Academic Teaching
Solutions
Brochure

1st Edition

Contents

Duke University Creates a Unique Student Experience, Engaging Students with Real-World Applications

"LabVIEW makes it so much easier and more fun—students don't have to worry about low-level details, so they can focus on problem-solving and experimentation...It's a sigh of relief for mechanical engineers who just want to solve a task—like taking data—without really having to program."

Eric Stach
Mechanical Engineering (MEMS) Lab Manager, Duke University

Texas Rocket Engineering Lab at UT Austin Utilizes Industry Tools to Excel Students and Prepare Them for Industry

"LabVIEW fits how engineers think—it's intuitive, quick, and makes the iterative design process seamless...For real-world testing and understanding how a system behaves, LabVIEW is by far the better programming language compared to Python."

Zach
Student, University of Texas (UT) Austin – TREL (Texas Rocket Engineering Lab)

University of North Carolina Caters to Non-Electrical Engineering (EE) Majors with the Easy-to-Learn Analog Discovery 3

"I use the Analog Discovery 3 in a summer course for non-EE majors (BioMedical). Switching to the AD3 was a game changer, as the students became more engaged and successful in their circuits projects."

Mike Wilkins
Engineering Professor, University of North Carolina

Empowering Engineering Education

At NI, we provide educators with advanced hardware, software, and courseware to bridge theory and real-world engineering. Our solutions promote hands-on learning, innovation, and essential skill-building for future success.

Committed to Academic Excellence

NI equips educators and students with engineering tools that inspire discovery, problem-solving, and confidence. Our solutions develop essential skills from foundational principles to advanced projects.

Software That Powers Learning and Innovation

LabVIEW, our graphical programming platform, helps students visualize complex engineering problems and connect theory with practice. LabVIEW is a professional-grade launchpad for engineering education.

Hardware for Teaching

We provide modular, scalable hardware solutions, including data acquisition systems and experimental platforms, for various engineering disciplines. These tools prepare students to solve real-world problems using professional systems.

Why NI for Academia

Hands-On Learning

Students apply concepts in real-world scenarios using LabVIEW and modular hardware, closing the gap between theory and practice.

Flexibility Across Disciplines

From circuits to wireless communication, NI's adaptable solutions fit seamlessly into diverse engineering and science curricula.

Scalable Solutions

Our hardware grows with your program's needs, supporting everything from introductory labs to advanced student projects.

Industry Alignment

Students gain experience with professional-grade tools, ensuring a smooth transition from the classroom to their future careers.

Teaching Solutions

Universities worldwide rely on NI for innovative engineering education. Our solutions immerse students in hands-on experiences, connecting theory to real-world challenges with industry-grade hardware, software, and courseware.

Solutions for a Variety of Disciplines

Circuits & Electronics
Design and validate circuits with Analog Discovery and Multisim.

Wireless
Experiment with USRP software-defined radio.

Measurement
Teach data acquisition with industry-standard systems.

Signals & Systems
Explore signal processing with Emona board and Analog Discovery Studio Max.

Digital
Use FPGA-based platforms like Basys™ 3 and Nexys™ A7 for digital logic.

Controls & Mechatronics
Implement real-time control with CompactRIO and Single-Board RIO.

Key Products for Educators

NI LabVIEW Software
Simplifies data acquisition, control, and signal processing with an easy-to-build, interactive user interface.

NI Multisim Software
Strengthens electronics learning with intuitive circuit simulation.

Digilent Analog Discovery
Portable lab for electronics and digital system experiments.

NI Data Acquisition Hardware
Measures and analyzes real-world sensors and signals.

NI Ettus USRP Software-Defined Radio
Teaches wireless design and communications concepts.

Circuits and Electronics Laboratory
Empower Students with Practical Circuit Skills

Blend theory with real-world experimentation to provide a solid foundation in electronic circuits. Students build, test, and troubleshoot circuits, gaining confidence to tackle modern engineering challenges both on campus and remotely.
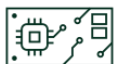
Limited Lab Access
Provide portable hardware so students can keep working outside the traditional lab space.

Budget Constraints
Offer professional-grade quality solutions that are cost-effective without sacrificing performance.

Complex Circuit Design
Simplify simulation and visualization so students connect theoretical concepts to real-world applications.

Remote/Hybrid Learning
Ensure students get meaningful, hands-on circuit experience even in distance or blended environments.

Recommended Solutions

NI offers practical, industry-standard tools that balance performance and affordability. Integrating these tools into your lab helps students develop theoretical understanding and practical skills for engineering success.

Digilent Analog Discovery Series Hardware Options

NI Digilent Analog Discovery 3 (AD3) – Portable device combining oscilloscope, waveform generator, and logic analyzer. Students conduct labs and projects anywhere, reinforcing theory with real experiments.

NI Digilent Analog Discovery Studio Max (ADS Max) – Equipped with 13 built-in instruments, including an oscilloscope, waveform generator, and logic analyzer. Combine with partner boards for more features and integrate with LabVIEW for industry skills.

NI Software Options

NI Digilent WaveForms – All-in-one environment for measuring, analyzing and debugging circuits using the Analog Discovery instrumentation, reinforcing theoretical knowledge with hands-on exploration.

NI Multisim – Simulate, design, and analyze circuits in a feature rich environment. Multisim Live enables online collaboration, ideal for hybrid or remote coursework.

NI LabVIEW – Teach test, measurement, and automation with a graphical programming platform. Combine with the Digilent Analog Discovery Studio Max for a complete hands-on circuit design and data acquisition experience.

Wireless Laboratory
Equip Students with Real-World Wireless Skills

Help your class master wireless communications, from frequency-domain analysis to advanced protocols like 5G. With hands-on access to software-defined radios and intuitive tools, students gain practical experience in modulation, demodulation, and spectrum analysis.

Complex Wireless Concepts

Visualize and experiment with modulation, algorithm design and frequency analysis with flexible workflows

Industry Preparation

Learn industry-relevant protocols and workflows to stay current with evolving standards like 5G and 6G

Hardware Accessibility

Support both introductory and advanced wireless labs with scalable and cost-effective solutions.

Recommended Solutions

NI offers flexible, industry-standard tools for teaching wireless communications, from foundational concepts to advanced technologies. Combining NI's USRP family with supported software, students gain hands-on experience with modern wireless protocols, preparing them for 5G and future 6G challenges.

Hardware Option

USRP Product Family - NI's Universal Software Radio Peripheral (USRP) devices offer full-duplex MIMO, covering 70 MHz to 7.2 GHz for a wide range of wireless experiments.

Software Options

Choose Your Tools – Program USRPs with LabVIEW, GNU Radio, Python, or other environments using the free UHD hardware driver, allowing students to learn in familiar frameworks.
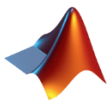
MATLAB®, Simulink®, and Wireless Testbench – Provides a radio-in-the-loop environment for SISO and MIMO system design, prototyping, and verification. Students can develop USRP software for both host-based and FPGA-based applications.

RFNoC™ (RF Network on Chip) – Accelerates custom IP integration and reduces development time for FPGA engineers who want direct control over the USRP signal chain.

NI LabVIEW Software – Develop and test communication systems with a graphical environment. Run LabVIEW applications directly to USRP devices for rapid prototyping, hands-on learning, and real-world testing.

Measurement Laboratory
Give Students Real-World Measurement Skills

Enable students to measure and analyze physical phenomena. NI's DAQ systems capture voltage, temperature, waveforms, and sensor data—ideal for Physics, Chemistry, and Instrumentation Labs. These solutions support hands-on learning and precise measurements.

