

CHI EPSILON FE INFO NIGHT
THURSDAY, SEPTEMBER 5, 2024





WHAT IS A PE LICENSE?



- **PE = Professional Engineer**
- **It is a certification that is earned that demonstrates...**
 - **Technical proficiency**
 - **Commitment to quality**
 - **High standard of ethics**
 - **Legal credentials to work**
 - **Primary obligation to protect safety, health, and welfare in the performance of professional duties**



BENEFITS OF A PE LICENSE



- **Career development**
- **Career flexibility**
- **Authority**
 - **To sign and seal drawings**
 - **To run your own projects**
 - **To run your own consulting firm (legally required!)**



STEPS TO GETTING A PE LICENSE



1) Register for and pass the Fundamentals of Engineering (FE) Exam

- During senior year at Purdue

2) Earn a four-year engineering degree from an accredited program (Boiler UP!)

3) Apply for registration as an Engineer Intern (EI) – OPTIONAL IN INDIANA

- Look up your state's requirements

4) Complete the required engineering work experience under a licensed PE

- Look up your state's requirements
- Ensure you are working under a licensed PE

5) Apply to take the Principles and Practice of Engineering (PE) exam

6) Register for and pass the PE Exam



STEP 1: FE EXAM



- **Governing body is NCEES:**
National Council of Examiners for Engineering and Surveying
- **Computer-based exam**
- **Can be taken year-round at Purdue (Stewart Center) or any NCEES-approved Pearson VUE test center in the country**
- **The FE Exam is reciprocal in all US states and territories**
- **Create a myNCEES Account**
- **Pay \$225 exam fee to NCEES (SUBJECT TO CHANGE)**

CREATE A MYNCEES ACCOUNT

The screenshot shows the MyNCEES Dashboard. At the top left is the NCEES logo. The main header reads "MyNCEES Dashboard" with a shopping cart icon and a question mark icon to the right. Below the header is a notification bar: "Existing Record holders and Credentials Evaluation customers need to [link their legacy accounts](#) to migrate their information into the new system." The dashboard is divided into three main sections: "Recent Items" (currently empty), "Common Tasks", and "CPC Tracking". The "Common Tasks" section is further divided into "Exams", "Useful Documents", "Records", "Education", and "General".

MyNCEES Dashboard

Existing Record holders and Credentials Evaluation customers need to [link their legacy accounts](#) to migrate their information into the new system.

Recent Items

Common Tasks

Exams

- Register for an exam
- Purchase a practice exam
- Access a result notice or diagnostic
- Exam verification

Useful Documents

- Learn about special accommodations
- PE and Structural exam schedule
- Review exam day policies
- Download the NCEES Examinee Guide
- Calculator Policy
- FE Reference Handbook
- FS Reference Handbook
- PE Chemical Reference Handbook
- PS Reference Handbook

Records

- Apply for an NCEES Record
- License verification
- Transmit my NCEES Record
- Link my legacy Records account

Education

- Update my education
- What is an NCEES Credential
- Link my legacy Credentials account

