2-day System Design Workshop

Workshop Description

This 2-day workshop teaches participants how to design complex systems. Starting with gathering and analysing requirements and continuing through system architecting to solution generation, evaluation and selection. Based on a generic model of Systems Engineering it introduces the systems approach to system design using a simple but extremely powerful tool set.

The taught element of the workshop is supported by a unifying case study where Participants working in small teams can practice the processes and tool set to design a system.

This course is complemented by the 2-day Verification and Validation course.

Course Numbers and Who Should Attend?

The 2-day System Design Workshop can be delivered to up to 20 participants. The workshop applies equally to the design of product-based as to service or process-based systems. The workshop is therefore suitable for all personnel involved in the introduction and through life support of any complex system. It is specifically aimed at those people who wish to practice or would like to practice a systems approach to system design.

Benefits to the Individual and Business

During an intensive two days of teaching and practical 'hands on' exercises, participants will be challenged to develop the skills and mind-set that can be applied to any system design irrespective of type, scale or context.

At the end of the workshop participants will:

- Have an understanding the principles of systems thinking and how it applies to the creation of a new system through the appropriate blend of people, process and tools.
- Understand the critical role of requirements in engineering.
- Be able to identify system stakeholders and gather their requirements.
- Be able to analyse stakeholder requirements and translate these into specific, precise and measurable technical system requirements.
- Be able to generate and down-select alternative system design concepts and architectures
- Be able to consider the impact on future business of adopting a systems approach to systems design.

Learning Approach

The learning approach is based on the Kolb learning cycle with a significant proportion of the course set aside for exercises to reinforce the learning. Indeed, many of the small group exercises involve a case study that provides a practical focus for the course and enables the Participants to practise the methodology and tools presented.

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Workshop Structure and Content

Day 1	Day 2

Introduction and Delegate expectations
What is and why use a Systems Approach to Systems Design
• Emergence – desirable and undesirable
• Systems Thinking
  o Purpose *and* Context
  o System Boundary
  o Subsystems and super-systems
  o Events, patterns and behaviour
Systems Thinking in systems design
Designing in levels and the V diagram
Generic system design process
A Systems Approach to Determining Requirements
Gathering Requirements
• Process for gathering requirements
• Requirements Elicitation Plan
• Stakeholder Analysis using the Stakeholder Map
• Eliciting and Capturing Requirements
  o Affinity Diagrams
  o Use Cases
  o Tree Diagrams
Analysing Requirements
• Understanding Requirements
• Holistic Requirements Model
• Process for Analysing Requirements
• Tools for Analysing Requirements
  o Need Means Analysis
	Review of Day 1
	• Tools for Analysing Requirements
	  o Viewpoint Analysis
	  o Functional Modelling
	A Systems Approach to Systems Design
	• Technology and Architecture considerations
	System Architecting
	• Principles of System Architecting
	• Logical System Architecting
	• N^2 Analysis
	• Interface considerations
	Generating technological solutions
	• Function Means Analysis
	• Down-selection
	Systems Concept evaluation and selection
	• Pugh Matrix

Workshop Costs

The cost of delivering the 2-day workshop, excluding delivery tutor accommodation and expenses, but including all courseware is £3,500. VAT will apply at the prevailing rate.

The workshop can be tailored to suit individual customer's operations.

More Information and Contact Details

For more information about the 2-day System Design Workshop or any of our other Systems Engineering courses please contact **Stuart Burge** on +44 (0) 7803 131614 or email sburge@burgehugheswalsh.co.uk.