Build-Training Week Training Week Pair two courses in the same location an save up to \$300! See page 4 for details. Accelerate Your Career & Empower Your Team SOFTWARE TESTING TRAINING

### NEW FALL 2008 SCHEDULE

#### **TEST ENGINEERING**

Lean-Agile Testing Practices Systematic Software Testing Mastering Test Design Software Testing Certification Just-in-Time Software Testing Performance, Load, and Stress Testing

### **TEST MANAGEMENT**

**Test Management** 

**Test Process Improvement** 

Visual Studio<sup>®</sup> Team System Training

... and Many More Courses Inside



Public Training On-site Training eLearning Consulting



Relevant, Up-to-Date Content

**Small Classroom Workshop Environment** 

Best Practices

**World-Class Expert Instructors** 

Project Management R.E.P. Institute



# CHOOSE THE BEST LEARNING OPTION FOR YOU AND YOUR TEAM

### Public Training Courses

We provide the widest selection of specialized training courses—and we're expanding our selection all the time. Developed by top industry consultants, all courses are based on the latest industry practices and updated regularly to reflect current technologies, trends, and issues. Industry experts teach all SQE Training courses. We enhance your experience with expert instruction, content tailored to students' needs, and group discussions. We offer you the best training value in the software industry.

# 0 On-site Training

Looking for ways to save training and travel dollars? Take advantage of the cost-effective convenience of on-site training. To provide your team the training they need without sacrificing project schedules or incurring travel time and expenses, bring our training to your facility.

# eLearning

The perfect solution for software professionals with travel and time constraints, eLearning offers classroom value with the convenience of self-paced instruction on the Web.

### Free Seminar

Attend a free seminar on Risk-Based Testing at Training Week locations. Learn a few principles of modern testing including the importance of using risk analysis to prioritize tests and to formulate contingency plans.

## Certification Training

Attend internationally recognized certification training presented by industry experts. Our accredited training courses help prepare you for ISTQB™ certifications.

### Training Week

Maximize the impact of your training by combining courses in the same location to create a customized training week. Look for this warked on Training Week courses. Pair two and save up to \$300!

For more information about SQE Training's courses and management consulting services, please visit www.sqetraining.com.

### **On-site Training**

**Looking for ways to save training and travel dollars?** Take advantage of the cost-effective convenience of on-site training to get your team the training they need without requiring them to sacrifice project schedules or incur travel time and expense. Our on-site training offers many benefits:

- Save time and money—Bring team training to your location.
- Manageable workloads—Schedule training around your projects, not the other way around.
- Customizable content—Offer your team a training curriculum that adheres to your corporate goals, technology environment, and business needs.
- Consulting services—Learn from instructors who are world-class consultants with exceptional qualifications and a broad range of realworld experience. Augment your training programs with SQE Training's consulting services.
- Small groups—Benefit from focused training that offers your team members individual attention with plenty of time for questions. Class sizes can range from 6–25 people.
- Employee development—Develop the talent already on your team, increase employee satisfaction—and save company dollars.

If you have six or more people to train, consider the advantages of on-site instruction.

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# WHO'S BEHIND THE TRAINING?





**SQE Training** provides the widest selection of specialized software training courses available. Developed and taught by top industry consultants, all courses are based on the latest industry practices and updated regularly to reflect current technologies, trends, and issues. Find the training you need for software testing, development, management, requirements, and security. **www.sqetraining.com** 

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Email: sqeinfo@sqe.com

# Ways to Save

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Bring any course to your location for team training. Take advantage of this cost-effective convenience for your team of six or more. For a free quote, contact us at onsitetraining@sqe.com or 888.268.8770 or 904.278.0524. See page 6 for more details.



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# TRAINING CURRICULUM

PUBLIC 🕖 ON-SITE 🔘 eLEARNING F SEMINAR 🚺 CERTIFICATION

NEW

TRAINING WEEK TW

Learn the latest skills and techniques through SQE Training's courses delivered in a high-powered workshop setting. Plan your training curriculum and improve your whole team. Various learning options allow you to take each course in the method that works best for you.

#### **TEST ENGINEERING**

PAGE

5	🕞 📼 Risk-Based Testing
8	🛿 🚺 🔤 Systematic Software Testing
9	P 🛛 🐵 🏧 Mastering Test Design 💷
10	🛿 🕖 🛱 📼 Software Testing Certification—Foundation Level
11	P 0 Ecan-Agile Testing Practices NEW
12	10 Just-in-Time Software Testing NEW
13	P 0 Software Security Testing and Quality Assurance
14	P 0 Writing Testable Requirements
15	P 0 Requirements-Based Testing
16	Performance, Load, and Stress Testing
17	P 0 Exploratory Testing in Practice NEW
21	eMastering Test Design

#### TEST MANAGEMENT

- Test Management 18 P 0
- 19 Test Process Improvement P 0

#### VISUAL STUDIO® TEAM SYSTEM TRAINING

- Wisual Studio<sup>®</sup> 2008 Team Foundation Server 20 P 0
- Testing Applications with Visual Studio<sup>®</sup> Team System 2008 20 P 0



SQE Training has been reviewed and approved as a Registered Education Provider by the Project Management Institute.

# What Our Students are Saying ...

"The best applied knowledge course I've ever taken. I had a wonderful learning experience; the instructor was fun and lively; and the course allowed me to be certified. What more can I say but FANTASTIC."

Matthew O'Rourke, Sr. Project Manager MPA Associates On "Software Testing Certification"

"Clearly, we were very pleased with this course and felt lucky to have gotten the guy who literally 'wrote the book' on the subject. Kudos to Rick Craig. His unique combination of experience, expertise and personality really helped turn this potentially dry subject matter into a relevant and engaging training experience. We hope to get him back again for more training. Thanks SQE."

Ron Graham, Director of U.S. Dept. of Health and Human Services On "Systematic Software Testing"

"This course provided me with a solid understanding of the concepts of testing as well as when and how to apply them. Its explanation of orthogonal arrays and McCabe complexity matrix was especially helpful. I recommend this course for new and veteran testers. The sections on requirements, system testing, and basis paths would be very helpful for developers as well."

Becki Bloch, Test Engineer Alliance Data Systems On "eMastering Test Design"

"This class and instructor have been the only one who has succeeded in: showing the material with interest; keeping the group interested; not reading his PowerPoint presentation word for word. Dale Perry seemed very knowledgeable in this field and material. Thank you for doing such a great job!"

Rita Webb, Software Quality Analyst Catalina Marketing Corporation On "Software Testing Certification"

# **BUILD-YOUR-OWN TESTING TRAINING WEEK**

FALL	2008	
SCHE	DULE	

#### TESTING

September 8–12, 2008 New York/New Jersey Area

September 15–19, 2008 Washington, DC

October 20–24, 2008 San Francisco, CA

**November 17–21, 2008** *Tampa, FL* 

MICROSOFT<sup>®</sup> VISUAL STUDIO<sup>®</sup> TEAM SYSTEM TRAINING

September 22–25, 2008 Chicago, IL

October 13–16, 2008 Washington, DC BUILD-YOUR-OWN

Maximize the impact of your training by combining courses in the same location to create a customized training week.

Pair any of these courses in the same location to build a week of training and save up to \$300.

THURSDAY

#### TESTING

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
S	Systematic Software Testing	5	Mastering 1	est Design
Software Te	esting Certification—Found	ation Level	Lean-Agile Tes	ting Practices
W	riting Testable Requirement	S	Software Security Testin	g and Quality Assurance
Just-in-Time Software Testing		Requirements-	Based Testing	
Test Management		Performance, Load,	and Stress Testing	
			Exploratory Tes	ting in Practice
			Test Process Improvement	

#### **MICROSOFT VISUAL STUDIO® TEAM SYSTEM TRAINING**

 MONDAY
 TUESDAY

 Visual Studio® 2008 Team Foundation Server

Testing Applications with Visual Studio® Team System 2008

## LEARNING PATHS

Are you looking to build your current skill set or become more specialized? Create a training program to fit your career path. For more information on any of these courses, visit www.sqetraining.com or contact us at 888.268.8770 or 904.278.0524.

WEDNESDAY

	FUNDAMENTALS	SPECIALIZED			
	Systematic Software Testing 3 days Mastering Test Design 2 days Although Indian	Lean-Agile Testing Practices 2 daysJust-in-Time Software Testing 3 daysPerformance, Load, and Stress Testing 2 days			
Test Engineer	Software Testing Certification— Foundation Level 3 days ISTQB <sup>TM</sup> Certified Tester Foundation Level	Writing Testable Requirements 3 daysRequirements-Based Testing 2 daysSoftware Security Testing and Quality Assurance 2 daysExploratory Testing in Practice 2 daysTesting Applications with Visual Studio® Team System 2008 2 daysSoftware Security Testing and Quality Assurance 2 days			
Test Manager	<b>Test Management</b> 3 days	Test Process Improvement 1 dayLean-Agile Testing Practices 			

# TRAINING LOCATIONS

We're bringing our training to you! For questions regarding course registration and schedules, please call our Client Support Group at 888.268.8770 or 904.278.0524.