Varied Measurement Requirements
Provide tools that handle from simple voltage readings to multi-channel, high-speed data acquisition.

Scalability for Different Lab Levels
Use solutions that adapt from introductory labs to graduate-level research with reliable performance.

Software Integration
Let students program and analyze data in LabVIEW or other languages, building skills that translate to real engineering environments.

Recommended Solutions

NI's measurement solutions teach sensor-based data collection, signal analysis, and experimental validation. Start with simple systems or scale up to advanced setups, reinforcing industry-ready techniques. These tools help students develop practical measurement skills for real-world challenges.

NI Data Acquisition Hardware

Stand-Alone DAQ Devices (Introductory to Intermediate) – Cost-effective USB DAQ options for basic voltage, temperature, and digital signal experiments. Easy setup for lab or on-the-go use.

Modular DAQ System (Intermediate to Advanced) – NI C Series modules for diverse measurements like accelerometers and thermocouples. Tailor modules to course requirements for deeper experiments.

NI Software Options

NI FlexLogger – Collect sensor data quickly without programming—ideal for simple lab exercises.

NI LabVIEW – Design automated experiments, gather data, and analyze results with a graphical programming platform.

NI-DAQmx Driver – Integrate hardware with LabVIEW, Python, C++, and more, allowing students to program DAQ systems in their preferred language

Signals and Systems Laboratory
Help Students Explore Real-World Signal Processing

Teach core principles of signals and systems—from Fourier transforms to digital filtering—using interactive tools that link theory to real-world applications. Empower students to analyze, synthesize, and process communication signals, building hands-on skills in modulation and system design.

Abstract Concepts
Principles like Fourier transforms, modulation, and filtering can feel distant without engaging, interactive experiences.

Hands-On Experimentation
Students need accessible, user-friendly tools to explore signal processing in class or at home.

Scalability
Solutions must work in both physical and remote learning environments, ensuring everyone gains practical expertise.

Recommended Solutions

NI offers versatile, scalable platforms for students to grasp complex signal and communication concepts through direct experimentation. These tools provide an interactive way to master signal transmission, modulation, and system design, preparing students for modern engineering challenges.

Digilent Hardware

NI Digilent Analog Discovery Studio Max (ADS Max) + Emona Signals and Systems Board – Combine multiple instruments in one compact device for experimenting with communication topics anytime, anywhere. Use specialized boards (Fiber Optics, Wireless Analog & Digital Communications) to explore modulation, filtering, and Fourier analysis in hands-on labs.

NI Software Options

NI Digilent WaveForms – Real-time signal generation, frequency analysis, and Bode plots in one intuitive interface, visualizing concepts like filtering, modulation, and system response

NI LabVIEW – Built-in signal processing functions for prototyping, analyzing, and applying real-world signal concepts. Transform theory into practice with frequency domain analysis to digital filtering in a graphical programming environment.

Digital Laboratory
Empower Students to Master Digital Logic and FPGA Design

Give your class hands-on experience in designing, simulating, and implementing digital circuits. Working with FPGAs and embedded systems, students gain real-world skills in debugging and performance analysis, preparing them for modern engineering roles.

Tool Accessibility
Offer affordable, user-friendly FPGA hardware so students can explore digital logic from anywhere.

Practical Skill Development
Ensure students move from theory to practice by designing, testing, and refining circuits.

Simulation Before Hardware
Provide software tools that let students confirm designs before committing to physical devices—minimizing errors and boosting confidence.

Recommended Solutions

NI offers solutions for designing, testing, and implementing digital circuits. Each platform translates classroom theory into practical, industry-relevant skills. Integrating these hardware and software solutions helps students develop robust digital logic and FPGA skills, bridging academic theory to real-world engineering applications.

NI Data Acquisition Hardware

NI Digilent FPGA Boards (Basys™ 3 & Nexys™ A7) – Empower students to practice Boolean logic, sequential circuits, and full FPGA-based system design. Support both introductory exercises and complex projects for advanced courses.

NI Digilent Digital Discovery – Use a high-performance logic analyzer and pattern generator for precise signal visualization and debugging. Equip students to verify circuit operation before final hardware deployment.

NI Digilent Analog Discovery Studio Max (ADS Max)– Provide an all-in-one lab with integrated logic analyzer, oscilloscope, and power supply—ideal for prototyping digital circuits. Let students explore signals in real time and build confidence in design fundamentals.

NI Software Options

AMD Vivado & Vitis – Leverage a complete toolchain for HDL-based development and embedded software on Xilinx devices. The free Vivado WebPACK™ edition provides core functionality for academic use (check regional availability).

WaveForms SDK – Integrate Digilent instrumentation with Python, C, and other languages for custom measurement and automation—ideal for deeper exploration of digital systems.

NI Multisim – Simplify digital logic simulation, letting students test and refine circuits in a virtual environment. Reinforce circuit analysis skills and accelerate learning by catching errors early.

Controls and Mechatronics Laboratory
Help Students Master Real-Time Control and Automation

Empower your class to design, implement, and troubleshoot control systems with sensors, actuators, and embedded hardware. With the right tools, students build functional systems that mirror real-world industrial applications

System Complexity
Designing and debugging real-time control systems can be daunting without industry-relevant platforms.
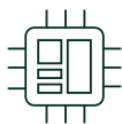
Real-Time Applications
Providing experience with embedded systems is critical to teach how complex control algorithms work in real time.

Industry-Standard Tools
Introducing industry-adopted technologies ensures your students graduate with career-ready skills.

Recommended Solutions

NI offers versatile, scalable platforms for students to grasp complex signal and communication concepts through direct experimentation. These tools provide an interactive way to master signal transmission, modulation, and system design, preparing students for modern engineering challenges.

NI Hardware Option

NI CompactRIO (cRIO) or NI Single-Board RIO (sbRIO) – Give students a platform to develop advanced automation and signal processing applications on industry-grade hardware. Teach them to design, implement, and test real-time control systems in a professional environment.

NI Software Option

NI LabVIEW – Streamline control system design, data acquisition, and implementation with a single, intuitive environment. Connect LabVIEW with cRIO or sbRIO to let students efficiently deploy and test embedded control applications, reinforcing theoretical and practical skills.

Student-Owned Product Recommendations
Empower Students with Their Own Tools

Encourage hands-on exploration anytime, anywhere. Owning professional-grade hardware and software helps students build confidence, robust project portfolios, and real-world engineering skills.

Recommended Products

Hardware Option

NI USB-6000 or USB-6001 – Affordable data acquisition device for basic signal measurements and sensor integration, allowing students to experiment with real-world inputs and outputs.

NI Digilent Analog Discovery 3 – All-in-one device for circuit testing, digital logic debugging, and project development, bridging theory with hands-on experience wherever they learn.

Software Option

NI LabVIEW Community Edition – Free access to LabVIEW's test, measurement, and automation tools for exploring beyond classroom assignments.

Student Install Option (SIO) with AVL – Cost-effective LabVIEW and Multisim licenses through your institution's Academic Volume License (AVL), ensuring every student can practice with industry-standard software.

