multisoft
Systems

Automotive HIL Testing Training

COURSE CONTENT

GET IN TOUCH

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About Multisoft

Train yourself with the best and develop valuable in-demand skills with Multisoft Systems. A leading certification training provider, Multisoft collaborates with top technologies to bring world-class one-on-one and certification trainings. With the goal to empower professionals and business across the globe, we offer more than 1500 training courses, which are delivered by Multisoft's global subject matter experts. We offer tailored corporate training; project Based Training, comprehensive learning solution with lifetime e-learning access, after training support and globally recognized training certificates.

About Course

The Automotive HIL (Hardware-in-the-Loop) Testing Training by Multisoft Systems is designed to equip professionals with in-depth knowledge and practical expertise in validating Electronic Control Units (ECUs) using real-time simulation techniques. As automotive systems become increasingly complex, ensuring their performance and safety through advanced testing methods is critical. HIL testing plays a crucial role in the automotive development cycle by enabling engineers to test ECUs under simulated real-world conditions without the need for an actual vehicle.

Module 1: Introduction to HIL Test

- ✓ Product Development and Product Testing
- ✓ What Is a Hardware-in-the-Loop Test?
- ✓ NI Hardware and Software for HIL Testing
- ✓ Exploring an Automotive Test System

Module 2: How to Create a HIL System Based on Requirements

- ✓ Design Considerations and NI System HIL Overview
- ✓ Grouping Signal Types
- ✓ Wiring

Module 3: Configuring System Setup in NI VeriStand

- ✓ What Is NI VeriStand?
- ✓ Adding Your Hardware into System Explorer
- ✓ Configuring NI VeriStand for Acquisition/Generation
- ✓ Using xMove Configurator for NI VeriStand

Module 4: Models and Custom Devices in HIL

- ✓ Exploring Models in HIL
- ✓ Incorporating Models in NI VeriStand
- ✓ What Are VeriStand Custom Devices?
- ✓ Creating and Installing Custom Devices into VeriStand

Module 5: Communication Protocols in VeriStand

- ✓ Communication Protocols in Default VeriStand
- ✓ Residual Bus Simulation
- ✓ Load and Fault Insertion during Communication

Module 6: Communicating with Test Objects

- ✓ Automotive Toolkits
- ✓ Mapping Communication with a DUT
- ✓ Protecting Your DUT Using Alarms and Procedures

Module 7: System-Level HIL

- ✓ Why the Need of System-Level HIL?
- ✓ Sub-system HIL vs. System-Level HIL on Hardware Level
- ✓ Sub-system HIL vs. System-Level HIL on Software Level
- ✓ Tips and Tricks

Module 8: Performing Autonomous Real Time Testing

- ✓ Performing Manual Tests
- ✓ Autonomous Testing in VeriStand
- ✓ Controlling VeriStand Sequences Using Python

Module 9: Test Executives and Data Analysis

- ✓ Interfacing with VeriStand through APIs
- ✓ Performing Automatic Data Analysis
- ✓ Generating Reports for Automatic Tests

Module 10: Debugging and Troubleshooting

- ✓ System Diagnostic Tools in NI VeriStand
- ✓ Benchmarking and optimizing an HIL System
- ✓ Troubleshooting
- ✓ Various Debugging Techniques Commonly Used in NI VeriStand

Module 11: System Management Using SystemLink

- ✓ What Must We Manage in a HIL System?
- ✓ What Is NI SystemLink?
- ✓ Managing Systems Using SystemLink
- ✓ Running Tests with a HIL System in SystemLink