ARIZONA		
December 2–4, 2008	Phoenix	Software Testing Certification
CALIFORNIA		
September 28–30, 2008 October 21–23, 2008 October 20–22, 2008 October 20–22, 2008 October 20–22, 2008 October 20–22, 2008 October 23–24, 2008 October 23, 2008 November 18–20, 2008	Anaheim Sacramento San Francisco San Francisco	Software Testing Certification Software Testing Certification Software Testing Certification Systematic Software Testing Writing Testable Requirements Just-in-Time Software Testing Test Management Mastering Test Design Lean-Agile Testing Practices Software Security Testing and Q Requirements-Based Testing Performance, Load, and Stress Exploratory Testing in Practice Free Seminar—Risk-Based Test Software Testing Certification
FLORIDA		
October 7–9, 2008 November 4–6, 2008 November 17–19, 2008 November 17–19, 2008 November 17–19, 2008 November 17–19, 2008	Jacksonville Ft. Lauderdale Tampa Tampa Tampa Tampa	Software Testing Certification Software Testing Certification Software Testing Certification Systematic Software Testing Writing Testable Requirements Justin-Time Software Testing
November 17–19, 2008 November 20–21, 2008 November 20–21, 2008	Tampa Tampa Tampa	Test Management Mastering Test Design Lean-Agile Testing Practices

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October 7–9, 2008	Jacksonville	Software Testing Certification
November 4-6, 2008	Ft. Lauderdale	Software Testing Certification
November 17–19, 2008	Tampa	Software Testing Certification
November 17–19, 2008	Tampa	Systematic Software Testing
November 17–19, 2008	Tampa	Writing Testable Requirements
November 17–19, 2008	Tampa	Just-in-Time Software Testing
November 17–19, 2008	Tampa	Test Management
November 20–21, 2008	Tampa	Mastering Test Design
November 20–21, 2008	Tampa	Lean-Agile Testing Practices
November 20–21, 2008	Tampa	Requirements-Based Testing
November 20–21, 2008	Tampa	Performance, Load, and Stress Testing
November 20–21, 2008	Tampa	Exploratory Testing in Practice
November 20, 2008	Tampa	Test Process Improvement
November 21, 2008	Tampa	Free Seminar—Risk-Based Testing

#### GEORGIA

September 23–25, 2008	Atlanta	Software Testing Certification
ILLINOIS		
September 22–23, 2008 September 24–25, 2008	Chicago Chicago	Visual Studio <sup>®</sup> 2008 Team Foundation Server Testing Applications with Visual Studio <sup>®</sup> Team System 2008
INDIANA		
Sept. 30-Oct. 2, 2008	Indianapolis	Software Testing Certification
MARYLAND		
November 4–6, 2008	Bethesda	Software Testing Certification

August 26–28, 2008	Boston	Software Testing Certification
	Doston	
MINNESOTA		
September 9–11, 2008	Minneapolis	Software Testing Certification
MISSOURI		
October 14-16, 2008	Kansas City	Software Testing Certification
NEBRASKA		
October 28–30, 2008	Omaha	Software Testing Certification
NEW YORK		
September 8–10, 2008 September 8–10, 2008 September 11–12, 2008 September 11–12, 2008 October 14–16, 2008	New York/NJ Ard New York/NJ Ard New York/NJ Ard New York/NJ Ard Rochester	ea Systematic Software Testing ea Lean-Agile Testing Practices
NORTH CAROLI	INA	
October 28-30, 2008	Charlotte	Software Testing Certification
оню		
October 28-30, 2008	Cincinnati	Software Testing Certification
ONTARIO		
October 7-9, 2008	Toronto	Software Testing Certification
PENNSYLVANI	<b>A</b>	
September 23–25, 2008 October 21–23, 2008	Philadelphia Pittsburgh	Software Testing Certification Software Testing Certification
UTAH		
September 9–11, 2008	Salt Lake City	Software Testing Certification
WASHINGTON,	DC	
September 15–17, 2008 September 15–17, 2008 September 15–17, 2008 September 15–17, 2008 September 15–17, 2008	Washington Washington Washington Washington Washington	Software Testing Certification Systematic Software Testing Writing Testable Requirements Just-in-Time Software Testing Test Management
September 18–19, 2008 September 18–19, 2008 September 18–19, 2008 September 18–19, 2008	Washington Washington Washington Washington	Mastering Test Design Lean-Agile Testing Practices Software Security Testing and Quality Assurance Requirements-Based Testing
September 18–19, 2008 September 18–19, 2008 September 18, 2008 October 13–14, 2008 October 15–16, 2008	Washington Washington Washington Washington	Performance, Load, and Stress Testing Exploratory Testing in Practice Free Seminar—Risk-Based Testing Visual Studio <sup>®</sup> 2008 Team Foundation Server Testing Applications with Visual Studio <sup>®</sup> Team System 2008

# **FREE SEMINAR!**

#### **RISK-BASED TESTING FOR** SOFTWARE MANAGERS

In the best of circumstances, it is impossible to comprehensively test a software product. When you add competitive schedules and tight budgets, software managers are faced with the daunting task of trying to decide what and how much to test. Often the software manager's pleas for more time and/or resources fall on deaf ears, because the software manager cannot adequately measure the effectiveness of the testing effort. While there are no easy answers to these problems, there are strategies that managers can use to address these issues.

In this short session, Rick Craig introduces a few of the principles of modern testing including the importance of using risk analysis to prioritize tests and to formulate contingency plans. He also demonstrates how to improve on normal requirements-based coverage models and explains a couple of useful metrics to measure test effectiveness.

Seminar Hours 9 a.m. - 11 a.m. Breakfast Included

Sept. 18, 2008 Washington, DC Oct. 23, 2008 San Francisco, CA Nov. 21, 2008 Tampa, FL

# **ON-SITE TRAINING**

Looking for ways to save training and travel dollars? Take advantage of the costeffective convenience of on-site training in a teambuilding atmosphere. If you have six or more people to train, consider the advantages of scheduling courses at your location. Employing an interactive workshop format, our worldclass consultants/instructors are able to address many of your organization's specific issues. In addition, we can customize the course delivery to meet your unique situation. All of the SOE Training courses listed in this brochure can be taught at your location. A complete list of on-site offerings is provided on pages 6 and 7. For more information on any course, please visit www.sqetraining.com/OnSite





For additional information or to receive a FREE quote, call 888.268.8770/ 904.278.0524, or email onsitetraining@sqe.com.

# Testing

**Software Testing Certification** *Certified Tester—Foundation Level Training* 

**Systematic Software Testing** A Risk-Based Approach for Producing Better Software

Mastering Test Design Techniques for Developing Focused Test Cases

**Creative Software Testing** Proven Testing Techniques for Fast-Paced Projects

**Performance, Load, and Stress Testing** *Issues and Solutions for Software Performance Testing* 

**Implementing a Test Automation Framework** Learn to Select and Implement the Right Test Automation Framework for Your Needs

**Requirements-Based Testing** A Disciplined Approach for Testing—and Improving—Software Requirements

**Technical Reviews and Inspections** Find More Defects in Less Time: A Hands-on Course

**Exploratory Testing in Practice** *Plan, Design and Execute Tests Simultaneously to Find More Bugs—Faster* 

Lean-Agile Testing Practices Rapid Delivery of High Quality Software

**Software Security Testing and Quality Assurance** *An Integrated, Risk-Based Approach to More Secure Software* 

Just-in-Time Software Testing Powerful Tools for Fast-Changing Projects and Priorities

Writing Testable Requirements Produce Better Requirements to Reduce Effort and Costs

# Development

**Scrum Master Implementation Workshop** Applying Lean-Agile Software Development Practices with Scrum

**User Stories and Estimation in Agile Development** *How to Write User Stories and Estimate Development Time* 

**Design Patterns Explained** Principles, Practices, and Qualities of Good Design

**Practical Test-Driven Development** A Revolutionary Approach to Software Design and Programming

# Management

#### **Managing Test Outsourcing**

A Proven Approach for Assessment, Implementation, Management, and Monitoring

Test Management What Every Test Manager Needs to Know

**Managing the Test Process** Practical Tools and Techniques for Managing Software Testing

Leading Successful Software Projects Essentials for Software Project Managers

Managing Software Risk How to Safeguard Your Software Projects

**Practicing Great Management** A Guide for Leading People and Projects to Success

Test Process Improvement Practical Guidelines for Small and Large Test Organizations

