

Fundamentals of Engineering Exam for the Olin Student

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Class of '09

Overview

- o What is Licensure?
- o Licensure Track
- o Why Take the FE Exam?
- o FE Exam: What You Need to Know
- o Preparing for the Exam

What is Licensure?

What is Licensure?

Licensure is:

- Recognized authorization for professional practice
- A recognized standard measure of competence
- A way to protect public health, safety, and welfare

You want your doctors, accountants, and lawyers to be licensed

... but did you know that you can be licensed as an **engineer**?

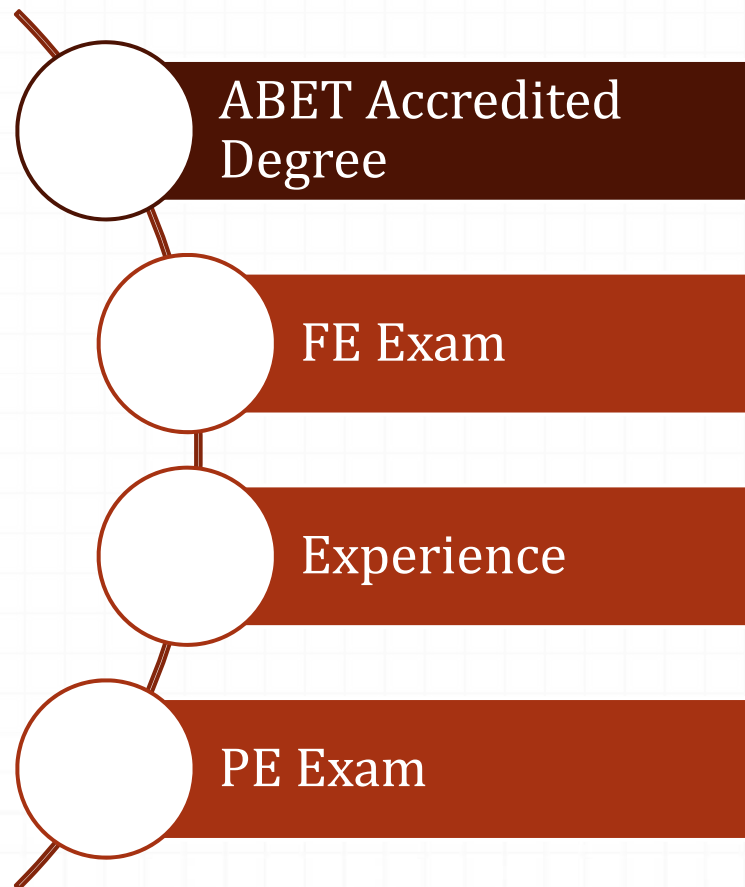
Licensing Organization: NCEES

National Council of Examiners for Engineering and Surveying

- Nonprofit organization made up of the engineering and surveying licensure boards from all U.S. states and several territories
- Develops, administers, and scores the FE and PE exams that are used for engineering licensure in the U.S.

