SYSTEMS ENGINEERING PROFESSIONAL (SEP) CERTIFICATION OVERVIEW

San Diego INCOSE Regional Mini-Conference
December 1, 2018
SOURCE OF SLIDES

- https://www.incose.org/systems-engineering-certification/certification-resources
- https://www.incose.org/docs/default-source/certification/incose-sep-overview.pptx?sfvrsn=7b4db9c6_14
- https://www.incose.org/systems-engineering-certification/certification-exams#Training%20Providers
The INCOSE certification program’s three levels of certification have grown steadily since 2004.

As of 30 September 2018:
- **3070 Total SEPs**
  - 1970 CSEPs
  - 806 ASEPs
  - 294 ESEPs
Many INCOSE Chapters have Certified Professionals

Certifications by Chapter
(Minimum 30)

As of 30 September 2018:

Top Chapters w/ Active SEPs
- Washington Metro 426 SEPs
- Chesapeake 195 SEPs
- AFIS (France) 148 SEPs
- United Kingdom 118 SEPs
- Colorado Fr. Range 102 SEPs
- Los Angeles 101 SEPs
The INCOSE SEPs come from many different organizations and domains.

Certifications by Organizations
(Minimum 12)

As of 30 September 2018:
Top Organizations w/ Active SEPs
Northrop Grumman 183 SEPs
The Airbus Group 164 SEPs
Booz Allen 134 SEPs
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!
Why is Certification Important?

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!
Organizations are asking for SEP in job postings

- Aspiration Software
- Barrios
- Belcan Government Services
- Booz Allen Hamilton
- Central Intelligence Agency
- ClearMotion
- DRS Technologies
- Engility
- Georgia Tech Research Institute
- IDEMIA
- INNOVIM
- JB Management
- KBRWyle
- Leidos
- Lockheed Martin
- Logistics Management Institute
- The Mitre Corporation
- National Geospatial-Intelligence Agency
- Newbrook
- Noblis
- Northrop Grumman Corporation
- Oceaneering
- OG Systems
- Raytheon
- SAIC
- Sanmina Corporation
- Vencore
### 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><strong>SEP</strong></td>
<td>Via an exam based on the INCOSE SE Handbook</td>
<td>Via confirmation of qualifying degree (or additional experience, if required)</td>
<td>Via confirmation of applicant's and references written experience claims</td>
</tr>
<tr>
<td><strong>CSEP</strong></td>
<td>Via an exam based on the INCOSE SE Handbook</td>
<td>Via confirmation of qualifying degree (or additional experience, if required)</td>
<td>Via confirmation of applicant’s and references written experience claims</td>
</tr>
<tr>
<td><strong>ESEP</strong></td>
<td>Via confirmation of qualifying 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>
</tbody>
</table>

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

1. **Study**
   - INCOSE SE Handbook

2. **Application Development**
   - 1. Verifiable Education
   - 2. Verifiable Experience
   - Applicant's own pace

3. **Reference Submittal**
   - 3. Applicant's Advocates (three references knowledgeable about SE)
   - References’ own pace

Timeline:
- **Application Development**: Two weeks
- **Reference Submittal**: Applicant’s own pace
- **Pay test fee & Schedule & Take Exam (Prometric Test Center)**: Two weeks
- **Notify Applicant**: Two weeks
- **Pass**: Applicant has up to **one year** to pass the test. **Test is scheduled directly with Prometric.**
- **INCOSE Certification**
- **Notify Applicant**
- **Pass**

**Certified INCOSE CSEP**

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INCOSE Application Center

SEP Program Overview
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.

<table>
<thead>
<tr>
<th>Time</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. ??????</td>
<td>-INCOSE-</td>
</tr>
<tr>
<td>B. &lt; 2 weeks</td>
<td>-INCOSE receives application &amp; fee</td>
</tr>
<tr>
<td>C. Averaging 50 days</td>
<td><strong>INCOSE</strong></td>
</tr>
<tr>
<td>D. Approx. 30 days</td>
<td><strong>INCOSE</strong></td>
</tr>
<tr>
<td>E. Averaging 62 days</td>
<td><strong>Applicant</strong></td>
</tr>
<tr>
<td>F. &lt; 2 weeks</td>
<td><strong>INCOSE</strong> sends CSEP certificate via postal mail to applicant</td>
</tr>
</tbody>
</table>

*While the times vary, the average time for CSEP is ~200 days.*
CSEP/ASEP Certification
Knowledge Requirements

• CSEP/ASEP Exam Basis
  o INCOSE Systems Engineering Handbook v4
  o Free download available to INCOSE members

• Exam is
  o 2 hours in length
  o 120 questions
  o Administered electronically at world-wide Prometric locations
  o Offered as a pencil-and-paper test at many INCOSE events
  o Pass/Fail results provided immediately upon exam completion

• Candidates are eligible for two re-tests within one year of application submittal

The INCOSE Systems Engineering Handbook is the basis for the CSEP & ASEP exams.
Representative Exam Questions

• Which three of the following are methods to express functional behavior? (Choose three)
  ❑ Network Tree (NT)
  ❑ Behavior Diagram (BD)
  ❑ Allocated Requirement Diagram (ARD)
  ❑ Functional Flow Block Diagram (FFBD)
  ❑ Integrated Definition for Functional Modeling (IDEF) Diagram

• Which are three justifications for Configuration Management? (Choose three)
  ❑ facilitates communication
  ❑ forces change evaluations
  ❑ prevents requirements changes
  ❑ controls requirements changes
  ❑ encourages requirements changes

Note: These questions ARE NOT from the INCOSE Certification Exam. The format and content are similar (based on SEH v2A). They were created by CSM and Prometric and are used with permission.
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## Training Providers

**Training provider**
- Advanced Systems Engineering Consulting
- Applied Technology Institute
- California Institute for Performance Management
- Certification Training International
- Decisionware
- Endler Consulting
- Honourcode, Inc.
- Old Dominion University
- Rüber + Schindele Consulting Engineers GmbH
- SE-Training GmbH
- SyntheSys
- Sysnovation
- Tonex

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- moveahead@odu.edu
- Training@RundS.de
- mike@se-training.net; seb@se-training.net
- training@synthesys.co.uk
- dave@sysnovation.com
- Hgottlieb@tonex.com

**Website**
- http://ase-consult.com/
- www.aticourses.com
- http://www.calipm.org/
- https://www.ppi-int.com/training/csep-asep-certification/
- https://decisionware.se/en/
- http://davidendler.de/
- http://hcode.com/
- www.ODUINCOSE.com
- https://runds.de/
- https://www.se-training.net/
- http://www.synthesys.co.uk/
- https://sysnovation.com/
- www.tonex.co

*INCOSE's Certification Program does not endorse or require any training provider. INCOSE Certification does not require training. Information about INCOSE Certification: www.incose.org/systems-engineering-certification/certification*
Certification Renewal Requirements

• Certification is Valid for
  o 3 Years for CSEP, and applicants starting in 2016 must maintain INCOSE membership
  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
WHAT IS YOUR NEW YEARS RESOLUTION?
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
Email Contacts

Certification Office:  
certification@incose.org

Courtney Wright, CSEP  
Certification Program Manager:  
Courtney.Wright@incose.org

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