

A Comparative Study of EAC-ABET Civil Engineering Program Educational Objectives and the ASCE Body of Knowledge Outcomes (CEBOK3)

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Abstract

EAC-ABET Criterion 2 requires accredited civil engineering programs to publish program educational objectives. The Engineering Accreditation Commission (EAC) of ABET defines program educational objectives (PEOs) as “broad statements that describe what graduates are expected to attain within a few years after graduation” [1]. These statements should be consistent with the mission of the institution and the needs of the program’s constituencies. There is no required minimum or maximum number of PEOs. Accredited civil engineering programs are not required to assess PEOs, but they are required to develop their own PEOs and have a “documented, systematically utilized, and effective process, involving program constituencies, for the periodic review” of their PEOs [1].

A study was conducted to review PEOs from all 276 EAC-ABET accredited civil engineering programs in the United States (U.S.) in the 2025-26 academic year. The list includes multiple programs from every state and the District of Columbia. Three research questions framed the study. What are the common topics that appear in civil engineering program PEOs? What are the range, mean and median number of civil engineering program PEOs? To what extent do Engineering Fundamental Outcomes, Technical Outcomes, and Professional Outcomes from ASCE’s Body of Knowledge 3 (CEBOK3) appear in PEOs?

Although almost all accredited civil engineering programs have the same seven ABET Criterion 3 Student Outcomes, the study found that the number and content of PEOs vary considerably. No two programs have the same PEOs. The number of PEOs ranged from 1 to 8 with a mean and median of 3.77 and 4, respectively. The study categorized PEOs into 37 topics based on key words and statement context. The PEO topics that occurred most frequently in civil engineering programs were the Practice of Engineering” (91%), Graduate Education (66%), Licensure (63%), and Leadership (63%). Notable topics that were not common include Involvement in Professional Organizations (26.1%), Design and Engineering Solutions (25.7%), Sustainable and Resilient Solutions (25%), and Management or Business Skills (23.9%).

Fifteen of the twenty-one CEBOK3 outcomes were mapped to civil engineering program PEOs. The four Foundational CEBOK3 outcomes and the first two Engineering Fundamentals CEBOK3 outcomes are typically completed in an accredited undergraduate degree program and are not included in this study because they do not apply to PEOs. Only two of the fifteen CEBOK3 outcomes were found in most civil engineering program PEOs. The Depth in a Civil Engineering Area outcome is primarily fulfilled by graduate education which was found in 66% of civil engineering program PEOs. The Ethical Responsibilities outcome was found in 50% of civil engineering program PEOs. Six CEBOK3 outcomes were found in fewer than 10% of civil engineering program PEOs.

Introduction

There are 276 EAC-ABET accredited civil engineering programs in the United States and District of Columbia [2]. All programs are required to publish Program Educational Objectives (PEOs), defined as “broad statements that describe what graduates are expected to attain within a few years after graduation” [1]. PEOs are defined in both ABET’s Criteria for Accrediting Engineering Programs and their Accreditation Policy and Procedure Manual (APPM). They are developed based on the needs of the program’s constituencies. PEO’s are not assessed but must be periodically reviewed. There are no templates to assist programs in writing PEOs, and there are no ABET topic requirements. Each accredited civil engineering program has broad discretion to create PEO’s that are consistent with the university’s mission and the needs of the program’s constituents. There are no minimum or maximum number of PEO’s and no required pathways for graduates to achieve the PEOs. They must be periodically reviewed to ensure they meet their constituents’ needs, however, accredited programs are free to determine who their constituents are and how to obtain regular input from these constituents.

The purpose of the following study was to review the current PEOs in all ABET accredited civil engineering programs in the 2025-2026 academic year. Because there is so much latitude in the creation of PEOs, the goal was to report variations in the content and quantity of PEOs among all civil engineering programs.

Background

ABET first introduced PEOs in their accreditation criteria in 1996 in Engineering Criteria 2000 (EC2000) [3] [4]. The new set of accreditation criteria shifted the emphasis from what is taught to what is learned. PEOs establish professional career abilities and accomplishments expected for the program’s graduates within a few years following graduation. In contrast, Student Outcomes represent the skills and abilities obtained and demonstrated by the student at the time of graduation. EC2000 required undergraduate engineering programs to assess 11 learning outcomes (outcomes a-k) and demonstrate student achievement of these outcomes. They were also required to publish educational objectives and have a system “of ongoing evaluation that demonstrates achievement of these objectives and uses the results to improve the effectiveness of the program” [4]. Beginning with the 2011-2012 accreditation cycle, ABET dropped the requirement to assess PEOs. This was replaced with a requirement that “There must be a documented and effective process, involving program constituencies, for the periodic review and revision of these program educational objectives” [5].

