

Mastering SysML

Course overview

The Systems Modelling Language (SysML) has become the *de facto* modelling language for systems engineering and for implementing model-based systems engineering (MBSE) in industry. This two- or three-day course provides an introduction to the world of modelling and, in particular, shows how SysML can help with all aspects of a system model. Particular attention will be paid to the topic of interface modelling. The course will also discuss the use of SysML in the wider context, for example requirements modelling, architectural modelling, life cycles, processes etc.

The course comprises a mixture of teaching and hands-on exercises. The taught content covers the background, theory and best practice of modelling with SysML, emphasising consistency and the difference between a SysML model and a collection of pictures.

Target audience

The course is aimed at, but not limited to engineers, scientists and managers who deal with modelling and SysML models in their working lives. No previous experience of modelling nor of the SysML notation is required for this course.

Course outline

1 Introduction to Modelling

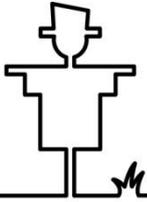
- The importance of modelling, systems engineering and MBSE.
- Structural modelling with SysML
- Behavioural modelling with SysML

This section of the course introduces the main concepts of modelling and its application to systems engineering. This establishes a common baseline from which the rest of the course is taught.

2 The SysML Notation

- Views vs. diagrams
- The SysML meta-model
- Diagram frames
- The nine SysML diagrams – jazz workshop

This section of the course introduces the remainder of the SysML notation. The jazz workshop is a free-style tutor-led session where the use of the various diagrams and the consistency between them is illustrated using delegate-led topics and discussed.



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3 Modelling Interfaces

- Service-based interfaces
- Flow-based interfaces
- The Interface Pattern

This section of the course tackles the thorny subject of interfaces and their definition using the SysML notation. Examples will be given of service-based and flow-based interfaces, along with those based on human interaction. This section will also introduce the Interface Pattern that may be used at all levels of a system model to identify, capture and define interfaces in detail.

4 Modelling Workshop

- Group workshop

The workshop forms the bulk of the course where the delegates are divided into small groups in order to carry out a modelling exercise. The workshop itself is divided into a number of sections where the delegates are gently introduced to the modelling techniques needed to evolve their knowledge of the SysML through a series of exercises. Each section comprises a short introduction, a facilitated group exercise and then a presentation session where teams present back to the tutors and other teams to validate their understanding of the concepts and techniques.

Course material

Course materials include a full set of notes, reference sheets and a copy of 'SysML for Systems Engineering: 2nd edition: A model-based approach' written by the course tutors.

Course tutors

All courses are delivered by Prof Jon Holt and Simon Perry. Jon and Simon are internationally-recognised authors, tutors and public speakers in the world of MBSE. They have authored nine books covering many aspects of systems modelling, including process modelling, competence, architectures and, of course, requirements engineering.

Course options

This course is available as a two- or three-day course. The main difference between the two is the amount of time spent on the workshop.