Licensure Track

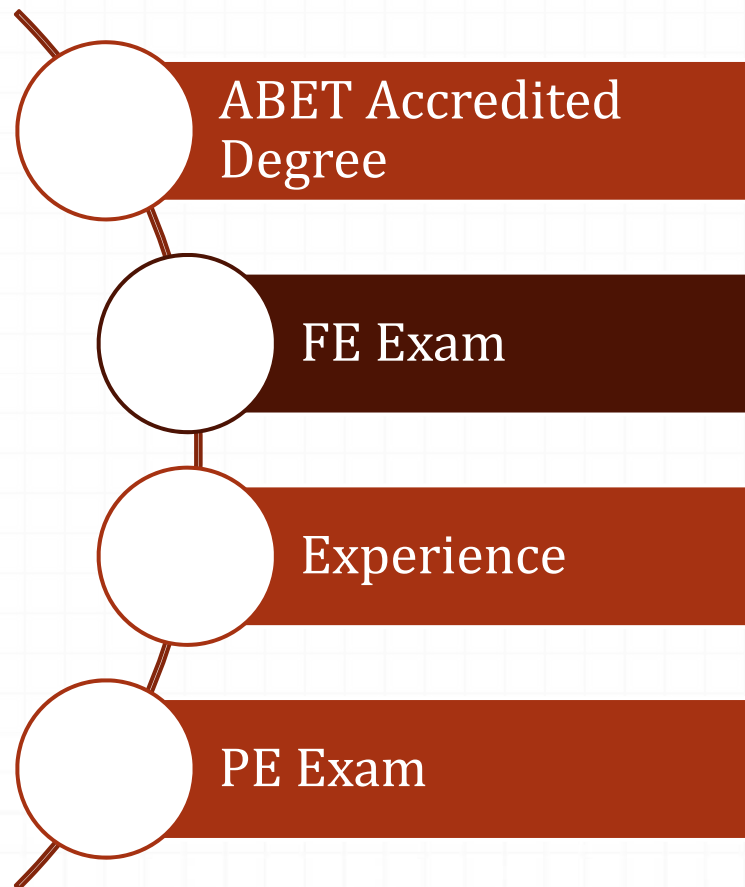
Licensure Track: ABET Degree



ABET Accredited Degree

Olin is an ABET accredited college, so you are on your way to meeting the first requirement.

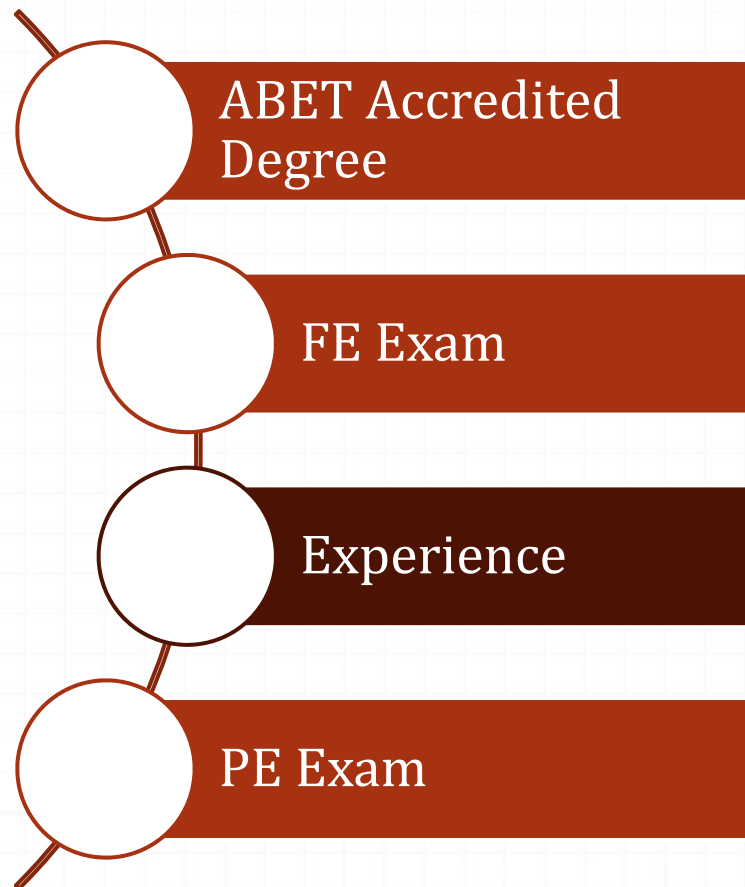
Licensure Track: FE Exam



Fundamentals of Engineering (FE) Exam

- The exam is offered in April and October
- You can take the exam in your senior year, or anytime after you graduate
- When you pass, you earn the designation EI or EIT (Engineering Intern or Engineer In Training)
- It does not matter where you take the FE Exam or what subject you focus on