PEOs are a critical component in a modern civil engineering program. The creation of a new civil engineering program at a university usually begins with a strategic needs assessment. This requires new programs to define clear goals (PEOs), develop measurable outcomes (Student Outcomes), create a curriculum that meets internal and external policy requirements, and hire faculty to deliver the curriculum. Peterson, et.al. describes this top-down approach as a fruit tree where the curriculum and faculty are the trunk, the outcomes are the branches, and the PEO’s are the fruit [6]. Using this analogy, graduates of an accredited civil engineering program that achieve a program’s PEOs can be considered university products that are tailored to meet the needs of their consumers (constituents).

The Civil Engineering Body of Knowledge, published by the American Society of Civil Engineers (ASCE), contains a list of outcomes for civil engineers to fulfill early in their career. In Policy 568, ASCE advocates for the attainment of these outcomes as a requirement for exercising responsible charge in the practice of civil engineering [7]. The third edition of the Civil Engineering Body of Knowledge (CEBOK3) defines the body of knowledge as the “knowledge, skills, and attitudes” that are typically attained through undergraduate and post-graduate education, mentored experience, and self-development [8]. Three of the paths used to obtain the CEBOK3’s knowledge, skills, and attitudes are outside the purview of an undergraduate civil engineering program’s assessment process. These three paths, post-graduate education, mentored experience, and self-development, are commonly used by graduates to fulfill CEBOK3 outcomes and meet a civil engineering program’s PEOs.

ASCE published their first Body of Knowledge (CEBOK) in 2004 [9]. CEBOK1 had 15 outcomes, CEBOK2, published in 2008, had 24 outcomes, and CEBOK3, published in 2018, has 21 outcomes. The 21 CEBOK3 outcomes are segregated into four categories: Foundational Outcomes (4 outcomes), Engineering Fundamentals Outcomes (4 outcomes), Technical Outcomes (7 outcomes) and Professional Outcomes (7 outcomes) [8]. The level of achievement required for entry into the practice of civil engineering at the professional level for the first six CEBOK3 outcomes (mathematics, natural sciences, social sciences, humanities, materials science, and engineering mechanics) is met by completing an undergraduate civil engineering degree. The level of achievement required for entry into the practice of civil engineering at the professional level for the last fifteen CEBOK3 outcomes is typically met by following post-graduate pathways, although it is noted that other pathways may be taken.

Accredited civil engineering programs produce graduates who pursue a variety of vocations. Not all graduates will enter into the practice of civil engineering at the professional level, but many will. In most jurisdictions, civil engineering graduates are eligible to become licensed after 4 years of experience [10]. Because the time period associated with accomplishing PEOs coincides with entry into the practice of civil engineering at the professional level, it is reasonable to conclude that the PEOs of an accredited civil engineering program and CEBOK3 outcomes should correlate to one another.

Research Methods

A list of all Civil Engineering Programs in the United States (all 50 states and the District of Columbia) was compiled in October 2025. Each September 30th, ABET publishes a list of current accredited engineering programs [2]. The October 2025 list included 315 civil engineering programs, but a careful review revealed that programs that were historically accredited, but experienced a name change, are listed more than once. For example, The University of Alabama in Huntsville was also listed as University of Alabama in Huntsville (no “The”) prior to 1999 and both are included in the ABET list. When reviewing all programs for duplications due to name changes, there were a total of 276 EAC-ABET unique accredited civil engineering programs. All accredited civil engineering programs were included in this study.

As stated in the ABET Accreditation Policy and Procedure Manual - I.A.6.b., “Each ABET-accredited program must publicly state its Program Educational Objectives (PEOs) and Student Outcomes (SOs) as defined in the glossary appended to this APPM and as utilized by

accreditation General Criteria 2 and 3” [11]. PEOs were obtained from each civil engineering program’s web site and compiled. A list was created of every PEO for every accredited civil engineering program and the number of PEOs. Descriptive statistics were derived for the PEO data.

A total of 1040 PEOs were found for the 276 accredited civil engineering programs. Each PEO was reviewed for content and mapped to thirty-seven PEO topics. The PEO topics were selected based on unique PEO themes (e.g. graduate education, licensure, life-long learning) as well as CEBOK3 outcome topics (e.g. experimental methods, critical thinking, project management, risk). In most cases, PEO statements were found to cover multiple topics. Only 10 of the 1040 PEOs did not map to one of the 37 PEO topics (less than 1%).

Three research questions guided the study.

- 1) What are the common topics that appear in civil engineering program PEOs?
- 2) What are the range, mean and median number of civil engineering program PEOs?
- 3) To what extent do Engineering Fundamental Outcomes, Technical Outcomes, and Professional Outcomes from ASCE’s Body of Knowledge 3 (CEBOK3) appear in PEOs?

