

Software Configuration Management Training Course Offered by The Westfall Team

Software Configuration Management is a 2-day course designed to provide a comprehensive knowledge base and practical skills for anyone interested in implementing or improving Software Configuration Management (SCM) techniques and practices in their organization. This course starts with an overview of SCM basics, including definitions, a discussion of the benefits of SCM and an overview of the management of the SCM at the organizational level and the project/program level.

In this course, attendees will learn about the different types of software configuration libraries and how they are used to balance the needs for both flexibility and stability in the software development process. There will be a discussion of SCM tools, including guidelines for evaluating and selecting the right SCM tools for your organization.

Attendees will learn to identify software configuration items and baselines, including methods for assigning unique identifiers to versions and revisions of different types of items and baselines. Attendees will explore the use of different levels of configuration control and the roll of Configuration Control Boards (CCBs), including performing impact analysis on proposed changes.

Attendees will learn about the types of questions that a good configuration status accounting system should be able to answer. This course provides an overview of how to conduct functional configuration audits, physical configuration audits and in-process SCM audits. It also discusses aspects of software release management.

Method of Instruction: This course is taught through lecture and interactive discussion. Actual examples from the software industry are utilized to make the information relevant. Throughout this course, learned skills are practiced using exercises. The emphasis of this course is on techniques that allow the attendees to transition the skills learned in this course to their own work environments.

Target Audience: Configuration management specialists, software developers, testers, software quality engineers, project managers, functional managers, and other stakeholders who will be involved in identifying and baselining software configuration items, controlling change to those items, participating in change control boards, conducting software configuration audits, and building and releasing software products.

Course Objectives: Upon successful completion of this course you will be able to:

- Understand the basics of software configuration management
- Establish a configuration management infrastructure, including libraries and tools

- Implement configuration identification
- Control change to your configuration items and baselines
- Report configuration status and conduct configuration audits
- Manage your software releases

Detailed Outline:

I: Software Configuration Management – The Basics

1. Software Configuration Management Defined
 - Configuration Management Defined
 - Software Configuration Management (SCM)
 - Software Configuration Management Activities
 - Software Configuration Management Responsibilities
2. Benefits of SCM
 - Software is Complex
 - Changes are Inevitable
 - Lack of Good Software Configuration Management Practices
 - Benefits of Software Configuration Management
 - Software Configuration Management Balance
 - SCM Throughout the Product's Life Cycle
3. Management of the SCM Function - Organization Level SCM Management
 - Process Documentation Hierarchy
 - SCM Guidance from Industry Standards
 - SEI SW-CMM® & SEI CMMISM Staged
 - SEI CMMISM Specific Goals & Practices
 - SEI CMMISM Generic Goals & Practices
 - IEEE Standards
 - ISO 9000:2000
 - Other Standards
 - SCM Policies
 - Standard SCM Processes
 - Process Documentation – Example
 - Standard SCM Work Instructions
 - Work Instruction – Examples
 - More Organization Level SCM Management
4. Management of the SCM Function - Program/Project Level SCM Management
 - Software Configuration Management Plans
 - More Program/Project SCM Management
 - Program/Project Level SCM Processes
 - Even More Program/Project SCM Management

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II: Software Configuration Management Infrastructure

1. Software Configuration Management Libraries
 - Library Functions
 - SCM Library Types
 - Dynamic Libraries
 - Controlled Library
 - SCM Library Procedures – Creating a New Work Product
 - SCM Library Procedures – Creating a Software Build
 - SCM Library Procedures – Testing a Build
 - SCM Library Procedures – Modifying a Controlled Work Product
 - Static Library
 - SCM Library Procedures – Releasing a Build
 - Backup Library
 - SCM Library Procedures – Backup
2. Software Configuration Management Tools
 - Types of Software Configuration Management Tools
 - Tool Evaluation & Selection Process
 - SCM Tool Requirements
 - Evaluation Criteria Checklist – Example

III: Software Configuration Identification

1. Configuration Items
 - What is Configuration Identification?
 - What Are Configuration Items?
 - External Deliverables
 - Internal Work Products & Data
 - Support Tools
 - Software System Decomposition
 - Related Entities
 - Factors that Guide Software Product Partitioning
 - Software Product Partitioning Issues
 - Configuration Item Acquisition
 - Configuration Item Acquisition – Exercise
2. Baselines
 - Baselines Defined
 - Types of Baselines
 - Functional Baseline
 - Allocated Baselines
 - Developmental Baselines
 - Product Baseline
3. Configuration Identification Methods
 - Unique Identifiers
 - Version, Releases & Revisions

- Configuration Unit Identification Scheme - Example
- Build Identification Scheme – Example
- Document Identification Scheme – Example

4. Identifying Interfaces

- Interfaces
- Interface Identification & Control Activities
- Hardware Dependencies
- Software Dependencies

IV: Software Configuration Control

1. Software Configuration Control
 - Three Levels of Control
 - Software Configuration Control
 - Software Configuration Control Procedures
 - Configuration Control at the Change Level
 - Configuration Control at the Document Level
 - Trade-Offs in Configuration Control
 - Configuration Control – Exercise
2. Configuration Control Boards
 - Why Configuration Control Boards (CCB)?
 - Multiple Levels of CCBs
 - CCB Membership
 - Again – Consider the Trade-Offs
 - CCB Processes - Configuration Control at the Change Level
 - CCB Processes - Configuration Control at the Document Level
 - Impact Analysis
 - Traceability
 - Impact Analysis - Exercise
3. Version Control
 - Version Control
 - Supporting Multiple Version
 - Freezing Baselines
 - Freezing Through Branching
 - Ongoing Development & Maintenance
4. Control of Quality Records

V: Status Accounting & Configuration Audits

1. Software Configuration Status Accounting
 - Status Accounting
 - Status Reporting
 - Change Requests
2. Software Configuration Audits
 - a. Software Configuration Audit
 - Audit Defined
 - Functional Configuration Audits
 - Physical Configuration Audits

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- b. In-Process Configuration Management Audit
 - In-Process Audit Objectives
 - Audit Process Steps
 - Document Review Purpose
 - Checklists
 - Standard Checklist Items
 - Interview Questions
 - Open-Ended Questions
 - Context Free Questions
 - Audit Execution Process
 - Objective Evidence
 - Classifying Findings
 - Corrective Action
- c. Reproducible & Repeatable Builds
- d. Packaging
- e. Patching Defined
- f. Patching Issues
- g. What Gets Produced & Delivered
- h. Delivery Vehicles
- i. Production
- j. Retirement

VI: Software Release Management

- 1. Software Release Management
 - a. Feature vs. Corrective Releases
 - b. Software Builds

Customized Configuration Management

Courses: Our configuration management courses are modularized so that they can be easily customized for in-house course offerings that focus on the specific content and topics needed to meet your organization's exact training requirements. For in-house courses, class exercises can also be tailored to include actual examples from your organization in order to make the training even more relevant to your environment.

For more information about these and other course offered by The Westfall Team:

Visit our website at: www.westfallteam.com

Send an email to: lwestfall@westfallteam.com

Or call: 972-867-1172