**Software Test Estimation** A Practical, Hands-on Course for Managers

# Security

**Software Security Fundamentals** Build and Deliver Bulletproof Software Applications

**Defensive Programming—Java EE** Secure Software Development and Avoiding Common Mistakes

**Defensive Programming—Core Java** Secure Software Development and Avoiding Common Mistakes

Architecture Risk Analysis Threat and Ambiguity Analysis Lead to More Secure Software

# Requirements

**Essential Software Requirements** Techniques and Practices for Successful Projects

**Mastering the Requirements Process** Ensure that You Build the System Your Customer Wants

**Requirements Modeling** Use Models to Improve Your Requirements Gathering and Systems Analysis

**Extending Requirements** Take Your Requirements to the Next Level

# Introduction to CMMI<sup>®</sup> Measurement

Introduction to the Capability Maturity Model Integration<sup>®</sup> (CMMI<sup>®</sup>) Practical Software Process Improvement with Staged and Continuous Approaches

**Business-Driven Software Measurement** Develop and Improve your Software Measures and Metrics

# Visual Studio<sup>®</sup> Team System Training

**Testing Applications with Visual Studio® Team System 2008** *Managing Lifecycle Testing* 

Visual Studio<sup>®</sup> 2008 Team Foundation Server Understanding and Administering Microsoft<sup>®</sup> Team Foundation Server

Foundations of Modern Testing

Testing as a formal process Testing within development lifecycles Testing as a part of quality assurance Importance of risk-based testing

#### STEP<sup>™</sup>—The Software Test and Evaluation Process

STEP architectural model Overview: phases, activities, roles STEP vs. common industry practices

#### **Test Planning**

Planning fundamentals Planning and risk management Master Test Plan-the IEEE 829 standard Regression testing methods and issues Test environments—issues and concerns Schedules, estimates, and budgets Acceptance, system, build/integration, and unit level test plans

#### **Test Analysis**

Identifying test objectives Creating the inventory of test objectives Determining the risk of each objective Software failure modes Estimating the testing effort based on risk Testing system modifications, new versions, and third-party software Analyzing requirements to develop test items

#### **Test Design and Implementation**

Creating an architecture for testing Designing test cases and test procedures Creating realistic test data Developing reusable "testware" Building the optimum test environment Inventory trace matrix and coverage

#### **Test Execution and Reporting**

Executing tests

Reporting and managing defects Performing root cause analysis Evaluating the product and the development process

Evaluating the tests and the testing process Choose appropriate "stopping" criteria

#### **Final Perspective**

Improving your testing process Guidelines for fostering change Course summary

# SYSTEMATIC SOFTWARE TESTING

# A Risk-Based Approach for Producing Better Software

- Develop effective testing plans and strategies, execute them efficiently, and measure your results
- Design "testware" that finds important bugs more quickly and with less effort
- Prevent software defects and failures by integrating testing into your development process
- Improve your software testing practices and the quality of your organization's software
- Explore a flexible, risk-based approach to testing for both small and large organizations



You will earn 22.5 contact hours or PDUs upon completion of this course.

# The Best Fundamental Course for Any Test Professional

Learn the techniques necessary to develop and maintain a systematic, integrated software testing approach for your organization. This course details an adaptable and repeatable approach to testing that results in significantly improved software quality. Better planning, analysis, design, and implementation of tests result in happier clients and developers.



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#### Take-Home Bonus

Each public course participant receives a copy of *Systematic Software Testing*. Order additional copies by visiting www.sqe.com/books.asp The STEP™ (Software Test and Evaluation Process) approach described in this course emphasizes prevention of software defects and stresses continuous improvement for lasting benefits. The STEP process has been implemented in hundreds of testing organizations and integrated into many different software development lifecycle methodologies.

#### Know What You've Done—and When You're Done

Understanding and managing risk helps you focus on the important testing issues. Trace your tests back to requirements, design, and code to reveal what you have tested and what remains to be tested. This course leads you through test planning, test analysis, and test execution, showing you how to set—and then effectively satisfy—your testing goals.

#### Who Should Attend

The audience includes test professionals, test managers, project leaders, quality analysts, and developers. No specific testing prerequisites are assumed. However, attendees are expected to have some software experience.

#### ABOUT THE INSTRUCTOR



8

With more than thirty years of experience in the field of software development and testing, **Lee Copeland** has worked as a programmer, development director, process improvement leader, and consultant. He has developed and taught many training courses focusing on software testing and

development issues based on his experience and is the author of A Practitioner's Guide to Software Test Design. Lee is the Managing Technical Editor for Better Software magazine and is a regular columnist for StickyMinds.com.

Additional instructors for this course include Dale Perry, Rick Craig, Claire Lohr, Robert Sabourin, Dawn Haynes, and Richard Bender.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/sst

#### PUBLIC COURSE OFFERINGS

🚾 New York/New Jersey Area	September 8-10, 2008
📼 Washington, DC	September 15-17, 2008
📼 San Francisco, CA	October 20-22, 2008
📼 Tampa, FL	November 17-19, 2008

📟 Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Mastering Test Design Requirements-Based Testing Performance, Load, and Stress Testing Lean-Agile Testing Practices Test Process Improvement Software Security Testing and Quality Assurance Exploratory Testing in Practice

#### TEST ENGINEERING

**Topical Outline:** 

Place of test design within the testing process

#### MASTERING TEST DESIGN UPDATED

### Techniques for Developing Focused Test Cases



- Explore structural, white-box methods to add more depth to test cases
- Practice these test design techniques to reinforce your new skills
- Examine exploratory testing approaches to replace ad hoc testing
- Find out when to use each test design technique for the best results

#### The Practical "How-To's" of Creating Test Cases

This course begins where many software testing courses end. Once the test plans are written, test teams are formed, and test tools are selected, it is time to create test cases. Since testing everything is impossible, the first step in test design is to choose a subset of all possible tests of program paths and data combinations to find important defects quickly. Mastering Test Design teaches you to select an optimal set of what to test and develops your practical skills to become a better test engineer.

#### Hands-On Practice of Testing Techniques

Experience the science and the art of both functional and structural testing methods in an informal workshop setting. First, you will see real-



For Software Developers and Testers

Institute You will earn 15 contact hours or

Project

Management

PDUs upon completion of this course.

#### **Take-Home Bonus**



world examples of each test technique demonstrated. Then, you'll have

improve your testing effectiveness, and increase your professionalism.

You will leave this class with a newfound confidence for developing test

the opportunity to practice these techniques, gain new testing skills,

This course is appropriate for both novice and experienced software

testers. Developers in the agile world who are now expected to write

managers can also benefit from this course. A background of basic

development processes and test levels is helpful but not required.

test cases will find this course extremely useful. Test and development

This course is also available for Web-based eLearning. See page 21 for

Each public course participant receives a copy of A Practitioner's Guide to Software Test Design. Order additional copies by visiting www.sqe.com/books.asp

What is black-box testing? Black-box testing at different testing levels Equivalence class partitioning

- Discovering and documenting partitions

Functional—Black-Box Test

- Partitioning complex fields

- Equivalence classes for multiple requirements Boundary value analysis

Understanding boundaries

2 Davs

Introduction

Test case elements

**Techniques** 

Understanding test oracles

Test case selection - trade-offs

Challenging boundary issues

- Grouping input data

Exercise

Decision tables

- Decision table construction

- Grouping variables

- Complex conditions
- Turning decision tables into test cases
- State-transition diagrams and tables
- State notation
- Designing tests from state-transition diagrams
- Pairwise test methods
- Orthogonal arrays
- Combinatorial analysis

#### Structural—White-Box Test **Techniques**

What is white-box testing?

Control flow concepts

- Applying control flow to code

- Understanding paths and cyclomatic complexity Code coverage

- Unit statement and decision coverage
- Integration path analysis
- Coverage applied at other levels
- Data flow analysis

- Data variable relationships Exploratory and creative testing Beyond formal and scripted testing

- Creative invalids
- Error guessing
- Group insights

9

- Exploratory testing process

ABOUT THE INSTRUCTOR



Claire Lohr has been a professional in the computer field for more than thirty years, with the last fifteen years focused on software process improvement for companies including GTE, Motorola, Westinghouse, SAIC, Boeing, Aetna, and others. Claire currently provides training and consulting services for a wide

variety of both government and commercial clients. Her certifications are CSQE, CSDP, and CTFL. Claire is an SEI CMM Software Capability Evaluator and a Lloyd's Register ISO 9000 Lead Auditor.

