



Course Title:

Verification and Validation of Simulink Models

Course Purpose:

This one-day course describes techniques for testing and formally verifying Simulink® model behavior.

Topics include:

- Recalling the role of verification and validation in Model-Based Design
- Configuring Simulink models for testing
- Testing a Simulink model for accuracy and coverage
- Publishing test results
- Formally verifying model behavior

Pre- requisites:

MATLAB Fundamentals and Simulink for System and Algorithm Modeling

This course is intended for intermediate or advanced Simulink users. Familiarity with creating MATLAB scripts and functions is recommended.



- ✓ 1 training day
- ✓ Hours: 09:00-17:00
- ✓ Total training hours: 8

Teaching method:

The course combines lectures, demonstrations and practical exercises in MATLAB, using original training books from MathWorks. The course is in Hebrew, but the training materials are in English.

עמוד מס' 1

Training Center Systematics - Contact information:

Phone number: 03-7660111 Ext: 5 **Email:** training@systematics.co.il

Website: <http://www.systematics.co.il/mathworks>



Course Objective:

Verification and Validation in Model-Based Design

Objective: Introduce verification and validation in the Simulink environment, and how it fits into a typical Model-Based Design project workflow.

- Continuous test and verification
- Types of verification
- Project environment
- System requirements
- Test plans

Developing Test Cases

Objective: Create and store test cases for a Simulink model, using both MATLAB code and Simulink test harness models.

- Harness models
- MATLAB scripts
- External sources

Analyzing Test Results

Objective: Analyze test results of a Simulink simulation, both during and after the simulation.

- Run-time analysis
- Logging data
- Saving data
- Automated analysis
- Simulation Data Inspector

Running Multiple Tests

Objective: Create repeatable tests, run groups of tests automatically, and collect coverage data on a model.

- Test process
- Self-contained tests
- Test suites
- Speeding up tests

עמוד מס' 2

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Reporting Test Results

Objective: Discuss the methods of sharing test results for Simulink models.

- Publishing MATLAB files
- Standard reports
- Custom reports

Automatically Verifying Models

Objective: Generate model coverage from test cases, and use formal methods to automatically generate tests and prove properties.

- Model coverage
- Automatic test generation
- User-defined objectives
- Property proving

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