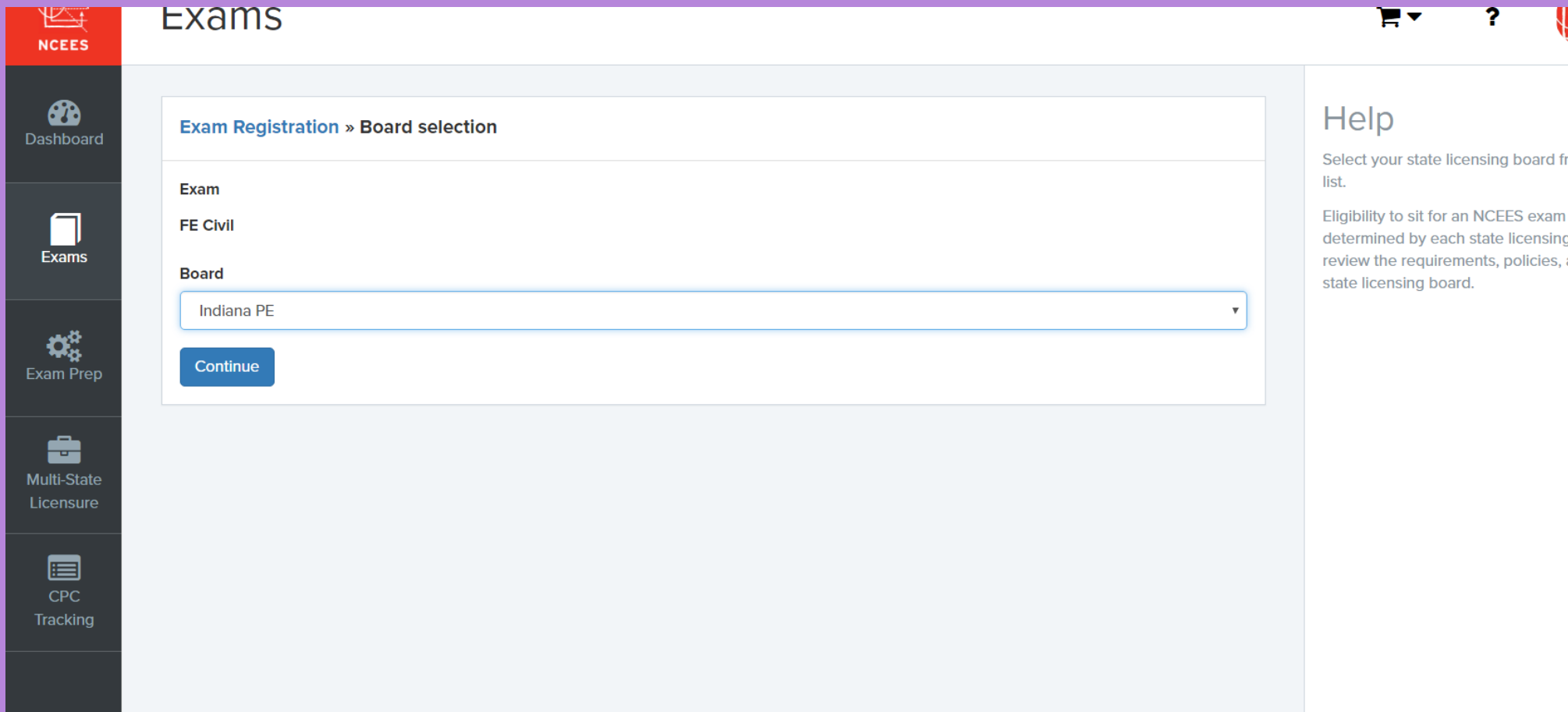
General

- Submit a support request
- View my order history or print
- Update my contact information

CPC Tracking

REGISTRATION

- Designate the State that you are taking the exam in, though it's reciprocal everywhere



The screenshot shows the NCEES Exams registration interface. The top navigation bar includes the NCEES logo, the word 'Exams', and icons for a shopping cart, help, and a user profile. A left sidebar contains navigation options: Dashboard, Exams, Exam Prep, Multi-State Licensure, and CPC Tracking. The main content area is titled 'Exam Registration » Board selection'. It displays the following information:

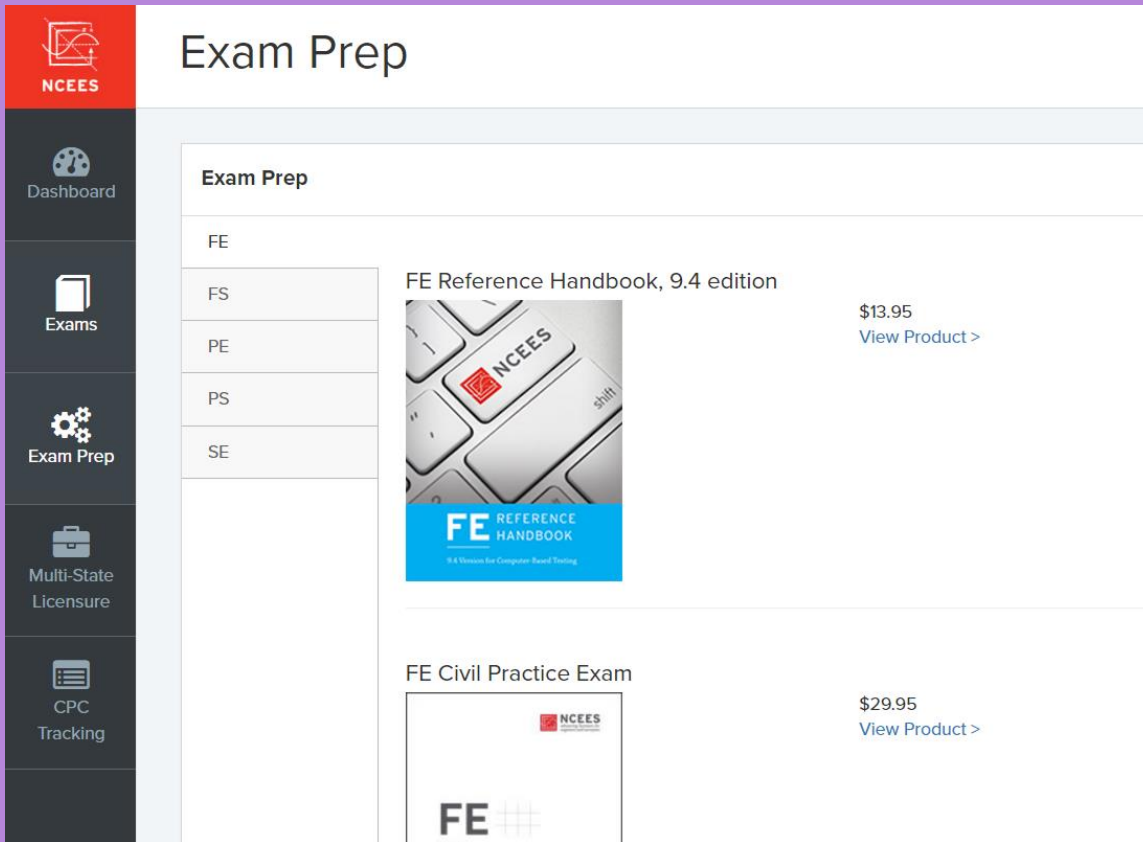
- Exam:** FE Civil
- Board:** A dropdown menu with 'Indiana PE' selected.
- Continue:** A blue button to proceed to the next step.