Additional instructors for this course include Lee Copeland, Dale Perry, Richard Bender, Robert Sabourin, Rick Craig, Bill Lewis, and Dawn Haynes.

#### PUBLIC COURSE OFFERINGS

🚾 New York/New Jersey Area	September 11-12, 2008
📼 Washington, DC	September 18-19, 2008
🧰 San Francisco, CA	October 23-24, 2008
📼 Tampa, FL	November 20-21, 2008

Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Systematic Software Testing Test Management Writing Testable Requirements Just-in-Time Software Testing

cases that find important bugs earlier.

more information.

Pair courses in one location to create a customized training week and save up to \$300. See page 4 for more information.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/mtd

Fundamentals of Software Testing Software context: Why does software fail? Principles, scope, and focus of testing Debugging vs. testing Understanding risk Risk analysis: prioritizing using risk analysis Goals of testing The basic testing process Test psychology - viewpoints on testing

#### **Testing Throughout Software** Development

Testing and development Early testing Models and testing The "V" model Verification and validation Testing levels/stages within software development Understanding regression testing Understanding test types

#### **Static Techniques**

What is static testing? Reviews, inspections, walkthroughs, etc. General review process Common types of reviews Roles and responsibilities in reviews Success factors for reviews Limits of reviews Understanding static analysis tools

#### Test Design Techniques

Overview of test design and the design approach Documentation decision Types of test design techniques Human/experienced-based methods Black-box (functional) techniques White-box (structural) techniques Experienced-based techniques Selecting the appropriate test technique

#### **Test Management**

Team organization Roles and responsibilities Understanding the test manager Understanding the tester Test planning and strategy Configuration management and testing Defect/incident classification and management

#### **Tool Support for Testing**

Selection process Introduction **Benefits** Risks and concerns Classifications



A \$250 fee for the exam is added to your registration fee. For more information on ISTQB™ certification or to download the syllabus, please visit www.astqb.com.

ISTOR



### Certified Tester—Foundation Level Training

- Basics of testing—goals and limits, risk analysis, prioritizing, completion criteria
- Testing in software development—unit, integration, system, acceptance, and regression testing
- Test management—strategies and planning, roles and responsibilities, defect tracking, and test deliverables

Are you looking for an internationally recognized certification in software testing? Delivered by top experts in the testing industry. Software Testing Certification is an accredited training course to prepare you for the ISTQB<sup>™</sup> Certified Tester—Foundation Level exam. This program is the only internationally accepted certification for software testing, accredited by the ISTQB™ through its network of national boards. The ISTQB<sup>™</sup>, a non-proprietary organization, has granted more than 80,000 certifications in more than twenty countries around the globe.

In the Software Testing Certification training course, learn the basics needed to become a software test and quality assurance professional

and understand how testing fits into software development. Find out what it takes to be a successful software test engineer and how testing can add significant value to software development.

# Management Institute

You will earn 22.5 contact hours or PDUs upon completion of this course.

#### Who Should Attend

PUBLIC 🚺 ON-SITE 🔂 CERTIFICATION TW TRAINING WEEK COURSE

The Software Testing Certification training course is appropriate for individuals who recently entered the testing field and those currently seeking certification in software testing.

#### ABOUT THE INSTRUCTOR



LEARNING

**OPTIONS:** 

Dale Perry has more than thirty years of experience in information technology. He has been a programmer/ analyst, database administrator, project manager, development manager, tester, and test manager. Dale's project experience includes large systems development and conversions, distributed systems, on-line applications, both client/server and Web based. He has also been a professional instructor more

than fifteen years and has presented at numerous industry conferences on development and testing. With Software Quality Engineering for eleven years, Dale has specialized in training and consulting on testing, inspections and reviews, and other testing and quality related topics.

Additional instructors for this course include Claire Lohr, Dawn Haynes, Rick Craig, Robert Sabourin, Eric Patel, Jamie Mitchell, Gary Mogyorodi, and Ed Weller.

#### SUGGESTED COURSES FOR PAIRING

Performance, Load, and Stress Testing Lean-Agile Testing Practices Requirements-Based Testing **Test Process Improvement** Software Security Testing and Quality Assurance **Exploratory Testing in Practice** 

Pair courses in one location to create a customized training week and save up to \$300. See page 4 for more information.

#### PUBLIC COURSE OFFERINGS

	Boston, MA	August 26–28, 2008
TW	New York/ NJ	September 8-10, 2008
	Minneapolis, MN	September 9-11, 2008
	Salt Lake City, UT	September 9-11, 2008
TW	Washington, DC	September 15-17, 2008
	Atlanta, GA	September 23-25, 2008
	Philadelphia, PA	September 23-25, 2008
	Anaheim, CA	September 28-30, 2008
	Indianapolis, IN	September 30-October 2, 2008
	Jacksonville, FL	October 7-9, 2008
	Toronto, ON	October 7-9, 2008
	Kansas City, MO	October 14-16, 2008
	Rochester, NY	October 14-16, 2008
TW	San Francisco, CA	October 20-22, 2008
	Pittsburgh, PA	October 21-23, 2008
	Sacramento, CA	October 21-23, 2008
	Charlotte, NC	October 28-30, 2008
	Omaha, NE	October 28–30, 2008
	Cincinnati, OH	October 28-30, 2008
	Ft. Lauderdale, FL	November 4-6, 2008
	Bethesda, MD	November 4-6, 2008
TW	Tampa, FL	November 17–19, 2008
	Sunnyvale, CA	November 18-20, 2008
	Phoenix, AZ	December 2-4, 2008

im Indicates a Training Week course. See page 4 for details.

Bethesda, MD courses are held in cooperation with ALP International.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/stf



# LEAN-AGILE TESTING PRACTICES

### Rapid Delivery of High Quality Software

- Apply lean principles to quality and testing
- Deliver value to customers quickly with agile testing practices
- Discover opportunities for lean-agile improvements
- Learn about lean-agile testing practices across the entire release
- Evaluate FitNesse as an automated acceptance testing tool solution
- Respond to and recommend agile testing transition actions

# Quickly Deliver the Highest Value Features to the Customer

Lean-agile methods promote the rapid delivery of value to customers by deferring detailed definition and design of system features until the "last responsible moment." This practice challenges the whole team, including testing, to stay continuously synchronized within very short release iteration cycles. To keep up with the fast pace, the team must be creative, smart, and efficient with their verification and validation testing activities.

#### Lean Principles Add Value to Your Organization

In this interactive workshop, you will examine agile testing practices including exploratory testing and automated acceptance testing approaches. Experience the "four-hour release" cycle and practice the activities important to testers in a lean-agile development environment.



# Adapt to Agile Development Practices that Affect Your Team

Teams new to agile practices have discovered that moving from traditional "test last" to the lean-agile "test first" is a big challenge to the entire development organization—and especially to testers and the test group. Discuss the common obstacles facing teams and explore solutions that can work for your test team. Develop an action plan to become valued members of a lean-agile development team.

#### **Who Should Attend**

The audience includes test professionals, test managers, project leaders, quality analysts, and developers. No specific prerequisites are assumed. Experience in any form of software development (testing, programming, and managing) and some familiarity with agile practices are recommended.

#### ABOUT THE INSTRUCTOR



**Bob Hartman** has more than thirty years of experience developing software, including seven years running his own consulting company and more than fourteen years of experience at the VP of Development level or higher. Bob has served in every role in the software industry including developer, tester, documentation writer, trainer, manager, and executive. A Certified Scrum

Master, Bob does training and coaching in agile development. Bob teaches courses including Lean Agile Testing, Implementing Scrum, and Lean Software Development. He also has a unique talent for breaking software within the first ten minutes of using it.

#### PUBLIC COURSE OFFERINGS

🚾 New York/New Jersey Area	September 11-12, 2008
🔤 Washington, DC	September 18-19, 2008
🔤 San Francisco, CA	October 23-24, 2008
📼 Tampa, FL	November 20-21, 2008

Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Writing Testable Requirements Systematic Software Testing Software Testing Certification Just-in-Time Software Testing Test Management

Pair courses in one location to create a customized training week and save up to \$300. See page 4 for more information.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/atp

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2 Days <u>Topical O</u>utline:

The Power of Lean-Agile Development

Seven principles of lean-agile development Test-driven design and unit testing Continuous test-driven integration Lean-agile quality planning *Exercise* 

#### **How Agile Changes**

Requirements and Testing Requirements definition—use cases, user stories Agile testing vs. traditional testing Test artifacts for lean-agile development Manual vs. automated testing Agile team case study Mike Cohn's testing pyramid *Exercise* 

#### **Agile Testing Practices for**

Speed of Need Exploratory testing Quick explore Blink Session-based testing Release explore Exercise

# Automated Acceptance Testing

Improve acceptance testing Open source FitNesse Exercise Aglie Testing Activities throughout a Release

#### **Agile Testing Transitions**

People challenges—discussions and suggestions Exercise Technical challenges—discussions and suggestions Exercise Organization challenges—discussions and suggestions Exercise

Look Back, Look Ahead Where do we start? Where are we now? Where do we go for help? What are your next steps?

