Questions and Answers About Licensure and Certification for Engineering Professionals

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Presentation Outline

- Similarities and Differences
- Engineering Licensure
- Engineering Certifications
- Key Issues and Concerns
- IEEE-USA's Perspectives
- For More Information

What are the similarities and differences between licensure and certification?

- Both require education, experience and testing.
- Each results in the award of a credential attesting to an individual's knowledge, skills and abilities.
- Both provide procedures for disciplining credential holders for illegal/unprofessional/unethical practices.
- Certification is generally voluntary.
- Licensure is a privilege granted by state and territorial legislatures.

Why do states license engineers?

- To protect the health, safety and welfare of the public by ensuring that certain providers of engineering services meet established standards of education, experience, competence and character

- To provide a legally recognized credential to enable the public to distinguish between qualified and unqualified practitioners

Is engineering licensure required in order to practice?

- If you want or need to become a consulting engineer, sign and seal documents for public agencies or establish your own firm, you must be licensed as a Professional Engineer (P.E.).

- Engineers in some industry, government and educational positions may be exempt from licensure requirements.

True or false? - Most jurisdictions prohibit unlicensed persons from:

- Advertising or otherwise indicating to the public that they are professional engineers,
- Using the title “Licensed Engineer,” “Professional Engineer”or “ Registered Engineer,” or
- Practicing, offering to practice or holding themselves out as qualified to practice as engineers.

How does licensure help engineers?

- May be required for certain jobs
- Facilitates mobility and advancement
- Improves employment security
- Increases earnings
- Boosts personal satisfaction

Who does what in the licensure process?

- State and Territorial Legislatures
- Licensing Boards
- National Council of Examiners for Engineering and Surveying (NCEES)
- Professional Engineering Societies

What is NCEES and what does it do?

- A national non-profit organization made up of 68 state and territorial licensing boards
- Assists member boards by providing services that promote uniform licensing procedures
- Writes and scores licensing examinations
- Offers a records program to facilitate licensure in multiple jurisdictions
- Provides a credentials evaluation service to assess the qualifications of foreign candidates

What is the NCEES Model Law?

- Guidelines intended to encourage greater uniformity of qualifications, raise standards to a higher level and facilitate interstate mobility

- Advisory only – Laws are enacted by legislatures and administered by licensing boards and often differ from the NCEES Model Law

What is a Professional Engineer?

- A professional engineer (P.E.) is a person who is licensed to practice engineering in a particular state or territory

- To practice in multiple states or territories, the P.E. must be licensed in each jurisdiction in which he or she intends to practice

What are the eligibility requirements for engineering licensure?

- A degree from an accredited (EAC/ABET) engineering education program
- Successful completion of an 8 hour Fundamentals of Engineering (FE) Exam
- Four years of qualifying engineering experience
- Successful completion of an 8 hour Principles & Practices of Engineering (PE) Exam

Who accredits engineering education programs?

- ABET is responsible for assuring that college and university educational programs in applied science, computing, engineering and technology meet quality standards established by the professions.

- ABET accredits post-secondary, degree granting programs only. It does not accredit departments, colleges or institutions.

What is the Fundamentals of Engineering (FE) Exam?

- **AM Session (4 hrs)**
  - 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
- **PM Session (4 hrs)**
  - Chemical
  - Civil
  - Electrical
  - Environmental
  - Industrial
  - Mechanical
  - Other Disciplines

What constitutes qualifying engineering experience for licensure?

- Must be in a field in which the candidate claims proficiency
- Must be supervised by qualified engineers
- Must enable individuals to develop technical skills, apply basic engineering principles, exercise sound judgement and assume increasing levels of professional responsibility
- Must encompass various facets of engineering

What is the Principles and Practices of Engineering (PE) Exam ?

- The PE exam for electrical, electronics and computer engineers is an 8 hour, open-book, multiple choice examination that tests academic knowledge and practical applications

- As of April 2009, there are PE examinations for Electrical and Computer Engineering: Electrical and Electronics, Computer, and Power.

Other Frequently Asked Questions about the FE and PE Examinations

- How are the FE and PE exams scored?
- How often are the exams updated to accommodate changes in engineering practice?

Is continuing education required to maintain one's license?

- A continuing competency requirement mandates completion of specified educational activities as a condition for periodic licensure renewal
- Each state establishes and maintains its own continuing education requirements
- Whether a state adopts such requirements is ultimately decided by that state's legislature or licensing board

What is the attitude of employers toward engineering licensure?

- Engineering licensure is an integral part of professional development programs at many companies.
- Some employers provide concrete assistance to engineers who intend to become licensed.
- Other employers are indifferent at best.

What kinds of specialty certifications are available for engineers?

- Many businesses and professional organizations offer voluntary certification programs that attest to an individual's expertise in certain knowledge areas.
- Some certifications are vendor specific - Cisco (CCNA), Microsoft (MCSE), etc.
- Others are vendor neutral – ASQ (Quality Engineer), IEEE Computer Society (CSDP), etc.

