



Cycle: 2018-2021

Associate's Degree IN APPLIED SCIENCE WITH A MAJOR IN Civil Engineering Technology

Program Mission Statement:

The Civil Engineering Technology program (CET) uses classroom and laboratory experiences to provide students technical, Computer aided drafting skills which will prepare them for careers in the Environmental field, Surveying, Construction Management, Design, and Testing

Division: Technical & General Education

AVP: Dan Averette

Department Chair: Shawn Reed

Director: David C. Edwards

SACSCOC Standard: 8.2A

Accrediting Agency: Yes No

Name: N/A

Certification Exam(s): Yes No

Agency Name:

Credential:

Program Student Learning Outcome	Monitoring Year
Utilize CAD software to complete a property survey project and characterize pertinent details according to industry standards.	2018-2019
Utilize CAD software to complete a property survey project and characterize pertinent details according to industry standards.	2019-2020
Determine the different soils parameters needed for design to include: classify soil type, perform density and moisture content testing, calculate the earth pressures and determine the safe bearing capacity of the soils to support structures, and determine the resulting settlements due to building loads.	2020-2021
Determine the parameters of earthwork construction, production rates for heavy construction equipment, determine the rental rates for this equipment, evaluate proper management of projects utilizing the Critical Path Method (CPM), and competitively bid an actual earthwork project.	2020-2021
Characterize civil engineering environmental factors: determine the feasibility of building a water reservoir to supply water to community, design the reservoir volume and height of the dam, determine the parameters for clean water and identify the different contaminations and their sources, evaluate the efficiency of a water and sewer treatment plants, design the drinking water-sanitary sewer-storm sewer distribution systems, design storm detention ponds due to runoff from certain design storms.	2020-2021

STUDENT LEARNING OUTCOMES FOR AAS.CET – 2018-2019

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
Applied Technologies: Utilize CAD software to complete a property survey project and characterize pertinent details according to industry standards.	EGT 105	Students will complete a surveying term project. The project will involve use of applicable software to characterize a specified property survey.	70% of students will achieve a 70% or better grade in the project.	Fall 2018	9/10 [90%] of the students met the objective. The lowest assessment score was 50%; the highest score was 100%; the average for this cohort was 94%	The expected level of performance was met.

STUDENT LEARNING OUTCOMES FOR AAS.CET – 2019-2020

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
Applied Technologies: Utilize CAD software to complete a property survey project and characterize pertinent details according to industry standards.	CET 105	Students will complete a surveying term project concerning contour line assessment and application to a plat provided. The project will involve use of applicable software to characterize a specified property survey.	70% of students will achieve a 70% or better grade in the project.	Fall 2019	9/11 [82%] of the students met the objective The lowest assessment score was 30%; the highest score was 100%; the average for this cohort was 81.8%	The expected level of performance was met. However, overall performance slipped slightly. Faculty will explore an alternative assessment administered in CET 105 during the next cycle. Within the framework of CET 105, faculty will utilize a series of graduated labs to identify the challenges students are experiencing with property survey application to CAD and to improve student comprehension and assessment performance.

STUDENT LEARNING OUTCOMES FOR AAS.CET -- 2020-2021

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
Applied Technologies: Determine the different soils parameters needed for design to include: classify soil type, perform density and moisture content testing, calculate the earth pressures and determine the safe bearing capacity of the soils to support structures, and determine the resulting settlements due to building loads.	CET 216	Students will complete a comprehensive construction project concerning soil mechanics detail and design.	70% of students will achieve a 70% or better grade in the project.	Fall 2020	7/9 [78%] students met the objective. The lowest assessment score was 67.6%; the highest score was 93.6%. The average for this cohort was 79.7%	The expected level of performance was met. Faculty will utilize an assessment group during the next cycle to identify specific student challenges and document student performance.

STUDENT LEARNING OUTCOMES FOR AAS.CET–2020-2021

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
Applied Technologies: Determine the parameters of earthwork construction, production rates for heavy construction equipment, determine the rental rates for this equipment, evaluate proper management of projects utilizing the Critical Path Method (CPM), and competitively bid an actual earthwork project.	CET 235	Students will be given a project concerning Critical Path Method (CPM) Schedule and analyze for pertinent schedule parameters. Students will also analyze concrete formwork pressures and determine subject temporary formwork suitability.	70% of students will achieve a 70% or better grade in the project.	Spring 2021	5/5 [100%] students met the objective. The lowest assessment score was 76.3%; the highest score was 87.9%; the average for this cohort was 81.0%	The expected level of performance was met.