11

**Be Prepared–What You Need** Bug tracking Test oracles Operational profiles Test environment

**Testing Ideas–What To Test** 

Usage scenarios and data Requirements and design documents Failure modes Capabilities and domains Quality factors Creative techniques Exercise-Creative test idea generation

What Not to Test

Consequences and benefits of skipping Consequence of implementing Refactoring tests Credibility of tests

**Testing Triage** 

#### Roles and responsibilities Triage concerns

Triage through project lifecycle Adapting to project context for triage Exercise—Testing triage practice session

Regression

Did we really fix the bug? Did we accidentally break something?

**Testing in the Development Lifecycle** Requirements workflow Bug workflow Configuration management Iterative, agile, and RUP approaches

**Measurement and Reporting** When tests should be run again

Elaboration states Metrics and coverage Exercise-Interpreting real-world status reports

Session-Based Exploratory Testing Balancing scripted tests vs. exploration

Exploratory testing sessions Test charters Testing notes Building the exploration map Accountability Exercise—Hands-on exploratory testing session

**Just Enough Test Automation** 

# JUST-IN-TIME SOFTWARE TESTING NEW

# Powerful Tools for Fast-Changing Projects and Priorities

- Test projects that have few or no written requirements
- Conduct testing "triage" to find important bugs more quickly
- Learn to plan and schedule testing in a dynamic, unpredictable world
- Practice session-based exploratory testing to find show-stopper bugs and change the way you test
- Gain the confidence you need to succeed
- Learn to blend exploratory, scripted, and automated testing

#### **Dealing with Software Project Turbulence**

Turbulent development projects experience almost daily requirements changes, user interface modifications, and the continual integration of new functions, features, and technologies. Keep your testing efforts on track while reacting to changing priorities, technologies, and user needs. This highly interactive workshop offers a unique set of tools to help you cope with-and perhaps even flourish in-what may seem to be a totally chaotic environment. Practice dynamic test planning and scheduling, test idea development, bug tracking, reporting, test triage, exploratory testing, and much more.

#### **Getting Ready for Almost Anything They Can** Throw at You

Be ready for just about anything that can happen in a software testing project such as a complex, customer-facing Web or e-commerce application. Learn to identify, organize, and prioritize your testing "ideas." Create workflows to schedule testing tasks dynamically, conduct bug triage sessions, and adapt

the testing focus as priorities change. Decide on purpose what not to testnot just because the clock ran out!

#### **Real Techniques Proven in Real Projects**

Just-In-Time Testing (JIT) approaches are successfully applied to many types of software projects-commercial off-the-shelf applications, agile and iterative development environments, mission-critical business systems, and just about any Web application. Real examples demonstrate how JIT testing either replaces or complements more traditional approaches. Examples are drawn from insurance, banking, telecommunications, medical, and other industries. The course is packed with interactive exercises in which students work together in small groups to apply JIT testing concepts.

#### Who Should Attend

This course is appropriate for anyone who works in fast-paced development environments, including test engineers, test managers, developers, QA engineers, and all software managers.

#### ABOUT THE INSTRUCTOR



Robert Sabourin has more than twenty-five years of management experience, leading teams of software development professionals. A well-respected member of the software engineering community, Robert has managed, trained, mentored, and coached hundreds of top professionals in the field. He frequently speaks at conferences and writes on software engineering,

SQA, testing, management, and internationalization. The author of I am a Bug!, the popular software testing children's book, Robert is an adjunct professor of Software Engineering at McGill University.

Scott Barber is an additional instructor for this course.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/jit

#### PUBLIC COURSE OFFERINGS

🧰 Washington, DC	September 15-17, 2008			
🧰 San Francisco, CA	October 20-22, 2008			
📼 Tampa, FL	November 17-19, 2008			

Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Lean-Agile Testing Practices Mastering Test Design Requirements-Based Testing Performance, Load, and Stress Testing Test Process Improvement Software Security Testing and Quality Assurance **Exploratory Testing in Practice** 



#### TEST ENGINEERING

# SOFTWARE SECURITY TESTING AND QUALITY ASSURANCE

## An Integrated, Risk-Based Approach to More Secure Software

- Learn practical security testing and QA approaches based on experiences of top software security experts
- Use a structured risk analysis method to expose dangerous software vulnerabilities
- Learn how to add security testing to all of your testing strategies and plans
- Discover how hackers exploit software so you can "think like an attacker" while developing your tests
- See real-life examples of severe security defects at both the design and implementation levels
- Integrate security testing and QA practices into your entire software development lifecycle

#### **Ensure Your Software is Secure**

Developed by top experts in software security, this course is an eye-opening experience for all test and QA professionals and for development professionals doing structured unit and integration testing. It will change the way you think about test development.

Proactive security testing requires that you first get an understanding of the security problem and adopt a risk management framework for addressing security issues. Then, you need to gain the skills and implement the processes necessary to develop and execute security test strategies.

Think Like an Attacker and Test Like One Learn to think like an attacker so that you can add test cases to cover nonfunctional—often implied or missing—security requirements. Find out about the "Seven Pernicious Kingdoms of Software Security" and how to use security risk information to improve test and QA strategies and planning. Practice examining software requirements, designs, and code to expose security vulnerabilities as

# early as possible during development. Add appropriate abuse cases to your test designs and explore your software with a new awareness of security issues.

#### **Put Risk-Based Security Testing into Practice**

Look inside the code with white-box testing techniques to achieve greater benefits with less effort. Tie in the business and design objectives, architectural and operational realities, and common attack patterns to enhance your current testing methods. With new knowledge and skills, you can build the confidence that attackers cannot turn security risks into security failures.

#### **Who Should Attend**

This course is appropriate for testing, QA, and software development practitioners who are responsible for developing and executing test strategies and plans for functional and non-functional security requirements. This course requires an ability to understand security risk patterns used by attackers. Participants should be comfortable reviewing code as part of their testing activities.

#### ABOUT THE INSTRUCTOR



**Paco Hope** is a managing consultant at Cigital and has more than twelve years of experience in software security and operating system security. His areas of expertise include software security policy, code analysis, host security, and PKI. Paco has worked extensively with embedded systems in the gaming and mobile communications industries, and also has served as a

subject matter expert on issues of network security standards in the financial industry. Paco is co-author of Mastering FreeBSD and OpenBSD Security, published by 0'Reilly and Associates, and has published articles on abuse cases in software design, PKI, and UNIX host security features. Prior to joining Cigital, he served as director of product development for Charlottesville, VAbased Tovaris, Inc. and head systems administrator in the Department of Computer Science at the University of Virginia.

Richard Mills is an additional instructor for this course.

#### PUBLIC COURSE OFFERINGS

🔤 Washington, DC	September 18–19, 2008
📼 San Francisco, CA	October 23-24, 2008

indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Writing Testable Requirements Systematic Software Testing Software Testing Certification Just-in-Time Software Testing Test Management

Pair courses in one location to create a customized training week and save up to \$300. See page 4 for more information.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/stq



# 2 Days Topical Outline:

Software Security and Testing The software security problem What is security testing? Exploiting software Attack patterns *Exercise: Risk analysis* 

Software Security Touchpoints Risk management framework Software security touchpoints

Seven Pernicious Kingdoms Classic "gotchas" Seven kingdoms of security errors Exercise: Code review—seven kingdoms

Static Analysis and Code Review Static analysis and code review Tool demo

Software Security Requirements Analysis Nonfunctional requirements Negative requirements Use and abuse cases

Security Testing Overview Process overview Learning from history

Goals, principles, and methods

Risk-Based Security Testing Process Risk assessment results Abuse cases Test strategy and planning

Examples from the Seven Pernicious Kingdoms SQL injection Cross-site scripting Return values Violation of trust levels Many others

Putting Risk-Based Security Testing into Practice Tying it all together Software security framework

Software security roadmap

### **Take-Home Bonus**

Each public course participant receives a copy of Gary McGraw's Software Security: Building Security In. Valid for public courses only.

