

Embedded Software Testing - Video course

COURSE OUTLINE

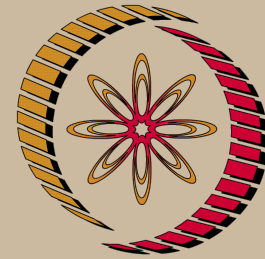
- This course covers basic fundamentals of Embedded software testing and life cycle
- Covers about dynamic, model based and coverage testing.
- To study about test management and testing from use cases.

Learning outcomes:

- Learn about concept of embedded software testing, TEmb method and creating test harness
- Learn about Embedded software test life cycle, V-model
- Learn about different types of testing methods
- Learn static analysis and metrics
- Learn about top-down, bottom-up integration and testing from use cases
- Learn about test management and configuration management

COURSE DETAIL

Unit No	Title
1	<p>Fundamentals of embedded software testing</p> <p>Introduction, Concepts of Testing, TEmb method, Test cases and test procedures, Principles of embedded software testing, creating a test harness, Commercial test tools.</p> <p>Software testing life cycle: multiple V-model, nested multiple V-model, master test planning, activities, testing by developers, testing by independent test team.</p>
2	Testing Methods



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	<p>Dynamic Testing: Structured basis testing, Equivalence Partitions, Boundary Value Analysis, Problems with polymorphic code</p> <p>Model-Based Testing: Synthesis- versus Analysis-models, Generating tests from state diagrams</p> <p>Coverage Testing: White-box, grey and black box tests, Coverage measures – Statement, Branch, Condition, Path and others, Coverage testing tools</p>
3	<p>Static analysis and code reviews</p> <p>Code Reviews: Benefits of reviews, Review process, Checklists</p> <p>Static Analysis: Static analysis concepts, the use of the compiler for static analysis, Static analysis tools, coding standards</p> <p>Metrics: need for metrics, Using metrics to manage and control testing, Metrics for test</p>
4	<p>Software Integration</p> <p>Software Integration: Importance of planning your integration, Top-down vs Bottom-up Integration, Practical integration models</p> <p>Testing from Use Cases: Introduction to use cases, calculating test cases, Structured Basis testing for use cases, Generating test cases from use cases</p> <p>Regression Testing: Purpose of regression tests, the build process</p>
5	<p>Test management</p> <p>Configuration Management: Configuration items, Version control, Change Management, CM tools</p> <p>Test Management: The test process, how the test process relates to the software V-model, “Design by contract”, Test-driven development, agile development processes</p>

References:

1. Instructor reference material.
2. Testing Embedded Software by Bart Broekman, Edwin Notenboom