

A Word From ISA

Welcome to the first issue of *CAPacity*, the only newsletter with exclusive information about ISA's new Certified Automation Professional (CAP) program. From the moment we started developing the CAP program we knew we were raising some sticky questions: Is automation a profession, a field, or a discipline? Who are automation professionals, what do they do, and what industries do they work in? How would the CAP certification compare with other programs like the PE license? We believed these questions would be important to people interested in the CAP program. As we surveyed some of you our suspicions about what the hot topics are for industrial automation professionals were confirmed.

So for this issue of *CAPacity* we decided to tackle some of your questions and concerns head-on. Specifically we're looking at the different types of credential-granting programs with the hopes of alleviating any confusion about them. Also we're addressing the difference in the PE license and a certification program, like CAP. Fortunately we had Gerald Wilbanks PE, a registered Professional Engineer and former ISA President who has been active with NCEES on PE exam development issues and Jim Henderson, Vice President of CASTLE Worldwide, a firm that is the country's sixth-largest certification and licensure testing company, on hand to help us explain these issues.

Ultimately, ISA is working to improve the recognition of the automation field and everyone currently working in it, and those who might be interested in the field for generations to come. By developing and administering the CAP program, we're demonstrating

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Registration, Licensure, Certification . . . Which is Right For You?

Obtaining professional credentials is one of the most credible ways to demonstrate acquired proficiency in a field. Often these credentials serve as the entry-way into a particular career, and in some cases they even serve as the terminal education program when a degree-granting track doesn't exist.

But what's the difference in registration, licensure, and certification?

Jim Henderson, Vice President of CASTLE Worldwide, the nation's sixth largest test and development firm, explains "I'm going to give you definitions for the three terms: registration, licensure, and certification. However the reality is that they're all completely blurred. For example, he explains, that terms such as "registered engineer" and "registered nurse" are in fact cases of licensure. "We call them registered nurses, but you can't be a registered nurse without being licensed. We call them certified teachers, but that also is licensure because you can't teach in a public school without meeting licensure requirements." So in reality the term "certification" is often blurred with licensure, as is registration.

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How Does CAP Compare to the PE License?

The Control Systems Professional Engineer license, that ISA supports, is a valuable and legal license to practice as a professional engineer (PE). The license is issued by state boards of engineering. Some engineering jobs require a PE license, like CSE, to sign off on certain documents and perform other engineering activities. The Certified Automation Professional (CAP) program, or any other certification program, is not a legal license to practice engineering.

CAP is an international certification program designed to assess knowledge and skills in the broad realm of automation. Control systems is a significant part of automation, but automation covers additional areas like HMI, MES, data communications, networks, information technology, and more. The CSE license focuses on control systems, not automation as a whole, and is available only in the United States.

Gerald Wilbanks, PE, Vice President of Documentation & Engineering Services, LLC and a registered professional engineer, explains the distinct eligibility requirements for the CSE professional engineer license and ISA's CAP program.

"Before you can take the test for the Control Systems PE licensure, you have to have a rather high level of qualification to meet the requirements of the state boards.

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That usually means a degree in engineering,” says Wilbanks. He stresses that the pool of candidates who qualify to take the CSE test consists of well-qualified people with an academic background and a concentration in control systems engineering. “Yet that represents a fairly small segment of the automation professional community.”

The Bureau of Labor Statistics reports that in 2002 there were more than 1.4 million “engineers” in the country. By some estimates 15 to 25% of all engineers are licensed professional engineers. Quickly doing the numbers reveals that only 220,000 to 370,000 engineers in the US are licensed.

Requirements for qualifying to take the PE exam vary from state to state, but there are minimal requirements that tend to cover the widest range of state qualification standards:

- A four-year engineering degree from a school of engineering approved by the Accreditation Board of Engineering (ABET).
- Four years of professional engineering experience under the supervision of a PE or similarly qualified engineer.
- Proof of passing the Fundamentals of Engineering (FE) exam, otherwise known as the Engineer in Training (EIT) exam.
- Experienced references, some of which are from currently licensed PEs.

