FE Exam for Computer & Electrical Engineers

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Why Pursue FE?

- Acceptance from other engineering disciplines
- Entrepreneurship: Starting your own business as an engineer - Private Practice
- Finding a job
- Quality assurance

Why don't students take it?

- Don't believe they can pass it
- Don't see the importance of it
- Don't think it will help them

Student Fears

- Only Taken a fraction of the courses
- No Computer Engineering afternoon exam
  - Other Disciplines Afternoon Exam (NOT RECOMMENDED)
  - Electrical Engineering Afternoon Exam
- Should be seen as challenge not obstacle

Handling Student Fears: Early Academic Experience

- Take their elective courses seriously
- Focus not only on the grade but on the knowledge gained
- Not an easy task – Early Academic Experience is time when "Other" Matters are More Concerning

Handling Student Fears: Middle Academic Experience

- Don’t just take the easiest elective
- Use science elective for Chemistry II or other course covered by the FE
- Use free elective for an additional math course or a course in a different field of engineering

Handling Student Fears: Late Academic Experience

- Reassurance that it is never too late

- Encouragement to sign up for an FE review course

FE Examination Content

- 8 Hour Exam - Closed Notes
  - 4 Hour Morning Session on General Topics
  - 4 Hour Afternoon Session in Choice of: General, Chemical, Civil, Electrical, Environmental, Industrial, or Mechanical
- 180 Multiple-choice Questions
- 70% to Pass (Based on Equivalent Cut Score)
- Reference Material Supplied

FE Examination Security

- Use Calculators from Supplied List Only
- No Notes or Books Allowed
- Reference Manual and Reference Equation List Provided
- Mechanical Pencils Provided
- All Jurisdictions use NCEES Exam, but Individual State Boards may Have Additional Restrictions

Morning Session Specification

TOPIC	PERCENTAGE	QUESTIONS
Mathematics	15%	18
Probability/Statistics	7%	8-9
Chemistry	9%	10-11
Computers	7%	8-9
Ethics/Business Practice	7%	8-9
Engineering Economics	8%	9-10
Statics and Dynamics	10%	12
Strength of Materials	7%	8-9
Material Properties	7%	8-9
Fluid Mechanics	7%	8-9
Electricity/Magnetism	9%	10-11
Thermodynamics	7%	8-9

120 Questions in Total - Average of 2 Minutes/Question

44-47 Questions ***19-21 Questions*** ***44-48 Questions***

Afternoon Session Specification

Most Computer Engineering Students Choose Either the Electrical or General Afternoon Question Set

TOPIC	PERCENTAGE	QUESTIONS
Circuits	16%	10
Power	13%	8
Electromagnetics	7%	4
Control Systems	10%	6
Communications	9%	5
Signal Processing	8%	5
Electronics	15%	9
Digital Systems	12%	7
Computer Systems	10%	6

Electrical Afternoon Session

Afternoon Session Specification

Most Computer Engineering Students Choose Either the Electrical or Other Disciplines Afternoon Question Set

TOPIC	PERCENTAGE	QUESTIONS
Advanced Engineering Mathematics	10%	6
Engineering Probability/Statistics	9%	5
Biology	5%	3
Control Systems	10%	6
Engineering Economics	13%	8
Engineering Mechanics	11%	7
Engineering Materials	15%	9
Fluids	12%	7
Thermodynamics/Heat Transfer	15%	9

Other Disciplines Afternoon Session

8 Step Plan to Pass the FE

- Step 1
  - Sign up for review course
  - Buy a FE study guide
- Step 2
  - Take a sample exam
- Step 3
  - Strengths
  - Weaknesses

8 Step Plan to Pass the FE

- Step 4
  - Spend little time on area of strengths
- Step 5
  - Spend most of your time on areas that are
    - Rusty
    - Feel that you can master in the allotted time

8 Step Plan to Pass the FE

- Step 6
  - Take a second practice exam a week before FE
  - Identify areas that need a little more work
- Step 7
  - Work only on areas identified in Step 6
- Step 8
  - Stop studying an hour before going to sleep the night before to relax
  - Get a full 8 hours of sleep

Students should Take the FE

- It is important - Professionalism
- Real life examples of the need of PE
- Gives students a valuable Credential
- Not Intended to test your degree of mastery of all subject areas but as test of minimal competence to ensure ***public safety***

Review NCEES Website

- http://ncees.org
- Go to Exams Section
  - Test Specifications
  - Familiarize yourself with Reference Guide
  - Obtain & Use Approved Calculator
- Check Website Periodically

Conclusion

- Importance of being licensed PE:
  - public health, welfare & safety
- Engineers are Professionals
  - let's behave like professionals
- Licensing is a PRIVELEGE from a Governing Body – not a RIGHT
- *Holding a Degree* in Engineering Means you Studied the Field – *Holding a License* Means you ARE an Engineer