

Requirements Engineering

Course Code

SSI036

Duration

3 Days

Format

Classroom | Classroom/Virtual | Virtual

Objectives

This course will enable delegates to:

- Pick out and classify Functional and non-Functional Requirements
- Iteratively progress and evolve the definition of Requirements
- Analyze a business problem
- Document Requirements as a Product set and individually
- Cross-reference Requirements to other models involved in the development process, such as Process models, Class Models etc.
- Construct a Workflow diagram to represent Requirements
- Interpret a Class model from a Requirements perspective
- Pick out System Requirements as Use Cases
- Identify Stakeholders and model their Viewpoints

Content

Rationale for requirements engineering

- Problems in developing IT systems
- The costs of errors
- Knowledge types – explicit and tacit
- Definition of a 'requirement'
- Hierarchy of requirements
- Characteristics of requirements engineering
- A framework for requirements engineering

The role of the analyst

- Stakeholders in requirements engineering
- Roles and responsibilities
- User analysis

Requirements planning and management

- The importance of planning in requirements engineering
- Project initiation and the project initiation document
- Features of requirements management

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Requirements elicitation 1 – interviewing

- Introduction to elicitation techniques
- Interview preparation
- Structure of an interview
- Documenting the interview

Requirements elicitation 2 – workshops

- What is a workshop?
- The benefits – and limitations – of a workshop
- Workshop roles and responsibilities
- Preparing for the workshop
- Techniques to elicit information
- Techniques for documenting workshop results

Requirements elicitation 3 – supplementary techniques

- Observation, ethnographic studies and STROBE
- Quantitative techniques – activity sampling
- Document analysis
- Record searching
- Questionnaires
- Special purpose records

Documenting requirements

- What should be documented?
- Contents of the requirements document
- The requirements catalogue

Requirements analysis 1 – modelling the processes

- What are we analysing and why?
- Characteristics of good requirements
- Framework for requirements analysis
- Use case diagrams
- Scope definition/re-definition
- Checking use cases against requirements

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- The use of a context diagram

Requirements analysis 2 – modelling the data

- Objects and classes – concepts
- Classes and attributes
- Associations and multiplicity
- Building a class diagram
- Using class diagrams to confirm business rules and data requirements
- Checking models for consistency and completeness – the CRUD matrix

Requirements analysis 3 – categorisation and organisation

- Organising requirements into a hierarchy
- Categorising requirements – functional, non-functional, technical and general
- Structuring the requirements catalogue

Requirements analysis 4 – necessity and feasibility checking

- Checking the relevance of requirements to business goals
- Assessing the feasibility (business, technical, financial) of requirements

Requirements analysis 5 – quality control

- Checking requirements against quality criteria
- Identifying conflicting requirements
- Resolving requirements conflicts – negotiating skills

Requirements analysis 6 – testability of requirements

- Identifying acceptance criteria
- The concept of business tolerances

Scenarios and prototyping

- Purpose and use – for elicitation, clarification and validation and developing scenarios
- Diagrammatic approaches to scenario modelling
- Use case descriptions to document scenarios

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- Rationale and dangers of prototyping
- Throwaway versus evolutionary prototyping
- The prototyping process
- Scope and fidelity of prototypes

Requirements management – recap

- Recap on features of requirements management