

PROCESS IMPACT

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Description: eLearning Seminar “In Search of Excellent Requirements”

Description: Requirements form the foundation for all the software work that follows. Arriving at a shared vision of the product to be developed is one of the greatest challenges facing the software project team, and customer involvement is among the most critical factors in software quality. This eLearning seminar by Karl Wiegers describes dozens of tested methods that can help any organization improve the way it elicits, analyzes, documents, validates, and manages its software requirements. The course provides students with a tool kit of “good practices,” reinforced with practice sessions, that they can begin applying to improve the requirements processes in their organization. These techniques can reduce project risk by improving the quality and control of the software requirements, thereby increasing the likelihood of a successfully completed project. The seminar emphasizes many practical techniques, including:

- Creating an effective customer-developer partnership
- Customer involvement through a “product champion” model
- The application of use cases for defining user needs and system functions
- Writing software requirements specifications using a standard template
- Recording and classifying business rules that affect a software system
- A simple model for prioritizing requirements
- Constructing graphical analysis models to provide alternative views of the requirements
- Using prototypes to clarify and refine user needs
- Using peer reviews to find requirements errors
- Precisely defining quality attributes and other nonfunctional requirements
- Managing changes to requirements
- Tracking requirements status throughout the project
- Using a requirements traceability matrix to connect requirements to design elements, code, and tests

Objectives: On completion of this seminar, the student will be able to:

- Recognize and classify different types of requirements information
- Name many “good practices” for requirements elicitation, analysis, specification, validation, and management
- Apply the use case technique for eliciting user requirements
- Select appropriate techniques for representing requirements on your projects
- Critically evaluate requirements statements for ambiguity and other problems
- Write clear, unambiguous, and actionable requirements

Audience: This seminar will be useful to requirements and business analysts, project and product managers, user representatives, developers, marketers, and testers.

Components: 17 course modules
250 slides
10 hours of audio presentation
22 practice sessions
15 quizzes
12 magazine articles
numerous templates, work aids, and examples

Outline: eLearning Seminar “In Search of Excellent Requirements”

Module 1: Introduction to Requirements Engineering (56 minutes)

- A. Define “software requirement”
- B. Describe three levels of software requirements: business, user, and functional
- C. Describe characteristics of high-quality requirements
- D. Subdisciplines of requirements engineering
- E. Practice session: Identify requirements problems in the student’s projects
- F. Quiz

Module 2: Requirements Development Process (28 minutes)

- A. A requirements development process framework
- B. Requirements on outsourced, maintenance, COTS, and emergent projects
- C. The role, responsibilities, and skills of the requirements analyst
- D. Quiz

Module 3: Customer Involvement (18 minutes)

- A. The customer-development partnership
- B. What about sign-off?
- C. Quiz

Module 4: Business Requirements (26 minutes)

- A. The vision and scope document
- B. Project priorities: features, quality, staff, budget, and schedule
- C. Practice session: Writing a vision statement
- D. The context diagram
- E. Practice session: Drawing a context diagram
- F. Quiz

Module 5: Requirements Elicitation (70 minutes)

- A. Sources of software requirements
- B. Classifying requirements into categories
- C. Practice session: Classifying requirements
- D. User classes
- E. Customer involvement: the product champion model
- F. Facilitating requirements elicitation workshops
- G. Resolving requirements conflicts
- H. Quiz

Module 6: User Requirements (64 minutes)

- A. Developing user requirements through use cases
- B. Use-case diagrams
- C. Case study of a use-case elicitation workshop
- D. Use case document template
- E. Reviewing use cases
- F. Practice session: Describing a use case for a sample project
- G. Using event-response tables to represent user requirements
- H. Quiz

Module 7: Business Rules (18 minutes)

- A. Examples of different types of business rules
- B. Writing atomic business rules
- C. Practice session: Writing business rules
- D. Quiz

Module 8: Requirements Specification (62 minutes)

- A. The software requirements specification (SRS) template
- B. Requirements management tools
- C. Practice session: Reviewing a portion of an SRS
- D. Guidelines for writing high-quality requirements
- E. Practice session: Examining functional requirements for problems and rewriting them
- F. Quiz

Module 9: Quality Attributes (24 minutes)

- A. Software quality attributes
- B. Specifying quality attributes precisely with Planguage
- C. Design and implementation constraints
- D. Practice session: Writing quality attributes
- E. Quiz

Module 10: Requirements Prioritization (18 minutes)

- A. A requirements prioritization scale
- B. A spreadsheet tool for prioritizing requirements

Module 11: Requirements Analysis and Modeling (57 minutes)

- A. Using analysis models to represent requirements graphically
- B. Modeling user interfaces with dialog maps
- C. Practice session: Drawing a dialog map from use cases
- D. Requirements analysis and finding missing requirements
- E. Quiz

Module 12: Prototyping (14 minutes)

- A. Reducing the expectation gap through prototyping
- B. Horizontal and vertical prototypes
- C. Throwaway and evolutionary prototypes
- D. Quiz

Module 13: Requirements Validation (19 minutes)

- A. The V-model for software development
- B. Requirements validation techniques
- C. Peer reviews and inspections
- D. Moving from requirements to design, testing, and project management

Module 14: Requirements Management Principles (25 minutes)

- A. Requirements management goals and practices, from the Capability Maturity Model (CMM)
- B. Requirements metrics
- C. Quiz

Module 15: Requirements Management Practices (56 minutes)

- A. Version management
- B. Change management
- C. Requirements change impact analysis
- D. Requirements attributes
- E. Tracking requirements status
- F. Requirements traceability
- G. Requirements and risk management
- H. Practice session: Risks on the student's project
- I. Quiz

Module 16: Process Improvement (48 minutes)

- A. Intent and structure of the CMM
- B. Requirements and the CMM
- C. Some process improvement principles
- D. Practice session: Barriers to process improvement
- E. The learning curve
- F. The process improvement change cycle
- G. Practice session: Designing a requirements change control process
- H. Practice session: Selecting solutions to the requirements problems identified in Module 1
- I. Quiz

Module 17: Summary (13 minutes)

- A. Summaries of good practices for requirements development and requirements management
- B. Requirements traps to avoid
- C. Practice session: Writing a requirements process improvement action plan