FAMU-FSU College of Engineering

DEPARTMENT OF
CIVIL & ENVIRONMENTAL
ENGINEERING

UNDERGRADUATE ACADEMIC ADVISING GUIDE

&

ASSESSMENT PROCEDURE MANUAL

2026-2027

FAMU-FSU College of Engineering
Department of Civil and Environmental Engineering

UNDERGRADUATE ACADEMIC ADVISING GUIDE
and ASSESSMENT PROCEDURE MANUAL

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1. Introduction and additional resources

The Department of Civil and Environmental Engineering (CEE) offers an undergraduate program leading to the degree of Bachelor of Science in Civil Engineering with two majors: Civil Engineering and Environmental Engineering. The undergraduate curriculum incorporates the state mandated requirements, university requirements, and the requirements of the Accreditation Board for Engineering and Technology (ABET). This guide is designed to assist new and transferred students in making informed decisions for the upcoming academic year. The guide covers current general education requirements and departmental requirements, and documents other departmental policies and procedures. It complements information contained within the current **FAMU Undergraduate Catalog** and **FSU General Bulletin**, available on the websites of each institution. Additional resources available to CEE students include:

- **Main CEE office** and staff, including the **CEE academic and advising coordinator**, also known as the academic coordinator. The main office is located in **Room A-129** of the College of Engineering building. You can reach any member of the CEE office staff by calling (850) 410-6139 or via e-mail. See www.eng.famu.fsu.edu/cee/people for a current list of contacts and email addresses.
- The CEE department has on staff an academic coordinator and **undergraduate advisor**. Contact information for the CEE academic coordinator is available in Section 10.3 of this guide. In addition, each student is assigned to a **faculty advisor**. The staff advisor and coordinator is the best source for information about policies, forms, and deadlines. Your faculty advisor is a major resource for information about curriculum and careers. Prior to the pre-registration window, each student will receive an email indicating who their advisor is. The faculty advisors can be reached in person, by phone, or via e-mail. Advisor contact information is posted in the CEE display case; phone numbers and email addresses are also available online at www.eng.famu.fsu.edu/cee/people.
- The COE's **Office of Student Services and Undergraduate Affairs** is available when you need help from the Dean. The office is located in **Room B-111** and their staff can be reached at (850) 410-6423, studentsupport@eng.famu.fsu.edu or through www.eng.famu.fsu.edu/students/ssua.
- The COE **Undergraduate Student Guide** provides detailed information on college-level policies and services, including the Pre-Engineering program, as well as scholarships, transportation, and other services, is available at eng.famu.fsu.edu/undergraduate/student-handbook.
- **This Week in Engineering** (TWIE) is a weekly newsletter put out by Student Services. It is distributed through the CoE email network and is also available at materials.fsu.edu/twie. TWIE contains important deadlines and information on student organization activities, scholarships, and other time-sensitive events.
- **Department homepage**, located at www.eng.famu.fsu.edu/cee. Important information linked to this page includes advising materials and a faculty directory. You should access this homepage whenever you need to obtain up-to-date information or just want to catch up on news within the CEE department.

2. General education course requirements and electives

The first source of information for General Education and liberal studies requirements is the undergraduate catalog or bulletin for the respective universities. This section is intended to summarize major requirements for the current catalog year, especially those fulfilled by courses in the CEE Department. In case of questions, or for students governed by an older catalog, refer to undergraduate advisors at your home university, the Pre-Engineering Advisor at the COE, or the CEE academic coordinator.

First time in college (FTIC), and transfer students with less than 60 hours who have not met all general education requirements of their previous institution (as indicated on the student's transcript of accepted courses by FAMU or FSU) **must meet all of the general education requirements** of their respective university**.** FTIC students must also take nine credit hours during one or more summer terms. Both universities revise their liberal studies programs on a regular basis to maintain compliance with university accreditation guidelines, state general education requirements, and best educational practices. The latest information can be obtained from:

- FAMU students: http://catalog.famu.edu/index.php
- FSU students: https://registrar.fsu.edu/bulletin/undergraduate-information/degree-requirements or https://core.fsu.edu/advisors-and-students

All general education math and science requirements are met with the calculus, chemistry, and physics requirements of the CEE Department, which are listed in Section 4 of this guide. Table 3.1 summarizes the remaining liberal studies course requirements. Students are advised to confirm that courses meet program requirements during the registration process. To check your outstanding university requirements and ensure that course selections meet university requirements, use the following links:

- FAMU students: famu.login.duosecurity.com; select Campus Solutions, then Campus Community, follow instructions on screen
- FSU students: fsu.stellic.com is used for academic progress checks; my.fsu.edu is used for registration

Table 3.1: Liberal studies requirements of CEE curriculum

General Education/Liberal Studies - English, Humanities, and Social Science		
Course Num	**Course Title**	**Credits**
ENC 1101	English I	3
ENC xxxx	English II elective	3
XXX xxxx	Quantitative and Logical Thinking	6
XXX xxxx	History and Social Sciences	6
XXX xxxx	Humanities/Cultural Practice and Ethics	3
Sub-total		**21**

The **speech requirement** of both universities (known as the Oral Communication Competency Requirement at FSU) are met through the following sequence of required courses: CGN 4800 Senior Design I and CGN 4802, Senior

Design II. To fulfill the universities' speech requirement, the student must earn a "C" or better in both courses, and to receive a "C" or better in these courses, the student must earn at least a "C" on the oral communication competency component of the course. For both courses, if the student does not earn a "C" or higher on the oral communication competency component of the course, the student will not earn an overall grade of "C" or better in the course, no matter how well the student performs in the remaining portion of the course.

The **digital literacy** or computer competency requirement of both universities is met through CEG 2202L Introduction to Geomatics Engineering Laboratory, which is a required course for Civil Engineering and Environmental Engineering majors. To fulfill the computer literacy requirement, the student must earn a "C" or higher in the course.

The **Upper Division Writing (UDW**) requirement at FSU is met by CGN 4800 Senior Design I, which is a required course for Civil Engineering and Environmental Engineering majors. In order to fulfill FSU's Upper-Division Writing requirement, the student must earn a "C" or higher in the course, and earn at least a "C" average on the required writing assignments. If the student does not earn a "C" average or higher on the required writing assignments, the student will not earn an overall grade of "C" or higher in the course, no matter how well the student performs in the remaining portion of the course.

FSU students must complete one **Scholarship in Practice (SIP)** and one **Formative Experience (FE)** course prior to graduation. CGN 4800 Senior Design 1, which is a required course for Civil and Environmental Engineering majors, has been approved as meeting the Scholarship-in-Practice requirement, and thus is designed to help the student become a critical thinker, a creative user of knowledge, and an independent learner. To fulfill FSU's Scholarship-in-Practice requirement, the student must earn a "C" or higher in the course.

CGN 4802 Senior Design II, also a required course for Civil Engineering and Environmental Engineering majors, has been approved to meet FSU's Liberal Studies Formative Experience (FE) requirement and develops the student's ability to develop and use knowledge by engaging in a hands-on experience outside of the classroom. To fulfill FSU's FE requirement, the student must earn a "C" or higher in the course.

FTIC FSU students must meet the **Exploring the Human Experience** requirement. At least six of the credit hours required. Suitable courses are indicated in the *General Bulletin*. **FSU** students must also meet the Literature (*****) requirement, Gordon Rule or writing (w), and oral competency (speech) and computer competency requirements. **FSU students who enter with a Florida AA degree** are not required to meet the Literature (*****) requirement or Gordon Rule, however, they must meet the oral and computer competency requirements and <u>either</u> the *x* <u>or</u> *y* multicultural component.

FTIC FAMU students must meet the African-American history requirement, which requires taking AMH 2091, African American History, or AFA 3104 African American Experience course. **FAMU students who enter with a Florida AA degree** are not required to meet these requirements.

3. Department requirements for both CIVIL and ENVIRONMENTAL engineering majors

The department offers two majors: civil engineering and environmental engineering, within the undergraduate program leading to the B.S. degree in Civil Engineering. Most course requirements are common to both majors. This section outlines the departmental requirements that are identical for both the civil engineering and environmental engineering majors.

3.1. Mathematics and basic sciences

To provide a solid foundation in mathematics and the natural sciences, students must take the Mathematics and Basic Sciences courses listed below. Depending on their background, some students may be required to take preparatory course work prior to enrollment in these courses. See the undergraduate bulletins for more information.

Table 3.1: Math and Basic Sciences requirements of CE and EnvE curriculum

Mathematics and Basic Sciences			
Course Num	**Course Title**	**Credits**	**Prerequisites**
MAC 2311	Calculus with Analytic Geometry	4	MAC 1114, MAC 1140 or MAC 1147
MAC 2312	Calculus with Analytic Geometry	4	MAC 2311
MAC 2313	Calculus with Analytic Geometry	5	MAC 2312
MAP 2302/3305	Ordinary Differential Eq. OR Engineering Math I	3	MAC 2313 or MAC 2312 with grade B
PHY 2048C	General Physics with Laboratory	5	MAC 2311
PHY 2049C	General Physics with Laboratory	5	MAC 2312, PHY 2048C
CHM 1045	General Chemistry I	3	MAC 1105; Pre-calculus
CHM 1045L	General Chemistry I Laboratory	1	MAC 1105; Pre-calculus
( )	Group A Science [1]	3	Varies according to course selected
STA	Group D Statistics [1]	3	Varies according to course selected
Sub-total		**36***	

[1] See Section 7 for a list of course options.