Digilent Waveforms – Free software to use with Digilent Analog Discovery hardware. Equipped with 13 built-in instruments, including an oscilloscope, waveform generator, and logic analyzer.
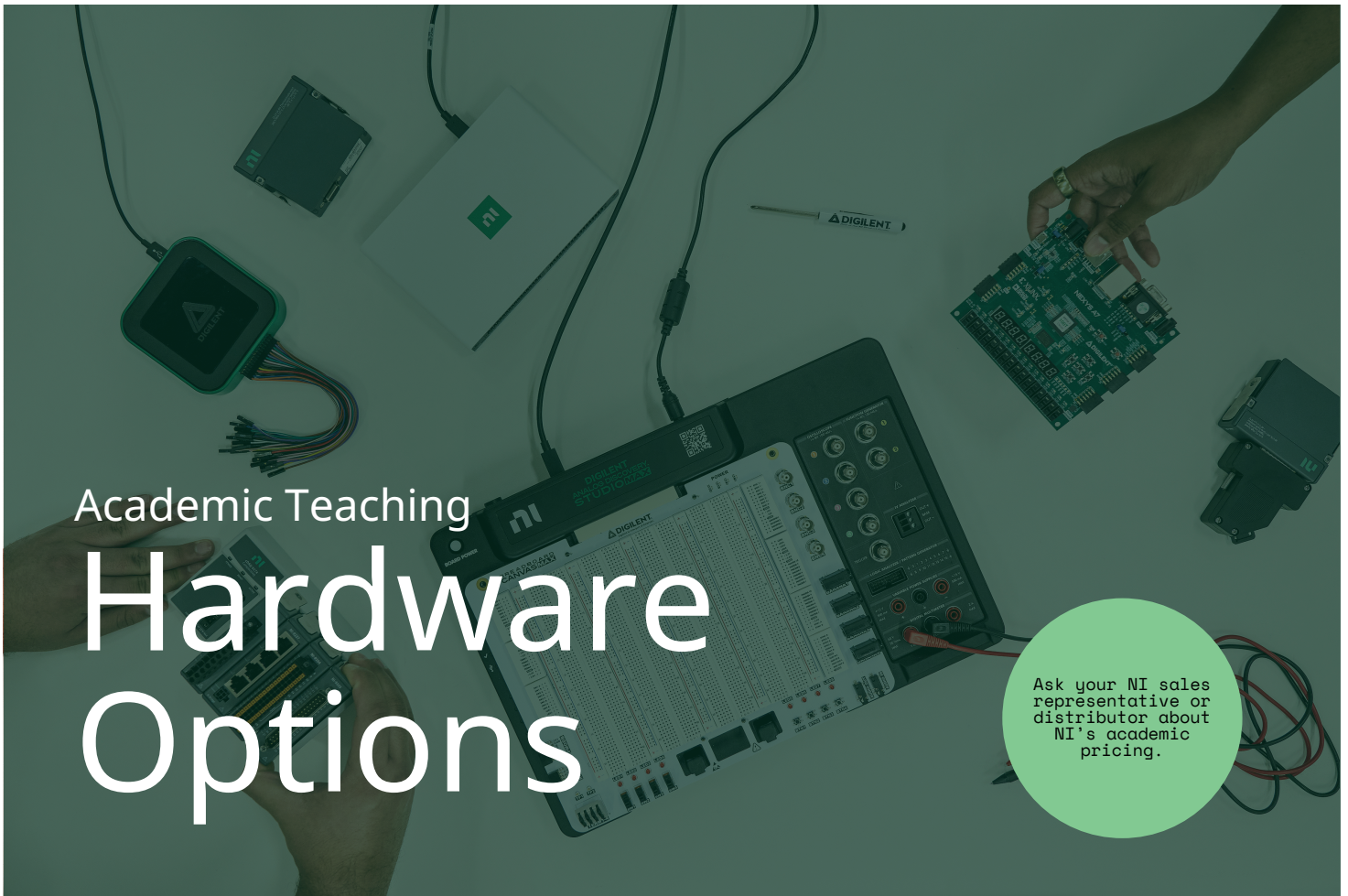
Academic Teaching

Hardware Options

Ask your NI sales representative or distributor about NI's academic pricing.

Hardware for Variety of Disciplines

Give your students professional-grade, cost-effective hardware that fosters hands-on learning. Use NI's modular platforms—from high-speed data acquisition (CompactDAQ) to real-time control (CompactRIO)—to teach core engineering concepts with the same tools found in industry. Meanwhile, Digilent's accessible solutions, including the Analog Discovery series and FPGA boards, support both fundamental and advanced coursework. Together, these products form a scalable platform that develops real-world skills and confidence in every lesson

Digilent Analog Discovery

Use all-in-one instrumentation solutions—both on the go and in the lab—that provides up to 13 different instruments in a single device.

NI Reconfigurable I/O (RIO)

Use FPGA-powered real-time control for everything from robotics to advanced mechatronics.

NI Data Acquisition (DAQ)

·Connect a variety of signals and sensors to quickly acquire, log, and plot data.

Software-Defined Radio (SDR)

Explore modern wireless communications, signal processing, and RF applications—all in one programmable, flexible platform.

NI Digilent Analog Discovery

Empower your students with all-in-one test and measurement devices that range from fitting in a backpack to being in the lab. From simple circuit measurements to advanced mixed-signal analysis, Digilent Analog Discovery tools provide real-world experimentation in any location—no large lab benches required.

Analog Discovery Studio Max

Key Capabilities
- 13 integrated instruments (scope, DMM, power supplies, etc.)
- 14-bit at up to 100 MS/s
- Built-in breadboard & power rails
- Streamlined for quick, repeated lab setups

Typical Usage
- Circuit fundamentals through advanced labs
- Rapid lab station setup for large classes
- In-depth electronics experiments (op amps, filters, etc.)
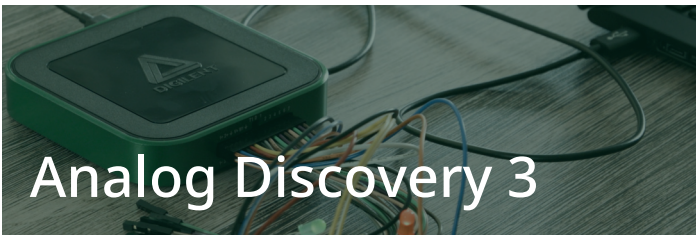
Analog Discovery 3

Key Capabilities
- 2-channel oscilloscope, 2-channel waveform generator
- ±25 V input range, ±5 V output range
- 14-bit resolution, up to 125 MS/s sampling
- USB-powered, fits in a backpack

Typical Usage
- Voltage/current measurements
- Basic sensor integration
- Circuit prototyping at home or in class
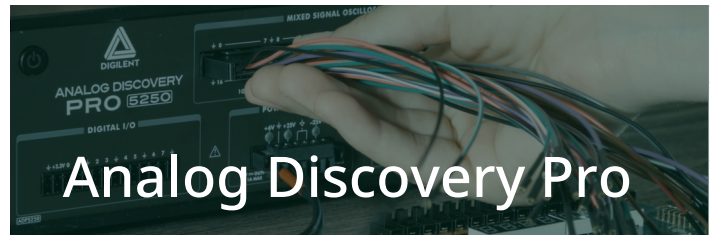
Analog Discovery Pro

Key Capabilities
- Up to 1.5 GS/s (8-bit), 100 MHz bandwidth
- 32 digital channels & external triggering (model-dependent)
- Integrated power supplies for system-level testing
- Expandable via scripting in WaveForms

Typical Usage
- High-speed signal acquisition & analysis
- Mixed-signal system validation
- Advanced circuit design & automation

Instruments Available on Waveforms Software

- Oscilloscope
- Arbitrary Waveform Generator
- Data Logger
- Power Supplies
- Voltmeter
- Logic Analyzer
- IV Curve Tracer
- Digital Pattern Generator
- Virtual I/O
- Spectrum Analyzer
- Network Analyzer
- Impedance Analyzer
- Protocol Analyzer
- Digital Multimeter

Recommended Software

- **WaveForms (Free with Analog Discovery hardware)** - Intuitive software for instrument control on Windows, macOS, and Linux
- **LabVIEW (AVL or Single-Seat License)** - Graphical programming integration for custom measurements and automation
- **Other Languages (C/C++, Python, MATLAB)** - Use the WaveForms SDK to script or automate tests

NI Data Acquisition

Equip your students with real-world measurement skills that bridge theory and hands-on practice. From basic sensor labs to advanced research, NI's DAQ solutions support accurate and scalable experimentation.

