# INCOSE Systems Engineering Professional Certification

## Mission Certification

**October 2024**

# AGENDA

- **INCOSE Certification Overview**

- INCOSE Certification Levels

- INCOSE Certification Added Value

- INCOSE Certification Process

- INCOSE Certification Baseline

- INCOSE Certification Figures

- INCOSE Certification Stakeholders

# Systems Engineering Professional (SEP)

- A third party certification for individuals, initiated in 2004 by INCOSE
- Certification Is Open to Everyone interested in being recognized formally for their knowledge (and experience) of systems engineering
- 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

INCOSE certifies professionals in the discipline of Systems Engineering.

# What is evaluated during certification process?



**Experience**
- Confirmed by qualified references
- Includes Leadership

**Education**
- Initial
- Continuous (for renewal)

**Knowledge**
- INCOSE SE Handbook

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## 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*

ESEP

CSEP

ASEP

SEP Candidates

You can enter at whatever SEP level is appropriate and can seamlessly transition between levels when ready.

# Certification requirements

INCOSE provides a measurable standard of certification consistent with ISO guidelines






|  | SE Knowledge | Education | SE Experience | SE Leadership & Accomplishments |
|---|---|---|---|---|
| **INCOSE ASEP** | Via an exam based on the INCOSE SE Handbook | | | |
| **INCOSE CSEP** | Via an exam based on the INCOSE SE Handbook | Via confirmation of qualifying degree (or additional experience, if required) | Via confirmation of applicant's and references written experience claims<br>Minimum 5 years SE experience<br>1 or more references (cumulative coverage of the required experience) | |
| **INCOSE ESEP** | | Via confirmation of qualifying degree (or additional experience, if required) | Via confirmation of applicant's and references written experience claims<br>Minimum 25 years (20 if CSEP) SE experience<br>3 or more references (cumulative coverage of at least 10 years of systems engineering experience) | Via oral review of applicant (and references, if required) |

INCOSE membership required : All candidates must be INCOSE members at the time of their application and for the entire period of their certification

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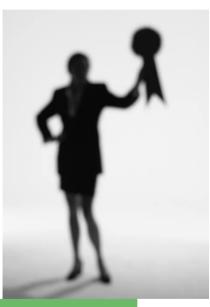- INCOSE Certification Added Value

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# Certification is important …

## For individuals…

- Formally recognizes your Systems Engineering capabilities
- Provides a competitive advantage in your career
- Provides a portable Systems Engineering designation that is visible and recognized worldwide across industry
- Furthers your professional development as a systems engineer
- Participation in continuing education indicates your commitment to personal development
- Enlarge your network, ease your connection with subject matter experts. Be invited at large events (e.g. AFIS JT , INCOSE conferences, etc.)



**INCOSE Certification sets you apart!**

# Certification is important …

**For Management …**
- Formally recognizes the Systems Engineering capabilities of a company's people
- Certified (by independent 3rd party) systems engineers can be a selling point and a discriminator for proposals
- Can be used as part of the hiring and promotion process
- It encourages employee participation in continuing education
- Provides an independent internal and external assessment
- It is a tool for promoting professional competence



## INCOSE Certification sets company apart!

# Certification is important …

**For project teams …**
- Allows the team to level-set on Systems Engineering concepts and activities
- Contributes to establish a common Systems Engineering language across teams
- Saves time when forming team
- All in one, certification helps break down …
  - › geographic boundaries
  - › organizational boundaries
  - › cultural boundaries

*As certification is company independent, above applies also to extended enterprise, it is not restricted to one organization*

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

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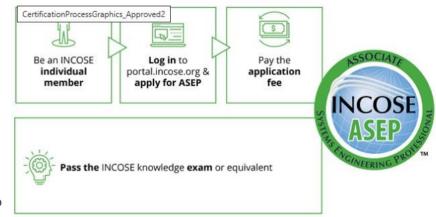- INCOSE Certification Process

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# ASEP Steps to Certification

- Be an <u>INCOSE individual member</u>
- Apply for ASEP via <u>portal.incose.org</u> (This is done through your Member Profile)
- Pay the <u>Application Fee</u>
    - Payment is valid for 12 months.
    - Fee is non-refundable and not a guarantee that you will be certified.
- Pass the <u>INCOSE Knowledge Exam</u> or <u>equivalent</u>
    - Exam and equivalency results are good for 12 months.
    - There is a separate fee to take the exam, collected by the exam provider.
    - You are allowed to take the exam up to 3 times in a 12-month period.
    - You may take the exam before or after completing the other steps.