Students who transfer may have taken math or science courses with less credit hours than shown above. In such cases students must meet with the Academic Coordinator to discuss potential credit hour deficiencies.

3.2. Basic engineering science and civil/environmental engineering core

To provide students with a thorough background in basic engineering knowledge and an introduction to various engineering disciplines, the following courses are required of all CEE engineering undergraduates. Most of these courses are offered both spring and fall semesters.

Table 3.2: Basic Sciences/Engineering Core requirements of CE and EnvE curriculum

Basic Engineering Sciences/Civil or Environmental Engineering Core			
Course Num	**Course Title**	**Credits**	**Prerequisites**
EGN 1004L	First Year Engineering	1	MAC 2311
CEG 2202	Intro to Geomatics Engineering	3	MAC 2311
CEG 2202L	Intro to Geomatics Engineering Lab	1	MAC 2311
EGN 3613	Principles of Engineering Economy	2	MAC 2313
EML 3100	Thermodynamics	2	MAC 2312, CHM 1045C, PHY 2048C
OR EEL 3003	Intro to Electrical Engineering	3	MAC 2312, PHY 2049C
EGM 3512	Engineering Mechanics	4	MAC 2312; PHY 2048C
EGN 3331	Strength of Materials	3	EGM 3512
CCE 3101	Construction Materials	3	EGN 3331
CEG 3011	Soil Mechanics	3	Pre or co-req. EGN 3331
CGN 3326	CE Graphics & Design Tools	3	CEG 2202 & Lab
CES 3508L	Civil Engineering Materials Lab	1	EGN 3331; pre or co-req: CCE 3101 or CEG3011
EES 3040	Intro to Environmental Engineering	3	CHM 1045C, MAC 2311
CWR 3201	Hydraulics	3	EGM 3512
CWR 3200L	Environmental/Hydraulic Engineering Lab	1	Co-req: CWR 3201 OR EES 3040
TTE 3004	Transportation Engineering	3	STA XXXX, CEG 2202, CEG 2202L
Sub-total		**36/37**	

3.3 Engineering design and professional courses

The following courses, taught in the Department of Civil and Environmental Engineering, are required of undergraduates working towards the either the civil or environmental engineering major. They provide students with a thorough knowledge in all aspects of civil engineering science and design. A written request from the student is required for any exception from the curriculum as listed below.

Table 3.3: Engineering Design and Professional requirements of CE and EnvE curriculum

Civil or Environmental Engineering Design and Professional				
Course Num		**Course Title**	**Credits**	**Prerequisites**
	CEG 4801	Geotechnical Design	3	CEG 3011, co or pre-req. CGN3508L
OR	CCE 4	Construction Elective	3	Varies according to course
	TTE 4___	Transportation Elective		Varies according to course
	( ) 4	Group B Elective (Eng/Math/Sci) [1]	3	Varies according to course
	( ) 4	Group B Elective (Eng/Math/Sci) [1]	3	Varies according to course
	( ) 4	Group B Elective (Eng/Math/Sci) [1]	3	Varies according to course
	( )	Group C Elective (Prof/Tech) [1]	3	Varies according to course
Sub-total			**18**	

[1] See Section 7 for a list of course options.

3.4. Major design experience

Totaling five credits in two courses, the major design experience begins by focusing on professional issues (ethics, licensure, communication, design process, etc.) and culminates in a capstone design project with realistic constraints (economic, environmental, design/building code, site-specific, client-specific, etc.) and industry mentoring. All students enroll in the same capstone design sequence, regardless of major.

Table 3.4: Major Design Experience requirements of CE and EnvE curriculum

Major Design Experience			
Course Num	**Course Title**	**Credits**	**Prerequisites**
CGN 4800	Senior Design I	3	Instructor permission, CGN 3326, EGN
CGN 4802	Senior Design II	3	CGN 4800, last full semester in CEE
Sub-total		**6**	

*Effective Spring 2027 and later

4. Department requirements for CIVIL engineering majors ONLY

The following courses are required only for students in the civil engineering major.

Table 4.1: Course requirements of Civil Engineering majors ONLY

Basic Engineering Sciences/Civil or Environmental Engineering Core				
Course Num		**Course Title**	**Credits**	**Prerequisites**
CES 3100		Structural Analysis	4	EGM 3512; pre or co req. EGN 3331, MAP 2302 or 3305
Civil or Environmental Engineering Design and Professional				
Course Num		**Course Title**	**Credits**	**Prerequisites**
OR	CES 4605	Steel Design	3	CES 3100, EGN 3331; pre or co-req. CGN3508L
	CES 4702	Concrete Design		CES 3100, EGN 3331; pre or co-req. CGN3508L
OR	ENV 4___	Environmental Engin Elective	3	Varies according to course
	CWR 4___	Water Resources Elective		Varies according to course
Sub-total			**10**	

5. Department requirements for ENVIRONMENTAL engineering major ONLY

The following courses are required only for the environmental engineering major only.

Table 5.1: Course requirements of Environmental Engineering majors ONLY

Mathematics and Basic Sciences				
Course Num		**Course Title**	**Credits**	**Prerequisites**
(___) ____		Chemistry II w/Lab or Microbiology w/Lab 1	4	Varies according to course selected
Civil or Environmental Engineering Design and Professional				
Course Num		**Course Title**	**Credits**	**Prerequisites**
OR	ENV 4001	Environmental Engineering	3	CWR 3201, CWR 3200L, EES 3040
	ENV 4500	Environmental Unit Processes & Operations		EES 3040
CWR 4___		Water Resources Elective	3	Varies according to course selected
Sub-total			**10**	

6. Group A, B, C, and D electives

Five selected electives are required in four areas, identified as Groups A through D, as shown in Tables 4.1 and 4.3 above. Lists of approved courses that meet these requirements are provided in this section. Approved courses change on occasion; check the most recent advising guide or academic map for an updated list.

Several courses on the approved lists are offered as Special Topics courses, typically numbered 4930 or 4936, and indicated by asterisks. Several different Special Topics courses may share the same number. When selecting Special Topics courses, take care that you are selecting the correct section with the correct course name. Credit will not be given for courses not on the approved list when taken because of selection errors.

Courses that do not appear on the approved lists, whether taken at FAMU or FSU, or transferred from other institutions, may be considered for Group A through D elective credit, provided that the course is in the appropriate area and at the correct level, and meets any additional requirements listed below. Students wishing to propose a course substitution must make that request in writing with sufficient documentation to enable evaluation (course description, syllabus, etc.). Requests will be evaluated by the CEE academic coordinator and chair, with the assistance of the undergraduate committee as needed. Approval of course substitutions is entirely at the discretion of the department. Students are encouraged to pursue approval in advance, prior to taking the proposed course, whenever possible.

6.1 Group A science electives

To provide students with the ability to apply science in an additional area beyond chemistry and physics, all students must take one science elective course from the list below. Potential substitute courses must be of sufficient rigor, breadth in an area other than chemistry and physics, and supportive of the civil/environmental engineering curriculum and ABET student outcomes. See above for application process.

- **FAMU**
  - BSC 1005 Biological Science (3)
  - BSC 1010 General Biology I (3)
  - EVR 3235 Atmospheric Processes (3)
  - GLY 2010C Principles of Geology (3)
  - PCB 2033 Introduction to Ecology (3)
  - EVR 3023 Introduction to Marine Environment (3)

- **FSU**
  - BSC 1005 General Biology for Nonmajors (3)
  - BSC 2010 Biological Science (3)
  - GLY 2010C Physical Geology (4)
  - GLY 1030 Environmental Issues in Geology (3)

- ISC 3210 Data Science with Python (3)MET 3231 Introduction to Atmospheric Thermodynamics and Dynamics (3)OCE 4008 Principles of Oceanography (3)
- PCB 3043 General Ecology (3)

6.2 Group B math/science/engineering electives

Group B electives provide depth in technical areas of engineering. As such, the primary source of Group B courses are courses offered in the Department of Civil and Environmental Engineering. Select math, science, and engineering courses outside of the Department of Civil and Environmental Engineering have been approved to complement course offerings in the department. These courses may be offered infrequently and/or subject to limited out-of-major enrollment. Potential substitute courses must be 3000 or 4000 level courses, in areas of science, math, and engineering that are supportive of the civil/environmental engineering curriculum and ABET student outcomes. See above for application process.

