BURGE HUGHES WALSH

SYSTEMS ENGINEERING

2-day System Verification and Validation Workshop

Workshop Description

The 2-day System Verification and Validation Workshop is complementary to and a logical follow-on to the System Design Workshop. We recommend that the System Design Workshop be attended before the System Verification and Validation Workshop.

The System Verification and Validation Workshop teaches participants about the systems approach to the Verification and Validation (V&V) of complex systems. The workshop emphasizes the need to undertake V&V early through Design V&V as well as the more tradition Build V&V to create a body of evidence that demonstrates the maturity of a system design. The workshop introduces a number of simple but extremely powerful tools.

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.

Course Numbers and Who Should Attend?

The 2-day System Verification and Validation Workshop can be delivered to up to 20 participants. The workshop applies equally to the V&V 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.

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 of the principles of a systems approach to verification and validation
- Know the differences between validation and verification and understand the various methods, and their relative merits for accomplishing verification and validation
- Understand and explain the verification and validation opportunities throughout the system development cycle
- Understand the principles and concepts of a systems approach to system verification and validation through system characterisation as opposed to system demonstration testing
- Understand and explain the concept of robust optimisation and system sensitivity
- Clearly define the differences between determination and demonstration testing and how they relate to the system approach to verification and validation
- Understand the principles of designed experiments to explore the design solution space for robust optimums
- Clearly describe the fundamental process, activities and methodology for a systems approach to system verification and validation
- Be able to write V&V requirements.

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.

Workshop Structure and Content

Day 1

- Introduction and Delegate expectations
- Review of Systems Approach to Systems Design
  - Designing in levels and the V diagram
  - Generic system design process
- A Systems Approach to Verification and Validation
  - Build V&V and Design V&V
- Build V&V
  - V&V methods
  - V&V Requirements
  - V&V Planning
  - Verification Compliance Matrix and maturing V&V evidence
- Design V&V
  - Sensitivity analysis
  - Failure analysis using Functional and Design FMEA

Day 2

- Review of Day 1
  - Verifying and Validating Requirements and System design using Quality Function Deployment
- Design Verification through Robust Design
  - Taguchi, Noise and Loss functions
  - Parameter and Tolerance design
  - Design of experiments to characterise the design
  - Full factorial and fractional factorial design of experiments
- Summary

Workshop Costs

The cost of delivering the 2-day workshop, excluding delivery tutor accommodation and expenses, but including all courseware is **£4,500**. VAT will apply at the prevailing rate.

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

BURGE HUGHES WALSH

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ENDORSED TRAINING PROVIDER

BURGE HUGHES WALSH LIMITED

First Floor, 6 Allerton Road, Rugby, Warwickshire CV23 0PA

enquiries@burgehughestwalsh.co.uk

www.burgehughestwalsh.co.uk

01788 550015