Results

The number of PEO’s per civil engineering program is shown in Figure 1. The most common number of PEOs is 3 and the range is 1 to 8 (Table 1 & Table 2). The average number of PEOs is 3.77 and the median is 4. Fewer than 12% of civil engineering programs have more than 5 or fewer than 3 PEO’s as show in Table 1.

Table 1 – Numerical distribution of PEOs per program

Number of PEOs	Number of Programs	Percent of Programs (%)
1	4	1.4%
2	13	4.7%
3	108	39.1%
4	87	31.5%
5	49	17.8%
6	13	4.7%
7	1	0.4%
8	1	0.4%

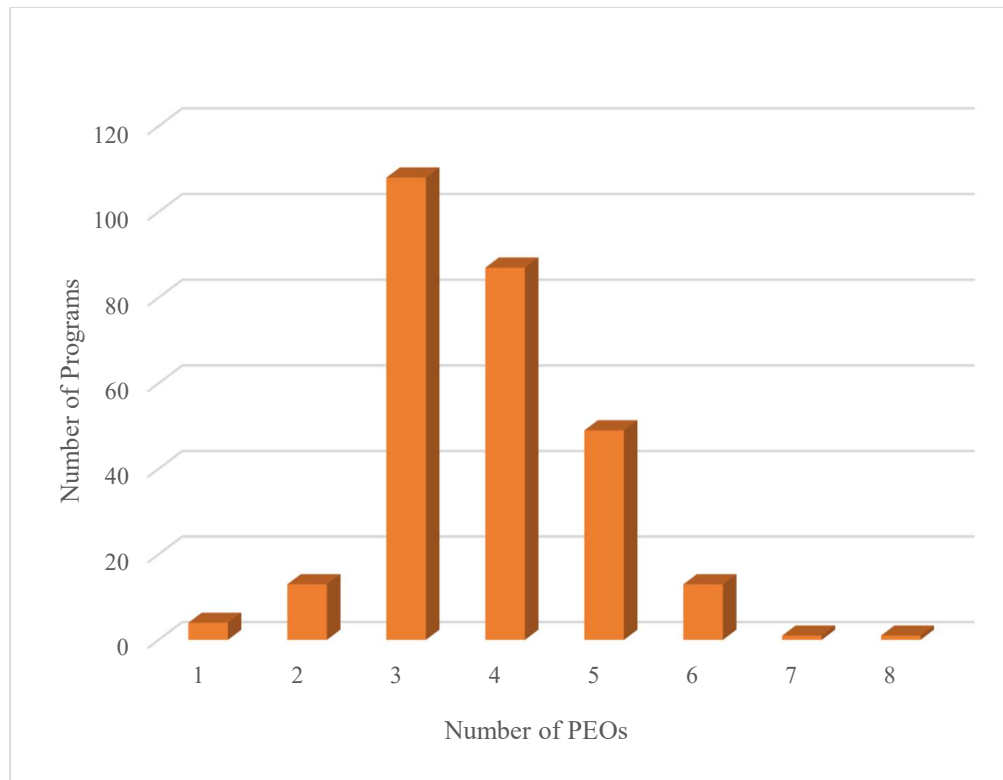


Figure 1 – The number of PEOs in each civil engineering program.

Table 2 – Descriptive statistics for the number of PEOs per program.

	PEOs
Minimum Number	1
Maximum Number	8
Average Number	3.77
Median Number	4

PEO statements were mapped to 37 PEO topics based on key words (e.g. licensure, leadership) and phrases (e.g. practice of engineering, ethical behavior). Six civil engineering programs listed PEOs by category and subcategory. For example, Missouri University of Science and Technology lists 6 PEOs segregated into 23 subcategories [12].

The 37 unique PEO topical categories are shown in the first column of Table 3. The percent of civil engineering programs that included the PEO topic in one of their PEOs is shown in the second column. Five PEO topics were found in a majority of civil engineering programs. These topics are shown in Figure 2; the frequency of occurrence is shown in Table 3. The five most common topics are: Practice of Engineering, Graduate Education, Licensure, Leadership, and Ethical Behavior. The definition of “Practice of Engineering” in the NCEES Model Law was used to determine which PEOs were linked to this topic [13]. Practice of Engineering was found in the PEOs of over 90% of accredited civil engineering programs. Some PEO topics may appear to overlap (e.g. effective team member and collaborative professional), yet each PEO topic was used in different contexts by different civil engineering programs.