It is precisely because of its rigorous criteria that Wilbanks believes that the PE license isn't the only proper vehicle to govern automation practices. “Many of the people who are doing industrial automation aren't professional engineers, they are people with a wide variety of backgrounds. Some have migrated into automation having electrical, chemical, mechanical, or information systems education and experience. While the work they do is extremely important, there is not a requirement to seal and sign construction documents.”

The CAP program represents a more relational professional credential than the PE license for many automation professionals, because of its more flexible qualification criteria. Currently the program requires an individual either have five years experience in automation and a four year technical/technology degree or ten years experience in automation for those without a four year degree.

“With the CAP program there is sort of a sliding scale,” says Wilbanks. “Depending on how much formal training you have, you have to meet certain experience requirements. So if you have a lot of formal education you don't have to have as much experience.” Ultimately the CAP program is opening doors for people in the field who wouldn't otherwise be recognized for their professional achievements.

Then there is the National Registry of Environmental Professionals, which is actually a certification. You have to meet requirements and pass a test to call yourself a registered environmental professional. Licensure gets confused as a term, too, because often when a person is certified they are “licensed” to use a certain term. An example would be a certified financial planner, who is certified but then upon receiving certification the financial planner board of standards licenses him or her to use the designation “certified financial planner”, which it owns and controls. “Am I getting you confused?” asks Henderson.

To help make some of the “blurring” less obtrusive we had Henderson explain the traditional definitions, and the distinctions between the different types of credential programs.

Registration

Registration is a process by which a state or an association maintains a list of people who have informed the governing body that they perform professional services for the public, in a particular field.

Pros:

- Becoming registered only involves notifying the state or association that you, or your company, exist.
- Often there aren't any eligibility criteria for registration.
- Traditionally there isn't any examination that must be passed to become registered.

Cons:

- Registration is only applicable within a given state.
- The lack of eligibility criteria and periodic examination doesn't guarantee continued job proficiency.
- Employers and clients have little to no means of evaluating an employee's or firm's proficiency prior to the work being performed.

Licensure

Licensure is where a state has laws and regulations that specify who can provide a particular service or can call himself or herself a member of a particular profession. Without meeting your particular state's requirements for licensure, which typically involves a prior level of attained education, experience, and examination performance, you cannot practice certain professions.

There are two kinds of licensure, title act and practice act. Title act laws require you to meet certain qualifications before you can call yourself a specific name or title. Professional engineer is an example of a professional designation that is protected and granted through a title act. Practice act regulations deem that you cannot perform certain things for the general public or for employers in the state unless you have met certain requirements that qualify you to do the work. An example of this would be designing a bridge that spans a public highway. A civil engineer couldn't perform that function without meeting the criteria for eligibility.

Pros:

- Licensure guarantees that a designee has reached a desirable level of professional achievement.
- Licensing programs have protocols for continued education and reassessment.

Cons:

- Licensing requirements vary from state-to-state.
- They usually require a specified level of advanced education.

Certification

Certification is private regulation. Typically the state or federal government doesn't have a law or regulation that covers the profession. So in the absence of government-mandated regulation, a trade association or an independent certifying body develops a

standard for certification. Certification requires that you meet basic eligibility requirements before taking any test.

Pros:

- Certification requirements aren't geographically restrictive, allowing more freedom and marketability for credential holders.
- Holding an advanced degree might not be requisite to take the examination.

Cons:

- When an advanced degree isn't required, a certain amount of professional experience is.
- Numerous certification programs might overlap in covering a particular profession, or job function.

Certificate Programs vs. Certification

Despite their similar sounding names one shouldn't confuse a certificate program with a certification. The difference between certification and the certificate program is that certification is built around established training and experience requirements. A valid certification program has been developed according to accepted industry standards for certification exam development such as NOCA and ANSI standards and is offered by a reputable unbiased organization. Certificate programs typically don't have eligibility criteria in the sense that you have to complete certain training in advance.