CertificationProcessGraphics_Approved2

Be an INCOSE individual member → Log in to portal.incose.org & apply for ASEP → Pay the application fee

Pass the INCOSE knowledge **exam** or equivalent

ASSOCIATE
INCOSE
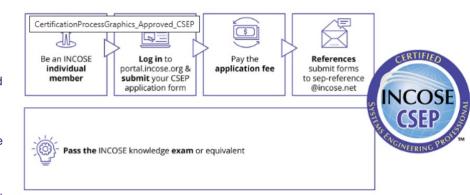ASEP
SYSTEMS ENGINEERING PROFESSIONAL ™

# CSEP Steps to Certification

- Be an INCOSE individual member
- Submit application materials
  - Submit Individual Application Form 1 at portal.incose.org (through your Member Profile)
  - References submit Reference Forms 4B directly to sep-reference@incose.net.
- Pay the application fee
  - Payment is valid for 12 months
  - Fee is non-refundable and not a guarantee that you will be certified
- Pass the INCOSE knowledge exam
  - Knowledge exam is good for 12 months
  - There is a separate fee to take the knowledge exam, collected by the exam provider
  - You are allowed to take the exam up to 3 times in a 12-month period
  - You may take the exam before or after completing the other steps
  - If you are transitioning from ASEP, you do not need to retake the knowledge exam
  - If you pass the exam but do not pass the experience review, you may appeal for cause or you may choose to become an ASEP

CertificationProcessGraphics_Approved_CSEP

Be an INCOSE **individual** member → **Log in** to portal.incose.org & **submit** your CSEP application form → Pay the **application fee** → **References** submit forms to sep-reference @incose.net

**Pass the** INCOSE knowledge **exam** or equivalent

CERTIFIED
INCOSE
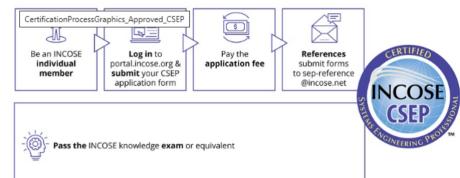CSEP
SYSTEMS ENGINEERING PROFESSIONAL

# ESEP Certification Steps

- Be an INCOSE individual member
- Submit application materials
  - Submit individual application Form 41 through portal.incose.org (This is done through your Member Profile)
  - References submit Reference Forms 4B directly to sep-reference@incose.net. Forms will not be accepted submitted by the applicant
- Pay the ESEP application fee
  - Payment is valid for 12 months
  - Fee is non-refundable and not a guarantee that you will be certified
- Pass the leadership interview
  - You will be invited to respond to written questions about your technical leadership experience
  - You may be invited to participate in a one-hour phone interview to discuss your technical leadership
  - Your references may also be asked to participate in phone interviews



CertificationProcessGraphics_Approved_CSEP

Be an INCOSE **individual member** → **Log in** to portal.incose.org & **submit** your CSEP application form → Pay the **application fee** → **References** submit forms to sep-reference @incose.net

**Pass the** INCOSE knowledge **exam** or equivalent

CERTIFIED · INCOSE CSEP · SYSTEMS ENGINEERING PROFESSIONAL

# All forms available from INCOSE certification website
## https://www.incose.org/certification

| Category | Form | Instructions | Example |
|---|---|---|---|
| Individual application | Form 1 Individual Application for INCOSE CSEP | Form 2 – Instructions for Completing Form 1 | Form 1 Individual Application for INCOSE CSEP Good Example |
| Reference | Form 4B - Reference for CSEP _ ESEP | Form 4A – Instructions to References_01 | Form 4B CSEP-ESEP Reference Example |
| Renewal | Log of Continuing Education Credits Form 13 | - | - |

# How much does it cost?

| Level \ Cost | INCOSE | Initial Application | Exam Fees | Renewal |
|---|---|---|---|---|
| ASEP | Maintain membership / For French citizens INCOSE membership is acquired through AFIS membership | $180 | $ 80 | $100 every 5 years |
| CSEP | | $ 350 | $ 80 | $100 every 3 years |
| ASEP to CSEP | | $ 200 | N/A | N/A |
| ESEP | | $ 630 | N/A | N/A |

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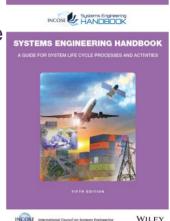
## INCOSE SE HANDBOOK



