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 :

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Mr.Phil Robinson

CERTIFIED SCRUM MASTER
ที่มีประสบการณ์และอยู่ในอุตสาหกรรมดิจิทัลมาอย่างยาวนาน

Training Date : **15-16 October 2026**
fee : **15,000 ฿** (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.
2. Account transfer and send the proof of the payment (the deposit slip) **via email** ttd@swpark.or.th
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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.

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