Multifunction (All-in-One) DAQ Devices
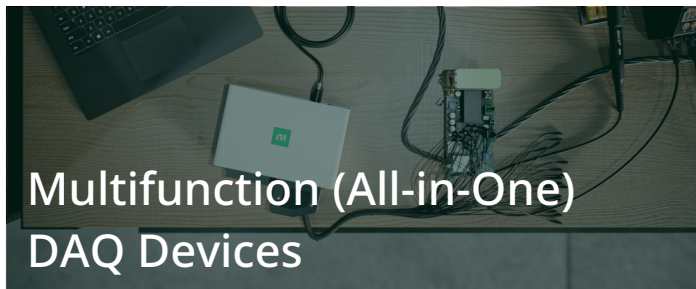
Key Capabilities
- Up to ±10 V analog input/output, plus digital I/O
- 10 kS/s to 1 MS/s sample rates (device-dependent)
- Simple USB plug-and-play for laptops and lab PCs

Typical Usage
- Voltage/current measurements for basic circuits labs
- Quick data-logging exercises using LabVIEW or Python
- Capstone Projects: Inexpensive, student-owned hardware for project prototyping

NI CompactDAQ (cDAQ) Chassis + C Series Modules
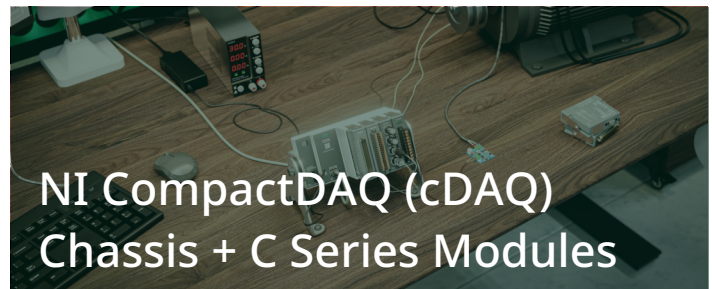
Key Capabilities
- Supports 70+ C Series I/O modules (voltage, strain, thermocouples, accelerometers, etc.)
- Rugged form factor for classroom or field use
- USB or Ethernet connectivity for distributed or synchronized measurements

Typical Usage
- Record data from strain gauges, load cells, or physiological sensors
- Teach advanced sensor integration and signal conditioning
- Graduate Research: Expand channels or add specialty modules for deeper experimentation

CompactDAQ Showcase

Varies by model
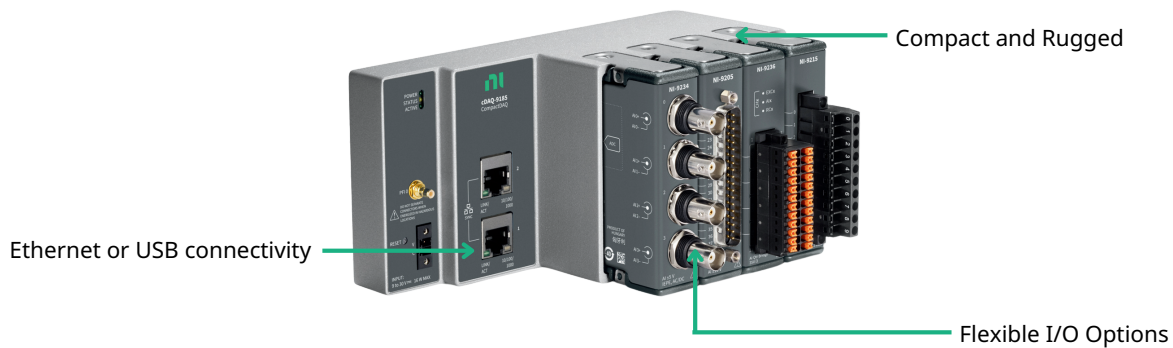
Compact and Rugged

Ethernet or USB connectivity

Flexible I/O Options

Recommended Software

- **LabVIEW (Included in Academic Volume License):** Graphical programming to acquire, process, and visualize data.
- **FlexLogger (Included in Academic Volume License):** A no-code environment to set up, log, and monitor measurements with minimal training.
- **FlexLogger Lite (Free with NI DAQ hardware):** Streamlined version for quick setup in teaching labs.
- **Additional Options:** C/C++, Python, LabWindows/CVI

NI Reconfigurable I/O (RIO)

Equip your students with FPGA-powered real-time control for everything from robotics to advanced mechatronics. With an onboard processor and programmable FPGA, NI RIO devices (sbRIO, CompactRIO) let students design, prototype, and deploy embedded systems in a single, intuitive environment.

Single-Board RIO (sbRIO)

Key Capabilities
- Integrated ARM processor + FPGA on one board
- Direct sensor/actuator connectivity
- NI Linux Real-Time OS
- Small footprint for robotics, portable demos

Typical Usage
- **Robotics & Mechatronics:** Drive motors, read encoders, run closed-loop control
- **Controls & Automation Labs:** Explore real-time control theory without low-level coding
- **Advanced Projects:** FPGA-level signal processing in a tight, single-board form factor

NI CompactRIO (cRIO) + C Series Modules

Key Capabilities
- Rugged, modular chassis supporting 70+ C Series I/O
- Real-time processor + user-programmable FPGA
- NI Linux Real-Time OS for deterministic control
- Handles higher channel counts and harsh conditions

Typical Usage
- **High-Channel-Count Labs**: Integrate strain, vibration, temperature, and digital I/O modules
- **Industrial Automation & Research**: Rapidly prototype control systems in a professional-grade form factor
- **Hardware-in-the-Loop (HIL):** Teach real-time simulation and test methods

CompactRIO Showcase

Varies by model
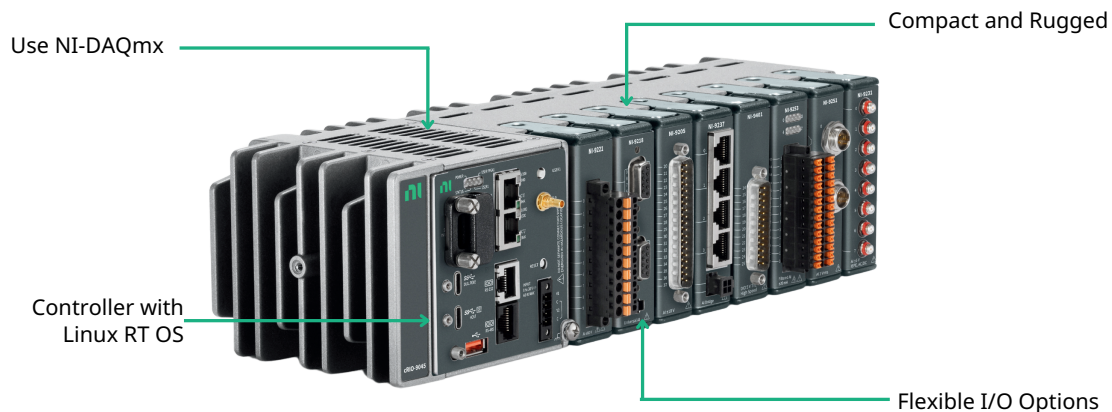
Use NI-DAQmx

Compact and Rugged

Controller with Linux RT OS

Flexible I/O Options

Recommended Software
- **LabVIEW (Included in Academic Volume License) -** Graphical programming for developing real-time and FPGA applications without HDL.
- **LabVIEW FPGA Module (Included in LabVIEW AVL) -** Program the onboard FPGA directly in a block diagram environment.
- **LabWindows/CVI, Python, C/C++ -** For those preferring a text-based approach to real-time and FPGA interaction.