Students must take three Group B courses. ***All Group B courses may come from the CEE Department. No more than Group B course may be taken from another department.***

- **CEE Department:**
  - CCE 4xxx Any 4000-level CCE course not meeting another requirement
  - CEG 4xxx Any 4000-level CEG course not meeting another requirement
  - CES 4xxx Any 4000-level CES course not meeting another requirement
  - CWR 4xxx Any 4000-level CWR course not meeting another requirement
  - ENV 4xxx Any 4000-level ENV course not meeting another requirement
  - TTE 4xxx Any 4000-level TTE course not meeting another requirement
  - CGN 4930 Select 4000-level CGN Special Topics (see Academic Coordinator for more info)
- **COE:**
  - ESI 3312C Operations Research I: Deterministic (3)
  - EML 4930* Experimental Methods in Nanoscale Science & Engineering (3)
- **FAMU**
  - BCN 4617 Construction Estimating I (3)
  - BCN 3253 Construction Accounting (3)
  - EVR 3028 Environmental Modeling Principles (3)
  - EVR 3867 Environmental Risk Analysis (3)
  - EVR 4027C Wetlands Preservation and Restoration (4)
  - EVS 3395 Contaminant Hydrogeology (3)
- **FSU**

- EOC 4631 Marine Pollution (3)
- GLY 4451 Introduction to Geophysics (3)
- GLY 4730 Marine Geology (3)
- GLY 4751C Introduction to Remote Sensing, Air Photo Interpret & GIS (3)
- GLY 4884 Environmental Geology I (3)
- GLY 4820 Principles of Hydrology (3)
- OCC 4060 Environmental Science Modeling (3)
- URP 4354 International Transportation Planning (3)

*Note: Multiple special topics (4930/4936) courses may share the same course number. Make sure you are enrolling in the correct section.

6.3 Group C professional/technical electives

Group C electives are courses outside of the CEE department emphasizing professional development, computing, and other professional/technical skills. Students should select one group C list from the following list.

- **COE:**
  - EGS 3102 Design Thinking for Sustainable and Resilient Systems
  - EIN 4444 Technology Entrepreneurship and Commercialization (3)
- **FAMU**
  - AGR 4430 GIS and Remote Sensing (3)
  - BCN 4705 Contract Codes & Law (3)
  - COP 3014C Fundamentals of Programming (4)
  - ENC 3243 Technical Report Writing (3)
  - POS 4697 Environmental Law (3)
- **FSU**
  - COP 3014 Programming I (3)
  - ENC 4212 Editing: Manuscripts, Documents, Reports (3)
  - GIS 2040 Essentials of Geographic Information Systems (3)
  - GIS 4043 & Lab Geographic Info Processing & Systems (3+1)
  - GIS 4330 Florida GIS Applications (3)
  - PAD 4380 Disasters: From Shock to Recovery (3)
  - PAD 4391 Foundations in Emergency Management
  - URP 4710 Intro to Transportation Issues and Transportation Planning (3)

*Note: Multiple special topics (4930/4936) courses may share the same course number. Make sure you are enrolling in the correct section.

6.4 Group D statistics

Group D courses cover statistical methods and data analysis. Students should select one group D course from the following list.

- **FAMU**
  - STA 2023 Intro to Probability & Statistics (3)
  - STA 3034 Mathematical Statistics (3)
- **FSU**
  - STA 2023 Business Statistics (3)
  - STA 2122 Introduction to Applied Statistics (3)
  - STA 3032 Applied Statistics for Engineers and Scientists (3)

7. College and departmental requirements and policies

In accordance with ABET criteria, all Civil and Environmental Engineering students are subject to a uniform set of academic requirements agreed to by both universities. These requirements have been established to ensure that program graduates receive a quality education and make reasonable progress toward satisfying engineering major degree requirements. They are annually reviewed and revised as needed by the Executive Council of the College of Engineering. College-wide policies pertaining to Civil and Environmental Engineering students are listed below. In certain cases, the Department of Civil and Environmental has adopted policies that are more stringent than college policies, and which therefore supersede the corresponding college policy. These policies are so marked in the list below.

7.1. Pre-Engineering Requirements and Admission to Engineering Major

- All students who request engineering as a major will be coded “Pre-Engineering” and advised by a Pre-Engineering advisor appointed by of the Office of Associate Dean for Student Services and Undergraduate Affairs. Updated Pre-Engineering advisor information is available at https://www.eng.famu.fsu.edu/students/pre-engineering-and-engineering-advisors.
- Students must achieve a grade of "C-" or better, from any institution attended, in First Year Engineering Laboratory, Calculus I, Calculus II, and General Physics I to be admitted to the Civil or Environmental Engineering major. A single repeated attempt in only one of the four courses listed above with no more than one grade below "C-" is allowed.
- Any student who needs two repeated attempts to complete the four Pre-Engineering is considered “conditional” and must satisfy the additional major specific course and grade requirements before being

permitted to transfer from pre-engineering to an engineering major. For the Civil and Environmental Engineering Department, students must obtain a grade of C or better in EGM 3512 Engineering Mechanics.

- Students must have an overall GPA of 2.0 or better to be admitted to any engineering major.
- Transfer students may receive an exemption from EGN 1004L First-Year Engineering Laboratory, if they have completed all of the other courses listed above prior to their matriculation to the College. Students should contact the College of Engineering if they feel they qualify for an exemption.
- After a student satisfies all pre-engineering requirements, the student should see a pre-engineering academic advisor to review the student's transcript. After verification, the student's major is changed from Pre-Engineering to Civil or Environmental Engineering. The student will then be advised by the CEE department; see Section 1 or 11 for additional information on finding your advisor.
- Students will not be allowed to register for any 4000 level engineering course until they have declared an engineering major.

7.2 First-day Class Attendance Policy

- First-day class attendance is mandatory for all students. Any student who does not attend the first-day of a class may be administratively withdrawn from the course. Students should check the course syllabi for additional policies concerning course attendance.

7.3 Class Attendance Policy

Students are expected to make the most of the educational opportunities available by regularly attending class. Instructors may institute specific class attendance policies and require that students abide by them. Students are responsible for all assignments, quizzes, and examinations at the time they are due and may not use absence from class as a plea for extensions of time to complete assignments or for permission to take make-up examinations unless otherwise permitted by the instructor of the class.

Absence from class for cause include (a) participation in recognized university activities, (b) personal illness properly certified, or (c) emergencies caused by circumstances over which the student has no immediate control. Such absences may be excused by the class instructor. Instructors may introduce grade deductions as outlined by their syllabus for excessive unexcused absences.

All attendance policies will be clearly defined in the class syllabus.

7.4 Technology Policy

Use of mobile technology (cell phones, tablets, laptops, etc.) in the classroom may be distracting or inhibiting to student learning, both for the user and those around them. Student use of mobile technology in the classroom therefore may be limited per instructor guidelines as long the limitation of such does not negatively affect the student's ability to access course content.

All mobile technology policies will be clearly defined in the class syllabus.

7.5 Course Grading Policies and Practice

- It is the practice of the College not to use “Plus and minus (+/-)” grading for any engineering course.
- A student who is failing a course cannot receive a grade of Incomplete (I). A grade of "I" can only be given to a student who is passing a course and who has completed at least one-half of the course work by the end of the term. The student must make up any missing work during the next term they are enrolled.
- Students must achieve a grade of “C–” or better in all transfer courses and in all courses that are prerequisites to any required or elective engineering course (Group A, B, C, D). In extenuating circumstances, a maximum of one “D” may be waived. The waiver shall not be applied to the Senior Design sequence, nor to a course that is a prerequisite for a course in the CEE department. (CEE Department policy)

7.6 Academic Integrity Policy

The Civil & Environmental Department requires ethical behavior of its administration, faculty, staff, and students that goes beyond simple compliance with the law. Violation of the Academic Honesty or Honor Policy shall be reported, and appropriate actions will be taken by the Department Chair and Associate Dean, as appropriate for undergraduate or graduate students. Students are expected to uphold the University Student Code of Conduct and/or University Academic Honor Code for their home university, FAMU (https://www.famu.edu/about-famu/leadership/board-of-trustees/policies.php) or FSU (http://fda.fsu.edu/Academics/Academic-Honor-Policy).

Examples of Academic Integrity issues in the Civil & Environmental Engineering department include, but are not limited to:

1. Plagiarism – Including material/ideas from a source without proper attribution (citations).
2. Unauthorized Group Work – Working with another person(s) on any assignment or exam that is meant to be individual work. Unless otherwise informed, all assigned work is meant to be independent (e.g., lab reports).
3. Distributed Group Work – Working independently on separate problems/sections of group assignments, combining results, and submitting for grading (i.e., “divide and conquer”). All problems/sections of group assignments must be completed by the group as a collective.
4. Unauthorized Online Source Use – Submitting assignments to Chegg, Generative AI Tools (e.g., Chat GPT), and other Online Sources and presenting them as personal work.
5. Repeated Submissions – Submitting another student’s paper/assignment from a previous semester OR one of your own papers/assignments from a previous semester.

7.7 Course Repeat Policy

Criteria

A student in the Department of Civil and Environmental Engineering will be placed on probationary status if the student falls into any of the following situations:

- Accrued two grades below C- in a single engineering course that is required under his/her curriculum, or in MAC 2313, MAP 3305/2302, or PHY 2049C, or CHM 1045/1046, or in any Group A, B, C, D Electives.

- Accrued a total of three grades below C- in all engineering courses that are required under his/her curriculum, MAC 2313, MAP 3305/2302, and PHY 2049C, or CHM 1045/1046, or in any Group A, B, C, D Electives.
- Has an overall GPA below 2.0.