Table 3 – The percent of programs that include specific PEO topics

Topic	Percent of Programs
Practice of Engineering	90.9%
Graduate Education	65.9%
Licensure	63.4%
Leadership	62.7%
Ethical Behavior	50.0%
Lifelong Learning	40.2%
Effective Communication Skills	35.9%
Service to Society	32.6%
Apply Knowledge, Sound Judgment, and Technical Skills	32.6%
Professional Development	32.2%
Continuing Education	30.4%
Effective Team Members	28.6%
Professional Organizations/Society	26.1%
Design and Engineer Solutions	25.7%
Sustainable & Resilient Solutions	25.0%
Professional Advancement	24.3%
Management or Business skills	23.9%
Service to Profession	21.0%
Successful Careers	20.3%
Breadth in Civil Engineering (CE) – Multidisciplinary	18.5%
Solve Global Issues	15.6%
Cost Effective Solutions/Engineering Economics	14.5%
DEI-Work with Diverse Groups	14.1%
Innovative Solutions	13.0%
Research	11.6%
Collaborative Professional	11.6%
Creative Solutions	9.1%
Solve Complex Problems	9.1%
Critical Thinking	7.2%
Advanced Technical Competence	6.2%
Integrate Career with Christian Values	4.7%
Systems Engineering	4.7%
Adhere to Codes and Standards	4.0%
Experimentation	1.4%
Effective Military Leaders	1.1%
Teaching	0.7%
Risk/Uncertainty	0.4%

