An Introduction to Systems Engineering with Requirements Writing

Training Course

An Introduction to Systems Engineering with Requirements Writing Course

This course has been designed to provide a high-level foundation to the principles and practices of systems engineering.

This course content is aligned with the INCOSE Systems Engineering Handbook V.4 and provides an introduction and overview of the processes required for successful systems engineering delivery on projects.

Presented by highly experienced systems engineering instructors, the course examines the role and benefits of applying Systems Engineering principles within your organisation. We teach students how to define Systems Engineering, understand the approach and scope, and identify key systems engineering models. The creation of accurate requirements, traceable across the systems engineering life cycle, is critical for successful projects, which is why we have designed specialist modules which provide students with the techniques necessary for the creation of clear, concise, and correct requirements, independent of specific requirements management tools. Best practice is drawn from the INCOSE handbook and the INCOSE guide for writing requirements.

What you will learn

- A definition of systems engineering in accordance with the INCOSE Systems Engineering Handbook
- An understanding of the systems engineering approach and scope
- Key systems engineering models and details of each
- How systems engineering methodology improves engineering programmes and how to apply these methods
- The role of organisational stakeholders throughout the systems engineering life cycle, and the vital role each plays
- The cost element of systems engineering

Specialist Requirements Writing Modules include:

- Principles of requirements writing
- Levels of requirement
- Problem and solution domains
- Needs v requirements
- INCOSE Handbook / ISO 15288 Requirements Processes
- Requirements structure
- Requirements syntax
- Statement rules
- Vocabulary
- Requirements review process
- Baselining
- Change control

DATASHEET

- Use of Artificial Intelligence to enhance requirements quality pre-review

At a Glance

- A 2-day course at an approved venue
- Based on the INCOSE Systems Engineering handbook, and the processes within
- Provides students with the knowledge and experience needed to recognise the benefit of applying sound systems engineering practices in their organisation
- Delivered by a qualified CSEP instructor

Who Benefits?

- Mechanical Engineers
- Project Managers
- Test Engineers
- Systems Developers
- Personnel whose role heavily integrates with a software or systems development process
- Suitable for engineers and non-engineers at all levels

Syllabus Main Points

All of the lessons within the course are supported by case histories, with many of the lessons supported by storyboard exercise and examples.

Lessons 1 and 2

Lessons 1 and 2 explore what we mean when we say 'Systems Engineering' and examine the major principles. Lesson 1 examines through-life processes. Key topics covered within Lesson 1 include user requirements, validation and verification, configuration control and design processes. For Lesson 2, we look at the through-life process and cover topics such as characteristics, decision gates, life cycle stages, life cycle comparisons, life cycle approaches, storyboard exercises and examples.

Lesson 3

Lesson 3 focuses on the pivotal role of Requirements Analysis, Capture, Writing and Management. During the lesson, we examine the concept plus the analysis process including input, controls, and outputs.

These specialist modules teach around requirements process activities, how to carry out requirements analysis, characteristics of requirements statements, rules for writing requirements, requirements vocabulary and the use of requirements management systems. Students can expect to learn how to write clear, concise, and correct requirements on completion of these modules.

Lesson 4

Lesson 4 teaches about configuration management, change management and configuration control. Key topics include configuration management processes, baselines, change requests, configuration control, change control, configuration status and accounting.

DATASHEET

Lesson 5

This lesson explores Test and Acceptance procedures including test categories, validation and verification, test cases and test scripts.

For the full course syllabus, further information or to book your place contact:

training.technologies@synthesys.co.uk or call: +44(0)1947 821464.

DATASHEET

About SyntheSys

SyntheSys provides defence systems, training, systems and software engineering and technical management services over a spectrum of different industry sectors. Along with distinct support and consultancy services, our innovative product range makes us first choice provider for both large and small organisations. Established in 1988, the company focus is on fusing technical expertise with intuitive software applications to solve common industry challenges.