On the right side, there is a 'Help' section with the following text:

Select your state licensing board from the list.

Eligibility to sit for an NCEES exam varies by state and is determined by each state licensing board. Please review the requirements, policies, and procedures of your state licensing board.

OPTIONS FOR PURCHASE



The screenshot displays the NCEES Exam Prep interface. On the left is a dark sidebar with navigation icons for Dashboard, Exams, Exam Prep, Multi-State Licensure, and CPC Tracking. The main content area is titled 'Exam Prep' and features a vertical menu with categories: FE, FS, PE, PS, and SE. The 'FE' category is selected, showing two products:

- FE Reference Handbook, 9.4 edition**: Priced at \$13.95 with a 'View Product >' link. The image shows a keyboard with an NCEES logo on a key.
- FE Civil Practice Exam**: Priced at \$29.95 with a 'View Product >' link. The image shows the cover of the exam book.

(prices subject to change)

- **FE Reference Handbook**
 - Free digitally (subject to change)
 - May purchase a hard copy if you prefer
- **Practice exam**
 - Results show which questions you missed
 - Discounted price if purchased while registering for the exam



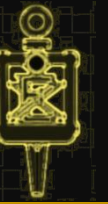
EXAM FORMAT



- **6 hours**
 - **Nondisclosure agreement (2 minutes)**
 - **Tutorial (8 minutes)**
 - **Exam (5 hour 20 minutes)**
 - **Break (25 minutes)**
- **Pass/Fail exam**
- **Special Accommodations Available**



EXAM FORMAT



- **110 questions (See NCEES website for more [info](#))**
 - **Multiple-choice**
 - **Multiple correct**
 - **Point and click**
 - **Drag and Drop**
 - **Fill in the Blank**
- **No partial credit**



CONTENT



<https://ncees.org/engineering/fe/>

Exam specifications

The FE is offered in seven disciplines. Specifications for the exams are as follows:

- [FE Chemical](#) (PDF)
- [FE Civil](#) (PDF)
- [FE Electrical and Computer](#) (PDF)
- [FE Environmental](#) (PDF)
- [FE Industrial and Systems](#) (PDF)
- [FE Mechanical](#) (PDF)
- [FE Other Disciplines](#) (PDF)



Fundamentals of Engineering (FE) CIVIL CBT Exam Specifications

Effective Beginning with the July 2020 Examinations

- The FE exam is a computer-based test (CBT). It is closed book with an electronic reference.
- Examinees have 6 hours to complete the exam, which contains 110 questions. The 6-hour time also includes a tutorial and an optional scheduled break.
- The FE exam uses both the International System of Units (SI) and the U.S. Customary System (USCS).

