

So you want to be a PE and
achieve AAEES Board Certification, but how?
Practical details of education, experience, examination, and
continuing professional development

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Outline

- Host welcome (2 min)
- Declaration of interests (1 min)
- Self introductions (2 min, each)
- Learning objectives (2 min)
- Dan reviews basic Board Certification (BC) requirements (10 min)
- Isreal reviews Professional Engineer (PE) requirements (10 min)
- Dan describes ABET (for education) and CESB (for CPD) (10 min)
- Dan asks Isreal about “how to study for PE exam?” (10 min)
- Isreal asks Dan about “how to study for BC exam?” (10 min)
- Moderated Q/A

Declaration of interests

- Isreal provides educational consulting to those who want to pursue the PE
- Dan oversees the BC process as Executive Director of the Academy

Self introductions



Learning objectives

- Define important acronyms
 - Board Certification, Professional Engineer
 - ABET, NCEES, CESB, CPD
- Recognize common pitfalls of BC application
 - Waiting to join the Academy
 - Documenting the wrong kind of experience
 - Applying for the wrong specialty
- Recognize changes in PE process (then and now)
 - Waiting until after experience to take the PPE exam; take it early!
 - Bring a suitcase of books to the PPE exam; common equation sheet!
- Appreciate educational details before experience and continuing professional development to grow and stay current

Board Certification Requirements, all

- Certification via examination...
 - Process overseen by American Academy of Environmental Engineers Certification Board
 - Board Certified Environmental Engineer (BCEE)
 - Good moral character, high ethical integrity, high professional standing
 - Earned degree in environmental engineering (or related)
 - Licensed Professional Engineer (PE) (consideration for foreign equivalent)
 - Professionally engaged in environmental engineering on a full-time basis
 - 8 years full-time environmental engineering and/or teaching experience
 - Including 4 years in responsible charge in a designated environmental engineering specialty
 - IF 16 years experience, you may REQUEST waiver of written exam
 - Process overseen by American Academy of Environmental Scientists Certification Board
 - Board Certified Environmental Scientist (BCES)
 - Good moral character, high ethical integrity, high professional standing
 - Earned degree in environmental science (or related)
 - Professionally engaged in environmental science on a full-time basis
 - 8 years full-time environmental engineering and/or teaching experience
 - Including 4 years in responsible charge in a designated environmental science specialty
 - IF 16 years experience, you may REQUEST waiver of written exam
- Certification via eminence...
 - BCEE or BCES or Board Certified Environmental Engineering Member (BCEEM)
 - Earned degree in environmental engineering (or related) or environmental science (or related)
 - 20 years of experience
 - Including 10 years in senior positions
 - Achieved a position of leadership within their organization
 - Record of service to the profession
 - Record of professional honors and awards
 - Record of scholarly publications

Switch over to web page for content...

The screenshot shows the homepage of the American Academy of Environmental Engineers & Scientists (AAEES). The browser address bar displays 'aaees.org'. The website features a dark blue header with a search bar and a navigation menu. The main content area is white and includes a login form, a 'Board Certification Programs' section, and a 'Quick Links' sidebar.

AMERICAN ACADEMY OF ENVIRONMENTAL ENGINEERS & SCIENTISTS®

Search our site... Search

Username Password

Keep me logged in Log In

Home Contact Us News & Events Awards Publications Join Members Program Support Jobs

Board Certification Programs

The American Academy of Environmental Engineers and Scientists® provides a structure for advancing your career as an environmental engineer or an environmental scientist.

Licensed Environmental Engineers (PE)s

Board Certified Environmental Engineer (BCEE)

To apply for the BCEE, you must be a licensed, professional engineer with at least eight years of full-time environmental engineering and/or teaching experience. To become a BCEE, you must take a written exam and sit for a Peer Review. If you have more than 16 years of experience, you may request a waiver of the written exam. Specialty certification provides independent testimony to your expertise. For more information, [click here](#).

Non-Licensed Environmental Engineering Practitioners

Select Language
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Quick Links

- 2023 AAEES Election Ballot
- ABET Protection Program Fund
- Login
- Create an account
- Go To My Profile
- Ethics and EDI Statement

Board Certification Requirements, BCEE

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Board Certification Requirements, BCES

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Board Certification Requirements, Eminence

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Common questions?

