, we should make the college aware of the threat posed to our students by faculty lines that are not filled due to faculty retirements.

The threat posed by the flat or declining number of high schools graduates should be reduced by (1) active outreach to high schools, and (2) active outreach to non-traditional students.

The primary opportunity facing the CETC major in the next 5 years is the development of a state-of the art BIM lab. Striving to meet the needs of industry, we possess the great faculty and need to invest in the technology create a foothold in this area. The opportunity to take advantage of our technological strengths should be reinforced by active professional development by faculty in emerging areas.