Knowledge	Number of Questions
1. Mathematics and Statistics	8–12
A. Analytic geometry	
B. Single-variable calculus	
C. Vector operations	
D. Statistics (e.g., distributions, mean, mode, standard deviation, confidence interval, regression and curve fitting)	
2. Ethics and Professional Practice	4–6
A. Codes of ethics (professional and technical societies)	
B. Professional liability	
C. Licensure	
D. Contracts and contract law	
3. Engineering Economics	5–8
A. Time value of money (e.g., equivalence, present worth, equivalent annual worth, future worth, rate of return)	
B. Cost (e.g., fixed, variable, direct and indirect labor, incremental, average, sunk)	
C. Analyses (e.g., break-even, benefit-cost, life cycle, sustainability, renewable energy)	
D. Uncertainty (e.g., expected value and risk)	
4. Statics	8–12
A. Resultants of force systems	
B. Equivalent force systems	
C. Equilibrium of rigid bodies	



CONTENT



- Your “breadth” courses will help you
- Even if you take all the technical electives, you may need to do extra studying on your own

Related Coursework	Topic	Min. # Questions	Max. # Questions
TOPICS COVERED BY CORE COURSES			
MATH/STAT 511	Mathematics and Statistics	8	12
CE 292 / 498	Ethics	4	6
CE 222 / 398	Engineering Economics	5	8
CE 297	Statics	8	12
CE 298	Dynamics	4	6
CE 270	Mechanics of Materials	7	11
CE 335	Materials	5	8
CE 340	Fluid Mechanics	6	9
CE 203	Surveying	6	9
TOPICS COVERED BY TECHNICAL ELECTIVES			
CE 440/350	Water Resources and Environmental Engr	10	15
CE 371/470/ 473/474	Structural Engineering	10	15
CE 383/483	Geotechnical Engineering	10	15
CE 361	Transportation Engineering	9	14
CE 222	Construction Engineering	8	12



FE REFERENCE HANDBOOK



- **500+ pages**
- **Available digitally during the exam**
 - **Digitally searchable during exam**
 - **No other books or references allowed**

Contents

Units and Conversion Factors.....	1
Ethics and Professional Practice	4
Safety	13
Mathematics.....	34
Engineering Probability and Statistics.....	63
Chemistry and Biology	85
Statics.....	94
Dynamics	101
Materials Science/Structure of Matter	117
Mechanics of Materials.....	130
Thermodynamics.....	143
Fluid Mechanics.....	177
Heat Transfer.....	204
Instrumentation, Measurement, and Control	220
Engineering Economics	230
Chemical Engineering.....	238
Civil Engineering.....	259
Environmental Engineering	312
Electrical and Computer Engineering.....	357
Industrial and Systems Engineering.....	419
Mechanical Engineering	433
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WHEN DO I TAKE THE FE?



- Early in fall or spring semester of senior year
- **FIRST: Sign up** for a test day after you receive your course syllabuses
 - Pick a date about 4-6 weeks out
 - If necessary, prepare to miss a day of class to take it
- **THEN: Study**
 - Take the practice exam during the week prior
 - Note that NCEES has the practice exam errata posted on their website



HOW DO I STUDY FOR THE FE?



No. 1 Way to Study: Purchase & Take the Practice Exam

No. 2 Way to Study: Become familiar with the reference manual

No. 3 Way to Study: Borrow an FE Review Book from the XE office or find/purchase online materials



REVIEW MATERIALS

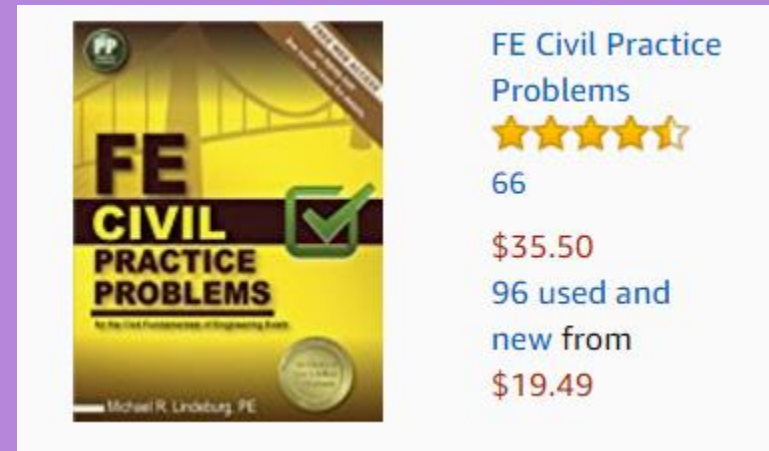


CHI EPSILON STUDY TOOLS

- Review books
- Practice problems and solutions

ANOTHER SUGGESTED BOOK

- Diagnostic exam
- Like a Sparknotes of all Civil Engineering Classes, succinct explanation/review of topics
- Practice Problems



(prices subject to change)



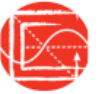
HOW HARD IS THE FE?



- **Simply put: It's a comprehensive exam**
- **Not nearly as difficult as Purdue exams**
- **Show you can use the equations in the manual**

HOW DO I GET MY EXAM RESULTS?