Why Good Requirements Are Critical

Impact on costs of development Impact on schedules

Characteristics of Good Requirements

Key Characteristics for Testability

Industry Guidelines for Requirements IEEE STD-830-1998 UML

Identifying Ambiguities in Specifications

Defining Clear Objectives and Problem Statements

**Ensuring Commonality** 

Common expectations Common language Common "world view"

Writing Style Guidelines for Describing Processes/Use Cases

Style suggestions for readability Describing decision logic and transforms Impact of physical design Structured English vs. pseudo code

**Process Packaging Guidelines** 

Writing Style Guidelines for Describing Data

Guidelines for Naming Processes and Data

Automated Requirements Management

# WRITING TESTABLE REQUIREMENTS

# Produce Better Requirements to Reduce Effort and Cost

Recognize "good" and "bad" requirements

- Correct ambiguities in specifications to reduce or eliminate re-work and to make testing more effective
- Deliver requirements that are concise, accurate, modular, and highly testable

#### **Focus Up-Front on Problem Avoidance**

Inferior requirements significantly increase the cost of system development and the time required to deliver an application. Writing Testable Requirements focuses on problem avoidance—how to write requirements accurately the first time or to improve them before coding starts. This training course offers guidelines for describing software specifications of processes and data, ensuring that requirements have the clarity and detail needed to produce test cases.

This information is critical to designers, developers, and technical writers. The techniques can be applied to requirements written to various company or industry standards. The course also addresses compliance with common industry guidelines and the effects of automated repositories on requirements writing styles. You are encouraged to bring samples from your own projects to work on and evaluate during class.

### For Analysts, Testers, Developers, and Managers

This course is intended to help those who write and review detailed functional specifications and those who must develop and test systems based on those requirements. The intended audience includes testing staff, requirements analysts, developers, and project managers. No specific prerequisites are assumed, but you are expected to be software knowledgeable with at least basic test or software development experience. Requirements-Based Testing (page 15) is a valuable complement to this course. Take both courses during a Training Week to save time and money!

#### ABOUT THE INSTRUCTOR



14

**Richard Bender** has been involved in test and evaluation since 1969. He has authored and coauthored books and courses on quality assurance and test, software development lifecycles, analysis and design, software maintenance, and project management. Richard has worked

with an international clientele in a wide range of industries from financial to academic.

Gary Mogyorodi and Bill Lewis are additional instructors for this course.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/wtr

#### PUBLIC COURSE OFFERINGS

Washington, DC San Francisco, CA Tampa, FL

September 15–17, 2008 October 20–22, 2008 November 17–19, 2008

m Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Requirements-Based Testing Mastering Test Design Performance, Load, and Stress Testing Lean-Agile Testing Practices Test Process Improvement Software Security Testing and Quality Assurance Exploratory Testing in Practice

# **REQUIREMENTS-BASED TESTING**

# A Disciplined Approach for Testing—and Improving—Software Requirements

- Identify important ambiguities in requirements specifications before coding starts
- Translate requirements specifications into cause-effect graphs to verify accuracy and completeness
- Design a set of test cases to validate that all requirements are implemented
- Quantify and accurately measure the progress of your testing efforts

### **Get a Realistic Picture**

Testing, by definition, compares an expected result to the observed result. In software, the expected results should be defined in the specifications. Unfortunately, most specifications are not sufficiently detailed to define the expected results. This process-oriented course presents a set of practical, yet rigorous, techniques for testing requirements to ensure that your project's requirements are complete, consistent, accurate, and unambiguous.

#### What to Expect

Once the specifications have been clarified, the second challenge is to define the necessary and sufficient set of tests to verify that the design and code fully meet the specifications. The Requirements-Based Testing (RBT) course teaches you how to design a consistent and repeatable set of test cases.

Using RBT, test completion criteria are quantified and test status is measurable. RBT provides a process for first testing the integrity of the specifications. It then provides the algorithms for designing an optimized set of tests sufficient to verify the system from a black-box perspective.

#### **Who Should Attend**

This student-paced course is designed for test engineers, quality assurance engineers, and software managers. You are encouraged to bring samples from your own projects. The focus of the course is on process tools. However, there's a brief introduction to using BenderRBT<sup>TM</sup>, which automates much of the requirements-based testing process. Writing Testable Requirements or Finding Ambiguities in Requirements is a prerequisite for this class.

#### ABOUT THE INSTRUCTOR



**Richard Bender** has been involved in test and evaluation since 1969. He has authored and coauthored books and courses on quality assurance and test, software development lifecycles, analysis and design, software maintenance, and project management. Richard has worked

with an international clientele in a wide range of industries from financial to academic.

Gary Mogyorodi and Bill Lewis are additional instructors for this course.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/rbt

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Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Writing Testable Requirements Systematic Software Testing Software Testing Certification Just-in-Time Software Testing Test Management

Pair courses in one location to create a customized training week and save up to \$300. See page 4 for more information.

# 2 Days Topical Outline:

#### Introduction

Definition of testable requirements Definition of testing—the seven basic steps The business case for quality Overview of the RBT process

#### **Initial RBT Steps**

Validating requirements against objectives Validating the scope of requirements via scenarios Cause-effect graphing Basic logical operators Five graphing constructs of all functional requirements

#### **Environmental Data Constraints**

Boundary condition data constraints Processing sequence imposed constraints Identifying logical inconsistencies in the processing rules Test-case design

Defining the Test Completion Criteria

Concept of fault detection Basic strategies for test case design Identifying functional variations Packaging functional variations into test cases Equivalence class testing and orthogonal pairs

#### **Additional Points of Integration**

Moving into the development process Moving integration testing up before coding starts Moving use acceptance testing up before coding starts

#### Introduction to Code-Based Testing White-box test completion criteria Data-flow-based testing

Integrating black-box and white-box testing

#### Tuning the RBT Process by Project Type

Rapid prototyping Rapid application development Agile methodologies New development Third-party packages Maintenance Technology conversions Rewrites and re-engineering projects

#### **Management Considerations**

Planning and estimating guidelines Change control Impact on staffing Test team organization Tracking the testing effort Contract management

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**Course Wrap-Up** 

15



Fundamentals Imperative to performance test Performance testing track record

The Performance Testing Process

Understanding how performance testing fits the development process Approaches to the performance testing process

Costs of performance testing

Identify Performance Goals and Business Goals

Gather background information on the situation Develop an understanding of the situation Validate the test project need and feasibility

Gain an Understanding of the Infrastructure and Architecture Required for the Test

What must be part of the test? What can be omitted?

Key Areas of Infrastructure/ Architecture

Target platform and systems Network configuration Performance tools Understanding scalability and extrapolation

What Types of Tests and Measurements Do We Need?

Types of performance tests to be run

Understanding and Defining Workload

Transactions to be simulated Analyze factors affecting the load definition

Understanding Key Measurements Response times, resource usage, etc.

Understanding Test Preparation Setting up the test infrastructure/architecture Acquire the test scripts and data Setting up the tools

#### **Execute the Tests**

Validate the tests and the tools Prepare for the test execution Execute the tests and collect the data Analyze the data and evaluate the test results Present conclusions and recommendations Assist the technical team after tuning and debugging

# PERFORMANCE, LOAD, AND STRESS TESTING

### Issues and Solutions for Software Performance Testing

- Understand the performance testing process
  - -Test planning
  - -Test preparation
  - -Test execution
  - -Reporting test results
- Relate performance testing to the development process
- Understand performance goals and objectives
- Learn how to deal with environment and architecture issues
- Understand and select the various types of performance tests
- Define operational profiles and load definitions
- Define and select appropriate measurements

#### In the Real World

This practical, hands-on course delivers testing skills that participants can immediately apply back on the job. Using a real-world case study, you will encounter issues, decisions, and testing experiences comparable to those in your own work environment. Working through a series of exercises in small teams, or as a group, you develop a workable strategy for performance testing and application/system.

#### Who Should Attend

System testers, system designers, system tuners, software engineers, quality assurance professionals, and project leaders who are involved in systems testing can benefit from this course. A working knowledge of system testing and quality assurance fundamentals is assumed, but no specific technical background (e.g., UNIX, TCP/IP) is required.

#### ABOUT THE INSTRUCTOR



**Dale Perry** has more than thirty years of experience in information technology. He has been a programmer/analyst, database administrator, project manager, development manager, tester, and test manager. Dale's project experience includes large systems development and conversions, distributed systems, on-line applications, both

client/server and Web based. He has also been a professional instructor for more than fifteen years and has presented at numerous industry conferences on development and testing. With Software Quality Engineering for eleven years, Dale has specialized in training and consulting on testing, inspections and reviews, and other testing and quality related topics.