Consequences

A student who meets the above criteria will be placed on academic probation during the subsequent semester and will be required to sign an academic probation/readmit contract with the department. **A student may not graduate while on probation.**

Reinstatement

To be reinstated, the following conditions must be met:

- The student will have one semester (the probationary semester) to raise his/her GPA above 2.0
- The student must retake all courses/requirements that were the cause for probation according to an agreed upon schedule (during the probationary semester, if available) and achieve a grade of "C–"or better in those courses.
- It should be noted that students placed on Academic Probation with the CEE Department will receive an Academic Probation Contract outlining the reason(s) for their probation and identifying the courses they are required to repeat during the semester. The Academic Probation Contract is provided as a courtesy and serves as a written reminder of the Department's course repeat policy.
- Although not all courses in which a student is enrolled during the semester may be listed on the contract, students are expected to successfully complete all enrolled courses with a grade of "C-" or better. This expectation is consistent with the department's course repeat policy, as well as major and university academic requirements for satisfactory progress toward graduation.

Dismissal

A student on probation will be permanently dismissed from the CEE program and will not be eligible for further reinstatement upon the following conditions:

- If a student who is on probation does not raise his/her GPA above 2.0 and/or achieve a grade of "C–"or better in all courses taken during the probationary semester.
- If a student who has been reinstated to the program subsequently falls below an overall GPA of 2.0 and/or fails to achieve a grade of "C–" or better in any math, science, or engineering course.
- A student who has already reached or exceeded the course repeat limits stated above prior to declaring the civil or environmental major is considered to be on reinstatement and must achieve a grade of "C–" or better in all subsequent courses to avoid permanent dismissal.
- The academic record of a student who is deemed to be sufficiently close to graduation may be reviewed for one additional reinstatement opportunity, at the discretion of the CEE academic coordinator acting on behalf of the chair and undergraduate committee. The department's decision regarding reinstatement is binding, with no opportunity for further appeal.

7.8 Engineering Course Prerequisites Policy

- It is the policy of Department of Civil and Environmental Engineering that a student must receive grades of "C–" or better in all prerequisite courses prior to enrolling in a CEE course. All prerequisites of the prerequisite course must also be completed.
- Courses labelled as "co- or prerequisite" must be taken at the same time or before enrolling in the subsequent course.
- Courses identified as co-requisite to one another e.g., CEG 2202 and CEG 2202L must be taken concurrently. Exceptions may be made in rare extenuating circumstances, such as medically-necessitated drops.
- Registering for and remaining in a course without having completed all of the pre- and co-requisite courses as well as all their prerequisites can result in the Department or the College of Engineering administratively canceling your course enrollment at any time during the semester and with no refund of fees.
- University catalogs and bulletins are often finalized many months before publication. When a co- or prerequisite is added to a course, a grace period of approximately one year is applied prior to enforcement, to allow distribution of information through university catalogs/bulletins, and to enable students to adjust schedules. When a co- or prerequisite is removed from a course, it may appear in the catalog/bulletin for several semesters after it is removed. In all such cases, the CEE undergraduate committee shall serve as the authority regarding which prerequisites are in force during a given semester. Current course descriptions and prerequisites are available on the CEE web site and from the academic coordinator. (CEE Policy)
- It is the student's responsibility to be aware of the prerequisites of an engineering course prior to enrollment. If a student feels that he/she meets course prerequisites due to courses taken at another institution that do not appear on CEE prerequisite lists, it is the student's responsibility to present sufficient evidence for evaluation to the CEE academic coordinator. (CEE Policy)
- In the case of transfer or other non-standard courses, it is possible for a course to be deemed sufficient to serve as co- or pre-requisite to another CEE course, but not sufficient to serve as an equivalent to the named CEE prerequisite. In such cases, the student will be required to make up any required credits through supplemental coursework at the discretion of the CEE academic coordinator acting on behalf of the chair and undergraduate committee. (CEE Policy)
- Students are responsible for confirming that they meet all published requisites for courses in which they enroll, regardless of real or perceived errors or omissions in advising. The undergraduate bulletins of the two universities are assumed to be accurate. All exceptions to course requisites must be documented in the student's file using the CEE Course Requisite exception form. Exceptions are granted in unusual circumstances such as those described above and are not intended to account for irregularities in course planning and degree progression.
- Engineering academic departments also reserve the right to administratively cancel the course enrollment of any student who does not meet course prerequisites at any time during the semester, with no refund of tuition and fees. (COE Policy)

7.9 Course Drop/Withdrawal Policy

The Course Drop/Withdrawal policy at the College of Engineering is different from the policy used at either university. Undergraduate engineering students may “drop” (or withdraw) from any course in the current semester for any reason up-to and including the 7th week of classes. There may be financial aid, excess credit hours and other implications for dropping a course, so you should always contact your academic advisor first. Engineering "Late Drop" period goes into effect after the 7th week and up to the late drop deadline of each semester. Depending on your academic classification, there are restrictions on the number of times you will be permitted to “late drop” a course during this period.

They are as follows: all pre-engineering students and students classified as Basic Division (UGST) by FSU are limited to a total of two (2) “late drops” only. Students who reach their “two late drops” limit will NOT be permitted another late drop until they enter their intended engineering major and for FSU students leave Basic Division. Students who are coded in a degree granting engineering major and are not classified as Basic Division (UGST) for FSU students are permitted a grand total of three (3) “late drops” only.

7.10 Late or Retroactive Course Withdrawal/Drop Policy

- No drops will be permitted after the “late drop” period except in documented cases of administrative error, death in the immediate family, personal illness, or military service obligation. The drop/withdrawal deadlines are posted on the College of Engineering webpage each semester and provided in an email sent to all students with engineering accounts. Students will be responsible for the grades they receive in all courses enrolled in the semester after the course drop/withdrawal deadline.
- An engineering student who desires to withdraw from or drop a course after the course withdrawal/drop deadline must have his or her request evaluated by the COE Council of Academic Program Coordinators (CAPC) before a decision is rendered by the engineering dean. All requests for a late or retroactive course withdrawal/drop must be made within one calendar year of the original course attempt.

7.11 Engineering Degree Progression

- Any engineering student who has been academically suspended or dismissed must petition to resume taking courses as an engineering major. Reinstatement back into the engineering program will depend on the grade point deficit and number of previous suspensions.

7.12 Senior Design I and Senior Design II Sequencing

- Students shall take CGN 4800 Senior Design I and CGN 4802 Senior Design II in sequence. Students shall take CGN 4800 Senior Design I during their second to last full semester, and CGN 4802 Senior Design II during their last full semester of their undergraduate program. Students who do not meet these requirements are subject to being dropped from those courses. Exceptions may be made in rare extenuating circumstances, such as medically necessitated drops.

8. Academic procedures

This section includes information on several common procedures frequently requested by undergraduate students. For additional information on these and other departmental procedures, see your faculty advisor or the academic coordinator.

8.1. Obtaining a college internet account

A college internet account is required to access College of Engineering computers and services including course-specific websites and e-mail services. This is a separate account from the one given to you by your home university. To obtain an account, you must first complete a verification form (available in **Room B-111** at the College). Bring your form and a valid university ID to **Room A-332** and you will be issued an engineering computer account.

8.2. Transferring courses

Courses taken at other public institutions in Florida that have the same course number as the FAMU-FSU equivalent are guaranteed to transfer to other Florida institutions, in accordance with the statewide course numbering system, and will generally be applied to any CEE course requirement having an identical SCNS number. Courses which do not have identical numbers, or which originate at schools other than Florida public institutions, must be reviewed by the CEE department to determine whether they are equivalent in content and rigor to courses taught at the FAMU-FSU College of Engineering and its supporting departments. Transferring a course to FAMU or FSU does not guarantee that it will meet a requirement of the CEE department.

Civil engineering students wishing to apply course credits transferred from another higher education institution to their CEE course requirements should contact the CEE academic coordinator to initiate a review process. The department will make arrangements for the credits to be evaluated for equivalence by the appropriate faculty and/or staff, and, if necessary, transferred to the student's transcript. Students will need to provide evidence of grade/credit received and a course syllabus for each course for which evaluation is required. A current list of course equivalencies is available from the CEE academic coordinator.

8.3. Dropping a class

The Course Drop/Withdrawal policy at the College of Engineering is different from the policy used at either university. See Section 7 above or the COE Student Handbook for details. The procedures to drop (withdraw from) a course are as follows:

1. Obtain a College of Engineering Drop form and Course Withdrawal form from the office of Student Services (**Room B-111**) or at https://eng.famu.fsu.edu/students/ssua.
2. Obtain the following signatures: a) course instructor, b) your advisor, c) ECEE department chairperson (**Room A-129**), and d) Associate Dean (Office of Student Services in **Room B-111**).
3. Turn your form in to your University registrar's office on main campus.

Dropping a course or falling below a certain number of credit hours may impact scholarship and financial aid eligibility. Make sure that you have reviewed and understood all relevant requirements before proceeding. ***In most cases, you may email a form and request a digital signature instead of hand delivering forms.***

8.4. Enrolling in a Directed Individual Study (DIS) course

Directed Individual Study (DIS) provides an opportunity for exceptional undergraduate students to explore engineering areas other than those available through the regular course work offered by the department. Undergraduate students may receive course credit for DIS work by enrolling in EGN 4906 Directed Individual Study. DIS courses must be completed under the direction of a CEE faculty member, ***and may not be used to duplicate or replace courses already offered within the CEE curriculum. Further, DIS courses may not be used to meet any curricular requirements, including Group B or C electives.*** Following are additional requirements necessary for DIS approval:

1. Written request from the student to the department chair, supported by the faculty advisor,
2. Completion of DIS request form, including a syllabus and a brief (about one page) written outline of the proposed plan of DIS and,
3. Cumulative GPA requirement of 3.5 or better,

The student must complete and submit all assignments proposed in the syllabus established for the DIS, and a final written report must be presented to the faculty advisor and the department chair, to receive academic credit for the DIS at the end of the semester. Students are allowed to register for a maximum of three (3) semester hours of DIS.

