

Professional Licensing Exams: Road to Getting your Engineering License

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Engineer in Training License : Fundamentals of Engineering Exam

So you have graduated college and have a BS in Engineering. Now what? Are you an Engineer? Technically NO!

- Obtaining your Engineer in Training (EIT) license is the start of your path to becoming a registered Professional Engineer (PE)
- To obtain your EIT License you need to:
 1. Graduate with an ABET-accredited degree in Engineering (or equivalent) with transcripts for verification
 2. Submit an application to The National Council of Examiners for Engineering and Surveying (NCEES)
 3. Pass the Fundamentals of Engineering (FE) Exam
 4. Submit an application to the State Licensing Board to obtain License number
 5. Pay lots of fees

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Steps before the FE Exam

1. Be **enrolled in** or **graduate** from an ABET accredited college with a Bachelors Degree in Engineering
 - a. Non ABET-accredited curriculums require an additional application
 - b. You can sit for the FE Exam before you graduate
2. Create a **MyNCEES account** with your non-school email (don't forget your login info!)
3. **Register and schedule** a time to take the Fundamentals of Engineering (FE) Civil Exam at a Pearson test center on your MyNCEES account
 - a. Cost: \$175 for the exam
 - b. Because the test is computer based there are many options for testing center location and test date
4. **Study!**
5. Sit for and **pass** the FE Exam
 - a. Results are available on MyNCEES within 7-10 business days with notification through email
 - b. Examinees will be provided one attempt per testing window (3-month period) and three attempts in a 12-month period

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Studying for the FE Exam

- Purchase or borrow a review book if possible
 - Michael R. Lindeburg – PPI2Pass.com
- Find online practice exams
 - passFEexam.com
 - NCEES offers *computer based* practice exams for a price
- Download the NCEES Handbook online for free
 - Searchable and identical to what you'll receive for the test
 - Formula variables may not be what you learned in school
 - If something is obviously omitted it isn't on the test
 - Use the constant values provided in the handbook
- Strategy
 - Solutions are formulaic, learn the different types of problems
 - Unanswered questions are automatically incorrect so mark questions you skip and go back at the end to **guess**
 - Some questions ask for choice that's "*most nearly*" correct
 - Some questions have unnecessary information included to confuse you

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What Should You Bring?

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 - What to Bring:
 - A valid ID
 - A non-graphing calculator without the cover – a calculator will be available on-screen but it is cumbersome
 - A jacket
 - Glasses
 - A face mask – no valves or face shields



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 - What Not to Bring:
 - Your phone – lockers available
 - Food or drinks
 - A graphing calculator
 - A watch – a timer is available on-screen
 - A pen/pencil or paper – provided
 - Any books or notes including the handbook

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The FE Exam

5 hours and 20 minutes of testing /
110 multiple-choice questions =
~3 minutes per question

- 18 Civil Engineering subjects
- 2 “sections” with 55 questions each
- Each subject will only be in 1 section, the questions will be grouped together, and there aren’t an equal number of questions for each subject
- You can skip questions and mark them to come back to but make sure you guess even if you don’t know the answer
- Once you finish the 1st section you cannot go back so answer all questions
- It is up to you to split your time between the 2 sections
- 25 minute break between sections is optional

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Steps after the FE Exam

1. **Pass the FE Exam**
2. Create a **PALS account** with the State Licensing Board (don't forget your login info!)
3. **Submit an application** to the State Licensing Board for your EIT certificate
 - a. Cost: \$25 application fee, \$85 processing fee
 - b. A Criminal History Records check will be automatically submitted if you live, work, or go to school in PA (if not you must submit your own)
4. **Submit transcripts** to MyNCEES and the State Licensing Board through Person Vue/Dasher
 - a. Electronic transcripts may be securely emailed to transcripts@ncees.org
 - b. Paper transcripts mailed to NCEES
 - c. Paper transcripts mailed to Pearson Vue
5. Receive an **EIT License Number** from the state board

Pearson VUE
c/o Dasher Inc.
PO Box 60669
Harrisburg PA 17105

NCEES
Attn: NCEES ID 16-713-23
200 Verdae Boulevard
Greenville, SC 29607

Congrats! You're an Engineer in Training! Time to get some experience.

In PA you need: 4 years of relevant work experience (each graduate degree counts as a year of experience for a max of 2 years)

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Professional Engineering License: Principles & Practices of Engineering Exam

So you've received your E.I.T. certificate and have worked progressively for 4 years under supervision of a licensed Engineer...

Apply to your state's Licensing board to sit for the P.E. exam: (PA used as example)

Check State's application deadlines and give yourself a few months prior to deadline to allow processing and revisions to application.