- Is BCEEM the same as member of the Academy?
 - Nope
- I was a free student member, and I'm not ready for Board Certification, so do I just need to sit and wait?
 - Nope
- Are all "BC" the same?
 - Nope
- Is the exam "hard"? (I haven't been a student for a looong time, and I really don't want to/have time to "study" ...)
 - Nope
- What if I apply and I don't make it... does that "hurt me"?
 - Nope

Kentucky Engineering License Process, all

- By examination
 - Education
 - Graduate from an engineering program of four or more years accredited by ABET
 - Specifically Engineering Accreditation Board/EAC
 - Therefore EXCLUDES engineering technology degrees
 - Fundamentals of Engineering (FE) examination
 - After graduation OR with senior standing in degree program OR written permission
 - Register with NCEES (National Council of Examiners for Engineering and Surveying)
 - AFTER passing the FE exam AND graduating from a degree program ... you MAY apply for “Engineer-In-Training” (EIT) certification (NOT required)
 - Principles & Practice of Engineering (PPE) examination
 - AFTER passing the FE exam AND graduating from a degree program ... you MAY register with NCEES for PPE examination
 - Kentucky code requires:
 - Moral character
 - Experience
 - Examinations
 - Education
- By endorsement
 - IF licensed in another jurisdiction (or foreign), Kentucky will consider a license application by endorsement if you equal or exceed Kentucky’s requirements
 - Special application for spouse of active duty member of the Armed Forces assigned to a duty station in Kentucky
- By reinstatement
 - IF license expired, inactive, or retired, and want to return to practice, please explain “why” and justification qualifications

See: <https://https://kyboels.ky.gov/Getting-Licensed/Pages/Engineering-License-Process.aspx>

KY Engineering License Process, Examination

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 - Education

Common questions?

- Are all states the same?
 - Yes and no (some states have “extra” requirements)
- I have someone else in my office who is a PE, can’t I just “work under them” (or be part of the “industrial exemption”)?
 - Yes, you can work this way if you wish, but we’d strongly encourage you to reconsider how one views “professional”? Would you want to hire a lawyer or accountant who worked that way? Would you trust a loved one to a lifesaving medical procedure under such a circumstance? Part of professionalism is the idea of “self-regulation” and “accountability to peers”, so we would encourage licensure for all engineers.
- Are all “PE’s” the same?
 - Yes and no (requirement to practice in area of proficiency)
- Is the exam “hard”? (I haven’t been a student for a looong time, and I really don’t want to/have time to “study”...)
 - Yes, but you can do well if you invest the time and effort, and it is worth it!
- What if I apply and I don’t make it... does that “hurt me”?
 - Most folks pass – if not on the first try, then often on the second try (if you fail a third time, you may need to demonstrate “more education” before trying the exam again)

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ABET

- Formerly Engineers' Council for Professional Development
- Formerly Accreditation Board of Engineering and Technology
- Now ABET INC with multiple “boards” (actually, one board of directors; one board of delegates; multiple commissions managing accreditation; and multiple advisory councils offering input)
 - Engineering Accreditation Commission (EAC)
 - Engineering Technology Accreditation Commission (ETAC)
 - Applied and Natural Science Accreditation Commission (ANAC)
 - Computing Accreditation Commission (CEC)

EAC Criteria for Accrediting Engineering Programs

- C2. Program education objectives – what students can do in five years of graduation
- C3. Student outcomes – what students do during four years of study
- C4. Continuous improvement – link between goals and reality, and how to get better
- C5. Curriculum – details of what students do during four years of study
- Other items: C1. Students; C6. Faculty; C7. Facilities; C8. Institutional support

EAC details...