8.5. Requesting an excused absence

The department recognizes an "Absence from Class" for the following reasons: 1) participation in recognized university activity (a note from the university sponsor is required), 2) illness certified by the health center or personal physician, and 3) emergency caused by circumstances beyond your immediate control.
An excused absence does not necessarily excuse you from any missed course work. You must contact your course instructor to determine if you are eligible for any make-up assignments. Students should request an excused absence immediately upon their return to campus and must bring verifiable documentation to justify the excuse. Excessive delay in requesting an excused absence or proving appropriate documentation may result in the request being denied. Deliberately providing false, forged, or misleading documentation may result in academic sanctions applied against the student.

Bring your proof to **Room B-111** Student Services at the College of Engineering (COE) Building, and request an "Excused Student Absence" form. If your proof is verified, you will be given an official excused absence to give to your course instructor.

8.6. Applying for reinstatement or readmission

Students who wish to be readmitted to an engineering major will need to first complete an application request for readmission at their home university. For students in good academic standing at time of the readmission, their major department will review their application to determine if the student will be readmitted.

Any student who is not in good academic standing (e.g., suspension, dismissal, expulsion, etc.) at the time of readmission may need to complete an "Engineering Appeals Application" to be reviewed by the College. This form is available online at Quicklinks, Appeals Process at www.famu.edu/engineering or www.eng.famu.fsu.edu. If you have any questions, please go to Student Services, **Room B-111**.

Please note it may take up to one semester to review requests for readmission. So, students are encouraged to apply early. Please email studentsupport@eng.famu.fsu.edu for more information. In most cases, you may email a form and request a digital signature instead of hand delivering forms.

8.7. Applying for graduation

At the beginning of the semester you expect to graduate, you must apply for graduation. Note: if you apply for graduation and fail to graduate for any reason, you must re-apply for graduation the next semester.

Two semesters before applying for graduation, request a graduation check from your academic advisor. Both FAMU and FSU students must apply for graduation by their respective deadlines during the semester that the student is graduating. Deadlines can be found under https://www.eng.famu.fsu.edu/students/academic-deadlines.

1. FSU students must apply for graduation online through Student Central.
2. FAMU students must complete and submit a Student Intent to Graduate form to their academic advisor. The intent form can be found on the FAMU Registrar's website under Forms. Once approved, students will be able to submit an application for graduation online via iRattler.

8.8. Registering for the Fundamentals of Engineering (FE) exam

To practice as a civil or environmental engineer, it is often necessary to have one's Professional Engineering license. The first steps to professional licensure are graduating from an ABET accredited engineering program and passing the Fundamentals of Engineering (FE) exam, thus obtaining the status of Engineering Intern (EI). The department strongly encourages all students to take the FE exam during the senior year, prior to graduation. Application forms for FE exams, instructions, deadlines and fees can be found on the website of the Florida Board of Professional Engineers at http://www.fbpe.org.

9. University honor policies and student codes of conduct

All matters pertaining to grade appeals, general academic appeals, the **Academic Honor System**, and **student conduct** must be handled in accordance with the procedures outlined in the current FAMU or FSU Bulletin and Student Handbook, as the case may be.

- FAMU: https://www.famu.edu/BOT/Academic%20Honesty%20Policy%207.27.17.pdf
- FSU: https://sccs.fsu.edu/policies/academic-honor-policy

10. Academic advising and assistance

Academic advising plays an important role in the timely completion of your graduation requirements. Initially you will meet with the department academic coordinator. Within the first semester in the program, you will be assigned a permanent academic advisor from among the faculty. The Academic Coordinator will send an email indicating who each student's assigned faculty advisor is, and the faculty advisor's email address.

10.1 Advising and registration

Advising is mandatory during the pre-registration periods for all semesters. ***To ensure that students confer with their academic advisors each semester, advising holds are placed on all Civil & Environmental students' registrations.*** To have the hold removed, follow these steps:

1. See your academic advisor every spring and fall semester.
    - Students may meet with their assigned faculty advisor and/or the CEE academic coordinator to plan their upcoming courses. The academic coordinator can remove their advising hold.
    - Either in-person or remote advising appointments may be available, depending upon the preference of the advisor. Email advising is also available, but a live meeting (either in-person or over Zoom) is always preferred.
    - Although some faculty members have an open-door policy, most post and want their office hours respected. PLAN AHEAD. CALL AHEAD or email your advisor to make an appointment. Avoid dropping in and don't assume your advisor will be able to see you without an appointment.
2. With your advisor, plan your schedule for next semester and complete an academic advising form.
    - Each semester prior to seeing your advisor, review requirements in your intended major by checking academic maps, class schedules, and policy guides. Academic maps (curriculum flow charts) and CEE class schedules for the upcoming semester are posted in the CEE display case; academic maps are also available online at https://eng.famu.fsu.edu/cee/undergraduate/academic-maps.
    - Complete an academic map for your records and update it each semester. Have a general sense of what you should be taking and their pre-requisites.
    - Complete an advising form listing the courses you are planning to take. Advising forms are available in the main Civil & Environmental Engineering Office (**Room A-129**), online at https://eng.famu.fsu.edu/cee/student/forms, or from your academic advisor. Discuss your long- and short-term plans with your advisor. Both you and your advisor must sign the advising form, either digitally or on paper.
3. Take or email the completed advising form to the CEE academic coordinator.
    - Upon satisfactory review, the academic coordinator will remove your advising hold.
4. When your registration window opens, you can register for classes.
    - Only students who have completed the above process will be permitted to register.
    - For information on registration windows for fall, spring, and summer classes, check your University website, available online at FAMU (http://www.famu.edu/index.cfm?Registrar&Calendars) and FSU (https://registrar.fsu.edu/registration_guide)

10.2 Advising tips and assistance

1. Make an agreement with yourself to attend classes each day from the first day of instruction. Make use of office hours offered by instructors and teaching assistants.
2. Confer with your instructor and your advisor prior to withdrawing from a course.
3. Libraries & Tutoring Information can be found at https://www.eng.famu.fsu.edu/students/library-and-tutoring-centers.
4. Tutoring is available through Knack: https://www.joinknack.com/student/famu-fsu-college-of-engineering.

10.3 Academic and advising coordinator

Additional information and help in advising can be obtained from Tonya Hardaway-Sampson, CEE Undergraduate Coordinator and Advisor, located in **Room A-142**. Mrs. Hardaway-Sampson is also available at tonya.hardaway@eng.famu.fsu.edu and (850) 410-6136. You should contact Mrs. Hardaway-Sampson if:

- You are a new transfer student
- You are looking for your faculty advisor
- Your regular advisor is not available during his/her posted office hours for any reason
- You have over ***90*** credit hours and are planning to graduate
- You wish to change your major or transfer classes taken elsewhere
- You need to complete a Department Progress Check.
- You have any other questions regarding general advising, degree requirements, etc.

Contact Info:
Tonya Hardaway-Sampson, MS
Tonya.hardaway@eng.famu.fsu.edu
(850) 410-6136
Office: **A142/College of Engineering**
Face-to-face or Zoom appointments available

11. ABET requirements

The undergraduate program in Civil Engineering is accredited by ABET, formerly known as the Accreditation Board for Engineering and Technology. Any accredited program must meet a strict set of program educational objectives and student outcomes required by ABET to ensure the highest standards of professional engineering education. Know what ABET stands for, and the four objectives and seven outcomes listed below. You will find this information on the department web site, in the course selection guide, and in classroom syllabi.

11.1. Program educational objectives

The Civil Engineering program has established program educational objectives (PEOs) that are consistent with university and program mission statements, and that are reviewed and updated through a process of stakeholder input on an ongoing basis. Constituencies include students, faculty, employers, alumni, and professional societies. Students may provide input on PEOs, as well as any other aspect of the CEE program, through annual Student-Faculty forums, or by reaching out to any CEE faculty member or the academic coordinator in person or by email.

Consistent with the mission and goals of the FAMU-FSU College of Engineering and based upon the input and needs of its constituents, the civil engineering program will produce graduates who will achieve the following program educational objectives (PEOs) several years after graduation:

1. Progress in successful professional careers in civil and environmental engineering or related fields, and/or enroll in studies at the graduate level;
2. Apply engineering principles to address the needs of society, including sustainability, and practice effective management, communication, and leadership skills;
3. Respond to the rapid pace of change in civil and environmental engineering by becoming professionally licensed, engaging in ongoing continuing education, and participating in professional society activities; and
4. Contribute to work force diversity as members and leaders of multidisciplinary teams.

The objectives were developed in concert with the missions of the department, college, and both universities, based on input from stakeholder groups, especially faculty and the advisory board. To ensure that they reflect the current needs of the program's constituents, stakeholder review occurs at least once every two years. Any deficiencies noted by stakeholders would initiate a revision process, described in the next paragraph. The current version was approved in 2018.