Scott Barber is an additional instructor for this course.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/plt

#### **PUBLIC COURSE OFFERINGS**

🔤 Washington, DC	September 18–19, 2008
🧰 San Francisco, CA	October 23-24, 2008
🧰 Tampa, FL	November 20-21, 2008

im Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Systematic Software Testing Software Testing Certification Writing Testable Requirements Just-in-Time Software Testing Test Management

# EXPLORATORY TESTING IN PRACTICE NEW

### Plan, Design, and Execute Tests Simultaneously to Find More Bugs—Faster

- Make real time decisions for better application testing
- Design your tests as you perform them
- Organize exploratory testing for you and your team
- Practice a session-based framework for exploratory testing
- Implement test charters to guide your testing
- Examine examples and real world case studies

Many traditional test teams are augmenting their documented test plans and test cases with a structured, exploratory approach. Other teams adopting agile methods are replacing ad-hoc testing with exploratory techniques, allowing all development team members to effectively participate in product testing. Whether your organization is moving toward agile software practices or using a more traditional approach, exploratory testing can help you find important defects sooner.

Exploratory testing is all about simultaneously learning about the software you are testing while you are designing and executing the tests. It is used by developers for unit testing, independent testing teams for integration or system testing, and by customers implementing acceptance testing of developed or commercial off-the-shelf software packages.

In this highly interactive class, students learn about and practice sessionbased exploratory testing, a framework to organize testing into a series of time boxed missions or "charters." In fulfilling a test charter, you use your skills and experience to adapt your testing actions as you learn what the application does. Through this process, one discovery leads to another and another as you explore the software under test. Exploratory testers add permanent value to projects by constructing practical notes, which provide short valuable logs that record what was discovered during each testing session.

Through a series of small group, hands-on exercises, students practice exploratory testing and improve their skills as they test. In addition, you will learn how and when to use exploratory testing practices in different project and organizational contexts. Review the tools that are available to organize and support exploratory testing, and capture data from exploratory testing sessions. Return to your team with new skills and processes to make your testing more effective—and more fun.

#### **Who Should Attend**

This course is appropriate for anyone who works in fast-paced testing environments, including test engineers, test managers, agile developers, QA engineers, and all software managers. Customers charged with acceptance testing and traditional unit testers will also benefit from the course.

Each participant in this course is required to bring a Windows laptop computer.

#### ABOUT THE INSTRUCTOR



**Robert Sabourin** has more than twenty-five years of management experience, leading teams of software development professionals. A well-respected member of the software engineering community, Robert has managed, trained, mentored, and coached hundreds of top professionals in the field. He frequently

speaks at conferences and writes on software engineering, SQA, testing, management, and internationalization. The author of I am a Bug!, the popular software testing children's book, Robert is an adjunct professor of Software Engineering at McGill University.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/et

#### PUBLIC COURSE OFFERINGS

- 📼 Washington, DC 🚾 San Francisco, CA 🚾 Tampa, FL
- Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

September 18-19, 2008

October 23-24 2008

November 20-21, 2008

Writing Testable Requirements Systematic Software Testing Software Testing Certification Just-in-Time Software Testing Test Management

Pair courses in one location to create a customized training week and save up to \$300. See page 4 for more information.

# 2 Day Topical Outline:

Overview Definitions History Styles Strengths and weaknesses Case studies Lifecycle models Context drivers

Getting Organized Sessions Charters Focus and opportunity Measures

Testing Skills Observation Reasoning Test design Failure analysis Pivoting Note taking

Tools Capturing test data Note taking and mind mapping Test design Combination testing Test frameworks

References Articles Books Courses Web resources

#### **Exercise Outline**

Class exercises are used to illustrate concepts covered in the class. Students will work in teams of two, using open source tools for the exercises. We encourage you to bring applications from your work environment to use for some of the exercises.

#### Capabilities and instabilities What can the application do?

Areas of weakness? What can break?

Variables and emergent behaviors Discover variables Explore emergent behaviors Influencers and outcomes Test oracles

Usage scenarios Who uses the software? What do they do? Can it be done?

Back to back testing Side-by-side comparison Discovering differences Confirming capabilities

Test design and visual modeling on the fly Equivalence partitioning and boundaries Business logic Decision tables

Exploring quality factors Performance testing Load testing Stress testing

17

**Testing and Quality** Goals vs. priorities Testing philosophy Preventive testing and the STEP™ methodology

#### The Test Manager

Roles of a test manager Leadership guidelines Ways to obtain buy-In

#### **Test Teams**

Team organization Retaining staff Staff development

#### **Configuration Management**

Library management Change control board Defect analysis

#### Master Test Plan

Risks and contingencies Testing strategy Scheduling/estimating

#### **Testware Design**

Influence of risk Design approaches Testing without requirements

#### Execution Management

Assessing test effectiveness Predicting release dates Reporting

#### Tools

What to automate Tool issues Manager's role in tool implementation

#### **Metrics Primer**

Basic definitions Measurement paradigms Implementing a metrics program

**Process Benchmarks and Baselines** What is process assessment? ISO, CMM®, TOM, TPI® Benchmarking

# TEST MANAGEMENT

### What Every Test Manager Needs to Know

- Identify and handle critical strategy issues in specific test situations
- Monitor the status of testing activities and software work products
- Work productively with users, developers, and support staff

#### The Importance of Strategy and Feedback

If you develop and implement an effective test strategy, you can successfully manage software test efforts. Successful test management requires the same approach as successful project management: 1) develop a sound strategy, 2) keep in close touch with the situation, 3) identify and aggressively manage critical issues, and 4) modify the strategy as needed, based on situational feedback. The key to test management is to know the components of an effective test strategy, including feedback mechanisms, and to recognize critical issues as they surface.

#### A Management Framework

This course provides the essential framework for successful test management. It focuses on two critical areas: 1) creation and management of a successful testing organization and team, and 2) development of an effective test strategy. This strategy is built around the development of two key documents: a comprehensive test plan and corresponding test report.

#### ABOUT THE INSTRUCTOR



A frequent speaker at testing conferences, Rick Craig is recognized worldwide as a test and evaluation instructor with SQE Training. He has implemented and managed testing efforts on large-scale, traditional, and embedded systems, and co-authored a study that benchmarked

industry-wide processes. Rick is co-author of the reference book Systematic Software Testing.

Lee Copeland is an additional instructor for this course.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/tm

#### For Anyone Responsible for Software Test Efforts

This course provides the information necessary for a test manager, supervisor, or senior tester to lead a testing effort. It also provides an outline of good testing methods from the viewpoint of a test manager. This course complements the Systematic Software Testing course, which provides a similar outline of good testing methods from the viewpoint of the test engineer. Participants should have at least six months of leadership experience and two years of test experience.



#### **Take-Home Bonus**

Each public course participant receives a copy of Systematic Software Testing. Order additional copies by visiting www. sge.com/books.asp

2008

2008

Valid for public courses only.

#### PUBLIC COURSE OFFERINGS

📼 Washington, DC	September 15-17, 200
🧰 San Francisco, CA	October 20-22, 2008
🧰 Tampa, FL	November 17-19, 200

Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Lean-Agile Testing Practices Mastering Test Design Requirements-Based Testing Performance, Load, and Stress Testing Test Process Improvement Software Security Testing and Quality Assurance **Exploratory Testing in Practice** 

# TEST PROCESS IMPROVEMENT

### Practical Guidelines for Small and Large Test Organizations

- Improve testing processes in any size test group
- Make visible step-by-step improvements for a fast payback
- Implement improvements in conjunction with or independent of the Capability Maturity Model (CMM<sup>®</sup> and CMMI<sup>®</sup>)

#### **Get a Realistic Picture**

Testing is often seen as a costly and uncontrolled process. Management often says that testing takes too much time, costs more than planned, and offers little insight into the quality of the system under test. If production systems are of poor quality, improving your testing process may help solve the problem.

Whether your test group consists of two people or two hundred, you'll take away from this workshop a proven, systematic approach to assess your current test processes and chart a course for measurable test improvement.

#### Approach

The way to improve the performance of your test group depends on the size and type of your test group, your software development lifecycle, and the maturity of your test team. In this interactive, workshop-style class, you'll learn how to customize the TPI<sup>®</sup> model to fit your organization and its needs.

You'll learn how to create awareness, establish goals and scope for change, perform the assessment, select prioritized improvement actions,

and implement change. Get the practical guidelines on how to take each step, including references to where the test improvement model should be applied. You'll also learn about critical subjects needed for a successful improvement program, such as the use of metrics, the requirements for the change team, and dealing with resistance.

This interactive course offers a pragmatic, day-to-day improvement approach, including an outline for small test improvements, hints and tips for a quick start test improvement, and ways to achieve and maintain management buy-in. Potential pitfalls and expected benefits will be covered as well.

#### **Who Should Attend**

This course provides valuable information for software managers, test managers, test team leads, test consultants, QA managers, and IT process improvement specialists.