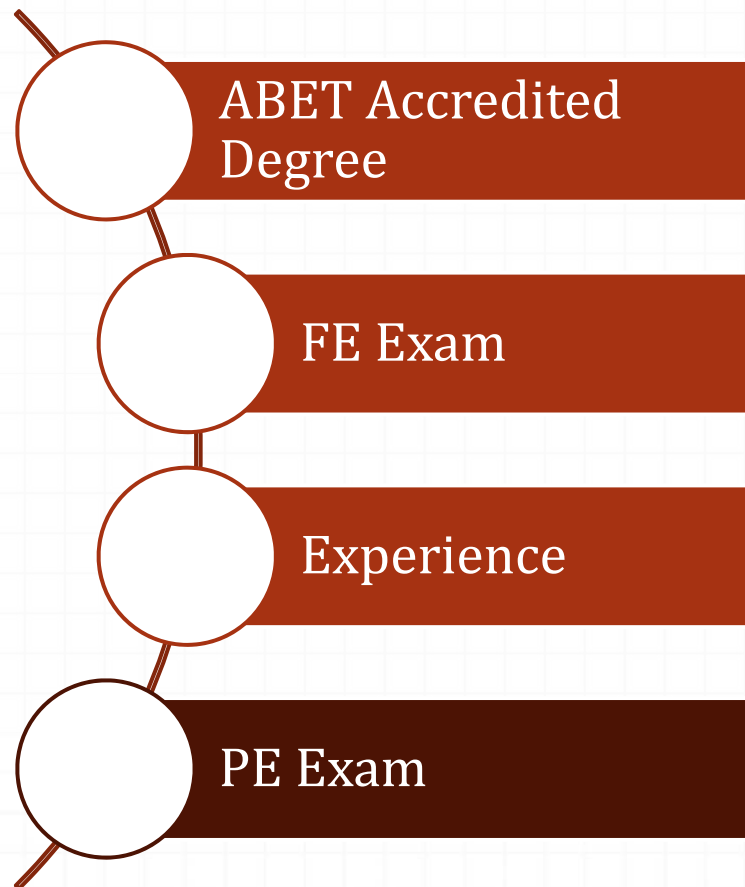
Licensure Track: Experience



Experience

- Generally you need about 4 years of engineering experience working under a P.E.
- Different states have different requirements before you can take the PE Exam, so make sure to check on ncees.org

