Electrical and Computer Engineering Examination

The National Council of Examiners for Engineering and Surveying, Principles and Practice of Engineering (PE) Examination
PE Exam Changes Ahead

- On January 5, 2001 NCEES announced the new name “Principles and Practice of Electrical and Computer Engineering Examination.”
- A new “Breadth and Depth” format for the PE exam was approved by the EPE Committee of NCEES on August 25, 2000.
- The effective date for both changes is April 2002.
New Name

• “By changing the name of the exam, we are identifying to computer engineers that this is their exam for licensure,” says Aaron Collins, Ph.D., P.E., Chair of the NCEES Electrical Subcommittee.

• The number of students majoring in computer engineering is about equal to the number of students majoring in electrical engineering.
New Exam

• Breadth and depth format examination.
• All examinees work the breadth (AM) module and one of the three depth (PM) modules.
• The breadth examination has questions from the general field of electrical and computer engineering.
• The depth examinations focus more closely on a one general area of practice in electrical and computer engineering.
Three Depth Modules

- Computer Engineering Depth Module
- Electronics, Control, and Communication Engineering Depth Module
- Power Engineering Depth Module
Number of Questions

• Each of the four modules contains forty (40) multiple-choice (ABCD) questions.
• All examinees must work all questions on the breadth module.
• All examinees must work all questions on one depth module of their choice.
• Thus, all examinees must work a total of eighty (80) multiple-choice (ABCD) questions.
Exam Module Content

• The following slides show the subjects tested by the breadth module and each of the depth modules.

• The knowledge areas listed are examples of the kinds of knowledge topics represented by the category. They are neither exclusive nor exhaustive of all knowledge areas in each category.
Breadth (AM)

- **Basic Electrical Engineering 22%**
  - Professionalism and Engineering Economics
  - Safety and Reliability
  - Electric Circuits
  - Electric and Magnetic Field Theory and Applications
  - Digital Logic
Breadth (AM)

• **Electronics, Electronic Circuits and Components 10%**
  – Components
  – Electrical and Electronic Materials

• **Control and Communication Systems 8%**

• **Power 10%**
  – Transmission and Distribution
  – Rotating Machines and Electromagnetic Devices
Computer Engineering (PM)

- **General Computer Systems 5%**
  - Interpretation of Codes and Standards
  - Microprocessor Systems

- **Hardware 22%**
  - Digital Electronics
  - Design and Analysis
  - Systems
Computer Engineering (PM)

• **Software 18%**
  – System Software
  – Development/Applications

• **Networks 5%**
Electronics, Control, and Communication (PM)

- **General Electrical Engineering Knowledge 5%**
  - Measurement and Instrumentation
  - Interpretation of Codes and Standards
  - Computer Systems

- **Electronics 18%**
  - Electric Circuit Theory
  - Electric and Magnetic Field Theory and Applications
  - Electronic Components and Circuits
Electronics, Control, and Communication (PM)

- **Control 12%**
  - Control System Fundamentals
  - Control System Design/Implementation
  - Stability
- **Communication 15%**
  - Communication and Signal Processing
  - Noise and Interference
  - Telecommunication
Power (PM)

• **General Power Engineering 7%**
  – Measurement, Instrumentation and Statistics
  – Special Applications
  – Codes and Standards

• **Circuit Analysis 14%**
  – Analysis
  – Devices and Power Electronic Circuits
  – Electric and Magnetic Fields and Applications
Power (PM)

- Rotating Machines and Electromagnetic Devices 14%
  - Rotating Machines
  - Electromagnetic Devices

- Transmission and Distribution 15%
  - System Analysis
  - Power System Performance
  - Protection