<https://www.pals.pa.gov/>

- Create an account on PALS
- \$50 application fee + \$225 admin fee
- Background check
- Verification of FE and EIT information or link to NCEES account
- Amplified Record of Engineering Work/Design Experience
- 5 Letters of Recommendation: minimum (3) from licensed PE and (2) equivalent experience and education as professional engineer

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Amplified Record of Engineering Work/Design Experience

Follow the directions word for word! Find a coworker's Record to use as example

Have someone review your Record

Example:

PennDOT: District 8-0, Bridge Package - East Group, SR 422 over Quittaphahilla Creek, Lebanon County, PA

Transportation Designer who participated in scoping and field view meetings. I was responsible for roadway design and Erosion and Stormwater Protection staging and plan for preliminary design. I also compiled estimated quantities and cost estimate for Roadway and E&S preliminary design items.

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PennDOT: District 5-0, Stone Arch Bridge Rehabilitations, SR 4018 Sec. 02B & 03B, Lehigh County, PA

Transportation Designer responsible for preliminary detour and Maintenance and Protection of Traffic design for these adjacent masonry stone arch structures to be replaced. I created the Safety Review Report and preliminary roadway design also.
Bridge Designer responsible for preliminary and final structure plans. Coordinated design with pre-cast arch product manufacturer and responsible for review of pre-cast arch, headwalls, and wingwalls shop drawings and calculations.

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PennDOT: District 5-0, Stone Arch Bridge Rehabilitations, SR 4020, Northampton County, PA

Bridge Designer responsible for preliminary and final structure plans for this rehabilitation with removal and replacement of fill over arch with lightweight concrete and deck slab. Designed widened concrete deck slab with toe walls and wingwalls.

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Preparing for the P.E. Exam

Licensing Board sends you approval of Application
Woohoo!

1. Register to take the test through NCEES
<https://ncees.org/supplemental/launch-login/>
 1. Choose which Discipline to take for afternoon session. What area are you most competent based on our experience?
 2. Exam Site will be sent to you a few weeks prior to exam
2. Start Studying!!!
 - i. Purchase Civil Engineering Reference Manual for the PE Exam, Michael Lindeburg, PE; current edition
 - ii. Consider buying Reference Manual for chosen discipline
 - iii. Locate and compile National reference manuals you use through out typical project design
 - iv. NCEES has several helpful practice exams
 - v. Co-workers and ASCE members are great resource for practice exam and reference sharing
 - vi. Get a notebook to hold all practice problem work and answers/scores

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Study Tips

1. Make a plan and start studying early
 - I. Schedule each Section of PE Reference Manual to be completed per week or 1 per night
 - II. Stick to a routine. Set aside an hour or two each night to review a topic or complete 10 practice problems.
 - III. No TV or distractions, just you and your calculator with references
2. Do practice problems, Do Practice Problems, DO PRACTICE PROBLEMS
3. Place sticky notes and highlights for quick reference to tables and formulas
4. Do at least one full practice exam (40 questions) in one sitting (4 hour timer)
5. Don't try to cram the day before. Pack up everything and go to bed early

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Day of exam: Covid-19 style

1. Pack books in suite case for easy transportation.
 2. Read all regulations on NCEES website for what you can and cannot bring day of and most up-to-date info.
 3. Get there early so you don't feel rushed if get lost or long line signing in.
 4. Wear a mask. Pick most comfortable mask you own.
 5. You will get your own table. 6 ft minimum will be provided between members.
 6. Bring snacks and water bottle (don't bring something with nuts just in case someone has nut allergy)
 7. Dress in layers.
- Due to Covid-19 Region exam on January 26, 2021 for PE Civil Exam
 - Note NCEES transitioning some exams to computer based from now to 2024 so always check website for updates.

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Test Taking Strategies

1. Start by reading through all questions and breathe
2. Start with questions you know off the bat
3. If you start to get stuck or frustrated with a problem stop and move on
4. Circle questions you are not confident in the answer so you can go back and double check if you have time
5. Don't watch the clock, focus on moving through questions
6. Watch your units and conversion factors
7. Don't spend long second guessing your gut answer

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Post Exam

1. Celebrate and anxiously wait one to two months to find out if you passed or not.
2. Receive License number and certificate
3. Purchase a stamp
 1. Look for a site that gives you CAD copy and a physical seal
4. Change your signature and business card title to "P.E." and "Engineer"
5. Update information on Linked-in and ASCE member site
6. Start earning and recording Professional Development Hours
 1. In PA you need 24 PDHs per renewal period
 2. Only count PDHs from topics or experience that truly does further your competency in your licensed expertise
 3. ASCE membership gives you 10 PDHs FREE through 1-hr webinars:

<https://sa360.asce.org/ASCEWebApp/Benefits/Membership/Freeonlineandwebinars.aspx?ga=2.26681982.2100418468.1599774601-46422719.1599774601>
7. Keep your License Active by renewing every 2 years
 1. <https://www.pals.pa.gov/>

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