The architectural engineering technology (ArET) degree program awards a Bachelor of Science (BS) degree to successful students through a four-year curriculum. The American Society of Civil Engineers (ASCE) is the lead professional society used in developing program criteria, guiding program relevance, and making continuous improvement. Current students and graduates of the ArET program are expected to demonstrate a broad variety of competencies, encompassed in the Program Educational Objectives (PEOs), as they enter the workforce and advance their professional careers. These competencies are directly related to the university's, college's, and department's mission and vision.

ArET Program Educational Objectives

- PEO 1. Communication Competency- graduates demonstrate effective interpersonal and cross-cultural communication and influencing skills, both oral (with large and small audiences), and written (technical reporting and business correspondence), at all levels of their respective organizations.
- PEO 2. Technical and Problem Solving Competency- graduates have a broad, yet critical understanding and application of engineering (including advanced math and science).
- PEO 3. Resource Accessibility and Application- graduates locate and interpret pertinent information concerning design standards and construction methods to apply a strategy on both local and global levels.
- PEO 4. Lifelong Learning Competency- graduates continue to learn and improve in their field through the pursuit of advanced degrees, recognized professional certifications, and participation in professional organizations.
- PEO 5. Responsibility and Integrity Competency- graduates exercise responsibility in professional ethical practices and understand how to navigate a diverse workforce.
- PEO 6. Leadership- graduates demonstrate personal leadership skills to positively influence their professional circles and beyond.
- Consistency of the Program Educational Objectives with the Mission of the Institution

The PEOs correlate closely with the missions of the University, COT, and the Department of Built Environment These statements share the common educational values: graduating professionally competent students who can serve both as a leader and team member under different circumstances, and understand the impact of their work both to themselves and society as a whole.

The ArET PEOs incorporate these values as shown below:

- PEOs 1 (Communication) and 2 (Technical) reflect the program's commitment to providing quality undergraduate education in both technical and liberal (ISU Foundational) studies.
- PEOs 3 (Resource Application) and 6 (Leadership) focus on the ability of program graduates to network with peers throughout various industries to search out workable solutions to complex design and construction issues in the office or on site.
- PEO 4 represents the program's commitment to graduates' long-term (Life-long Learning) productivity and professional advancement.
- PEO 5 fulfills the program's contribution to society, and Indiana in particular, by advancing students' awareness on social and environmental implications (Responsibility and Integrity) of their careers.

Table 1.1 – Alignment of PEOs with University, College, Department and Program

	University Vision and Mission	College Vision and Mission	Department Mission	Program Mission
PEO 1. Communication Competency		X	X	
PEO 2. Technical and Problem Solving Competency	X	X		X
PEO 3. Resource Accessibility and Application		X		X
PEO 4. Lifelong Learning Competency	X			
PEO 5. Responsibility and Integrity Competency	X			X
PEO 6. Leadership	X	X	X	X

Program Constituencies

We identify the following stakeholders to be the constituencies with respect to PEOs and SOs. Each group has special interests in these stated goals:

- Alumni: The alumni expect a continued high-quality educational program as their career and reputation are associated with the quality of their alma mater. The recent graduates were very involved in the growth of the program and provided critical feedback along the way to our current state.

- Faculty: The faculty are expected to fulfill their educational responsibility in leading the students in the learning process. They continuously evaluate and adjust coursework, courses, teaching pedagogy, rigor, and alignment with their courses to the real world, pertinent to achieving the PEOs.

- Industrial Advisory Board (IAB): This selective and highly-involved group of individuals expect to see the program yield quality graduates that meet industry needs, and provide valuable feedback for curriculum improvements.

- Employers/professionals: This group expects to hire fresh employees who are technically competent, productive, self-motivated learners, effective team members, and have excellent communication skills.