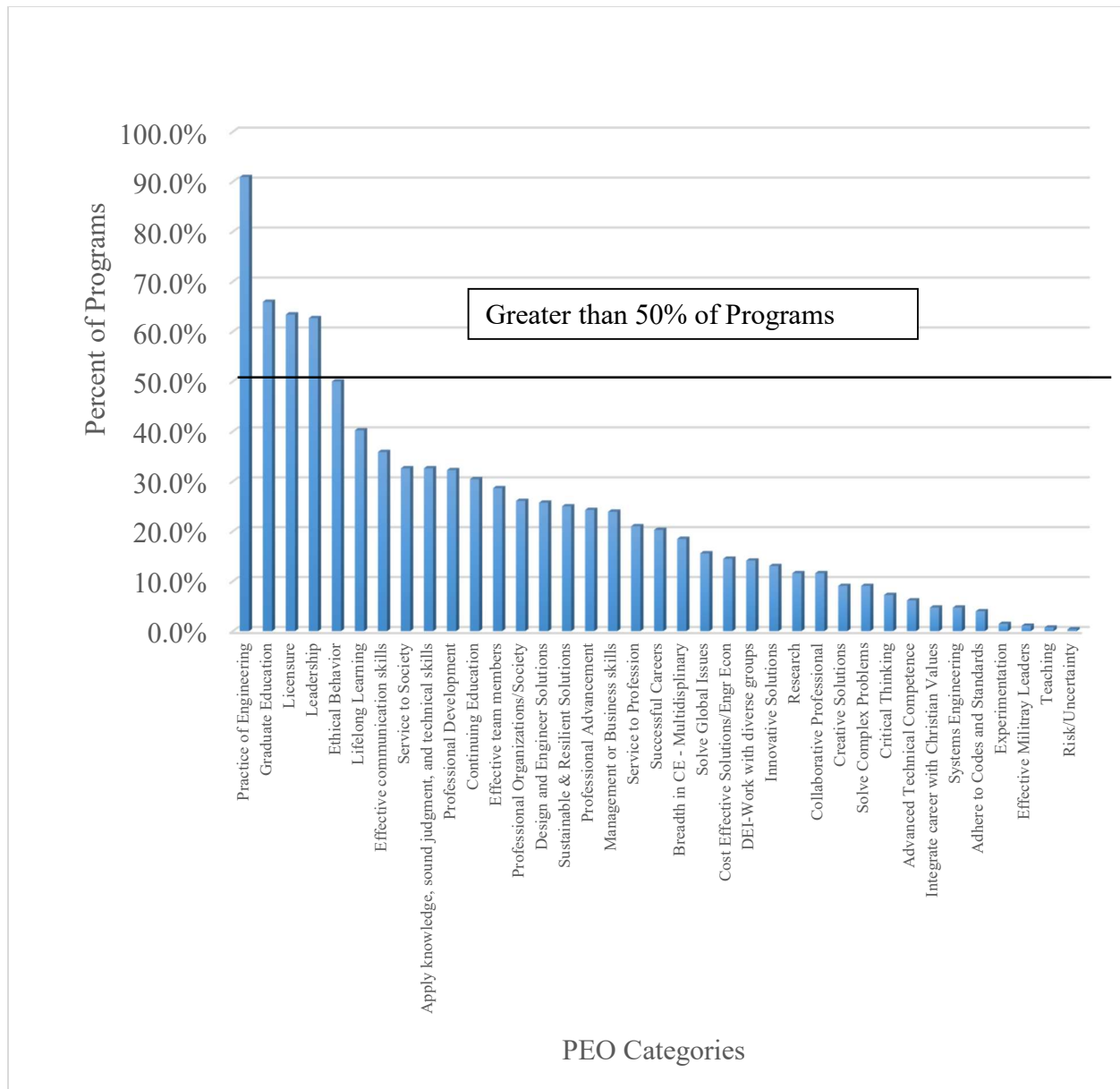


Figure 2 – Frequency of PEO topics in civil engineering programs

Civil engineering programs made a clear distinction between Lifelong Learning, Professional Development, and Continuing Education in their PEOs. Many civil engineering programs included two of these three topics in their PEOs, and some included all three topics. For instance, Mississippi State University’s civil engineering program has 4 PEOs, and their fourth PEO states, “Demonstrate an appreciation for lifelong learning and for the value of continuing professional development in maintaining their professional competence through participation in graduate and continuing education activities” [14]. Of the three topics, Lifelong Learning appeared most frequently in a civil engineering program’s PEOs.

The expectation that graduates would demonstrate Effective Communication Skills appeared in about 36% of civil engineering program PEOs. The use of effective communication skills appeared in multiple contexts, but most frequently it referred to communication incidental to the practice of engineering.

A reference to any type of design was found in few PEOs. The topic, Design and Engineer Solutions, was found in 25.7% of civil engineering program PEOs. This was surprising given the frequent reference to design in the EAC-ABET general criteria and the EAC-ABET civil engineering program criteria [1].

Service to the public, service to the engineering profession, and professional society activities were topics that appeared infrequently in PEOs. Involvement in professional societies was an expectation in about 26% of PEOs which should be of interest to ASCE and other professional organizations. The data revealed that civil engineering programs do not have an expectation that their graduates will stay involved in professional organizations.

Sustainability, sustainable solutions, and resilience appeared in about 25% of civil engineering program PEOs. Project management and business skills were referenced in fewer than 24% of civil engineering program PEOs. Fewer than 15% of civil engineering programs PEOs included a reference to diversity, equity, and inclusion (DEI), innovative solutions, creative solutions, and critical thinking.

Programs are allowed flexibility in how they write their PEOs. They may cover one specific topic, a list of topics, or every topic in one PEO. This contributes to the variation in the number of PEOs per program. As shown in Table 4, the average number of topics included in a PEO is 2.33 and the range is 1 to 9 topics. Figure 3 shows the percent of PEOs that cover one or more topic. About 85% of the PEOs cover 3 or fewer topics and over one third cover only 1 topic.