Licensure Track: PE Exam



Principles and Practice of Engineering (PE) Exam

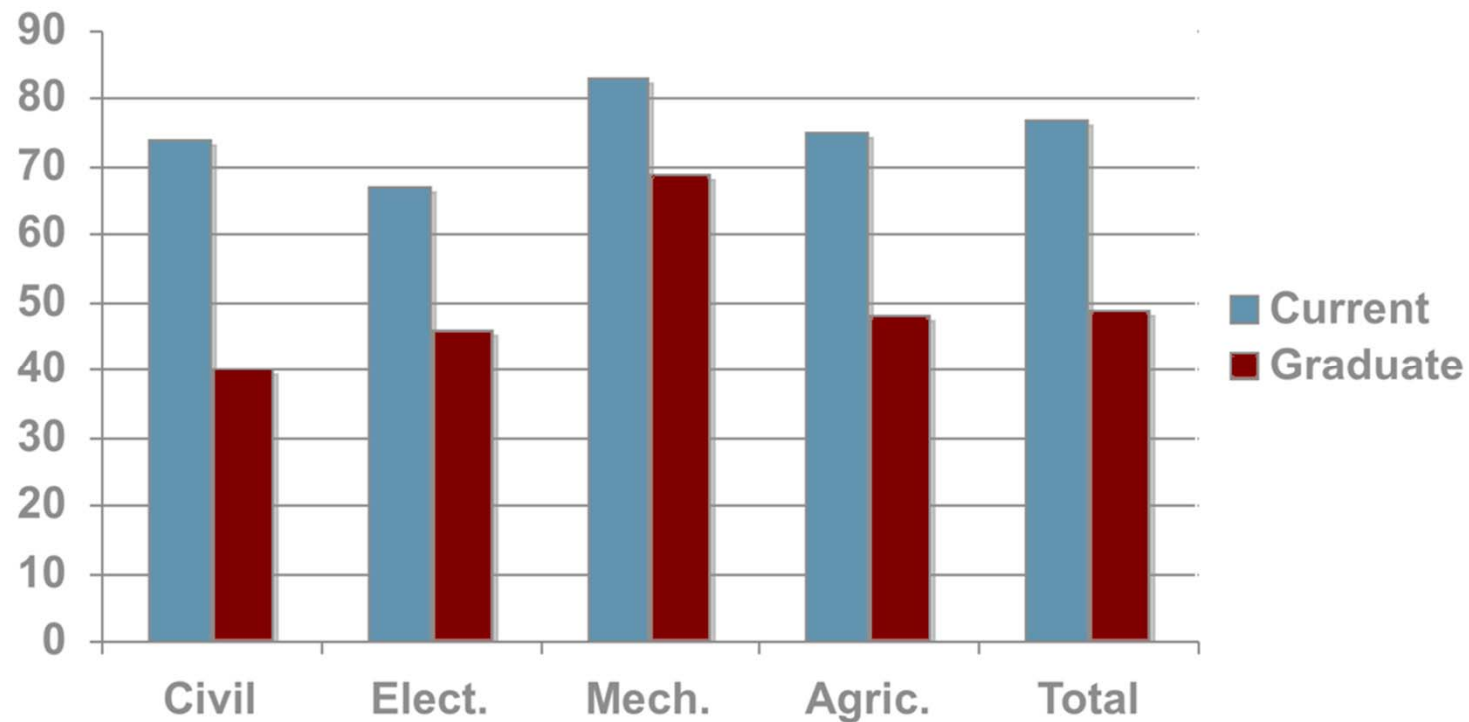
- The exam is offered in April and October
- Requirements vary widely by state
- Another 8 hour exam
- Practice oriented with
- 17 Disciplines
- Open Book
- With this exam and licensure board approval, you can use the designation "P.E." for Professional Engineer

Why Take the FE Exam?

Why Take the FE Exam?

