



Course 305: Software Configuration Management (3 days)

Course Description...

In the fast-paced world of information technology, where new application software is written and modified daily, organizations that place a premium on quality recognize the need to control changes to evolving software. This course addresses the primary mechanism for obtaining and maintaining quality in delivery of work products: software configuration management.

Learning Objectives...

- Understand the basic principles and purposes of Software Configuration Management (SCM).
- Assess various approaches to SCM.
- Explore the process of SCM from change control to release management.

Who should attend...

This course is suited for software practitioners, project managers, software engineering process designers, and quality assurance and configuration management professionals.

Prerequisites...

No specific prerequisites are assumed. Familiarity with information system concepts is recommended.

See next page for a detailed course outline...



Course Outline...

Introduction and Overview

Course Objectives

Unit 1: Foundations of Software Configuration Management (SCM)

- Definition of configuration management
- Differences between hardware and software CM
- SCM in CMMI, ISO, IEEE, and other standards
- How different software development paradigms impact SCM planning and practice
- Relationship of SCM to other project disciplines
- Using SCM to maintain product integrity and quality

Unit 2: Principles of Software Configuration Identification

- Justification and purpose
- CMMI guidelines for the identification function
- Software work products
 - What to manage
 - Levels of management
- The role of naming standards
- COTS, licenses, royalties, and data rights
- Key role of requirements management in SCM
- Project management's role and responsibilities
- Baselines

Workshop: Identifying Configuration Items

Unit 3: Principles of Configuration Change Management

- Justification and purpose
- CMMI guidelines for software change control/management
- How change management relates to configuration identification
- Versions, revisions, variants, and branches
- How to control baselines
- How to integrate subcontractors and vendors
- Establishing a change control authority
 - Models for Configuration Control Boards
 - Models for effective corrective action processes
- Controlling changes to interfaces
 - Role of the interface control working group

Workshop: Setting up a software change management process



Unit 4: Principles of Configuration Status Accounting (CSA)

- Justification and purpose
- CMMI guidelines for software CSA
- Performing software CSA
- Using software CSA in baseline management
- How to provide CSA data
- Handling releases
- Relationship with subcontractor or vendor CSA
- Dealing with proprietary issues
- Creating release notes and version description documents

Workshop: Effective CSA methods

Unit 5: Principles of Configuration Audits

- Justification and purpose
- CMMI guidelines for configuration audits
- Methodologies and techniques
- Differences between functional and physical configuration audit
- Reporting results to stakeholders
- scheduled and unscheduled reviews and audits
- Auditing subcontractors and vendors
- Managing deviations and waivers
- Proprietary issues – dealing with non-disclosure agreements
- Creating SCM work products

Unit 6: Developing an Effective SCM Plan (SCMP)

- CMMI guidelines for developing the SCM plan
- SCM plan structure
- Dovetailed with project management
 - Laying the foundations for success
 - Defining project objectives
 - Structuring the project
 - Estimating time and resources
 - Scheduling the project
 - Finalizing the plan
 - Running SCM on the project
- Example work breakdown structure for SCM

Workshop: Tailoring the SCM plan



Unit 7: Principles for Effective Measurements and Metrics

- CMMI Guidelines for Measurements and Metrics
- Identifying What to Measure and How to Measure It
- Matching SCM Customers to Metrics
- Defining the Different Types of Metrics and Reports
- Determining the Reporting and Metric Frequency
- Another Round of Dealing with Proprietary Data Issues
- Using Measurements to Improve the Software CM Process

Workshop: Selecting the Best Measures/Metrics

Unit 8: Using Effective SCM to Improve Software Development

- Customer Relationship Management
- Release and Distribution Management
- Performing Impact Analysis
- Controlling Cost
- Staying on Schedule and Avoiding Scope Creep
- Return on Investment
- Cost of Ownership
- Cost of Quality

Unit 9: The Bottom Line

Ideas to use

Where to go for more information

Please contact your ROI representative to discuss course tailoring!!!