

**Quality is never an accident. It is the result of intelligent effort.**

### **Certified Software Quality Assurance Professional**

#### **Objective:**

To create an awareness of Software Quality Assurance & to help participants understand the implementation requirements of Quality management principles. CSQA certification indicates attainment of proficiency in the information technology (IT) Quality Assurance profession. It represents in-depth knowledge in principles and practices of QA in IT profession. CSQA certification is an internationally recognized professional qualification. Becoming a CSQA professional is a mark of credibility and expertise in the field of Software Quality.

#### **Who should attend ?**

- Quality/Testing Professionals
- Quality Managers
- Software Professionals with 2+ yrs of experience  
(Project Managers, Project Leaders, Test Leaders)

#### **Course Contents:**

##### **Knowledge domain1: Quality Principles**

###### Introduction to Software Quality Management Principles

- Definitions of Quality
  - Quality Vocabulary
  - Producer's view
  - Customers view
- Quality Concepts
  - PDCA cycle
  - Cost of Quality
  - Best Practices
- Software Quality Assurance & Quality Control
  - Quality Control
  - Quality Assurance
  - Difference between Quality control and Quality Assurance
- Quality Pioneers
  - Dr. Deming
  - Philip Crosby
  - Dr. Juran

##### **Knowledge domain2: Quality Management and Leadership**

- Management Commitment
  - Executive and middle management commitment

- Quality Champion
- New behaviours for management
- Quality Management Infrastructure
  - Types of Quality groups
- Quality management Techniques and Approaches
  - Various techniques and approaches including “just-in-time”, “FIRO” etc.
  - Mission, Vision, Goals, Values and a Quality Policy
- Quality Environment
  - The six attributes of an effective Quality environment
  - Code of ethics and conduct
  - Open communications

### **Knowledge domain3: Quality Baselines**

- Quality baselines
  - Types of baselines
  - Baseline studies
- Methods used for establishing baselines
  - Different types of methods for baselining
- Model and assessment fundamentals
  - Purpose of Model
  - Model Selection Process
  - Using Models for Assessment and Baselines
- Industry Quality Models
  - CMMI
  - Malcolm Baldrige National Quality Award
  - ISO 9001:2000
  - ISO/IEC 12207
  - ISO/IEC TR 15504

### **Knowledge domain4: Quality Assurance**

- Establishing a Quality Function
  - Challenges, importance and implementation of quality function
  - Quality Function Maturity
- Quality Plan
  - Contents
  - Long term / short term actions
- Quality Tools
  - Workbench for selecting and using tools
  - Tools for ideas and information
  - QFD
  - Tools for numbers
  - Tools for presentation
- Process deployment
  - Getting buy-in
  - Three deployment phases
- Internal auditing and quality assurance
  - Types of audits
  - Roles and responsibilities
- SQA role

### **Knowledge domain5: Quality Planning**

- Planning Concepts
  - Definitions of planning cycles
- Integrating Business and Quality planning
  - Importance of single planning activity
- Prerequisites to Quality planning
- The planning process
  - Basic planning concepts
  - Common activities in planning process
- Planning to mature IT work processes
  - Approach and planning to implement process Maturity

### **Knowledge domain6: Define, Build, Implement and Improve Work Processes**

- Process management concepts
  - Need for a process
  - Process workbench
  - Process components
  - Business control model
  - Process management
- Process Management Process
  - Planning processes
  - Do processes
  - Check process
  - Act process

### **Knowledge domain7: Quality Control Practices**

- Testing concepts
  - Tester's workbench
  - Test stages
  - Types of testing
  - Test objectives
- Reviews and Inspections
- Verification and validation techniques
  - Types
  - Structural and functional testing
- Developing testing methodologies
- Software change control
  - Configuration management
  - Change control process
- Defect management
  - Process
  - Defect reporting
  - Process improvement using defect tracking

### **Knowledge domain8: Metrics and measurement**

- Measurement concepts
  - Standard unit of measure
  - Metrics
  - Measurement types (subjective and objective)
  - Measurement data types
  - Quantitative management in a IT Quality function
- Measurement in Software development

- Current state
- Product measurement
- Process measurement
- Variation and process capability
  - Variation concept
  - Variation and process improvement
  - Process capability
- Risk Management
  - Defining and characterizing risks
  - Identification to resolution of risks
  - Software risk management
- Implementing measurement program
  - Need for measurement
  - Pre-requisites
  - Four uses of measurement
  - Installing measurement program

### **Knowledge domain9: Internal Control and security**

- Principles and concepts of internal control
  - Internal control and security concepts
  - Types of controls
- Risk and internal control models
  - ERM Model
  - CobiT Model
- Building internal control
- Building adequate security
  - Security base lining, awareness and security concepts

### **Knowledge domain 10: Outsourcing, COTS and Contracting Quality**

- Quality and outside software
- Selecting COTS software
  - Analysis of requirements based on completeness, critical success factor
  - Assure integration of business work flow with the software
  - Implementation
  - Acceptance testing
- Selecting software developed by outside organizations
  - Selection criteria definition
  - SDLC for contracted software
- Contracting for software developed by outside organizations
- Operating for software developed by outside organizations

### **Practical Approach**

- Management Bye-In
- Customer expectations
- Analysing and monitoring the system
  - Identifying gaps Vis-à-vis Standards/models
  - Review current system
  - Quality policy and Quality Objectives: Linkages and control
- Quality management system
  - Identify scope of QMS
  - Review and monitor the Processes/procedures
  - Improve the organizational process assets Formats/Standards

- Measurement Program-definition, collection and computation of metrics
- Collecting measurements, Usage of SQC techniques
- SQA reviews and audits
- Implement and monitor to access the results against expected outcomes
- Repeat IQA /SQA cycles , measurement program and other activities
- Continuous improvement

**Methodology:**

60%: Theory coverage as per CBOK  
40%: Practice sessions

**Duration:**

One and a Half Months  
Every Saturday: 6hrs

**Course Highlights:**

1. All faculties are CSQA/CSTE certified professional with experience in Process consultancy and Software testing.
2. Sample test at the end of each session based on CSQA examination method and covering CBOK domain knowledge.
3. Mock Test based on total syllabus of CSQA exams.
4. Case study discussion and experience sharing by CSQA's and Quality professionals.