Revision of the PEOs typically begin at the recommendation of the ABET coordinator, undergraduate committee, or other stakeholder, based on assessment data and the current goals. The recommended changes are presented and discussed at a CEE faculty meeting or the spring faculty retreat. The faculty makes final recommendations regarding any updates to the program educational objectives and discusses a draft of the specific language if different from that currently in effect. Then during corresponding annual advisory board meetings, the department chair and ABET coordinator present the recommended PEO changes to the advisory board and solicit feedback from the members, who represent alumni, employers, and members of professional societies. Students are given an opportunity to review and comment on both the PEOs and SOs annually at the Student-Faculty forum. To conclude the process, the CEE faculty votes on adopting the final statement of the PEOs before sending it for publication and distribution.

11.2. Student outcomes

The student outcomes (SOs) of the CE program reflect the skills, knowledge, and attributes that students develop through the curriculum and experiences gained while in the program. By the time they graduate from the civil engineering program, students should have attained the seven student outcomes. SOs were established based on ABET Criterion 3 and the Program Criteria for Civil and Similarly Named Engineering Programs, as well as on the program educational objectives of the Civil and Environmental Engineering Department. The SOs are periodically reviewed in a manner similar to that described previously for the PEOs.

Graduates of the B.S. in Civil Engineering program are expected to have acquired the following outcomes (or attributes) at the time of their graduation.

1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply both analysis and synthesis in the engineering design process, resulting in designs that meet desired needs.
3. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
4. An ability to communicate effectively with a range of audiences.
5. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
6. An ability to recognize the ongoing need for additional knowledge and locate, evaluate, integrate, and apply this knowledge appropriately.
7. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

The SOs are periodically reviewed in a manner similar to that described previously for the PEOs. The current SOs were adopted by the department in 2018.

11.3. Student outcomes assessment

The outcomes assessment and evaluation process is composed of multiple components that function at multiple levels and frequencies; Figure 2.1 provides an overview of the cyclic process of continuous improvement.

Collect stakeholder data to assess performance

- Students (SLTs, SSAs & exit interviews)
- Alumni (surveys)
- Employers (surveys)
- FE exam results

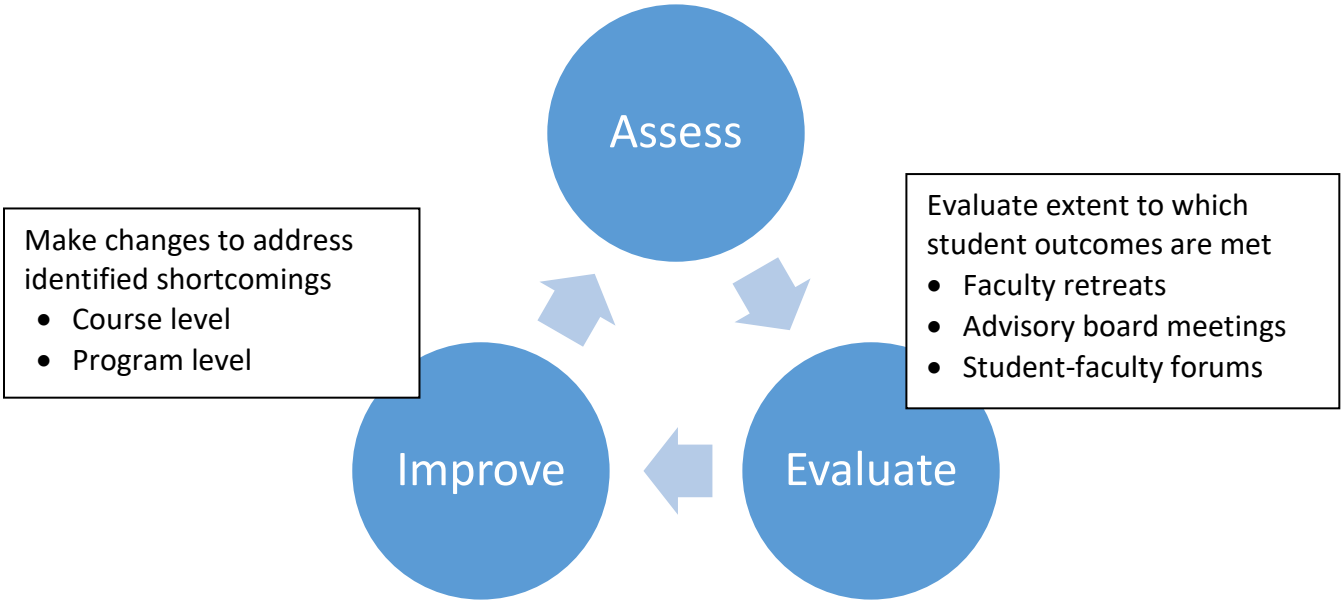


Figure 11.1: Continuous outcomes assessment process

As described in Figure 11.1, the assessment process evaluates student mastery of the ABET student outcomes by collecting a variety of data elements from numerous stakeholders, including students, alumni, and employers; evaluating it with input from the same stakeholders; and using the results to make improvements at the course and program level. The primary component of the assessment process is course based, and includes direct assessment of student learning tasks (SLTs) by instructors, and indirect assessment in the form of student self-assessment (SSA) surveys. Secondary assessment tools include graduate exit interviews, alumni surveys, and employer surveys. Data items like percent of students taking and passing the Fundamentals of Engineering licensing exam are also used to assess the quality of the program and its graduates.

All ABET student outcomes are assessed within a multi-semester cycle, with one or more outcomes assessed in each semester, and results evaluated on a cyclical basis by various stakeholders. To ensure that the effects of program improvements are regularly and are adequately assessed, the entire assessment cycle is repeated multiple times within the six-year ABET accreditation window. Figure 11.2 illustrates the repeating ABET course assessment process graphically. The large arrows represent the multi-semester program assessment and evaluation cycle, while the smaller arrows represent the assessment of individual outcomes within a given semester.

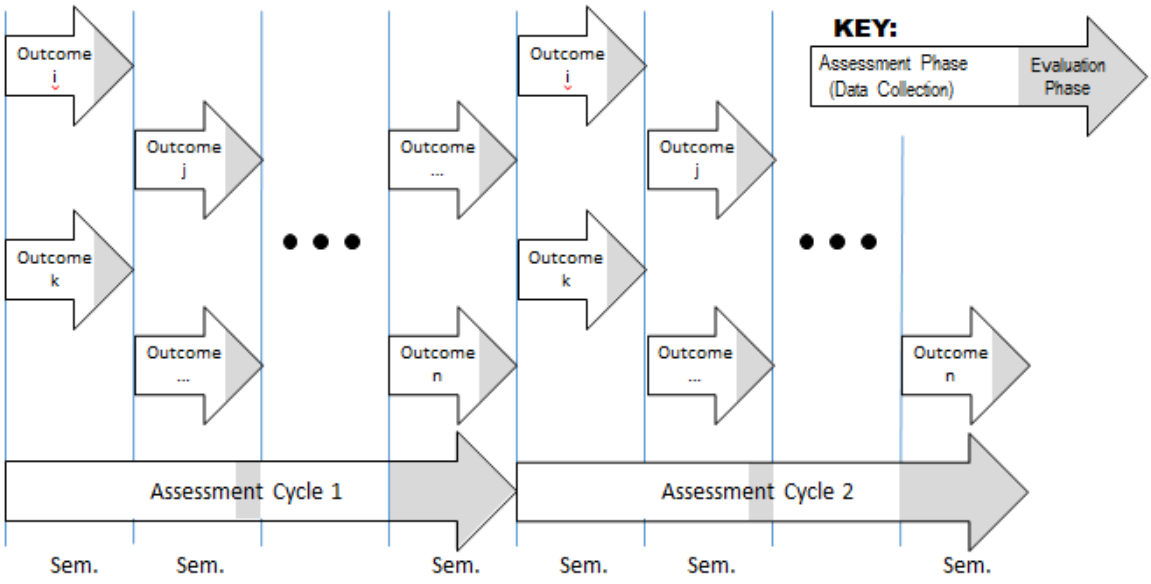


Figure 11.2: Multi-semester repeating cycle for ABET outcomes assessment

As shown in Figure 11.2, the assessment (data collection) phases are followed by intermittent evaluation phases, represented by the shaded portions of the arrows. Evaluation occurs at both the course and program level, and at least annually. The semester-based assessments are conducted primarily at the course level and the results are used by the instructor to make improvements to the individual course. Then, the data from selected courses are compiled with assessment data from other sources to conduct program level evaluation. Annual evaluation points include ABET workshops, conducted each fall since 2006, either as part of a department retreats or in conjunction with regular faculty meetings. Workshops include both planning and evaluation activities, including identifying areas of student weakness and planning actions to ameliorate those deficiencies. Data is also evaluated by alumni and employers at the annual advisory board meetings, with guidance and direction from the department's ABET coordinator.

All student outcomes are measured and assessed on a four-category scale, as follows:

- 4 = Exemplary
- 3 = Satisfactory
- 2 = Developing
- 1 = Unsatisfactory

The exact student performance required to achieve each level varies according to the outcome being addressed. Full performance criteria and rubrics for measurement of achievement of each outcome are given in Section 11.3.3. In 2014, the program established a benchmark of 80% of responses indicating achievement of the level of *Satisfactory (3)* or *Exemplary (4)* as the expected level of attainment for each of the student outcomes.