Table 4 – Topics in a PEO

2.33	Average Topics per PEO
9	Maximum Topics in a PEO
1	Minimum Topics in a PEO

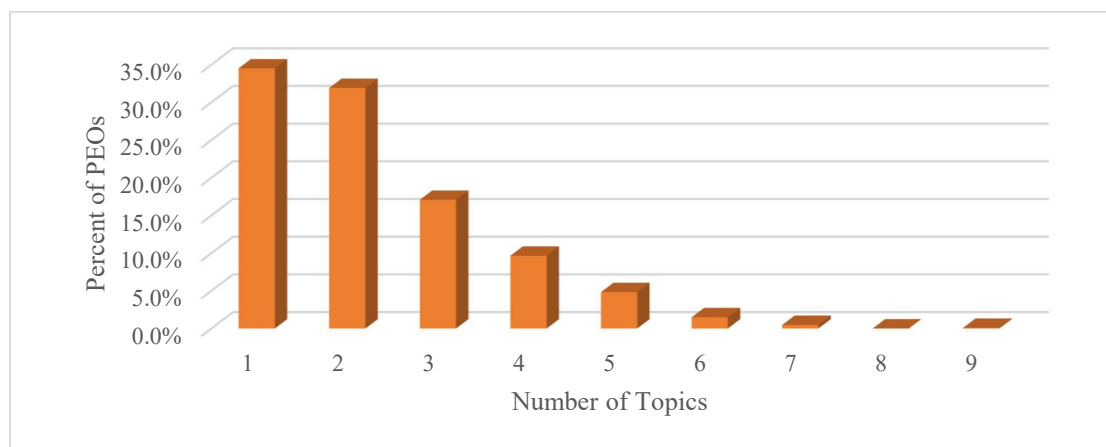


Figure 3 - Number of topics in a PEO

The ASCE CEBOK3 outcomes define the knowledge, skills, and attitudes necessary for entry into the practice of civil engineering at the professional level. The outcomes are separated into four categories as shown in Table 5. The CEBOK3 pathways to fulfillment of each outcome include undergraduate education, postgraduate education, mentored experience, and self-development (see CEBOK3 Table 5-F) [8]. The four CEBOK3 Foundational outcomes (mathematics, natural sciences, social sciences, and humanities) and the first two Engineering Fundamentals outcomes (Material Science and Engineering Mechanics) are typically fulfilled solely by the completion of an undergraduate education. These CEBOK3 outcomes are directly related to a civil engineering program's Student Outcomes, EAC-ABET Criterion 5, and EAC-ABET civil engineering program criteria [1]. They cannot be compared to a civil engineering program's PEOs. Of the 15 remaining CEBOK3 outcomes, one (Experimental Methods and Data Analysis) is fulfilled by undergraduate and post-graduate education and one (Depth in a Civil Engineering Area) is fulfilled by undergraduate education, post-graduate education, and mentored experience. The other thirteen CEBOK3 outcomes (cognitive domain) are fulfilled by a combination of undergraduate education and mentored experience which is defined by CEBOK3 as "early career experience under the mentorship of a civil engineer practicing at the professional level" [8]. The CEBOK3 term "early career experience" overlaps with the ABET PEO definition, "what graduates are expected to attain within a few years after graduation" [1].

Table 5. CEBOK3 Outcomes [8]

Foundational	Engineering Fundamentals
Mathematics	Material Science
Natural Sciences	Engineering Mechanics
Social Sciences	Experimental Methods and Data Analysis
Humanities	Critical Thinking and Problem Solving
Technical	Professional
Project Management	Communication
Engineering Economics	Teamwork and Leadership
Risk and Uncertainty	Lifelong Learning
Breadth in Civil Engineering Areas	Professional Attitudes
Design	Professional Responsibilities
Depth in a Civil Engineering Area	Ethical Responsibilities
Sustainability	

PEO topics were mapped to two CEBOK Engineering Fundamental outcomes, seven Technical outcomes, and six Professional outcomes (Table 6). Mapping was completed using the CEBOK3 outcome rubrics [8]. The fifteen CEBOK3 outcomes mapped to 20 of the 37 PEO topics. The CEBOK3 outcome, "Critical Thinking and Problem Solving," mapped to two PEO outcomes. Two CEBOK3 outcomes, "Teamwork and Leadership," and "Professional Responsibilities," mapped to three PEO outcomes. The granularity of the PEO topics was necessary to determine if a CEBOK3 outcome was included in a civil engineering program's PEOs.

Table 6. Map of PEO Topics and CEBOK3 Outcomes

PEO Topics	CEBOK3 Outcomes														
	Exp Methods/Data Analysis	Critical Think./Prob Solving	Project Management	Engineering Economics	Risk & Uncertainty	Breadth in CE Areas	Design	Depth in CE Area	Sustainability	Communication	Teamwork and Leadership	Lifelong Learning	Professional Attitudes	Professional Responsibilities	Ethical Responsibilities
Practice Engr.														X	
Licensure														X	
Grad. Education								X							
Lifelong Learn.												X			
Leadership											X				
Ethical Behav.															X
Design							X								
Communication										X					
Teaming Skills											X				
Mgt./Business			X												
Creative Sol.													X		
Sustainable Sol.									X						
Innovative Sol.														X	
Complex Probs.		X													
DEI											X				
Breadth in CE						X									
Cost & Econ.				X											
Risk					X										
Experimentation	X														
Critical Think.		X													

The degree to which CEBOK3 outcomes are fully present in civil engineering PEOs is shown in Table 7. The Table 7 percentages refer to the percentage of accredited civil engineering programs (276).

Two CEBOK3 outcomes were present in more than 50% of civil engineering program PEOs. Thirteen CEBOK3 outcomes were found in fewer than half of all civil engineering program PEOs. Three CEBOK3 outcomes, Experimental Methods and Data Analysis, Critical Thinking and Problem Solving, and Risk and Uncertainty were found in fewer than 2% of civil engineering program PEOs. The three CEBOK3 outcomes that are mapped to 2 or more PEO topics were not considered fully met by a civil engineering program unless the program's PEOs referenced all associated topics (Table 6). For instance, a civil engineering program's PEOs must reference "Practice of Engineering," "Licensure," and "Innovative Solutions" for the CEBOK3 outcome "Professional Responsibilities" to be considered fully met.

Table 7. Percent of Civil Engineering Program PEOs linked to CEBOK3 Outcomes

CEBOK3 Outcome	CEBOK3 Outcomes fully met by Civil Engineering Program PEOs (% of Programs)
Experimental Methods and Data Analysis	1.4%
Critical Thinking and Problem Solving	0.7%
Project Management	23.9%
Engineering Economics	14.5%
Risk and Uncertainty	0.4%
Breadth in Civil Engineering Areas	18.5%
Design	25.7%
Depth in a Civil Engineering Area	65.9%
Sustainability	25.0%
Communication	35.9%
Teamwork and Leadership	4.3%
Lifelong Learning	40.2%
Professional Attitudes	9.1%
Professional Responsibilities	7.2%
Ethical Responsibilities	50.0%

Discussion of Results

Research Question 1.