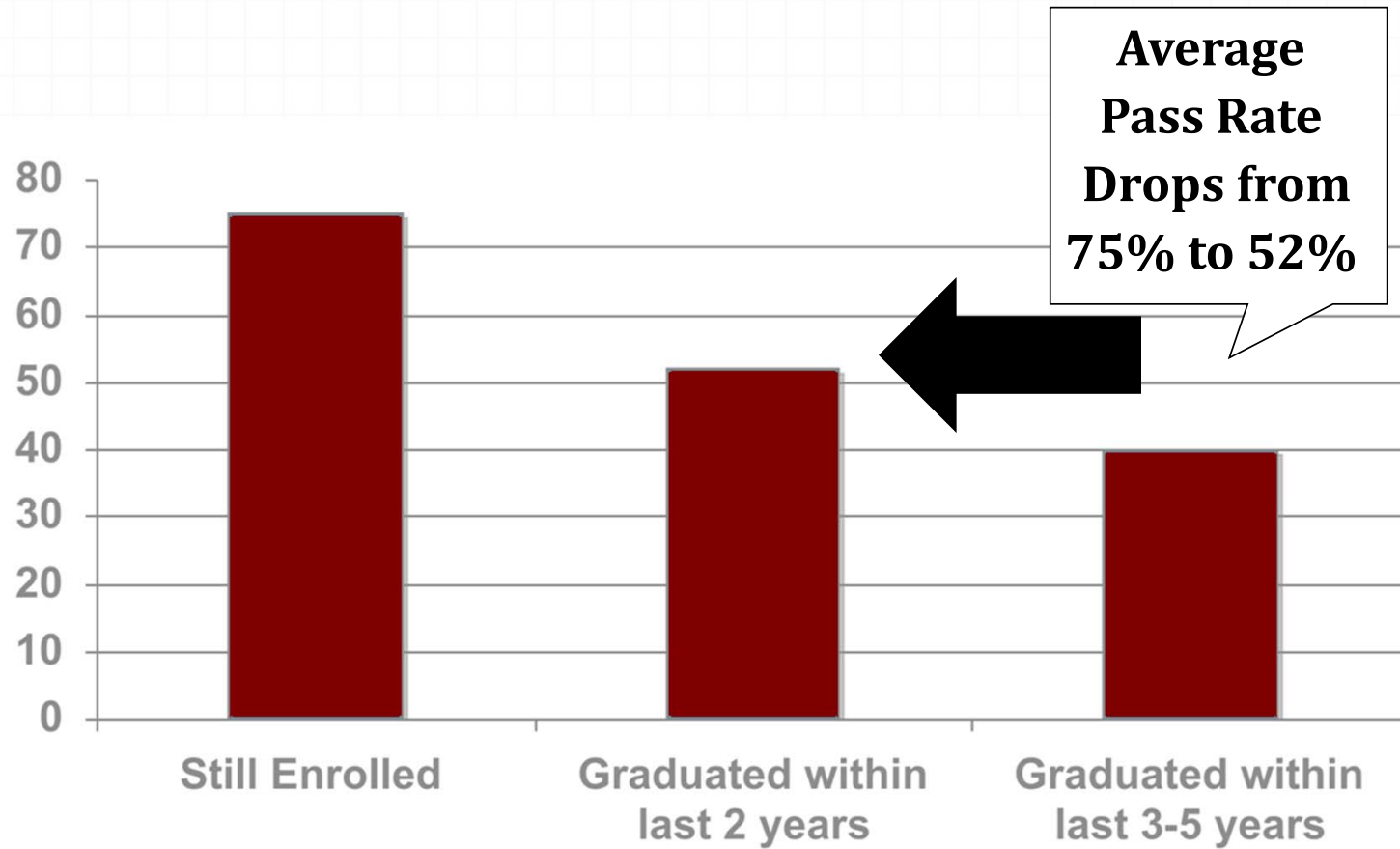
- EIT certification shows that you are serious about your future as an engineer.
- It is much easier to pass now, when your college education is fresh in your mind, than it will be later. If you think you might ever want to take the exam or become certified, take the FE Exam now.

Discipline Pass Rates: Current Students vs. Graduates



Graph from NCEES Licensure Presentation: *The Path to Professional Licensure*

Overall Pass Rates



Graph from NCEES Licensure Presentation: *The Path to Professional Licensure*

Why Take the FE Exam?

It is the next stage in becoming a Professional Engineer.

- o The phrase “Professional Engineer” is restricted to people who have passed the PE Exam.
- o If you want to offer your services as an engineer directly to the public as a consultant you are legally required to have a PE.
- o You need to be licensed to sign off on engineering documents either “submitted to a public authority or for public and private clients” (IEEE).

Why Take the FE Exam?

It is the next stage in becoming a Professional Engineer.

- o If you want to become a professor of engineering, more and more colleges require a PE for engineering faculty (IEEE, Whitman).
- o A P.E. says that you have met the recognized standard of competence in your field.
- o Licensed engineers in general make more money.

Why Take the FE Exam?



COMPANY X

KELCY ADAMEC, P.E.
WATER RESOURCES ENGINEER



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LINKEDIN.COM/IN/KELCY

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SOMEWHERE, SOME STATE,
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Why Take the FE Exam?

GE.com

POSITION INFORMATION

aspiration and imagination.

Careers

Position Information

Position Description

F&SY5, MathCad

Job Summary

Company

Evergreen Engineering

Location

Hillsboro, OR 97116

Industries

Engineering Services

Job Type

- Full Time
- Employee

Years of Experience

7+ to 10 Years

Education Level

Bachelor's Degree

Career Level

Experienced
(Non-Manager)

Ye
5+

Education Level
Bachelor's Degree

Mechanical Engineer

About the Job

Our Company

Evergreen Engineering is a leading A/E/C firm focusing on the solar, semiconductor and pharmaceutical industries. Design and construction excellence, efficient delivery, and marketing savvy have led to our unprecedented growth and leadership position. We are looking for strong candidates who share our vision and passion.