Process for Review of the Program Educational Objectives

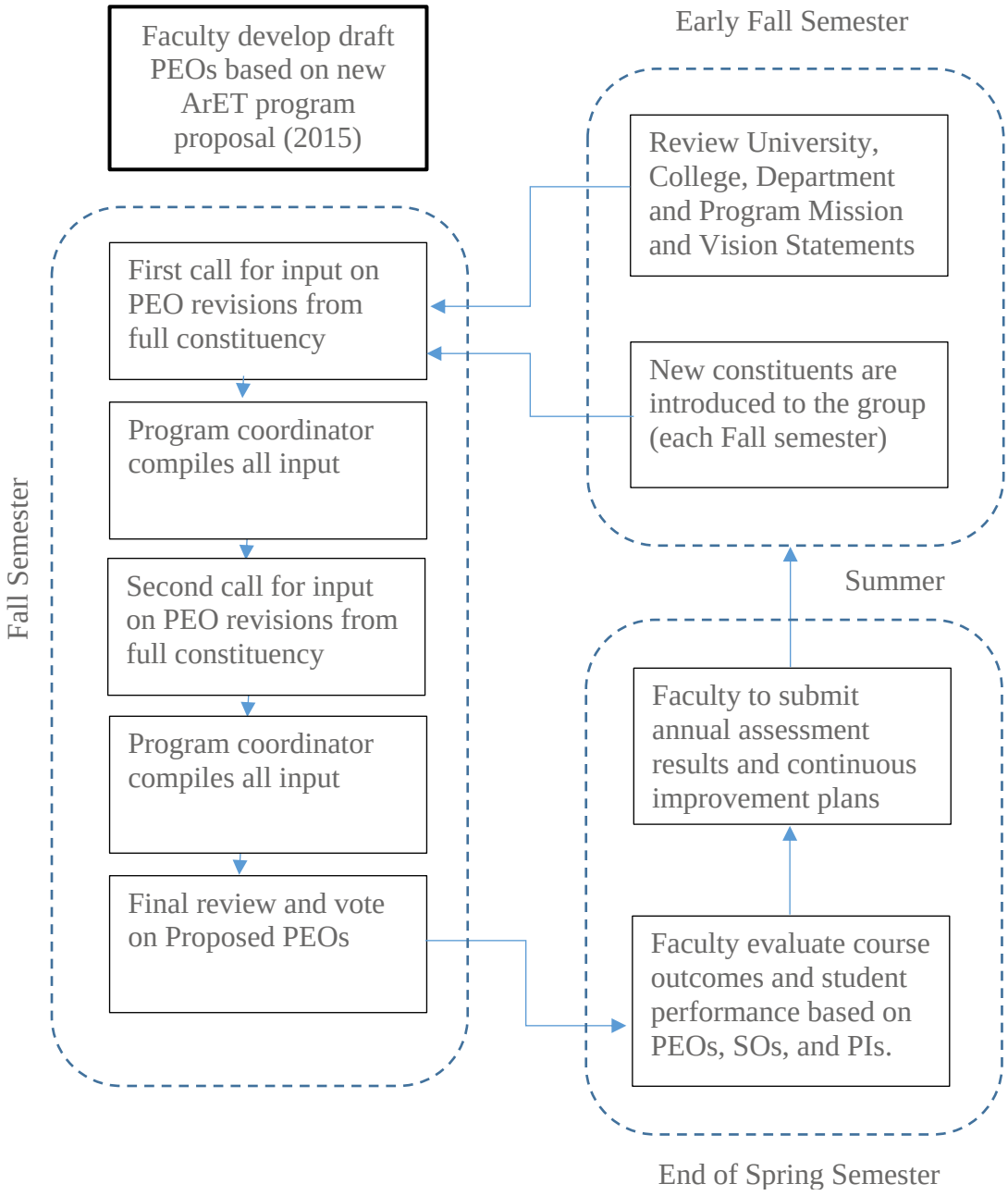
As a newly formed program ArET joined the CM, IAD, and Safety Management (SM) programs in the department. Beginning in the summer of 2018 an effort was begun to create a strong and diverse industrial advisory board (IAB) by bringing in professionals from across the country with a wide range of

experience in various industries including architecture, interior design, construction management, and building material specialists.

The PEOs have evolved as the program constituency has changed. During the writing and roll-out of the new program, peer institutions were often referenced when developing curriculum, assessment criteria, and initial PEOs.

The PEOs are intended to be broad and flexible and are to be reviewed annually, each Fall semester, by a collective list of constituents. Any revisions to the PEOs are to be published online at the beginning of the following spring semester. PEO revisions are kept track via IAB meeting minutes.

Figure 1 - PEO Development and Review Process



Process for the Establishment and Revision of the Student Outcomes

The outcomes (1-7) represent the foundation of knowledge and skills for graduates to maintain competence and achieve professional success upon graduation. The initial outcomes were developed during the writing of the assessment plan as part of the initial program proposal to the university, the Board of Trustees (BOT), and the Indiana Commission of Higher Education (ICHE).

The faculty are responsible for collecting, reviewing, and interpreting information pertaining to the successful implementation of these outcomes as part of the 2-year ISU assessment cycle. The outcomes assessment results are discussed at program faculty meetings, where issues regarding student outcomes are identified and viable improvement strategies are developed.

Student Outcomes

The ArET program adopted seven of nine ASCE outcomes as it's own SOs. ASCE outcomes (e) and (i) were omitted as these outcomes are evident and inherent in most, if not all, other outcomes. These seven Student Outcomes were then developed further into 30 Performance Indicators (PI's).

ArET Student Outcomes (2017-2019 assessment cycle):

1: Students will employ concepts of architectural theory and design in a design environment.
2: Students will utilize instruments, methods, software, and techniques that are appropriate to produce Architectural/Engineering documents and presentations.
3: Students will utilize measuring methods that are appropriate for field, office, or laboratory.
4: Students will apply fundamental computational methods and elementary analytical techniques in sub-disciplines.
5: Students will perform economic analyses and cost estimates related to design, selection, construction, and maintenance of buildings and systems.
6: Students will select appropriate materials and practices for building construction.
7: Students will apply principles of building codes, regulations, and ethics in architectural practice.

2018-2019 ABET General Student Outcomes

(A) an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities.
(B) an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies.
(C) an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
(D) an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives.
(E) an ability to function effectively as a member or leader on a technical team.
(F) an ability to identify, analyze, and solve broadly-defined engineering technology problems.
(G) an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
(H) an understanding of the need for and an ability to engage in self-directed continuing professional development.
(I) an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.

(J) a knowledge of the impact of engineering technology solutions in a societal and global context; and
(K) a commitment to quality, timeliness, and continuous improvement.

The ArET program has a plan to change the ABET A-K to the newly adopted ABET 1-5 general student outcomes.

2018-2019 ASCE Outcomes (a-i)

(a) employ concepts of architectural theory and design in a design environment.
(b) utilize instruments, methods, software, and techniques that are appropriate to produce Architectural/Engineering documents and presentations.
(c) utilize measuring methods that are appropriate for field, office, or laboratory.
(d) apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to architectural engineering.
(e) create, utilize, and present design, construction, and operations documents.
(f) perform economic analyses and cost estimates related to design, construction, and maintenance of building systems.
(g) select appropriate materials and practices for building construction.
(h) apply principles of construction law and ethics in architectural practice, and;
(i) perform standard analysis and design in at least one recognized technical specialty within architectural engineering technology that is appropriate to the goals of the program.

College of Technology Enrollment and Graduation numbers can be found online at:
https://www.indstate.edu/technology/enrollment-graduation