What are the common topics that appear in civil engineering program PEOs?

The five most common PEO topics are Practice of Engineering, Graduate Education, Licensure, Leadership, and Ethical Behavior. All five PEO topics are found in 50% or more of civil engineering programs PEOs. The most common PEO topic, Practice of Engineering, appears in over 90% of civil engineering program PEO's.

Research Question 2.

What are the range, mean and median number of civil engineering program PEOs?

The most common number of PEOs is 3 and the range is 1 to 9 (Table 1 & Table 2). The average number of PEOs is 3.77 and the median is 4. Fewer than 12% of the programs have more than 5 or fewer than 3 PEO's.

Research Question 3.

To what extent do Technical and Professional Outcomes from ASCE's Body of Knowledge 3 (CEBOK3) appear in PEOs?

Fifteen of the 21 CEBOK3 Outcomes were compared to the 37 PEO topics. The descriptions, commentary, and rubrics for each CEBOK3 outcome were used to identify, categorize, and map twenty of the 37 PEO topics to the fifteen CEBOK3 outcomes. The CEBOK3 outcomes most commonly mapped to the PEO topics are Depth in a Civil Engineering Area and Ethical

Responsibilities. Thirteen of the fifteen CEBOK3 outcomes were found in fewer than 50% of the civil engineering program PEOs.

Practice of Engineering and Licensure are the two most common PEO topics that are not a direct CEBOK3 outcome. Most of the other PEO topics in Table 6 are CEBOK3 outcomes. Based on the frequency with which these two PEO topics appeared in the civil engineering program PEO population, it would be reasonable for ASCE to consider decoupling these topics from existing outcomes and adding these as stand-alone outcomes in the Body of Knowledge. This would better align the CEBOK3 outcomes with a majority of civil engineering program PEOs.

Three stand-alone CEBOK3 outcomes, Experimental Methods and Data Analysis, Critical Thinking and Problem Solving, and Risk and Uncertainty are found in fewer than 2% of civil engineering program PEOs. This indicates that the aspirations that civil engineering programs and their constituents have for graduates a few years after graduation do not align with these particular CEBOK3 expectations for early career civil engineers.

The Professional Responsibilities CEBOK3 outcome was mapped to three PEO topics: Practice of Engineering, Licensure, and Innovation, all terms found in the Professional Responsibilities CEBOK3 rubric. Although 90.1% of all civil engineering programs referred to the Practice of Engineering in their PEOs, only 7.2% of civil engineering programs had PEOs that referenced all three topics, Practice of Engineering, Licensure, and Innovation.

It is interesting to note that three of the top four PEO topics listed in Table 3 are not CEBOK3 outcomes. Practice of Engineering and Licensure are subsections of the Professional Responsibility outcome, and Leadership is part of the Teamwork and Leadership outcome. Leadership is referenced in 62.7% of civil engineering program PEOs. However, the CEBOK3 outcome, Teamwork and Leadership, includes three topics: teamwork, leadership, and DEI. Fewer than 5% of civil engineering programs had PEOs that included all three topics.

Six of the seven CEBOK3 Technical Outcomes are linked to PEO topics in fewer than 30% of all civil engineering programs. The only exception is Depth in a Civil Engineering Area. Fulfillment of this CEBOK3 outcome requires a civil engineering graduate to complete post graduate education, a PEO topic that appears in most civil engineering program PEOs.

Conclusions

This study included every PEO from the 276 EAC-ABET accredited civil engineering programs in the United States and District of Columbia. A total of 1040 PEOs were identified. The results indicate the number and content of PEOs vary considerably. No two programs have the same PEOs. The number of PEOs in each civil engineering program ranged from 1 to 8 with a mean of 3.77 and a median of 4.

The study categorized PEOs into 37 topics based on key words and statement context. The PEO topics that occurred most frequently were Practice of Engineering (91%), Graduate Education (66%), Licensure (63%), and Leadership (63%). Notable topics that were not common include involvement in Professional Organizations (26.1%), Design and Engineering Solutions (25.7%), Sustainable and Resilient Solutions (25%), and Management or Business Skills (23.9%).

Only two CEBOK3 outcomes, Depth in a Civil Engineering Area and Ethical Responsibilities, were found in 50% or more of civil engineering program PEOs. Three CEBOK3 outcomes, Experimental Methods and Data Analysis, Critical Thinking and Problem Solving, and Risk and Uncertainty, were found in fewer than 2% of civil engineering program PEOs.

Three CEBOK3 outcomes, Teamwork and Leadership, Critical Thinking and Problem Solving, and Professional Responsibilities, were mapped to two or more PEO topics. Fewer than 8% of civil engineering programs had PEOs that included all topics mapped to these outcomes.