Software-Defined Radio

Enable your class to explore modern wireless communications, signal processing, and RF applications—all in one programmable, flexible platform. By replacing fixed hardware with software-defined functionality, NI Ettus USRP™ devices help students prototype, test, and deploy advanced wireless concepts—without heavy lab setups or specialized equipment.
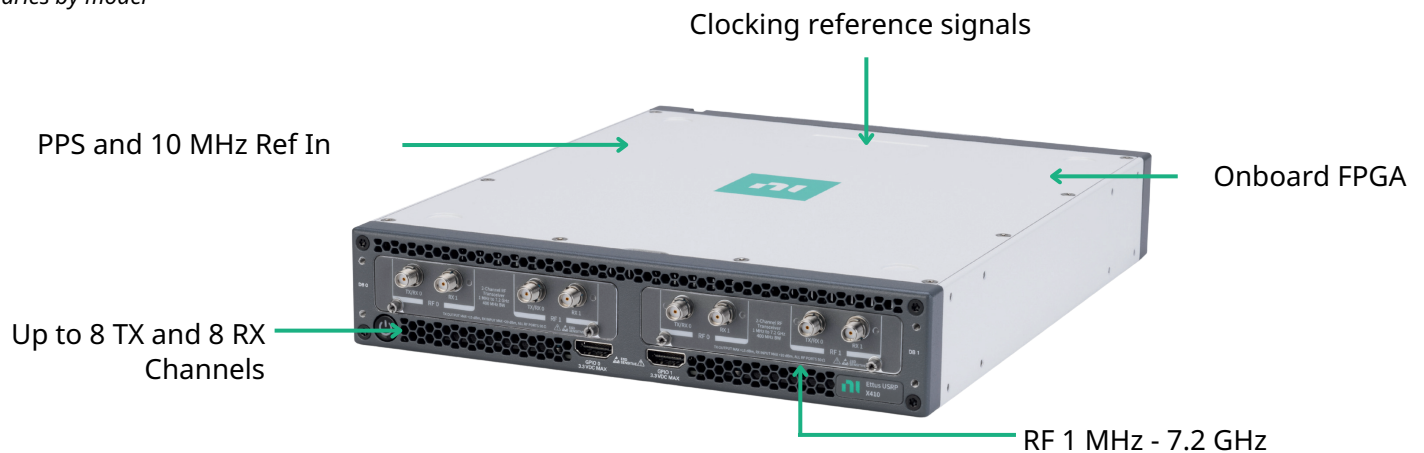

Software-Defined Radio
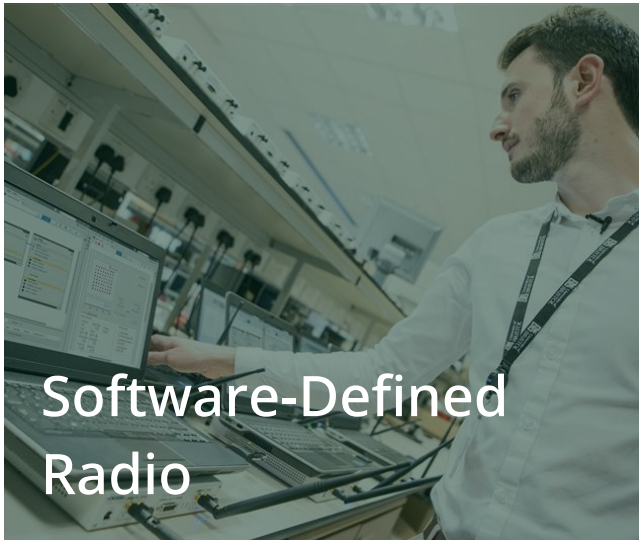
Key Capabilities
- 1 MHz to 7.2 GHz (tunable up to 8 GHz)
- Up to 1.6 GHz per channel and 8×8 MIMO
- Ideal for 5G, O-RAN, radar, and cognitive radio experiments
- Offload real-time DSP to the onboard FPGA or use host-based processing

Typical Usage
- **Wireless Communications Labs:** Teach fundamentals of modulation, demodulation, and spectral analysis
- **Advanced Projects & Research:** Prototype 5G, O-RAN, MIMO, or radar systems with professional-grade equipment
- **Hands-On RF Curriculum:** Let students develop real-world signal processing and testing skills using open-source or NI tools

Anatomy of SDRs

Varies by model

Clocking reference signals

PPS and 10 MHz Ref In

Onboard FPGA

Up to 8 TX and 8 RX Channels

RF 1 MHz - 7.2 GHz

Recommended Software

Use the software of your choice - Pair USRP devices with LabVIEW, C/C++, Python, MATLAB, or the software of your choice using the free UHD driver. Match each lab's workload and coding style while keeping a consistent driver experience.

- **UHD (USRP Hardware Driver™)** for Linux, Windows, macOS
- **GNU Radio:** Open-source toolkit for rapid SDR development in Python/C++
- **MATLAB®, Simulink®, Wireless Testbench:** Radio-in-the-loop for SISO or MIMO design and simulation
- **RFNoC™:** FPGA-based custom IP development in GNU Radio without the need for low-level HDL
- **LabVIEW:** Graphical environment for real-time FPGA programming, multi-rate DSP design, and float-to-fixed-point conversion
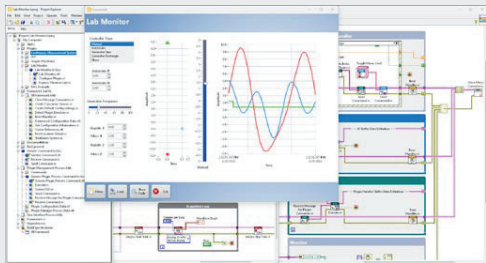
Academic Teaching

Software Options

Give Your Students Industry-Standard Tools for Every Lab

Equip your classes with professional-grade software that spans circuit simulation, data acquisition, automation, and control. From LabVIEW for test and measurement to Multisim for circuit design, NI's academic software ensures hands-on exploration, fosters innovation, and aligns with real-world engineering processes

Get Access to All the Software with the Academic Volume Licenses (AVL)

Equip your labs and classrooms with industry-standard tools for engineering education. By purchasing an NI Academic Volume License (AVL), you grant students and faculty convenient access to powerful software like LabVIEW and Multisim, all under one flexible agreement.