11.3.1. Outcomes assessment tools

A series of tools are used to provide a holistic assessment of the level of achievement of student outcomes. A combination of both direct and indirect assessment methods are used, depending on the context of the assessment. A summary of the assessment tools is shown in Table 11.1: *Assessment Frequency* refers to the frequency with which each item is collected, and *Evaluation Frequency* refers to the frequency with which the instructor or program uses the data the make improvements (to the course or program, respectively). The instruments are described in detail below.

Student Learning Task (SLT) based assessments: Student learning tasks (SLTs) are the primary mechanism through which achievement of the SOs is assessed. SLTs include student activities and assignments such as homework assignments, writing assignments, laboratory reports, quizzes, exams, and projects. They are used to demonstrate and assess student achievement of course learning outcomes (CLOs), student outcomes, and performance criteria. A set of CLOs is developed for each CEE course. These CLOs are mapped to the student outcomes and that mapping is described in the course syllabi. Instructors use rubrics based on performance criteria to review the SLTs to assess achievement of student outcomes. Each semester, SLT-based assessments are conducted by instructors of select courses to examine specific outcomes.

Table 11.1: Summary of assessment tools for Student Outcomes, Program Educational Objectives (PEOs), and other components of the program

Assessment Tool	Type	Typical Assessment Frequency	Minimum Evaluation Frequency	Contribution Towards Assessment of:		
				SOs	PEOs	Program
Student Learning Task (SLT) based assessments	direct	every semester[1]	every semester (instructor); annually (program)	high	none	high
Student SSA surveys	indirect	every semester[1]	every semester (instructor); annually (program)	moderate	none	moderate
Exit interview surveys	direct & indirect	every semester	annually	moderate	low	high
Student-faculty forums & surveys	indirect	irregularly	once per cycle	moderate	none	moderate
Alumni surveys	indirect	twice per window	once per window	moderate	high	high
Employer surveys	indirect	once per window	once per window	moderate	high	high
FE exam scores	direct	annually	once per cycle	low	none	low

[1] select courses/outcomes according to outcomes assessment plan

Student Self-Assessment (SSA) Surveys: SSA surveys are anonymous surveys given to students in select CEE courses to allow them to rate their level of achievement of the course learning outcomes. The SSA surveys provide indirect assessment of outcome achievement through student perception of their achievement. Under the

direction of the ABET coordinator, the department administers the online surveys to students in select courses, and collects and summarizes the results. Students are surveyed on their achievement of course outcomes, which they are more familiar with, and the results are mapped to the student outcomes used a standardized mapping. The SSA results are provided to individual instructors along with student comments, and aggregate results are compared to faculty direct SLT-based assessments via the established rubrics at annual faculty workshops and at the end of each assessment cycle, to provide a broader picture of the level of achievement of the student outcomes within the curricula.

Exit Surveys: An extensive senior exit survey is given to each graduating senior to complete anonymously in order to provide feedback on any issues that students would rather not discuss with a faculty or staff member. The main emphasis of the exit survey is to provide additional indirect data on whether the program has achieved the student outcomes, and to provide direct data on student participation in professional societies and whether they are pursuing Engineering Intern (EI) certification and Professional Engineering (PE) licensing by taking the Fundamentals of Engineering (FE) exam, and to gather feedback on the program in general. The survey questions related to outcomes provide quantitative data for assessment while the free response questions provide opinions on the program strength and areas that need improvement as well as suggestions on how to improve those areas.

The CE program has implemented the exit surveys every semester since spring 2000. The Senior Exit survey was reviewed and simplified during the 2013, as part of a transition from Blackboard to Qualtrics implementation. The survey responses are reviewed by the ABET coordinator and department chair each annually, and notable results brought to a faculty workshop or other stakeholder forum, if deemed necessary. Summary reports are compiled and presented to the faculty and advisory board at the end of each assessment cycle at minimum.

Student-Faculty Forums: Student-faculty forums are used to convey information from the faculty regarding program educational objectives, student outcomes, curriculum updates, and provide a stage for student feedback about various aspects of the program, including the relevancy of the PEOs and SOs, student achievement of SOs, and perceptions regarding the program's successes and areas needing improvement. The forums are typically conducted at least once a year, and are well attended by both students and faculty.

Alumni Surveys: The alumni survey is sent to graduates who have been out of the program for a year or more. The survey consists of requests for information on licensing and participation in professional societies, opportunity to provide a scaled response to statements concerning graduate achievement of SOs and PEOs, plus free response questions addressing aspects of the program that should be retained or that could be improved. The alumni survey has been sent out electronically starting spring 2007, and was transitioned from Blackboard to Qualtrics in 2013. Reports from these surveys are compiled and presented to the faculty and advisory board at the end of each assessment cycle at minimum.

Employer Surveys: An online employer survey is sent to current and recent employers of the program's graduates. Employers are asked to rate graduates on their level of achievement of the student outcomes and program educational objectives. Employers also have the opportunity to provide comments on the professional strengths of our graduates as well as areas they lack. Reports from these surveys are compiled and presented to the faculty and advisory board at the end of each assessment cycle at minimum.

FE Examination Scores: Students are strongly encouraged to take the Fundamentals of Engineering (FE) examination while they are enrolled in the CE program. Student scores in the different sections of the FE exam, as well as overall passing rates, are used to assess student achievement of relevant student outcomes. Their scores also are compared with national averages in the evaluation process to gauge the success of our program relative to other programs. These results are presented to the faculty and advisory board at the end of each assessment cycle at minimum. The advisory board, in particular, is interested in reviewing graduates' performance on the FE

and PE (Professional Engineer) exams. Because the FE exam results only link to certain student outcomes, the department considers them to be a minor contributor to the outcomes assessment process.

11.3.2. Relationship of the curriculum to the program educational objectives

The curriculum (both civil and environmental engineering majors) has been planned to support achievement of the student outcomes and prepare our graduates to achieve the program educational objectives (PEOs) within several years after graduation. The curriculum is not mapped directly to the PEOs; instead courses in the curricula address the seven student outcomes listed in Criterion 3, which in turn support the achievement of the PEOs.

11.3.3. Relationship of the curriculum and prerequisite structure to student outcomes

The department maintains a detailed matrix that indicates which courses contribute to which student outcomes. The mappings were developed based on extensive discussion and input from the undergraduate committee, ABET coordinator, and course instructors, and relies on completion of material in pre-requisite courses for full mastery of subsequent course content. This matrix is reviewed and updated as needed as course content evolves.

Table 11.2 shows how the ABET student outcomes (SOs) are provided by all required courses taken by students in the CE program. Additional coverage of SOs is provided by five elective courses and other general education and non-departmental courses. Mapping for elective courses is shown in Table 11.3. A course is identified as supporting an outcome if one or more of the associated performance criteria are covered in the course; this is indicated in Table 11.2 by the letters *a*, *b*, *c* and/or *d* at the intersecting cell. The outcomes in boldface type and shaded cells are used to assess student mastery. Tables 11.4a-g provide the full description of each criteria and the assessment rubrics by which student mastery are measured.

Table 11.2: Mapping of Student Outcomes to required courses in the program

Course Number	Course Name	Req/Elec	Area	Outcomes Addressed (Shaded=Used in Assessment Process)							Outcomes Addressed (#)
				1	2	3	4	5	6	7	
CCE 3101	Construction Materials	Required	Cons/Trans	**a,b,c,d**	a				c,d	a,b	4
CEG 2202	Intro to Geomatics Engr	Required	Geotech	a,b,c,d					**c,d**	a,b	3
CEG 2202L	Intro to Geomatics Lab	Req/Lab	Lab	a				**a,b,c**	a,b,c,d	a,b	4
CEG 3011	Soil Mechanics	Required	Geotech	a,c,d	a					**a**	3
CEG 4801	Geotechnical Design	Required	Geotech	a,b,c	a,b,c				b,c,d	**a,b**	4
CGN 3326	CE Graphics & Design	Required				**b,c**		a		a,b	3
CGN 3508L	Civil Eng. Materials Lab	Req/Lab	Lab	c,d		**a,d**		**a,b,c**	a,b,c,d	a,b	5
CGN 4800	Senior Design Project I	Required	Project	a,b,c,d	b,c,d	**a,b,c,d**	**a,b,c**	a,b,c		a,b	6
CGN 4802	Senior Design Project II	Required	Project	a,b,c,d	**a,b,c,d**	a,b,c,d		**a,b,c**		a,b	5
CWR 3200L	Env/Hydraulics Lab	Req/Lab	Lab	c		a,c,d			**a,b,c,d**		3
CWR 3201	Hydraulics	Required	Env/WR	**a,c**							1
EES 3040	Intro to Environ Eng	Required	Env/WR	a,c,d	b,c,d	a,c	**a,b,c**			a,b	5
EGM 3512	Engineering Mechanics	Required	Structures	**a,b,c,d**							1
EGN 3331	Strength of Materials	Required	Structures	a,c	**b,c**						2
TTE 3004	Transportation Eng	Required	Cons/Trans	a,b,c,d	a,b,c	a,c,d			**a,b,c,d**	a,b	5
ENV 4001	Environmental Eng	Req (Env)	Env/WR	b,c	**a,d**	a,b,d	a,c	a,b		a	6
CES 3100	Structural Analysis	Req (Civ)	Structures	a,b,c,d		**a,c,d**				b	3
CES 4702	Concrete Design	Select Elective (Civil)	Structures	a,b,c,d	a			a,b,c		**a,b**	4
CES 4605	Steel Design		Structures	a,b,c,d	a					**a,b**	3
Total exposures to each outcome through required courses				15-16	9	7	2-3	4-6	7	11-12	
Number of times assessed in 2-year window				3	2-3	2-3	2	3	3	2-3	