#### ABOUT THE INSTRUCTOR



A frequent speaker at testing conferences, **Rick Craig** is recognized worldwide as a test and evaluation instructor with SQE Training. He has implemented and managed testing efforts on large-scale, traditional, and embedded systems, and co-authored a study that benchmarked

industry-wide processes. Rick is co-author of the reference book Systematic Software Testing.

Lee Copeland and Martin Pol are additional instructors for this course.

For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/tpi

#### PUBLIC COURSE OFFERINGS

- Tampa, FL November 20, 2008
- Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Systematic Software Testing Software Testing Certification Writing Testable Requirements Just-in-Time Software Testing Test Management

Pair courses in one location to create a customized training week and save up to \$300. See page 4 for more information.

# 1 Day Topical Outline:

#### Introduction

Typical complaints about testing Improving the testing process Position and scope of test process improvement The process of change

#### **Improvement Process**

Awareness Goal, scope, and approach Assessment Define improvement actions Plan Implementation Evaluation

#### The Test Process

Improvement (TPI®) Model Relationship to CMM® Assessment Twenty key areas Levels Checkpoints Improvement suggestions The Test Maturity Matrix Sequence of improvements

#### Improvement Actions

Define Plan Implement Evaluate

## Test Process Improvement

#### Take-Home Bonus

Each public course



participant receives a copy of the book, Test Process Improvement: A Practical Step-by-Step Guide to Structured Testing, by Tim Koomen and Martin Pol.

Valid for public courses only.





### VISUAL STUDIO® 2008 TEAM FOUNDATION SERVER

#### Understanding and Administering Microsoft® Team Foundation Server

- Create and modify work items
- Understand how to administer and manage Team Foundation Version Control
- Customize work item definitions to support your custom workflow
- Create, execute, and modify custom build scripts for Team Build

This course covers the major components of Visual Studio<sup>®</sup> 2008 Team Foundation Server. Learn how to build your organization's software process into Team Foundation Server by modifying the out of the box process templates for MSF for Agile Software Development and MSF for CMMI<sup>®</sup> Process Improvement. This course covers version control, reporting, automated build, work item tracking, and project management.

#### **Who Should Attend**

This course is designed for individuals responsible for source control, project management, build administration, and reporting.

Bonus: Computer lab is supplied for this course.



INSTRUCTORS: Chris Menegay, Dave McKinstry, Donovan Brown, and Trent Nix

#### PUBLIC COURSE OFFERINGS

тw	Chicago, IL	
тw	Washington.	D

ago, IL	September 22–23, 2008
nington, DC	October 13-14, 2008

Indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

Testing Applications with Visual Studio® Team System 2008

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For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/vfs

### 2 Days Topical Outline:

Team System Overview Development challenges and features Role-based approach Packaging Team Foundation security settings Groups, permissions, and supporting services

LAB Team Projects and Process How process is integrated with Visual Studio<sup>®</sup> 2008 Team System

MSF for Agile Software Development and CMMI® Process Improvement

Team Project Security TFS security review, team project security, supporting services, and version control security LAB

Project Management and Work Items Work item tracking system Creating custom work item queries Work item integration with Microsoft Project and Microsoft Excel

Version Control Architecture overview Integrated and atomic check-in Parallel and remote development Check-in notes, notification, and policy *LAB* 

I AR

Advanced Version Control Shelving, branching, and merging Multiple solutions and common admin tasks *IAB* 

Build Process Team build architecture Creating build scripts Executing builds and command-line tasks Running Web tests Scheduling builds Continuous integration

Modifying Work Item Definitions Changing work item definitions on live projects Adding workflow and controlling field access IAR

Modifying Process Templates Modifying document templates, work items, and MS Project synchronization Using custom processes with team projects *LAB* 

Planning Deployment Logical architecture Server deployment architecture Common administrative tasks Building reports *LAB* 

## TESTING APPLICATIONS WITH VISUAL STUDIO® TEAM SYSTEM 2008

Microsoft

CERTIFIED

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#### Managing Lifecycle Testing

- Understand how to create and manage a variety of tests using the testing tools in Visual Studio<sup>®</sup> 2008 Team System
- Learn how to enter and edit defects using work item tracking
- Find out how to analyze build reports and test results
- Become familiar with Team Foundation Version Control, where all tests are stored and historical changes are tracked

This course provides hands-on experience with all the Team System testing functions including: defect reporting, defect tracking, and manual test creation, as well as execution of manual, Web, load, and unit tests. It covers how to utilize reporting features and create quality reports used to analyze the status of projects.

The testing portion of this course is taught using a shared Team Foundation Server. The testing aspects utilize Visual Studio<sup>®</sup> Team System 2008 Test Edition.

Who Should Attend This class is intended for those individuals responsible for the QA and testing roles in software development.

#### Bonus: Computer lab is supplied for this course.



INSTRUCTORS: Chris Menegay, Dave McKinstry, Donovan Brown, and Trent Nix

#### PUBLIC COURSE OFFERINGS

 Chicago, IL
 September 24–25, 2008

 Washington, DC
 October 15–16, 2008

indicates a Training Week course. See page 4 for details.

#### SUGGESTED COURSES FOR PAIRING

#### Visual Studio® 2008 Team Foundation Server

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For the latest information on this course and to download a PDF brochure, visit: www.sqetraining.com/vts

#### 2 Days Topical Outline:

Overview Team System overview Development challenges and features Role-based approach Packaging I AR Introducing Visual Studio<sup>®</sup> 2008 Brief history/overview Introducing the user interface Developing solutions LAB **Team Projects and Process** How process is integrated with Visual Studio® Team System 2008 Overview of MSF for Agile Software Development and for CMMI® Process Improvement **Project Management and Work Teams** Work item tracking system and and handling work items Creating custom work item gueries Work item integration with Microsoft Project and Microsoft Excel LAB

Version Control Architecture overview Integrated and atomic check-in Parallel and remote development Check-in notes, notification, and policy LAB

Unit rests
Test-driven development, unit testing, code
coverage
LAB
Quality Assurance and Testing

Quality Assurance and Testing
Testing, test manager, writing manual tests
executing manual tests, reporting defects
LAB

Veb	Testi	ng			
reati	ing and	executing	Web	application	and

Web services tests Using extraction and validation rules Test run configurations and data-driven Web tests

Test run configurations and data-driven Web tests

Load Testing Creating and executing Web application and service load tests

Using the load agent Analyzing results

LAB

Build Process

Analyzing test results, working with build reports

Looking to the Future A look at how the tools will evolve with the next release of Visual Studio<sup>®</sup> Team System



# eMASTERING TEST DESIGN

Mastering Test Design: The Art and Science of Creating Test Cases Available on the Web in a Dynamic eLearning Format

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- Video and audio clips to enhance your learning experience
- Web access to an extensive list of additional resources
- Hyperlinks to a glossary of terms used in the course

### **Dynamic Learning Features:**

#### Audio

Narration by course author with accompanying transcript

#### **Video Clips from the Classroom**

Live examples of the content being taught in the classroom setting

#### **Reinforced Learning**

Questions linked to content that helps reinforce what you have just learned

Flash Animation Illustrates and explains content



# **Course Outline:**

Introduction

**Testing Basics** 

Introduction to Black-Box Testing

Equivalence Classes and Boundary Values

**Decision Tables** 

**State Transition Diagrams** 

**Orthogonal Arrays** 

**Black-Box Big Picture** 

Introduction to White-Box Testing

White-Box Unit Testing

White-Box Integration Testing

White-Box System Testing

**Exploratory Testing** 

**Regression Testing** 

**Handling Defects** 

Conclusion

21

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# **RESOURCE CENTER**

















#### Conferences

#### STAREAST and STARWEST (Software Testing Analysis & Review conferences)

A gathering place for software testers, developers, and managers, these premier software testing events promote interaction on improving software testing practices. STAR's unique, real-world approach delivers the latest testing advances and strategies being used by leading software organizations. The five-day STAR conferences feature international testing experts in keynote sessions, concurrent sessions on testing related topics, in-depth tutorials; and the Testing EXPO with the latest testing tools and services. Visit **www.sqe.com/stareast** and **www.sqe.com/starwest** for more information.

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The Better Software Conference & EXPO delivers the latest in agile and plan-driven software development practices, technology, and solution providers. Exploring improvement throughout the software development lifecycle, the Better Software Conference & EXPO gives you the information you need to be more successful in your software projects by utilizing the latest techniques and technology. Visit **www.sqe.com/bettersoftwareconf** for more information.



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**Test Process Improvement** 

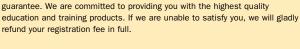
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23

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