LabVIEW for Academic Use Academic Volume License (LabVIEW AVL)

Ideal for measurement, automation, and embedded systems courses. Includes LabVIEW and key add-ons.
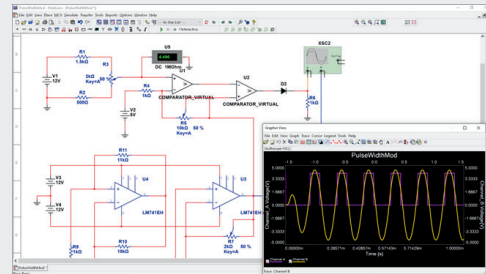
Multisim Academic Volume License (Multisim AVL)

Perfect for teaching circuit design, analysis, and simulation at scale.

Note for Secondary Schools: Looking to bring NI software into your STEM curriculum? Reach out to your NI Sales representative or distributor to learn more about the combined LabVIEW and Multisim AVL for secondary education.

Flexible Licensing

Scale software access across your institution, from a single lab to an entire campus.

Student Access

Let learners install LabVIEW or Multisim on personal devices so they can practice, collaborate, and innovate beyond classroom hours.

Comprehensive Tools

Cover everything from data acquisition and test automation to circuit design and simulation, bridging theory with real-world application.

ni.com/academic
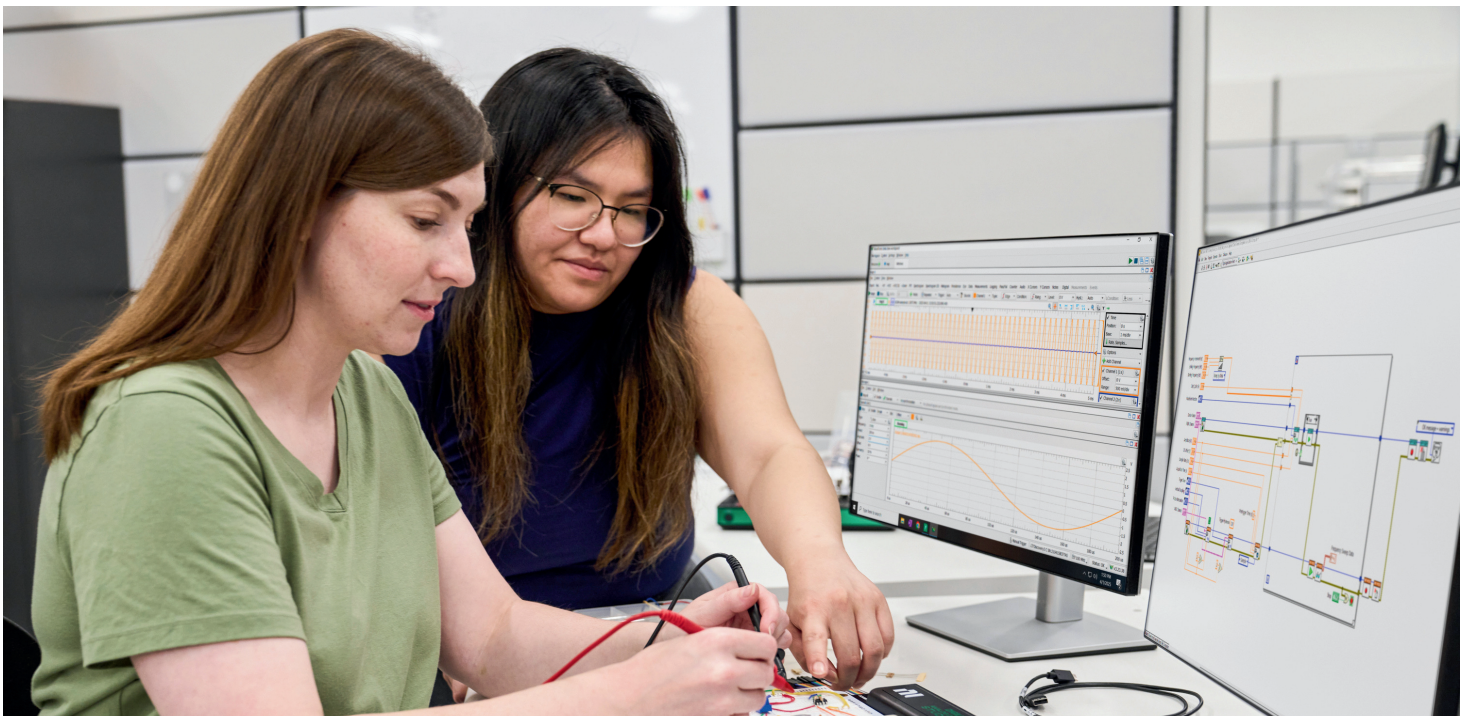
LabVIEW for Academic Use Academic Volume License (LabVIEW AVL)

It's LabVIEW, and a whole lot more. The LabVIEW AVL brings together toolkits, modules, and key application software plus bundled-in services such as Education Service Credits (ESC), on-demand training access, and more. With the LabVIEW AVL, students and faculty can design, prototype, and deploy engineering systems using industry-standard tools.
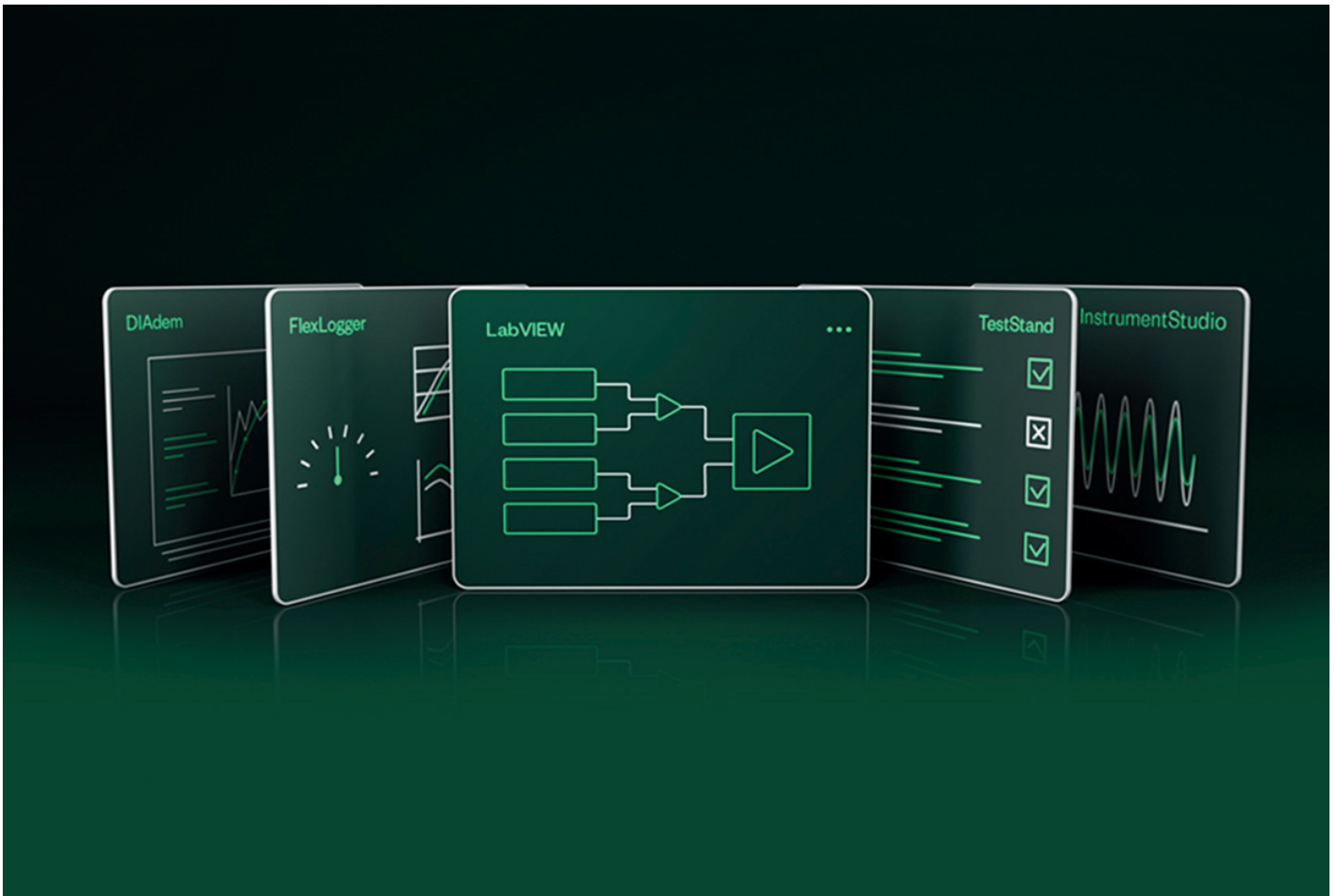
What's Included in the LabVIEW AVL

