INCOSE Systems Engineering Professional

Course Syllabus Overview

Duration - 5 days

Day 1

- INCOSE certification overview, including benefits and limitations of certification
- Introduction to the Handbook
  - Definition and concepts of a system
  - System hierarchies
  - Systems of Systems
  - Enabling Systems
  - Definition and origins of systems engineering
  - Use and value of systems engineering
  - Systems science and systems thinking
  - Systems engineering leadership and professional development
- Becoming familiar with terminology
- Generic life cycle stages and approaches
- Case studies
- Learning review

Day 2

- Day 1 Consolidation
- Technical processes and how they support Systems Engineering
  - Business or Mission Analysis
  - Stakeholder Needs and Requirements Definition
  - System Requirements Definition
  - Architecture Definition
  - Design Definition
  - System Analysis
  - Implementation
  - Integration
  - Verification
  - Transition
- Learning review

Day 3

- Day 2 Consolidation
- Technical processes continued
  - Validation
  - Operation
  - Maintenance
  - Disposal
  - Technical management processes and their application
  - Project Planning
  - Project Assessment Process and Control
  - Decision Management
  - Risk Management
  - Configuration Management
  - Information Management
  - Measurement
  - Quality Assurance
- Agreement Processes
  - Acquisition
  - Supply
- Learning Review

Day 4

- Day 3 Consolidation
- Organisational Project-Enabling Processes
  - Life cycle Model Management
  - Infrastructure Management Maintenance
  - Project Portfolio Management
  - Human Resource Management
  - Quality Management Process
  - Knowledge Management
- Tailoring Process
- Application of Systems Engineering
  - Product Line Management

TRAINING SYLLABUS

  - Services
  - Enterprises
  - Very small and micro enterprises
- Learning Review

Day 5

- Day 4 Consolidation
- Cross-cutting Systems Engineering methods
  - Modelling and simulation
  - Model-Based Systems Engineering
  - Functions-Based Systems Engineering Method
  - Object-oriented Systems Engineering Method
  - Prototyping
  - Interface management
  - Integrated product and process development
  - Lean Systems Engineering
  - Agile Systems Engineering
- Specialty engineering activities – discussion of the range of specialty activities available and broadening knowledge regarding these activities
  - Affordability/Cost-Effectiveness/Life cycle Cost Analysis
  - Electromagnetic Compatibility
  - Environmental Engineering/Impact Analysis
  - Interoperability Analysis
  - Logistics Engineering
  - Manufacturing and Producibility Analysis
  - Mass Properties Engineering
  - Reliability, Availability, and Maintainability
  - Resilience Engineering
  - System Safety Engineering
  - System Security Engineering
  - Training Needs Analysis
  - Usability Analysis/Human Systems Integration
  - Value Engineering
- Handbook Review
- Examination Structure, preparation and application
- Course Summary and Conclusion