

TEST04 : Test Case Design

Description :

Understanding of different test models and their related test coverage criteria, Ability to apply black-box and glass-box test case design techniques to conventional testing, model-based testing and static analysis of program code and Practical experience

Instructor :



Mr.Phil Robinson

CERTIFIED SCRUM MASTER

[พื้นที่ประสบการณ์และอยู่ในอุตสาหกรรมดิจิทัลมาอย่างยาวนาน](#)

Training Date : **21-22 March 2024**

fee : **15000 ฿** (ราคายังไม่รวม Vat 7%)

Days & Duration : **2 Day(s) | 12 Hour(s)**

Time : **09:00:00 - 16:00:00**

Language : **English**

Venue : **Online**

Type : **Online**

Category : **Software Testing**

Objectives :

This two-day course teaches participants a number of advanced testing techniques. The course commences with a brief discussion of black-box and glass-box test models followed by a discussion of practical test coverage criteria for both models.

The course then moves on to an in-depth discussion of various black-box testing techniques. This is followed by a demonstration of how the techniques can be applied to both the conventional and “model-based” approaches to testing.

The second-half of the course covers glass-box testing techniques and shows how these may be applied to both conventional testing and the static analysis of program code.

The course concludes with a brief discussion of how the techniques learnt during the course can be used with automated test tools.

Course Features:

- Compatible with the BCS Draft Standard for Software Component Testing (BS 7925-2)
- Arms participants with a tool box of test case design techniques
- Integrates disparate test case design techniques into an integrated approach
- Relevant to IT and embedded systems software

Target Group :

- Process Engineers, Software Engineering Process Group (SEPG) Staff, Methodologists, Process Improvement Staff
- Software Development Managers, Software Engineers, Developers, Requirements Engineers, Requirements Analysts
- Test Managers, Test Engineers, Testers, Quality Assurance Staff

Benefits :

- Understanding of different test models and their related test coverage criteria
- Ability to apply black-box and glass-box test case design techniques to conventional testing, model-based testing and static analysis of program code
- Practical experience in applying the techniques to comprehensive exercise examples

Course Outline :

Introduction:

- Some definitions

- Testing concepts

- The functional or black-box view
- The structural or glass-box view
- The “ translucent-box ” or grey-box view
- Mapping project roles to software views
- The test-driven development (TDD) approach

- Test models

- Black-box test models
- Glass-box test models

- Test case coverage

- Black-box coverage goals
- Glass-box coverage goals

Black-Box Testing and Test-Driven Development (TDD) Test Case Design Techniques:

- Requirements verification
- Equivalence partitioning
 - Identifying partitions of equivalent values
 - Selecting partition test cases
 - Equivalence partition coverage criteria
- Test oracles
 - Who "tests" the test cases?
 - Automated test oracle
- Boundary value analysis
 - Testing on the boundary between partitions
 - Selecting boundary test cases
 - Risks and coverage criteria
- Syntax testing
 - A notation for modelling the syntax of inputs and outputs
 - Selecting test cases
 - Testing for invalid syntax
- Decision Tables
- State transition testing
 - State transition diagrams
 - State tables
 - Testing single transitions
 - Testing sequences of transitions
 - Constructing a state tree
 - Selecting test cases
 - State transition coverage criteria

Model-Based Testing:

- Goals of model-based testing
- Generating test cases from models
 - Partitions and boundaries
 - States and transitions
 - Syntax
- Using model-based testing when there is no specification or it is out of date
- Applying models-based testing to random and reliability testing

Glass-Box Test Case Design Techniques:

- Statement testing
 - Rules for counting statements
 - Statement coverage
- Control flow graphs
 - Modelling control flow with " nodes " and " edges "
 - Control flow and cyclomatic complexity
- Branch/decision testing
 - Branches vs. decisions
 - Selecting test cases
- Condition testing
 - Branches vs. conditions
 - Branch condition testing
 - Branch condition combination testing
 - Modified condition decision testing
- Path Testing
 - Linear Code Sequence and Jump (LCSAJ) testing
 - Basis path testing
 - Data flow testing
 - Coverage and Infeasible Paths

- Comparing Glass-Box Test Case Design Techniques

Static Analysis of Program Source Code:

- Applying glass-box test case design techniques to static analysis
- Static analysis of program data flow
- Static analysis of program paths
- Automated static analysis tools

Regression Testing:

- Performing an Impact Analysis
- Identifying the Regression Test Cases

Test Cases and Automated Testing:

- Automating unit testing

- Applying glass-box and black-box test cases to unit testing
- Test cases and unit test frameworks
- Glass-box testing and coverage tools

- Automating system testing

- Applying black-box test cases to system testing
- Test cases and capture/replay tools
 - GUI tools
 - Web tools
- System and acceptance test frameworks

Payment Condition :

Payment can be made by:

1. Cash or Credit Card or Bank Cheque payable to "สำนักงานพัฒนาวิทยาศาสตร์และเทคโนโลยีแห่งชาติ" (a post-dated cheque is not accepted) on the first day of the service or within the last day of the service.
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Notes:

- Withholding tax (3%) is exempt.
- Should you need to withdraw, you must send the notice of the withdrawal in writing no later than 7 working days before the commencement date. The cancellation less than 7 days will be subject to a fine of 40% of the fee.
- Software Park Thailand reserves the rights to cancel courses due to unforeseen circumstances.

Contact Person :

For more information, contact our course coordinator on:

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You are encouraged to use the course schedule as a guide to plan your training. The schedule is accessible at www.swpark.or.th for more information.