Comprehensive Software Access
Industry-standard software that can be used in a variety of academic disciplines, such as electrical engineering, mechanical engineering, physics, mechatronics, and biomedical engineering.

Scalable Licensing Options
Add more licenses at a lower cost as your program grows and simplify software distribution and licensing across departments and classrooms.

Student Install Option (SIO)
Allows students to install any software in the suite on personal computers, enabling hands-on learning anytime, anywhere. The SIO benefit is offered as x5 the number of AVL seats.

Education Services Credits
Apply credits towards NI certifications like the CLAD (Certified LabVIEW Associate Developer) and virtual, instructor-led training.

On-Demand Training
Access to NI's training library for self-paced learning and certification preparation. Access on-demand training on learn.ni.com.

LabVIEW for Academic Use Course Content
Specialized course material to support STEM education and real-world applications.

Software Included in the LabVIEW AVL

LabVIEW Application Environment

Software/Product Name	Description
LabVIEW Professional Development System (Page XX).	Industry-standard graphical programming environment for developing and deploying engineering applications.
LabVIEW Advanced Signal Processing Toolkit	Tools for performing sophisticated signal processing tasks such as spectral analysis, filter design, and time-frequency analysis.
LabVIEW Analytics and Machine Learning Toolkit	Simplifies the integration of AI and machine learning algorithms into LabVIEW applications.
LabVIEW Application Builder	Enables standalone application creation with customizable installers.
LabVIEW Automotive Diagnostic Command Set Toolkit	Provides access to diagnostic and communication protocols for automotive applications.
LabVIEW Control Design and Simulation Module	Tools for modeling, simulating, and analyzing control systems.
LabVIEW Database Connectivity Toolkit	Facilitates database integration for data logging and retrieval.
LabVIEW Datalogging and Supervisory Control Module (32-bit only)	Monitors and manages industrial automation systems with 32-bit LabVIEW.
LabVIEW Desktop Execution Trace Toolkit	Debugging tool to analyze LabVIEW application performance.
LabVIEW Digital Filter Design Toolkit	Simplifies the design and implementation of digital filters.
NI ECU Measurement and Calibration Toolkit	Develops and tests ECU applications with measurement and calibration capabilities.
LabVIEW Electric Motor Simulation Toolkit	Tools for modeling and simulating electric motor systems.
LabVIEW Electrical Power Toolkit Professional Edition	Analyzes electrical power systems for engineering applications.
LabVIEW Ethernet/IP Adapter Toolkit	Enables communication with industrial devices using Ethernet/IP protocols.
LabVIEW FPGA Module	Develop and debug custom hardware logic that you can compile and deploy to NI FPGA hardware.
LabVIEW Real-Time Module	Develops deterministic real-time applications on NI hardware.
LabVIEW Report Generation Toolkit	Automates report creation in Microsoft Word and Excel.
LabVIEW Robotics Module	Provides tools for designing and deploying robotic systems.
LabVIEW Statechart Module	Develops and executes complex state machine designs.
LabVIEW Unit Test Framework Toolkit	Automates testing and validation of LabVIEW applications.
LabVIEW VI Analyzer Toolkit	Ensures code quality with automated style and performance checks.
LabVIEW Model Interface Toolkit	Connects Simulink® models to LabVIEW applications.
LabVIEW Sound and Vibration Toolkit	Provides tools for analyzing acoustic and vibration data.
LabVIEW SoftMotion Module	Controls and simulates motion systems.

NI LabWindows™/CVI Application Environment

Software/Product Name	Description
LabWindows/CVI Full Development System	ANSI C-based software development environment for test and measurement applications.
LabWindows/CVI Automotive Diagnostic Command Set	Adds automotive protocol support to LabWindows/CVI applications.
LabWindows/CVI ECU Measurement and Calibration Toolkit	Facilitates ECU calibration and testing.
LabWindows/CVI Real-Time Module	Develops real-time applications with the LabWindows/CVI environment.

NI DIAdem Software Environment

Software/Product Name	Description
DIAdem Professional	Powerful tool for data analysis, visualization, and reporting.
DIAdem Crash Analysis Toolset	Analyzes crash test data for automotive safety.

NI Measurement Studio Application Environment

Software/Product Name	Description
Measurement Studio	.NET software tools for data acquisition and analysis in engineering applications

Other Application Software Environments

Software/Product Name	Description
NI TestStand	Test management software for automating validation and production test systems.
NI FlexLogger™	Simplifies data acquisition and logging without programming.
NI VeriStand	Real-time testing platform for validating control systems.
NI G Web Development Software	Tools for building web-based monitoring and control applications.
Vision Builder for Automated Inspection	Creates and deploys machine vision inspection systems.

Drivers

Most NI drivers are free and do not require a license, such as NI-DAQmx, NI-DMM, NI CompactRIO, and so on. Download drivers on ni.com/drivers.

The following drivers each require a license and are included in the LabVIEW AVL:

Software/Product Name	Description
LabVIEW OPC UA Toolkit Deployment License	Enables OPC UA protocol deployment in LabVIEW applications.
LabVIEW OPC UA Toolkit Development License	Develops OPC UA-enabled applications in LabVIEW.
Vision Development Module	Acquires and processes images for machine vision and automation tasks.
Vision Acquisition Software	Acquire, display, and save images from a range of industry standard cameras interfaces

Multisim Academic Volume License (AVL)

