An Overview of the INCOSE Systems Engineering Professional Program

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The INCOSE SEP Program
Purpose and Benefits

- The INCOSE SEP program has been developed as the highest quality, independent assessment of system engineering professionals benefiting:
- Systems engineering community:
  - Creates the standard to identify and develop systems engineering professionals.
  - Establishes a formal, recognized body of knowledge for the systems engineering community.
- System engineering professionals:
  - Provides a portable standard of recognition for attainment of knowledge, education, and experience.
  - Its recertification requirements serve as a mechanism for continued professional development.
- Organizations/institutions:
  - A universal, industry-approved measure of a professional’s knowledge - achieved through the independent evaluation of relevant tasks, projects, and programs.

INCOSSE’s certification program continues to grow due to the increasing recognition of its value to professionals, to organizations/institutions, and to the overall systems engineering community.

Topics

- What is certification and why is it important?
- Who is recognizing and supporting certification?
- What level of certification is right for me?
- How do I apply for certification?
- How do I renew my certification?
- Where can I find more information?
What Is Certification?

• **Certification is an occupational designation**
  - Provides confirmation of an individual's competency (demonstrated knowledge, education, and experience) in a specified profession or occupational specialty

• **Certification is a formal process**
  - Issued by an organization

• **Certification is voluntary**
  - It is neither a barrier nor a gate to entering a job
  - However, it may be used as a qualifier in placement

INCOSE’s Systems Engineering Professional Certification Program is a formal process that recognizes individuals who have demonstrated a measurable level of comprehension (education and knowledge) and proficiency (experience) in performing tasks applicable to the systems engineering profession.

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**Successful Systems Engineering**

Organizational Systems Engineering Processes

ISO, CMMI, etc.
Certify SE Processes

INCOSE SEP Certifies SE Experience, Knowledge and Education

INCOSE SEP focuses on your people.
It complements your organizational initiatives.
Why is Certification Important?

For organizations...

• Formally recognizes the Systems Engineering capabilities of your professional staff
• Can provide a discriminator for your proposals
• Can be used as part of the hiring and promotion process
• Provides an independent external assessment
• Encourages employee participation in continuing education

INCOSE SEP sets your organization apart!

For individuals...

• Formally recognizes your Systems Engineering capabilities
• Provides a discriminator for job applicants
• Provides a competitive advantage in your career
• Provides a portable Systems Engineering designation that is recognized across industry domains
• Participation in continuing education indicates your commitment to personal development

INCOSE SEP sets you apart!
Why is Certification Important?

For your teams...

- Allows the team to level-set on Systems Engineering concepts and activities
- Helps establish a common Systems Engineering language for your team
- Helps break down...
  - geographic boundaries
  - organizational boundaries
  - cultural boundaries

INCOSE SEP is particularly useful for multi-organization, geographically distributed teams.

Ways to Leverage Certification

- **Individuals**
  - Recognition
    - Designation on business card, resume, signature, etc.
  - Performance objective

- **Organizations**
  - Performance expectation
  - Career ladder alignment
  - Job advertisement
  - Proposal discriminator
  - Supplier qualification
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A growing number of organizations are recognizing the value of the INCOSE SEP.

- U.S. Department of Defense, Office of the Undersecretary, Acquisition & Technology, Systems and Software Engineering
- Federal Aviation Administration, SE-2020 RFP
- U.S. Department of Homeland Security, Secure Border Initiative RFP
- National Research Council, Committee on Pre-Milestone A Systems Engineering: A Retrospective Review and Benefits for Future Air Force Systems Acquisition
- Federal Highway Administration and the California Department of Transportation Systems Engineering Guidebook
INCOSE offers organizations the opportunity to partner on SEP while still maintaining the quality and integrity of the credentials.

