

Architectural Frameworks & Enabling Patterns

Course Overview

This course provides an introduction to architectural frameworks (AFs) and enabling patterns, giving delegates a model-based toolkit, the Framework for Architectural Frameworks (FAF), which can be used to aid in the definition of an AF or pattern.

Target Audience

This course is aimed at systems and software engineers that have a working knowledge of Model-based Systems Engineering (MBSE) and SysML (or UML) and who want to develop their MBSE skills by learning how to develop architectural frameworks and patterns in a robust, consistent, model-based way.

This course is offered as an additional day to one of our MBSE courses or, for people who have already attended one or more of our courses, can be run as a stand-alone day.

Course Outline

The course consists of five modules, the last of which is a workshop exercise in which delegates put the concepts covered in the course into practice.

1 The Benefits of MBSE

- Realising MBSE
- I know an Old Lady

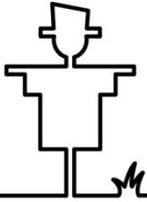
This module discusses the benefits of MBSE by considering the various contexts in which MBSE is undertaken, considering the need for competent people carrying out robust processes using appropriate tools and techniques, while all the time taking into account the requirements that an MBSE approach must fulfil.

2 Concepts

- Concepts
- Enabling Patterns

This module discusses what is meant by an AF and a pattern, sets the history of patterns in systems engineering in context and discusses the relationship between AFs and patterns. It introduces the key concepts behind AFs and patterns, establishing the language that is used (the ontology) throughout the rest of the course.





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3 The Framework for Architectural Frameworks (FAF)

- The Problem with the Existing Approach To AFs
- The Framework for Architectural Frameworks (FAF)
- Realising the FAF with SysML
- The FAF in Use

Beginning with a look at some of the problems encountered with the existing approach to AFs, this module discusses the six key questions that must be answered when choosing or creating an AF. The Framework for Architectural Frameworks is then introduced as a robust, model-based way of answering these six questions. The FAF ontology is discussed and the six viewpoints that make up the FAF are described. A discussion of how the various FAF viewpoints can be realised using SysML leads into an example of the FAF in use.

4. Using the FAF

- Creating a new pattern
- Creating an AF from existing frameworks and patterns

This module presents an in-depth example of how the FAF is used, with an example that builds an enabling pattern from first concepts to a full FAF definition. The example considers the issues that must be considered when using the FAF and gives practical guidance in its application. The module concludes with a discussion of how the FAF, together with existing published frameworks and patterns, can be used to grow an AF in a piecemeal fashion as a project progresses.

5. Workshop

This final module consists of a paper-based workshop in which the delegates, working in small groups, will use the FAF to define a small architectural framework

Course Material

A full set of professionally published course notes and exercises is provided. Delegates also receive an electronic (PDF) version of the course material.

This material is in addition to any other course material if run as an additional module to another course.

Course Tutors

All of our course tutors are expert MBSE modellers with years of experience applying MBSE in industry and using various tools. Scarecrow Consultants have published nine books on MBSE and its application that are used throughout the world in many industries.