- The ASEP/CSEP Exam is based upon the content of the INCOSE SE HANDBOOK AND its Appendices
- The exam questions all come from the INCOSE Systems Engineering Handbook (SEH).
- Trough March 2025, exam content is only the overlap of SEH Fourth Edition and SEH Fifth Edition (Hybrid testing)
- New content in the Fifth Edition may be added as soon as 15 March 2025
- The exam uses terminology and process definitions from the book
- Read and UNDERSTAND the INCOSE SE Handbook!
- Appropriating the traceability between one's own referential and the handbook is a must

# The SE Handbook (SHE)

- Reflects the state-of-the-good-practice of Systems Engineering
- Describes key process activities throughout the life cycle of a system
- Describes a wide range of fundamental systems concepts
- Based on ISO/IEC/IEEE 15288
- Inputs from the entire INCOSE Technical Community
- Serves as a reference of practices and methods that have proven beneficial to the SE community at large



The SEH serves as the basis for the INCOSE CSEP & ASEP exams.

- Fifth Edition published in July 2023

# INCOSE Systems Engineering Handbook V4
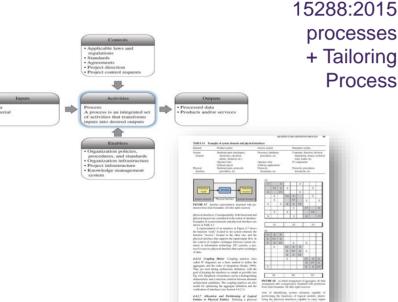
## Aligned to Standard ISO/IEC/IEEE 15288

| 14 Technical Process Group | | 8 Technical Management Process Group | 2 Agreement Process Group | 6 Organizational Project-Enabling Process Group |
|---|---|---|---|---|
| Business Or Mission Analysis Process | Integration Process | Project Planning Process | Acquisition Process | Life Cycle Model Mngmnt. Process |
| Stakeholder Needs & Requirements Definition Process | Verification Process | Project Assmnt. & Control Process | Supply Process | Infrastructure Management Process |
| System Reqmts Definition Process | Transition Process | Decision Management Process | | Portfolio Management Process |
| Architecture Definition Process | Validation Process | Risk Management Process | | HR Management Process |
| Design Definition Process | Operation Process | Configuration Management Process | | Quality Management Process |
| System Analysis Process | Maintenance Process | Information Management Process | | Knowledge Management Process |
| Implementation Process | Disposal Process | Measurement Process | | |
| | | Quality Assurance Process | | |
| Section 2.3.5 (V5) | | Section 2.3.4 (V5) | Section 2.3.2 (V5) | Section 2.3.3 (V5 |

General structure for each (of 30 +1 processes) being…

› Overview
- Purpose
- Description
- Inputs/Outputs
- IPO Diagram
- Activities

› Elaboration

30 ISO/IEC/IEEE 15288:2015 processes + Tailoring Process

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# Total SEPs AFIS

| Année | ASEP | CSEP | ESEP | Cumul |
|-------|------|------|------|-------|
| 2010 |  | 2 | 1 | 3 |
| 2012 | 1 | 4 | 2 | 7 |
| 2013 | 2 | 7 | 3 | 12 |
| 2014 | 3 | 11 | 4 | 18 |
| 2015 | 3 | 17 | 4 | 24 |
| 2016 | 3 | 22 | 4 | 29 |
| 2017 | 4 | 28 | 4 | 36 |
| 2018 | 6 | 33 | 4 | 43 |
| 2019 | 10 | 40 | 5 | 55 |
| 2020 | 15 | 47 | 5 | 67 |
| 2021 | 24 | 51 | 5 | 80 |
| 2022 | 56 | 53 | 6 | 115 |
| 2023 | 94 | 60 | 6 | 160 |
| 2024 | 138 | 68 | 6 | 212 |



■ ASEP ■ CSEP ■ ESEP

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# Main stakeholders

Certification Program Manager

Certification Operations team

CAG - Certification Advisory Group

Pool of CARS

All Roles & responsibilities are defined in:
CER-PROC-01 SEP Program Definition and Requirements

## Pour en savoir plus



- Visitez le site web:
   https://www.incose.org/certification

- Contactez les Chargés
   de mission Certification
   de l'AFIS

   › https://www.afis.fr/nos-activites/certification-incose/
   › Courriel: certification@afis.fr

# L'AFIS
# vous remercie !