- **Industry agreements**
  - EADS
  - Booz Allen Hamilton
  - ManTech
  - MITRE
  - Lockheed Martin
  - TASC
  - BAE Systems
  - Jacobs Technology
  - ASTER Technology & Engineering
  - LinQuest

- **University agreements**
  - Stevens Institute of Technology, USA
  - University of Texas – El Paso, USA
  - École Polytechnique, France
  - ISAE/Supaero, France

- **Other “special” agreements**
  - USA Defense Acquisition University (DAU)
  - Object Management Group (OMG) OCSMP collaboration
  - Institution of Engineers, Singapore (IES), INCOSE German Chapter (GfSE), and Korean Council on Systems Engineering (KCOSE) certification framework

**Topics**

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INCOSE SEP Architecture
For wherever you are in your career

Multi-Level Base Credentials
The base ASEP, CSEP, and ESEP credentials cover the breadth of systems engineering at increasing levels of leadership, accomplishments, and experience.

Extensions
Extensions focus on knowledge of a specific domain or subset of systems engineering and can only be earned after a base credential.

The SEP Aligns with the Typical Levels of a Systems Engineering Career

ESEP focused on:
- LEADERSHIP
- SE ACCOMPLISHMENTS
- SIGNIFICANT SE EXPERIENCE

CSEP focused on:
- SE EXPERIENCE
- APPLIED SE KNOWLEDGE

ASEP focused on:
- SE KNOWLEDGE

SEP Candidates
You can enter at whatever SEP level is appropriate and can seamlessly transition between levels when ready.
The Key Elements of INCOSE Certification
(What is Certified?)

<table>
<thead>
<tr>
<th>SE Knowledge</th>
<th>Education</th>
<th>SE Experience</th>
<th>SE Leadership &amp; Accomplishments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Via an exam based on the INCOSE SE Handbook</td>
<td>Via confirmation of technical degree (or additional experience, if required)</td>
<td>Via confirmation of applicant's and references written experience claims</td>
<td>Via oral review of applicant (and references, if required)</td>
</tr>
<tr>
<td>Extensions</td>
<td>Via an exam based on the extension body of knowledge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These four elements (knowledge, education, experience, and leadership & accomplishments) allow for a variety of SE certifications to be earned.

So What Certification is Right for You?

- If you have just started (or plan to start) practicing systems engineering or have recently graduated and are interested in systems engineering

- If you are a practicing Systems Engineer with more than five years of systems engineering professional work experience

- If you are a systems engineering leader with recognized systems accomplishments and have many years of systems engineering professional work experience

- If you support or are working in a US DoD acquisition environment
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- Where can I find more information?
All of the Application Material is Available On-line

How Long Will It Take to Get CSEP?

There is no one answer. Much depends on the applicant.

Applicant
- Downloads information from INCOSE web page
- Collects information
- Fills out and submits forms via e-mail
- Pays fee on-line

References submit recommendations via e-mail to INCOSE. Applicant submits missing material.

INCOSE
- Receives application & fee
- Checks completeness of submittal
- Notifies applicant by e-mail that application was received and is complete or has missing material

INCOSE
- Receives recommendations from references and missing information
- Evaluates education and experience
- Notifies applicant of evaluation results. If minimum requirements are met, authorizes exam

While the times vary, the average time for CSEP is ~200 days.
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Certification Renewal Requirements

• Certification is Valid for
  o 3 Years for CSEP
  o 5 Years for ASEP and must maintain INCOSE membership
  o Indefinite for ESEP, but must maintain INCOSE membership
  o Extensions (e.g., Acq) are renewed concurrent with the base certification, regardless of when earned

• Certification renewal requires
  o Minimum of 120 Professional Development Units (PDUs)
  o Renewal application
  o Continuing education log submittal
  o Must be submitted before current certification period ends
  o Up to 30 “excess” PDUs can be “carried forward”

INCOSE certified professionals have an ongoing growth and learning obligation
### PDUs for Certification Renewal (1 of 2)