Additional skill sets desirable and/or considered a plus:

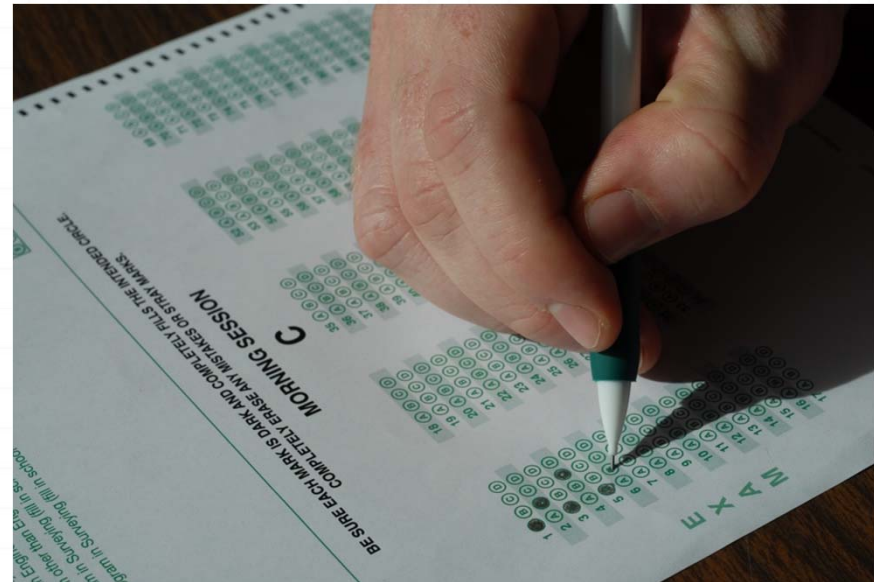
- Licensed professional engineer (PE) in Oregon or other states.
- Previous A&E firm design experience in semiconductor and cleanroom facilities (new or retrofit applications).
- Plumbing and/or fire protection design experience.
- Proficiency with any mechanical hydraulic/piping flow modeling software programs (such as PipeFlo).
- Previous experience utilizing any CFD/air flow modeling software programs (such as TileFlow).
- Mechanical system start-up and commissioning experience.

FE Exam

What You Need to Know

FE Exam Format

- Designed to test a minimum level of competency
- 8 hours
- 180 multiple-choice questions
 - Morning session: 120 questions
 - Afternoon session: 60 questions
- Closed book