Table 11.3: Mapping of Student Outcomes to elective courses in the program

Course Number	Course Name	Area	Outcomes Addressed							
			1	2	3	4	5	6	7	Total
CCE 4004	Construction Engineering	Const	a,b,c,d		a,b,c,d	a,b,c	a,b,c		a,b	5
CCE 4031	Construction Plan & Sched	Const	a,b,c,d		a,b,c,d	c	a,b,c		b	5
CGN 3326	CE Graphics & Design Tools*	CAD			b,c		a		a,b	3
CWR 4101	Engineering Hydrology	Env/WR	a,d	a,b,c,d	a,b,c,d	c			b	5
CWR 4120	Groundwater Hydrology	Env/WR	a,b,c,d	a,b,c,d	a,b,c,d	a,b,c	a,b,c	a,b,c,d	a,b	7
CWR 4202	Hydraulic Engineering I	Env/WR	a,c	a,b,c,d				a,b,c,d	a,b	4
CWR 4540	Water Resources Eng	Env/WR	a,b,c,d	b,c,d	a,b,c,d	c	a,b,c			5
ENV 4022	Remediation Engineering	Env/WR	a,b,c,d	a,b,c,d	a,b,c,d		a,c			4
ENV 4341	Solid & Hazardous Waste Management	Env/WR	a,b,c,d	b	a,b,c,d	a,c	a,c	c	a,b	7
ENV 4500	Env Eng Processes & Ops	Env/WR	a,b,c,d	a	a,b,c,d		a,b,c		a,b	5
TTE 4201	Traffic Engineering	Trans	a,b,c	c	a,b,c	a,b	a,b	b,c,d	a	7
TTE 4250	Traffic Operations	Trans	a,b,c	a,b,c,d	a,c,d			a,b,c,d	b	5
TTE 4804	Highway Geometric Design	Trans	a,b,c,d	a,c	a,b,c,d			a,b,c,d	b	5
Total number of elective courses addressing outcome			12	10	12	7	9	6	11	

Table 11.4a-g: Performance criteria and assessment rubrics for Student Outcomes

Outcome 1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

Performance Criteria	Exemplary 4	Satisfactory 3	Developing 2	Unsatisfactory 1
a. Identify the appropriate formula(s) or model for a system, process or design problem.	All elements of the appropriate formula(s) or model	Most elements of the appropriate formula(s) or model	A few elements of the appropriate formula(s) or model	None identified
b. Propose possible solution approaches and alternatives to solve complex problems.	Multiple appropriate solution approaches and alternatives	Several appropriate solution approaches and alternatives	Limited appropriate solution approaches and alternatives	No solutions proposed
c. Apply concepts of engineering, science, math to solve problems.	Concepts are applied to solve problem correctly	Application is mostly correct	Limited application; some errors	No application demonstrated
d. Verify feasibility and reasonableness of the result.	Solution method is correct; thorough verification given	Solution method is correct; limited verification	Some errors in solution method; no verification	Problem solving not attempted

Outcome 2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

Performance Criteria	Exemplary 4	Satisfactory 3	Developing 2	Unsatisfactory 1
a. Incorporate established design criteria for an engineering system, component, or process while considering public health, safety, and welfare.	Extensive inclusion of criteria and constraints are considered	Key criteria included; constraints are generally considered	A few criteria included; constraints are somewhat considered	No criteria incorporated; constraints are not considered
b. Identify the global, cultural and social impacts of engineering designs.	Extensive, in-depth, and multiple impacts identified	Key impacts identified, with specific descriptions	A few impacts identified, with vague descriptions	None identified

Outcome 2, continued.

Performance Criteria	Exemplary 4	Satisfactory 3	Developing 2	Unsatisfactory 1
c. Evaluate the economic impact of engineering designs.	Extensive and in-depth evaluation of impacts	Some evaluation of impacts	Limited evaluation of impacts	No evaluation
d. Explain the environmental impact of engineering designs.	Extensive and in-depth explanation of impacts	Some explanation of impacts	Limited explanation of impacts	No explanation

Outcome 3. An ability to communicate effectively with a range of audiences.

Performance Criteria	Exemplary 4	Satisfactory 3	Developing 2	Unsatisfactory 1
a. Write a technical document that is clear, concise, and well organized and that presents background, methodology, results, analysis, and recommendations, as appropriate.	Detailed content; almost always clear and concise, and well organized	General content; mostly clear, concise, and well organized	Limited content; not clear and concise in some areas and needs some organization improvements	Writing is not clear and concise in most areas and is poorly organized
b. Plan, prepare, and deliver an oral presentation that is well organized, clear, and appropriate for the target audience.	Almost always clear explanations, concise, and well organized	Mostly clear explanations, concise, and well organized	Limited information; not clear and concise in some areas; needs organization improvements	Presentation is not clear and concise in most areas and is poorly organized
c. Use visual aids and graphics that are easy to read, appropriate, and clear.	Always easy to read, concise, and clear	Mostly easy to read, concise, and well organized	Not easy to read in some instances; some organization and content concerns	Not easy to read in most instances; poor organization
d. Submit work with minimal errors in spelling, punctuation, grammar, and usage.	Very few and minor errors	A few errors in some areas	Some errors in multiple areas	Many errors in multiple areas

Outcome 4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

Performance Criteria	Exemplary 4	Satisfactory 3	Developing 2	Unsatisfactory 1
a. Demonstrate knowledge of professional ethics and responsibilities.	Extensive and in-depth discussion of ethics and responsibilities	Some discussion of ethics and responsibilities	Limited discussion of ethics and responsibilities	No discussion of ethics and responsibilities
b. Apply codes of ethics to make informed decisions and/or judgments about engineering dilemmas.	Detailed reference to specific sections of code(s) of ethics	Some reference to code(s) of ethics	Limited reference to code(s) of ethics	No reference to code(s) of ethics
c. Identify the global, economic, environmental, and societal impacts of situations or events.	Extensive, in-depth, and multiple impacts identified	Key impacts identified, with specific descriptions	A few impacts identified, with vague descriptions	None identified

Outcome 5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

Performance Criteria	Exemplary 4	Satisfactory 3	Developing 2	Unsatisfactory 1
a. Contribute individual skills and knowledge to meet team objectives.	Contributes extensive detailed and relevant skills and knowledge	Contributes key skills and knowledge, mostly relevant	Contributes some skills and knowledge, some relevant	Does not contribute
b. Demonstrate leadership by setting goals, and planning tasks, and completing them in a timely manner.	Always sets clear goals and plans, and completes in a timely manner	Frequently sets clear goals and plans, and completes in a timely manner	Sometimes sets clear goals, and plans and completes in a timely manner	Does not set clear goals, and plans or complete in a timely manner
c. Give and receive constructive feedback with team members in a collaborative and inclusive environment.	A fair amount of relevant feedback; highly responsive and inclusive	Some relevant feedback; mostly responsive and inclusive	Limited relevant feedback; mostly not responsive or inclusive	Does not interact or listen to others most of the time

Outcome 6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

Performance Criteria	Exemplary 4	Satisfactory 3	Developing 2	Unsatisfactory 1
a. Use existing theory and knowledge to design an experiment.	Extensive theory and knowledge used; appropriate experiment design	Some theory and knowledge used; a few errors in experiment design	Limited theory and knowledge used; some errors in experiment design	No theory or knowledge used
b. Conduct an experimental procedure in laboratory or field with minimal supervision.	Independent work; appropriate and in-depth procedure(s)	Minimal supervision and appropriate procedure(s)	Some supervision & some appropriate procedure(s)	Significant supervision required
c. Use appropriate tools to analyze data and apply statistical procedures where appropriate.	Extensive use of appropriate tools and statistics; thorough analysis	Moderate use of appropriate tools and statistics; basic analysis	Limited use of tools and statistics; some errors	No appropriate tools or statistical procedures used
d. Interpret data in the appropriate context to draw conclusions and/or make recommendations.	Extensive and appropriate interpretation, detailed conclusions or recommendations	General and appropriate interpretation, general conclusions or recommendations	Limited interpretation with some errors, limited conclusions or recommendations	No interpretation attempted

Outcome 7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Performance Criteria	Exemplary 4	Satisfactory 3	Developing 2	Unsatisfactory 1
a. Retrieve and apply relevant and current literature, codes, and standards.	Extensive and appropriate application	General and appropriate application	Limited application, and/or application with extensive errors	No application
b. Independently use software, tools, and equipment to solve engineering problems.	Extensive and appropriate usage	General and appropriate usage	Limited usage, and/or usage with extensive errors	Not used