The three most common PEO topics that are not “stand alone” CEBOK3 outcomes are Practice of Engineering, Licensure, and Leadership. PEOs are formulated based on input from civil engineering program constituents, thus, PEO topics have been vetted by thousands of students, faculty, alumni, employers, and others associated with the civil engineering profession. Based on the frequency with which these three topics appeared in the civil engineering program PEOs, it would be prudent for ASCE to consider adding Practice of Engineering, Licensure, and Leadership as stand-alone outcomes in the Body of Knowledge. This change would better align the CEBOK outcomes to PEO topics in accredited civil engineering programs.

Sample civil engineering program PEOs are shown in the Appendix. These civil engineering programs have the average number of PEOs (3 or 4), their PEOs include the top 6 PEO topics, and their PEOs map to the two CEBOK3 outcomes most frequently included. They are not intended to be used as a standard or best practices; they are noted as well written PEOs that contain pertinent content.

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APPENDIX

Sample Civil Engineering Program PEOs

Tarleton State University

The Civil Engineering (Bachelor of Science) program PEOs are as follows:

1. Graduates are successful in civil engineering-related careers and/or pursuing advanced degrees in which they utilize their innovative problem-solving and design skillsets.
2. Graduates are team players who communicate effectively, interact professionally, manage conflict with high interpersonal skills, and practice ethical and economic decision-making by considering the safety, welfare, and health of the public in their post-graduation endeavors.
3. Graduates are lifelong learners who maintain curiosity, value perspectives, and keep up with trends and technologies in their field, while actively advancing their careers and their profession through activities such as taking on leadership roles, engaging with professional societies, and attaining professional licensure.

North Dakota State University

Graduates of our BS program in Civil Engineering program are expected within a few years of graduation to:

1. Engage successfully in the practice of engineering to solve current and emerging problems.
2. Conduct design in a manner that is ethical, includes diverse perspectives, and realizes the broader societal and sustainability implications of the design and decision-making process.
3. Ascend to leadership roles within the workplace via initiative and responsible stewardship
4. Advance their profession and communities through collaborative work, professional licensure, advanced degrees, lifelong learning, and engaged service.

Western Kentucky University

Graduates from the Western Kentucky University B.S. degree program in Civil Engineering will, in a few years after graduation:

1. Attain positions of Engineer in Responsible Charge on projects in both public and private sectors and successfully execute projects using technical and managerial skills while demonstrating professional and ethical behavior.
2. Attain Engineering licensure and other professional certifications as appropriate to their career.
3. Continue to pursue life-long learning opportunities through advanced degrees and various continuing education endeavors.
4. Become leaders within their companies, the profession, and other activities.

New Mexico State University

Within a few years after graduation, graduates of the Civil Engineering undergraduate program will:

1. Be successfully employed in civil engineering or related careers.
2. Be pursuing professional licensure, appropriate certifications, graduate degrees, and/or professional development activities by fostering life-long learning skills and strategies.
3. Be building on fundamental knowledge and applying technical skills across disciplines in civil engineering and related fields to make data-driven decisions using engineering judgement.
4. Be progressing as independent thinkers, ethical leaders, effective communicators, and collaborative professionals.

Mississippi State University

Graduates of the civil engineering program should, within a few years after graduation:

1. Demonstrate a broad knowledge of the principles and fundamentals of civil engineering and their applications through their successful practice as professional civil engineers, their pursuit of graduate or professional degrees, or their engagement in other professional careers that involve the application of the engineering method.
2. Achieve success in the multidisciplinary environment of the 21st century and demonstrate their ability to adapt to emerging and evolving technologies, social conditions, professional standards, and career opportunities by attaining leadership, managerial, administrative, supervisory, or other positions of responsibility.
3. Demonstrate an understanding and appreciation of the ethical, societal and professional responsibilities of a civil engineer through professional registration and active membership in professional organizations.
4. Demonstrate an appreciation for lifelong learning and for the value of continuing professional development in maintaining their professional competence through participation in graduate and continuing education activities.

Florida Atlantic University

Within three to five years of graduation, civil engineering graduates are expected to exhibit the following professional characteristics:

1. Practice civil engineering within the general areas of structural engineering, transportation engineering, geotechnical engineering, and water resources/environmental engineering in the organizations that employ them.
2. Advance their knowledge of civil engineering, both formally and informally, by engaging in lifelong learning experiences including attainment of professional licensure, and/or graduate studies.
3. Serve as effective professionals, based on strong interpersonal and teamwork skills, an understanding of professional and ethical responsibility, and a willingness to take the initiative and seek progressive responsibilities.

Participate as leaders in activities that support service to, and/or economic development of, the region, the state and the nation.