What a certificate program says is that you have a certificate therefore you've taken a course. In that regard certificates act more like diplomas for completing a training program. So, as Jim Henderson says, "As long as you warm the seat for a certain number of hours you walk out of the classroom with that certificate."

Bottom line, a certification program that has been developed by a reputable and un-biased organization carries a message to the stakeholder that you've invested the time and labor-hours to satisfy the requirement for job competency. With a certificate program no such message can be implied because anybody who sits there long enough is going to get it.

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ISA's belief that there are many practicing automation professionals and they should be recognized for their knowledge and skill competencies. Ultimately, it is the voice of every automation professional that we represent. This is why we're creating the CAP program, to build a solid foundation for industrial automation: to define it and ideally to lend credence to it as more than a group of incidental job tasks.

These are exciting times in the automation field. And we're eagerly looking forward to the first two CAP examinations, which will be given 7 and 9 October at locations across the US.

—The CAPacity Newsletter Team

CAP Program Eligibility Requirements

To become an ISA Certified Automation Professional, you must pass a multiple choice exam and meet minimum requirements for work experience and education. During the first two years of the program, the four year degree requirement will be waived for automation professionals who have been working in the automation field for ten or more years.

Option 1

The following are currently accepted and will be minimum requirements beginning 1 January 2007:

- Four-year academic degree from an accredited educational institution in a technical or technology field (engineering, chemistry, physics, math, etc.)
- Five years of related work experience. A cumulative total of 7,500 hours of documented work experience in the automation field is required during the five year period prior to your application date.

Option 2

The following will be accepted until 1 January 2007 for those who do not qualify under Option 1.

- Ten years of related work experience. A cumulative total of 15,000 hours of documented work experience in the automation field is required during the ten year period prior to your application date.

A two year associate degree in automation or a related field from an accredited institution may be used to satisfy two of the ten year work requirement.

- Evidence of responsible charge position. Two work-related references demonstrating that you have had at least two years experience in automation in a position of "responsible charge."

How to apply:

- 1 Visit the ISA web site at www.isa.org/CAP to download a free copy of the CAP Handbook, application, and review test sites.
- 2 Apply to take the exam.
- 3 Review a list of study resources including the CAP Study Guide to prepare for the exam.

CAP Knowledge and Skills

The development of a valid examination for the CAP certification process began with a clear and concise definition of the knowledge, skills, and abilities needed for competent job performance. Using interviews, surveys, observation, and group discussions, ISA worked with automation professionals to delineate critical job components. The knowledge and skill bases for the questions on the examination were derived from the actual practice of the automation professionals as outlined in the 2004 CAP Role Delineation Study. The knowledge, skills, and abilities determined fall into 6 performance domains and account for the examination's content.

Domain I: Feasibility Study
Domain II: Definition
Domain III: System Design

Domain IV: Development
Domain V: Deployment
Domain VI: Operation and Maintenance


Dated Material—Open Immediately!

Please share this publication with others in your company:

- Automation Manager
- Plant Manager
- Control Systems Engineer
- Systems Integrator

CAP Exam Dates




The CAP exam will be given at test sites across the nation starting this fall. For more information, including a listing of locations, visit www.isa.org/CAP.

Exam Dates	Application Deadlines
9 October 2004	1 September 2004
11 December 2004	29 October 2004
Special Offering in Houston, TX In conjunction with ISA EXPO 2004 	
7 October 2004	1 September 2004

You can also schedule a private exam at your company - contact ISA at (919) 549-8411 to schedule a private test site if you have 4 or more people who want to test.

ISA Study Resources

Take advantage of these ISA resources to prepare for the CAP exam:

-  **ISA CAP Study Guide**
-  **Books and publications for each performance domain**
-  **ISA Training Institute Courses**

Learn more at www.isa.org/CAP
 or call us at (919) 549-8411.