STUDENT LEARNING OUTCOMES FOR AAS.CET–2020-2021

A. Program Student Learning Outcomes	B. What courses are PSLOs Assessed	C. Methods for Outcomes Assessment	D. Expected Level of Program Performance	E. Data Collection	F. Results	G. Plan For Improvement
What should the graduates of your program be able to do?	Where do you see evidence that the student can do these things?	How does your program evaluate student/graduate skills/abilities?	What is the expected level of student performance <u>for the program</u> ?	When will you collect the data needed to evaluate the performance of the program?	What are the results of the evaluation? NOTE: include student ratio with all results.	How will you use this information to improve the program
<p>Applied Technologies: Characterize civil engineering environmental factors: determine the feasibility of building a water reservoir to supply water to community, design the reservoir volume and height of the dam, determine the parameters for clean water and identify the different contaminations and their sources, evaluate the efficiency of a water and sewer treatment plants, design the drinking water-sanitary sewer-storm sewer distribution systems, design storm detention ponds due to runoff from certain design storms.</p>	CET 218	Students will complete a project that characterizes open channel flows and flows through a pipe system. Students will evaluate drinking and wastewater treatment facility parameters.	70% of students will achieve a 70% or better grade in the project.	Spring 2021	5/6 [83%] students met the objective. The lowest assessment score was 66.9%; the highest score was 94.5%; the average for this cohort was 77.7%	The expected level of performance was met. Faculty will develop and employ and assessment related to storm detention pond detail and design parameters.

CONTINUOUS STUDENT IMPROVEMENT

This Cycle's Results and Comparison to Last Cycle's and Recommended Actions:

Focus on current documentation centers on program student learning objectives instead of an integrated PSLO/CSLO approach; we are assessing student performance to align with this shift of focus. Overall student performance met goals for this round of assessments. In the current evaluation cycle performance was consistent across a broad range of assessments & learning objectives. The difficulty and scope of future cycle assessments will be increased; we will document student performance.

We have added a quantitative analysis component/computer technology component to all Engineering Technology Curricula to boost critical thinking/reasoning skills. We will be monitoring student performance moving forward.

With respect to the EGT/CET contour assessment, there was a discrete observed drop in student performance. A different assessment will be utilized in the next cycle and said assessment will be administered within another course. Faculty will use a series of targeted assessments to address the student difficulties with creation and characterization of contour line topography. We will reassess student performance in that cycle and make further recommendations.

Faculty will develop and employ an assessment related to storm detention pond detail and design parameters for Environmental Systems Technology coursework.

CET Enrollment has been trending downward over the past three years. We need to connect with potential students earlier in their scholastic career to illustrate the viability of Engineering Technology careers and the breadth of opportunities available.

An equally important challenge is the Fall to Fall Retention rates. It is imperative to develop mentoring and STEM student support initiatives for engineering technology students to ensure continued progress and improve graduation rates. Note that job placement has remained good throughout the cycle.

