

## Multisim Basics

The Circuit Design Suite (Multisim and Ultiboard) equips the professional PCB designer with world-class tools for schematic capture, interactive simulation, board layout, and integrated test. This course teaches the fundamentals of the Multisim integrated capture and simulation design environment. Students learn how to build a schematic and evaluate circuit performance through interactive simulation and advanced analyses while creating custom capture and simulation parts. Educators also benefit from additional customizable content specifically for electronics education. At the end of the Multisim Basics course, students can design and simulate a circuit that is ready for board layout and routing. The hands-on format of this course is the quickest way for students to become productive with Multisim.



Classroom: 2 days



On-Site: 2 days



Virtual: four 4-hour sessions



Online: self-paced

### Coursework Goals

- Understand the Multisim user interface
- Use Multisim to capture circuit schematics
- Use interactive simulation to check your design
- Use virtual instruments and analyses
- Apply modular design with sub circuits, hierarchical blocks, or multipage designs
- Create custom title blocks
- Properly document your circuit designs
- Work with design variants
- Create custom components
- Co-simulate MCU projects along with SPICE
- Transfer your design to PCB layout software

### Prerequisites

- Experience with Microsoft Windows
- Basic knowledge of Electronics Theory

### NI Products Used

- Multisim Power Professional
- Ultiboard Power Professional

### Coursework Topics

#### Schematic Capture

Explore the Multisim graphical user interface (GUI) and learn the Schematic Capture process to start your circuit design. Topics include setting environment preferences and placing and wiring components.

#### Simulation and Virtual instruments

Review the simulation capabilities of Multisim as well as the concept-check features. Topics include types of simulation, virtual instruments, and circuit wizards.

#### Analyses

Learn how you can perform advanced analyses to verify your circuit design. Topics include configuring analyses and using custom expressions.

#### Results and Post-Processing

Get an introduction to post-processing and ways to use results from analyses to further calculate and examine data. Topics include configuring the postprocessor and viewing results.

#### Advanced Schematic Capture

Explore the features that help you create professional-looking schematics and correctly documented circuit design. Topics include graphic annotations, comment placing, description box use, and title blocks.

#### Communication and Transfer

Learn the best practices for creating meaningful reports and methods for transferring your design to PCB layout software. Topics include reports in Multisim, the bill of materials, and transfer to PCB layout.

### Projects and Design Sharing

Discover how to professionally architect your design. Learn to use design blocks and buses, check for electrical failures, and use the Project View. Topics include design blocks, hierarchical view, buses, and electrical rules check.

#### Design Variants

Examine design variants and learn how to properly configure and use variants. Also discuss use cases.

#### Custom Components

Explore the process for customizing or editing components and creating new components. Topics include component properties, model makers, and existing database use.

#### MCU Co-simulation

Get an introduction to the Multisim MCU Module. Topics include MCU Workspace, Code Manager, Source Code Editor, Memory View, and debugging features.

#### Educational Features\*

This optional lesson introduces the educational features of Multisim, which are mostly suitable for an academic classroom setup. Topics include rated virtual components, ladder diagrams, circuit description box, and 3D breadboarding.

\* Typically for academic audiences but optional for professional audiences. Topics discussed are included in the educational edition of Multisim; however, not all of them are available in the Base, Full, or Power Pro edition.

### Suggested Next Courses:

- Ultiboard Basics: PCB Layout

### About Haliotech

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