C3. Student outcomes and C5. Curriculum

1. an ability to identify, formulate, and **solve complex engineering problems by applying principles** of engineering, science, and mathematics.
 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.
 3. an ability to **communicate** effectively with a range of audiences.
 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.
 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.
 6. an ability to develop and conduct appropriate **experimentation**, analyze and interpret data, and use engineering judgment to draw conclusions.
 7. an ability to **acquire and apply new knowledge** as needed, using appropriate learning strategies.
- a. a minimum of 30 semester credit hours (or equivalent) of a combination of college-level **mathematics and basic sciences with experimental experience** appropriate to the program.
 - b. a minimum of 45 semester credit hours (or equivalent) of **engineering topics** appropriate to the program, consisting of engineering and computer sciences and engineering design, and utilizing modern engineering tools.
 - c. a **broad education** component that complements the technical content of the curriculum and is consistent with the program educational objectives.
 - d. a **culminating major engineering design experience** that 1) incorporates appropriate engineering standards and multiple constraints, and 2) is based on the knowledge and skills acquired in earlier course work.

EAC Environmental Engineering

The curriculum must include:

- a) Mathematics through differential equations, probability and statistics, calculus-based physics, chemistry (including stoichiometry, equilibrium, and kinetics), earth science, biological science, and fluid mechanics.
- b) Material and energy balances, fate and transport of substances in and between air, water, and soil phases; and advanced principles and practices relevant to the program objectives.
- c) Hands-on laboratory experiments, and analysis and interpretation of the resulting data in more than one major environmental engineering focus area, e.g., air, water, land, environmental health.
- d) Design of environmental engineering systems that includes considerations of risk, uncertainty, sustainability, life-cycle principles, and environmental impacts.
- e) Concepts of professional practice and project management, and the roles and responsibilities of public institutions and private organizations pertaining to environmental policy and regulations.

ANSAC Environmental Science

Curriculum

- The program must prepare graduates to apply knowledge of chemistry, physics, biology, earth sciences, calculus, and statistics to understand the natural world and evaluate human impacts on the environment. Program graduates must understand the basic principles of sustainability, environmental ethics, economics, and the application of environmental science in policy formulation and environmental resources management.

Faculty

- A faculty member must be identified as being administratively in charge of the program.

CESB (Council of Engineering and Scientific Specialty Boards)

- CESB is an independent, voluntary body composed of organizations providing specialty certification in engineering and related scientific fields, and other organizations with interests encompassing the entire engineering and science professions.
- Founded in 1990, CESB provides basic criteria and guidelines for the establishment and operation of certification programs in engineering and related technical areas and recognizes those certification boards that comply with its standards.
- It also acts to coordinate specialty certification programs, to resolve problems encountered by member boards, and to provide the public with information about specialty certification.
- Current:
 - Accreditation of Board Certified Environmental Engineer (BCEE) was granted in February 1993 and is valid until December 31, 2026.
 - Accreditation of the Board Certified Environmental Engineering Member (BCEEM) was granted in February 2005 and is valid until December 31, 2023.
 - Accreditation of Board Certified Environmental Scientist (BCES) was granted in 2014 and is valid until December 31, 2024.

So Isreal, how do I go about studying for the PE?



So Dan, how do I go about studying for Board Certification?



Switch over to web page for content...

• Specialty Certification Renewal for BCEES, BCEEMS, and BCESS Life Members - \$50

• Extra Specialty (per additional specialty) - \$50

• Emeritus - \$85

Need Assistance with the Examination?

Below are a few resources offering guidance on the examinations for board certification. Click the links below to download each document:

- [The table of contents and first two chapters of the AAEES's specialty examination guidebook.](#)
Additional information on the AAEES publication, How to Prepare for the Examinations for Environmental Engineering and Environmental Science Specialty Certifications, can be found at: [AAEES Publications-Specialty Examination Guide.](#)
- [Oral Examination Guidance for Candidates](#)
- [Guidance for Candidates - Written Examination for Specialty Certification in Water Supply/Wastewater Management](#)

Feb 13, 2023 8:20 AM

Novel control method of aircraft with no tail

A research team has demonstrated the use of a novel control method in an aircraft with no tail. The ...

Feb 8, 2023 12:51 PM

'Talking' concrete could help prevent traffic jams and ...

An increasing number of U.S. interstates are set to try out an invention that could save millions

Our Partners

Let's review: Learning objectives

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