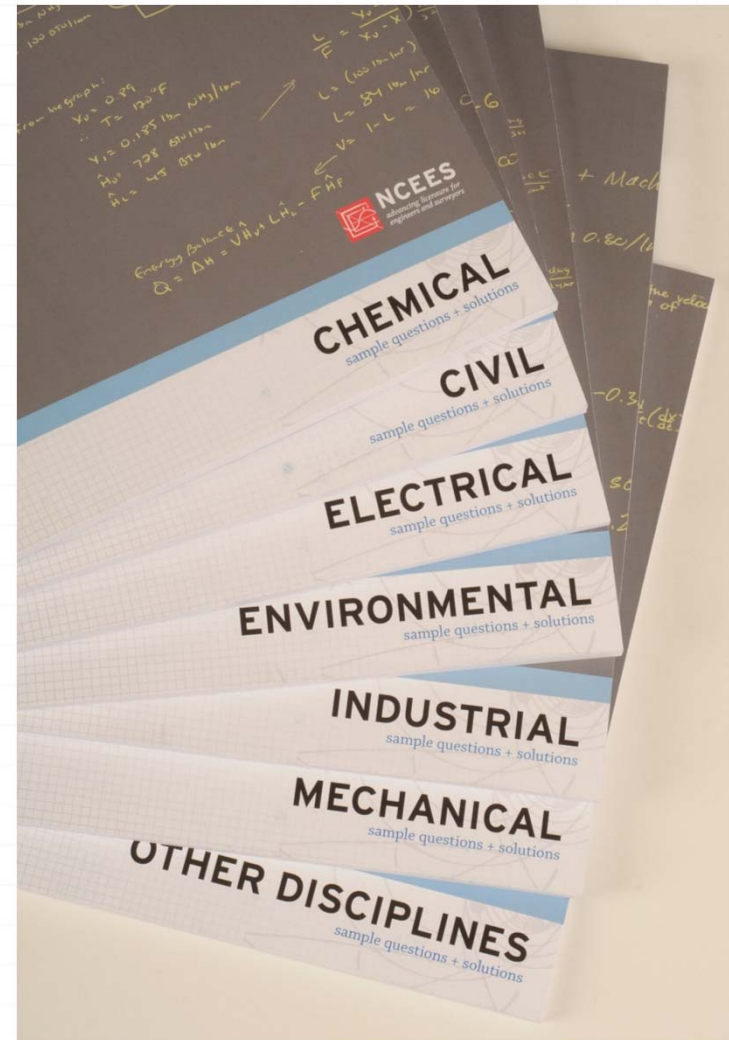


Morning Session Topics

- Mathematics
- Engineering probability and statistics
- Chemistry
- Computers
- Ethics and business practices
- Engineering economics
- Engineering mechanics
- Strength of materials
- Material properties
- Fluid mechanics
- Electricity and magnetism
- Thermodynamics

FE Afternoon Session

- 0 7 discipline-specific modules
- 0 60 questions each
- 0 Difficulty aimed towards junior and senior-level coursework



Preparing for the Exam

Preparing for the Exam

- Review reference materials
- Pay specific attention to: Chemistry, Engineering Economics, Ethics and Business Practices, Computers (don't get cocky), and Thermodynamics
- Become familiar with the NCEES FE Supplied Reference Handbook
- Know your calculator
- Credit?

Olin Library Resources

- NCEES FE Supplied Reference Handbook (free pdf from ncees.org, hard copy available in Olin library)
- Kaplan Review Books
- ASME FE Exam Prep Lecture CD-ROM
- FE/EIT AM w/CD-ROM (REA) - The Best Test Prep for the Engineer in Training Exam, N. U. Ahmed
- FE/EIT Sample Examinations, Michael R. Lindeburg
- Mechanical Discipline-Specific Review for the FE/EIT Exam, Michel Saad
- FE Review Manual: Rapid Preparation for the General Fundamentals of Engineering Exam (F E Review Manual), Michael R. Lindeburg

WARNING:

No Graphing Calculators Allowed!

Kelcy's Choice:
Cassio FX-115ES



Merits

- Currently NCEES Approved
- Integration
- Binary/Hexadecimal conversion
- Matrix math
- Highly recommended from internet reviews for the FE and PE exams

Registration

- Registration opens 3-4 months before the exam and closes 1-2 months before the exam, so be sure to submit your registration form on time
- Registration in MA is through Professional Credential Services (pcshq.com)

Applications must be submitted and received by regular mail or by express mail of the U.S. Postal Service no later than September 1st for the October examination and March 1st for the April examination. (Deliveries from other express services cannot be accepted in a post office box.)

Refer to "Information for Applicants" for a list of materials to be submitted.
Mail application materials to:

Engineering Examination Services/MA ENG
150 Fourth Avenue North, Suite 700
P.O. Box 198689,
Nashville, TN 37219-8689
(877) ENG-EXAM (615) 846-0153 (fax)
<http://www.pcshq.com>

More Details

- 2-3 weeks after registering, you receive an exam notice about exam location, start time, and parking. Take it with you when you test!
- If you pass, you are notified
 - Send in your transcript and money ASAP!
- If you fail, you get an exam breakdown

References

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Questions? Comments?

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