Current Issues and Concerns

- International mobility
- Additional educational requirements
- Other ELQTF report recommendations
- Licensure for bio-related and software engineers

Engineering Licensure Qualifications Task Force (ELQTF)

- Relevance of current PE licensing system
- Growing specialization within the profession
- Low number of grads who become licensed
- Changes in engineering education
- Education, experience, exams and titles

What is IEEE-USA's position on licensure?

- Engineering Licensure
- Continued Professional Competence for IEEE's U.S. Members
- Use of the Title "Engineer"
- Educational Requirements for Engineering Licensure

What does the future hold?

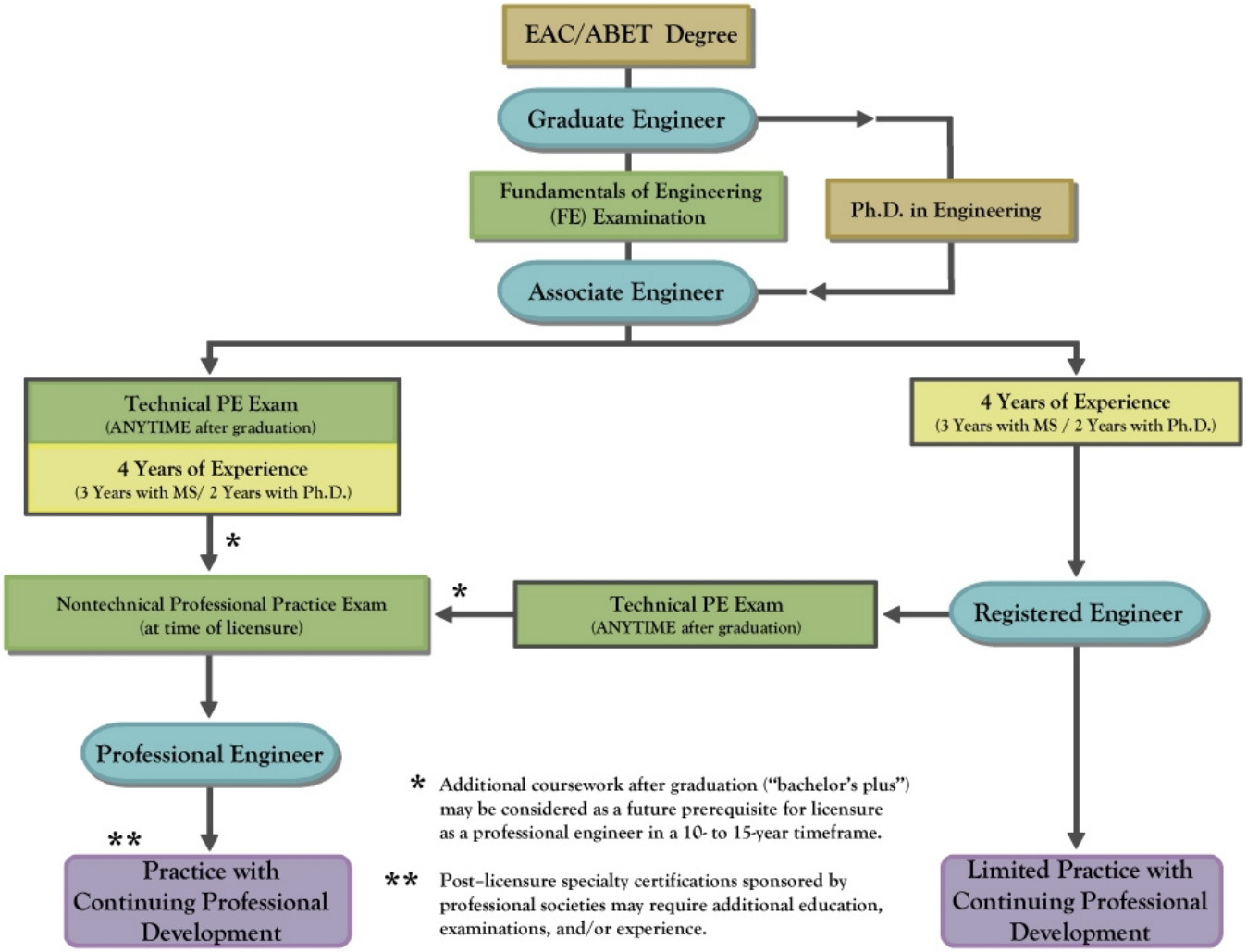
- How will the proliferation of disciplines and sub-disciplines affect engineering licensure and certifications?

- How will globalization of engineering and the engineering workforce affect licensure and certifications?

Where can I get more information?

- **ABET**
  www.abet.org
- **NCEES**
  www.ncees.org
- **IEEE-CS**
  www.computer.org
- **IEEE-USA**
  www.ieeeusa.org
- **NSPE**
  www.nspe.org
- **CESSB**
  www.cesb.org

ELQTF Consensus Licensure Model



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