<table>
<thead>
<tr>
<th>Professional Development Activities</th>
<th>Credit</th>
<th>3/5 Year Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical Society Participation Category</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Be an INCOSE individual, senior, or student member</td>
<td>5 PDU/year</td>
<td>15 PDU</td>
</tr>
<tr>
<td>Attend professional technical society local event/chapter presentation/exhibit</td>
<td>1 PDU/hour attendance (10 PDU/year limit)</td>
<td>30 PDU</td>
</tr>
<tr>
<td>Attend professional technical society conference/symposium</td>
<td>1 PDU/hour attendance (24 PDU/year limit)</td>
<td>72 PDU</td>
</tr>
<tr>
<td>Participate on professional technical society working groups, committees, etc.</td>
<td>1 PDU/hour of effort</td>
<td>No limit</td>
</tr>
<tr>
<td>Perform leadership role in professional technical society at local, national or international level</td>
<td>1 PDU/hour of effort</td>
<td>No limit</td>
</tr>
<tr>
<td>Volunteer activities with youth in schools or community related to science, technology, engineering, and math (STEM)</td>
<td>1 PDU/hour of effort (24 PDU/year limit)</td>
<td>72 PDU</td>
</tr>
<tr>
<td>Volunteer activities with community, school, or non-profit organizations that help them accomplish their technical needs</td>
<td>1 PDU/hour of effort (10 PDU/year limit)</td>
<td>30 PDU</td>
</tr>
<tr>
<td>Earn an SE-relevant, exam-based, professional certification other than INCOSE SEP</td>
<td>5 PDU/certification (Up to 2 per renewal period)</td>
<td>10 PDU</td>
</tr>
</tbody>
</table>

### PDUs for Certification Renewal (2 of 2)

<table>
<thead>
<tr>
<th>Professional Development Activities</th>
<th>Credit</th>
<th>3/5 Year Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SE Course Work &amp; Publication Category</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete a technical graduate level course</td>
<td>2 PDU/class hour</td>
<td>No limit</td>
</tr>
<tr>
<td>Attend educational course, tutorial, or seminar</td>
<td>1 PDU/hour</td>
<td>No limit</td>
</tr>
<tr>
<td>Teach professional development coursework, including presentations not part of job function.</td>
<td>2 PDU/hour (prep) 1 PDU/hour (teach)</td>
<td>40 PDU</td>
</tr>
<tr>
<td>Write &amp; publish SE article</td>
<td>5 PDU/article</td>
<td>No limit</td>
</tr>
<tr>
<td>Write &amp; publish SE book</td>
<td>30 PDU (primary author)/book 10 PDU (contrib. author)/book</td>
<td>No limit</td>
</tr>
<tr>
<td>Attend vendor presentation with educational value</td>
<td>1 PDU/hour attendance 5 PDU/year limit</td>
<td>15 PDU</td>
</tr>
<tr>
<td><strong>SE Job Function Participation Category</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Receive patent award</td>
<td>10 PDU/award</td>
<td>No limit</td>
</tr>
<tr>
<td>Serve as designated lead systems engineer for a system, product or service</td>
<td>15 PDU/year</td>
<td>45 PDU</td>
</tr>
<tr>
<td>Lead organization to increase INCOSE systems engineering certifications</td>
<td>5 PDU/year</td>
<td>15 PDU</td>
</tr>
<tr>
<td>Volunteer (i.e., non-compensated) activities within your organization related to engineering and science</td>
<td>1 PDU/hour of effort (10 PDU/year limit)</td>
<td>30 PDU</td>
</tr>
</tbody>
</table>
All of the Renewal Material is Available On-line

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Where Do I Find More Information?

INCOSE Certification web site at http://www.incose.org

Where Do I Find More Information? (cont.)
Any Questions?

Email Contacts

Certification Office:  
secert@incose.org

Dave Walden, ESEP  
Certification Program Manager:  
David.Walden@incose.org

For more information visit:  
www.incose.org/educationcareers/certification/