MyNCEES Dashboard



Recent Items

FE Civil

Result Notice

Format: Computer

Result: **Passed**

Next Steps

Passed

Common Tasks

Exams

- [Register for an exam](#)
- [Purchase a practice exam](#)
- [Access a result notice or diagnostic](#)
- [Exam verification](#)

Useful Documents

- [Learn about special accommodations](#)
- [PE and Structural exam schedule](#)
- [Review exam day policies](#)
- [Download the NCEES Examinee Guide](#)
- [Calculator Policy](#)
- [Reference Handbooks](#)

CPC Tracking

- [Enter and upload CPC courses](#)

Records

- [Start an NCEES Record](#)
- [License verification](#)
- [Transmit my NCEES Record](#)
- [Link my legacy Records account](#)

Education

- [Update my education](#)
- [What is an NCEES Credential Evaluation](#)
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General

- [Submit a support request](#)
- [View my order history or print a receipt](#)
- [Update my contact information](#)

STEP 1 COMPLETE!



STEP 2:



GRADUATE!



STEP 3: REGISTER AS AN EI



REGISTER AS AN ENGINEER INTERN (EI)

- Visit the professional licensing agency website for your state of choice
- In Indiana, it's the Indiana Professional Licensing Agency (Indiana PLA)

Engineering Licensing Information

PLA > Professions > Engineering Home > Engineering Licensing Information

- [Apply, Renew, or Maintain Your Application](#)
- [Application Instructions](#)
- [Renewal Instructions](#)
- [Exams & Testing](#)
- [Fee Schedule](#)

Application Instructions

Engineer Interns and Professional Engineers can now go to [MyLicense.IN.gov](https://mylicense.in.gov) to apply online! You will either need to create or login to your Access Indiana, single sign-on account. You will complete the online application and submit payment with a credit or debit card. It is the applicant's responsibility to follow the instructions and ensure all requirements for licensure are submitted or requested. You will be contacted by a customer service representative with details of what additional documentation is required to complete your application. Applications are process in the order received.

Engineer Intern	+
Professional Engineer by Examination	+
Professional Engineer by Comity with NCEES File	+



APPLICATION TO REGISTER AS AN EI



Indiana EI Application Checklist:

- _____ **3 reference letters in sealed envelopes**
(NOT REQUIRED if exam is taken prior to graduation)
- _____ **Original photograph (taken in past 8 weeks)**
- _____ **NCEES notification of passing FE exam**
- _____ **Original copy of transcript sent directly from the University**
- _____ **\$10 application fee (SUBJECT TO CHANGE)**



STEP 4: WORK EXPERIENCE



- Once you are employed, visit your state's professional licensing agency website for more information
- In Indiana, you must first complete the following qualified work experience under a licensed PE:
 - With Bachelors degree: 4 years after graduation date
 - With Masters degree: 3 years after graduation date
 - With PhD: 2 years after graduation date



STEP 5: APPLY TO TAKE THE PE EXAM



- In Indiana, you must submit your application to the Professional Licensing Agency **BEFORE** you can register for the exam
- As of April 2022, the PE Civil exam is now computer-based and offered year-round



PE EXAM APPLICATION



Indiana Professional Engineer Application Checklist

- Completed application form**
- 5 references (3 from licensed PE's)**
- Original photograph (taken in past 8 weeks)**
- NCEES notification of passing FE exam**
- Original copy of transcript sent directly from the University**
- Completed Part III (Ethics Exam) Answer Sheet**
- \$300 exam application fee**

STEP 6: REGISTER FOR THE PE

- Once your application is accepted:
- Visit your **myNCEES Dashboard** to register to take the exam
- Pay \$400 Exam Fee (SUBJECT TO CHANGE)

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Education

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General

- Submit a support request
- View my order history or pri
- Update my contact informati

CPC Tracking




STEP 6:



**Study
&
Pass the PE!**

STEPS TO GETTING A PE LICENSE

- 1) Register for and pass the FE Exam myNCEES
- 2) Apply to register as an Engineer Intern (EI) Indiana PLA
(or your state's PLA)
- 3) Graduate! 
- 4) Get work experience under a licensed PE your state's PLA
- 5) Apply to sit for the PE Exam your state's PLA
- 6) Register for and pass the PE Exam myNCEES



SUMMARY



- **FE Exam is the first step toward your PE License**
- **The PE License is used for:**
 - Career advancement
 - Ability to sign and seal drawings
 - Running your own projects or your own firm
- Bonus: Taking the FE shows initiative in interviews
(and being an “EI” is an easy way to fit that on your resume)