INCOSE Systems Engineering Professional (SEP) Certification

Program Overview
May 2013

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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?
• What’s new in the certification program?
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What Is Certification?

• Occupational designation
• Formal process
• Voluntary

• Not a Certificate
• Not a license
Why is Certification Important?

• Formally recognizes the Systems Engineering capabilities of your professional staff
• Can provide a discriminator from competitors
• Can be used as part of the hiring and promotion process
• Provides an independent external assessment
• Encourages employee participation in continuing education
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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
- U.S. National Security Agency labor categories
- 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, Sacramento Transportation Area Network (STARNET) RFP
The INCOSE SEPs come from many different organizations and domains.

As of 31 Mar 2013:

Top Organizations w/ Active SEPs
- EADS  161 SEPs
- Booz Allen  154 SEPs
- Honeywell  94 SEPs
- The SI Org  83 SEPs
- Lockheed Martin  79 SEPs
- Northrop Grum  49 SEPs
- SAIC  43 SEPs
Certification Agreements

- **Industry agreements**
  - EADS
  - Booz Allen Hamilton
  - ManTech
  - MITRE
  - Lockheed Martin
  - TASC
  - BAE Systems
  - Jacobs Technology
  - ASTER Technology & Engineering
  - LinQuest
  - Thales
  - OPS Consulting
  - L-3 Communications

- **University agreements**
  - Stevens Institute of Technology
  - University of Texas – El Paso
  - École Polytechnique
  - ISAE/Supaero
  - University of New South Wales
  - Worcester Polytechnic Institute

- **Other agreements**
  - USA DAU
  - OMG OCSMP
  - IES, GfSE, and KCOSE
  - INCOSE UK Chapter
INCOSE certified professionals are found in all of the INCOSE Sectors.
Many countries are producing and recognizing INCOSE certified professionals.

Countries (Non-USA) with INCOSE Certified Professionals

As of 30 Apr 2013:

Top Countries w/ Active SEPs

- Germany       110 SEPs
- India         106 SEPs
- France        80 SEPs
- Sweden        31 SEPs
- UK            27 SEPs
- Spain         22 SEPs
- USA           1156 SEPs
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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.
CSEP/ASEP Certification
Knowledge Requirements

• CSEP/ASEP Exam Basis
  o INCOSE SE Handbook v3.2.2 (or 3.2.1, 3.2)
  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 Pass/Fail results provided immediately upon exam completion

• Candidates are eligible for two re-tests within one year of application submittal
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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CSEP Certification
Experience Requirements

- **CSEP Systems Engineering Experience**
  - **Minimum 5 years of professional level experience** in multiple SE functional areas (and any additional general years of experience necessary due to education status)
  - **Minimum of at least 1 year** of professional level SE experience in each of 3 or more of the 14 SE functional areas
  - Must be documented on the INCOSE application form

- **Experience Confirmation**
  - Recommendations from at least 3 colleagues/peers/managers
  - References must cover at least 5 years and 3 areas of SE experience claimed by the applicant (including any additional years)
  - References must be knowledgeable in Systems Engineering (or general engineering for any additional years)
  - Must be documented on the INCOSE reference form

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CSEPs should have experience in performing some, but not necessarily all, of the SE functional areas
ESEP Certification
Experience Requirements

• ESEP Systems Engineering Experience
  o **Minimum 25 years (20 if already a CSEP) of professional level experience** in multiple SE functional areas (and any additional general years of experience necessary due to education status)
  o Minimum of **at least 2 years** of professional level SE experience in each of **6 or more** of the 14 SE functional areas
  o Must be documented on the INCOSE application form

• Experience Confirmation
  o Recommendations from **at least 3** colleagues/peers/managers
  o References must cover **at least 10 years** of SE experience claimed by the applicant
  o References must be knowledgeable in Systems Engineering
  o Must be documented on the INCOSE reference form

ESEPs should have experience in performing most, but not necessarily all, of the SE functional areas
ESEP Professional Leadership Requirements

• Minimum of **5 years** of professional leadership.
  - **Product Development Leadership** Years
    - Years of leadership in a product development position, such as chief engineer or development team lead
    - 1 year credit for each year in a leadership position - no limit
  - **Technical Society Leadership** Years
    - Leadership of a professional technical society, such as elected officer, appointed committee chair, editor, or thought leader
    - 0.5 year credit for each year of service - no limit
  - **Advanced Academics** Years
    - Technical Master’s degree (or international equivalent)
      - 1 year credit
    - Technical Doctoral degree (or international equivalent)
      - 2 years credit if separate credit is given for a Master’s degree
      - 3 years credit if separate credit is not given for a Master’s degree
    - Systems engineering graduate-level teaching
      - 1 year of credit for each 500 hours of classroom instruction spread over a 3 year time period, limited to a maximum of 3 years
    - Category limited to a maximum of 4 years credit

ESEPs must show a history of professional leadership
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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CSEP Application Process

1. Verifiable Education
2. Verifiable Experience

Applicant's own pace

Submit Completed Application And Fee

Notify Applicant
Two weeks

Pay test fee
Schedule & Take Exam (Prometric Test Center)
Applicant’s own pace

3. Applicant’s Advocates (three references knowledgeable about SE)

References’ own pace

INCOSE Application Center

INCOSE Evaluation

3 year Certification

Notify Applicant
Two weeks

Pass

Applicant has **up to one year** to pass the test. **Test is scheduled directly** with Prometric.

Timeline

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Certification Renewal Requirements

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

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

INCOSE certified professionals have an ongoing growth and learning obligation
Where Do I Find More Information?

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

• Expanded PDU categories
• SE Handbook update and exam updates
• Certification equivalency for GfSE, the German Chapter of INCOSE
• INCOSE UK Chapter MOA to grant SEP certifications to its members
As of 31 March 2013:

- 1549 Active SEPs
- 146 ESEPs
- 1134 CSEPs
- 269 ASEPs
As of 30 Apr 2013:

**Top Chapters w/ Active SEPs**

- **Washington Metro**: 268 SEPs
- **Chesapeake**: 71 SEPs
- **AFIS (France)**: 58 SEPs
- **Los Angeles**: 55 SEPs
- **Colorado Fr. Range**: 53 SEPs
- **Germany**: 48 SEPs
Any Questions?

Email Contacts

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