

## Software Quality Assurance: Delivering Consistent Quality - 4 Days

### *Course 312 Overview*

- You Will Learn How To**
- Implement and effectively lead Software Quality Assurance (SQA) activities
  - Improve customer satisfaction through quality and process initiatives
  - Analyze information through static and dynamic techniques including walkthroughs and inspections
  - Conduct audits by following a defined process
  - Control critical components using Configuration Management (CM)
  - Champion a continuous process improvement program in your organization
- Course Benefits** Systems that fail to provide adequate functionality can reduce profit, productivity and result in costly rework. Implementing and monitoring process improvement and quality initiatives can lead to cost-effective systems. This course provides the necessary skills to define, design, implement and monitor a software quality system using proven techniques that can be tailored for your organization. You also gain the skills to audit work products throughout the product life cycle.
- Who Should Attend** Software professionals, project managers, business analysts, quality analysts and others involved with developing, testing or improving the development and production of systems.
- Workshop Course** You apply proven software quality assurance techniques in a series of workshops, including:
- Discovering software quality problems
  - Applying life cycle models
  - Determining the appropriate project standards
  - Conducting walkthroughs and audits
  - Identifying configuration items
  - Designing metrics for your project
  - Comparing best practices and standards
  - Implementing process improvements

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### Course 312 Outline

#### Introduction to Software Quality Assurance

- Contrasting roles: Software Quality Assurance, Testing, Verification and Validation
- Comparing software development life cycles
- Documenting processes
- Defining the goals of Software Quality Assurance

#### Software Quality Assurance Components

##### Analyzing the components of Quality

- Creating processes
- Choosing the best practices and implementing process improvement initiatives

##### Implementing a road map

- IEEE
- CMMI
- ISO 9001
- Selecting and documenting standards
- Conducting training
- Participating in reviews and audits
- Maintaining records

#### Planning for Software Quality Assurance

##### Applying verification and validation techniques for error detection

- Evaluating verification and validation techniques
- Analyzing life cycle products
- Implementing walkthroughs
- Exploring testing techniques

##### Detecting defects while applying inspection techniques

- Defining the inspection process
- Planning and conducting an inspection
- Communicating inspection results

#### Conducting Audits

##### The types of audits

- Comparing process, product, project, quality-system and configuration audits
- Documenting audit findings in a report

##### Comparing industry standards

- Complying with industry standards and models: ISO 9001 and CMMI
- Comparing the work products against industry best practices

##### Verifying product configuration using configuration audits

- Demonstrating the product satisfies the requirements
- Ensuring the as-built product complies with the documentation

##### Improving productivity using in-process audits

- Assessing internal processes for compliance
- Analyzing processes and procedures used during development

##### Initiating the auditing process

- Planning and preparing for the audit
- Reporting the results
- Monitoring noncompliance

#### Applying Configuration Management (CM)

##### Defining the components of a CM system

- Identifying the workflow and work products
- Managing and controlling products for consistency
- Assessing and managing components with release management
- Communicating product status using reports

##### Ensuring quality by controlling CM components

- Verifying software and hardware components
- Maintaining test data for regression tests
- Tracking change requests

##### Participating in an SQA and CM audit

- Reviewing documentation against a standard
- Interviewing quality and configuration management personnel
- Documenting and confirming audit findings
- Presenting audit findings

#### Continuous Process Improvement Fostering learning through process improvement

- Defining and implementing process improvement
- Planning process improvement initiatives

#### Achieving excellence through metrics

- Selecting and analyzing metrics
- Analyzing data through root cause analysis
- Communicating organizational progress

#### Coordinating the next steps

- Implementing corrective actions
- Focusing on prevention techniques