PROGRAM VITAL STATISTICS

Indicator	Trend Analysis	Action Plans										
<div style="text-align: center;"> <p>Program Enrollment</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <caption>Program Enrollment Data</caption> <thead> <tr> <th>Year</th> <th>Enrollment</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>54</td> </tr> <tr> <td>2018-2019</td> <td>46</td> </tr> <tr> <td>2019-2020</td> <td>32</td> </tr> <tr> <td>2020-2021</td> <td>26</td> </tr> </tbody> </table> </div>	Year	Enrollment	2017-2018	54	2018-2019	46	2019-2020	32	2020-2021	26	<p>Enrollment has been trending downward over the past three years. COVID-19 has exacerbated the trend and placed a barrier to enrollment increases. As the effects of the pandemic diminish, enrollment is expected to rebound due to the breadth of industries and technology in the area and their associated employment needs.</p>	<p>Enrollment Action plans will include an emphasis on connecting students to emerging CET technologies.</p> <p>Faculty will use laboratory to explore these technologies; field trips and/or seminars will also be utilized.</p>
Year	Enrollment											
2017-2018	54											
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Indicator	Trend Analysis	Action Plans										
<p style="text-align: center;">Fall to Spring Persistence</p> <table border="1"> <caption>Fall to Spring Persistence Data</caption> <thead> <tr> <th>Year</th> <th>Persistence Rate</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>100%</td> </tr> <tr> <td>2018-2019</td> <td>41%</td> </tr> <tr> <td>2019-2020</td> <td>85%</td> </tr> <tr> <td>2020-2021</td> <td>78%</td> </tr> </tbody> </table>	Year	Persistence Rate	2017-2018	100%	2018-2019	41%	2019-2020	85%	2020-2021	78%	<p>1st to 2nd term persistence has been generally good save a one-year anomaly.</p>	<p>Persistence action plans will include continued focus on retention of students for both FA and SP terms. We will need to connect students to mentors during their first term and utilize applicable technologies to engage and retain them.</p> <p>Better data to measure 1st term performance specifically will help facilitate improved retention strategies.</p> <p>Faculty will use laboratory to connect students to current and emerging technologies; field trips and/or seminars will also be utilized.</p>
Year	Persistence Rate											
2017-2018	100%											
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<p style="text-align: center;">Fall to Fall Retention</p> <table border="1"> <caption>Fall to Fall Retention Data</caption> <thead> <tr> <th>Year</th> <th>Retention Rate</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>72%</td> </tr> <tr> <td>2018-2019</td> <td>41%</td> </tr> <tr> <td>2019-2020</td> <td>64%</td> </tr> </tbody> </table>	Year	Retention Rate	2017-2018	72%	2018-2019	41%	2019-2020	64%	<p>Fall to Fall retention has been fair at best over recent terms. This is a crucial initiative moving forward.</p>	<p>Retention action plans will include continued focus on retaining students for their freshman year at the College.</p> <p>The faculty plan is to connect students with mentors during their first term and utilize applicable technologies to engage and retain them long term.</p> <p>Faculty will use laboratory to connect students to current and emerging technologies; field trips and/or seminars will also be utilized.</p>		
Year	Retention Rate											
2017-2018	72%											
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Indicator	Trend Analysis	Action Plans								
<p style="text-align: center;">Graduation Rates</p> <table border="1"> <caption>Graduation Rates Data</caption> <thead> <tr> <th>Year</th> <th>Rate</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>55%</td> </tr> <tr> <td>2018-2019</td> <td>40%</td> </tr> <tr> <td>2019-2020</td> <td>35%</td> </tr> </tbody> </table>	Year	Rate	2017-2018	55%	2018-2019	40%	2019-2020	35%	<p>Graduation rate has had a slight downward trend over the past several years. It has also been negatively impacted by COVID-19.</p> <p>CET enrollees need to be connected to the breadth of exciting emerging technologies available to the field.</p>	<p>As the new normal emerges, we must engage the students from the initial phases of their academic career.</p> <p>Retention efforts must be paramount to retain students and produce graduates and connect them with opportunities within the service area.</p>
Year	Rate									
2017-2018	55%									
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2019-2020	35%									
<p style="text-align: center;">Job Placement Rates</p> <table border="1"> <caption>Job Placement Rates Data</caption> <thead> <tr> <th>Year</th> <th>Rate</th> </tr> </thead> <tbody> <tr> <td>2017-2018</td> <td>50%</td> </tr> <tr> <td>2018-2019</td> <td>90%</td> </tr> <tr> <td>2019-2020</td> <td>100%</td> </tr> </tbody> </table>	Year	Rate	2017-2018	50%	2018-2019	90%	2019-2020	100%	<p>Graduate placement percentages remain consistently good. The breadth of industry in the greater Florence service area enhances opportunities for all FDTC graduates.</p>	<p>Faculty will continue to develop rapport with client industries and reach out to potential clients via Career Services and industry liaisons to create additional opportunities for graduates in emerging technology fields.</p>
Year	Rate									
2017-2018	50%									
2018-2019	90%									
2019-2020	100%									