The Multisim Academic Volume License (AVL) provides universities with comprehensive access to NI's Circuit Design Suite, which includes both Multisim and Ultiboard. This suite enables students and faculty to design, simulate, and analyze electronic circuits with industry-standard tools.
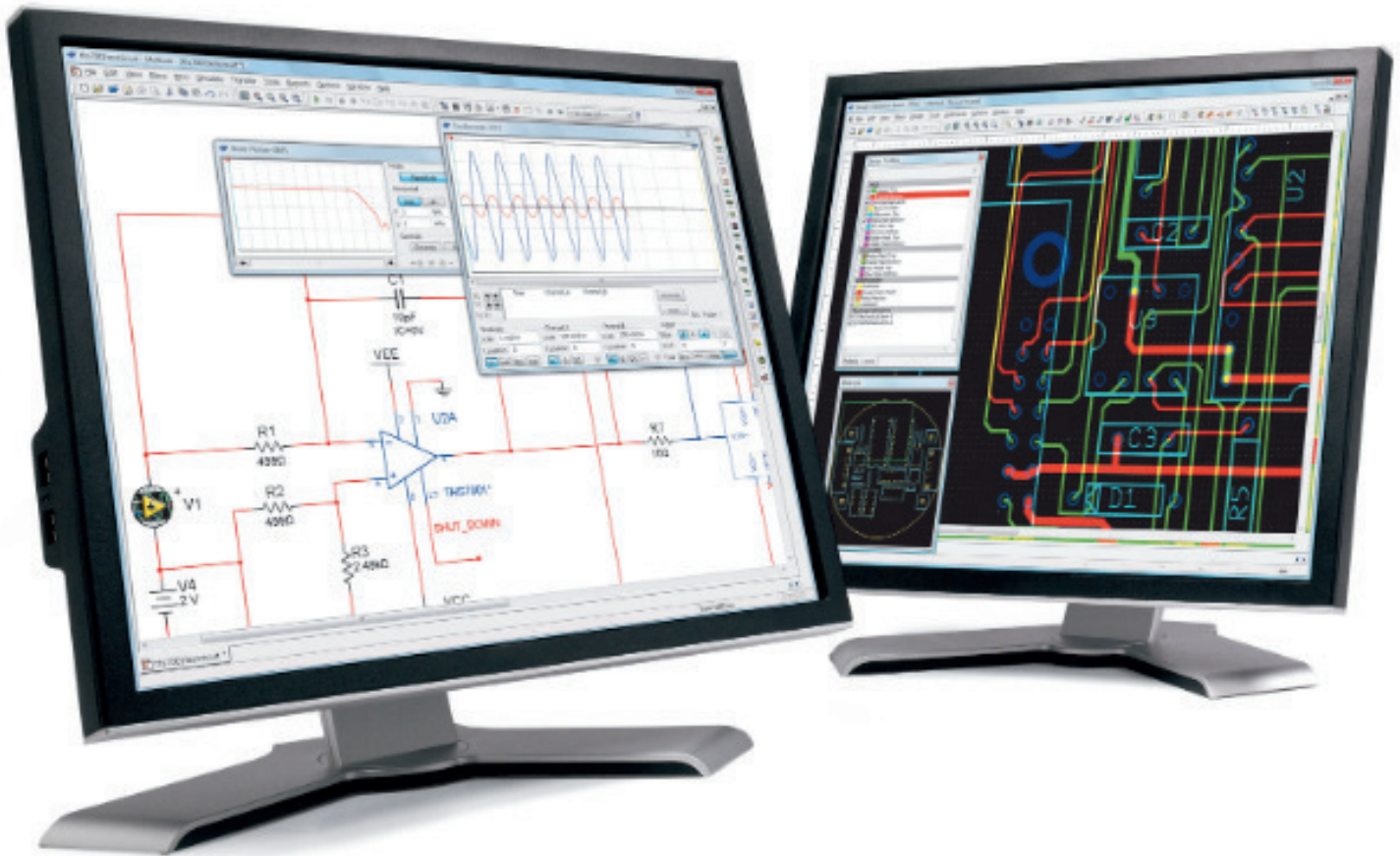
What's Included in the Multisim AVL

Scalable Licensing Options
Simplifies software distribution and licensing across departments and classrooms

Student Install Option (SIO)
Allows students to install any software in the suite on personal computers, enabling hands-on learning anytime, anywhere.

Software Included in the Multisim AVL

Software/Product Name	Description
NI Multisim	Industry-standard SPICE simulation software for analyzing and designing analog, digital, and power electronic circuits.
Multisim MCU Module	Enables microcontroller (MCU) co-simulation, allowing students to integrate MCU code with simulated circuits for hands-on learning.
NI Ultiboard	A powerful PCB layout tool that complements Multisim by enabling circuit designs to transition into physical prototypes.
Multisim Live	A web-based circuit design and simulation platform, allowing students to collaborate and work on designs anytime, anywhere. Access on https://www.multisim.com/

Single-Seat NI Software for Academia

NI offers affordable single-seat software licenses for academic teaching and research needs. These licenses are subscription-based and include only the specific software they are issued for. While single-seat licenses are suitable for individual use, we recommend the Academic Volume License (AVL) for campus-wide licensing to maximize benefits and cost efficiency
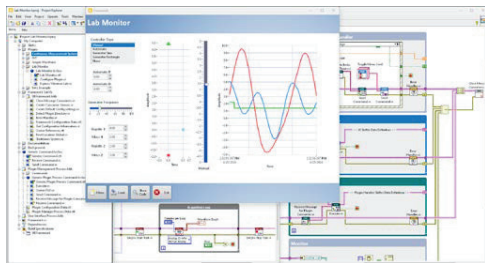
NI LabVIEW Professional Development System

A comprehensive graphical programming environment for automating data acquisition, signal analysis, and test system development. Perfect for advanced labs that require custom user interfaces, real-time monitoring, and in-depth signal processing—all while reinforcing real-world engineering concepts.

Academic Single-Seat P/N: 789985-35
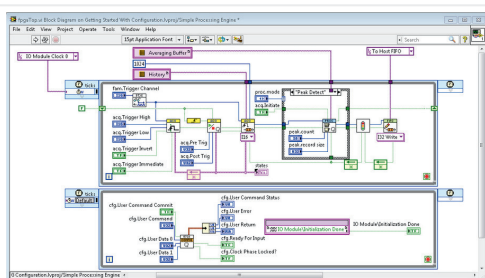
NI LabVIEW FPGA Module

A graphical programming solution for creating high-speed, deterministic applications on FPGAs—without the need for traditional HDL coding. Perfect for advanced courses exploring parallel processing, signal conditioning, and real-time embedded designs.

Academic Single-Seat P/N: 789982-35
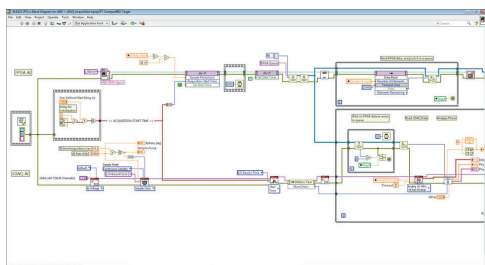
NI LabVIEW Real-Time Module

Enables you to build and deploy deterministic applications on NI Linux Real-Time or other real-time targets, ensuring reliable operation under strict timing constraints. Ideal for labs covering real-time control, hardware-in-the-loop (HIL) simulations, and embedded system design.

Academic Single-Seat P/N: 789981-35
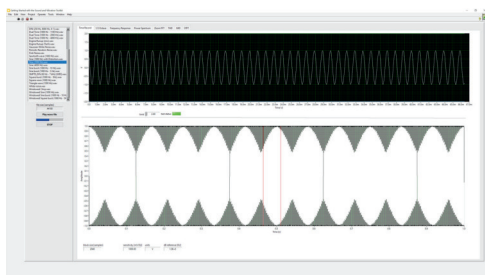
NI Sound and Vibration Toolkit Full

Extends LabVIEW with dedicated acoustic and vibration analysis functions, including real-time frequency analysis, filtering, and spectral measurements. Ideal for mechanical, automotive, or mechatronics labs exploring noise, vibration, and structural dynamics.

Academic Single-Seat P/N: 789984-35
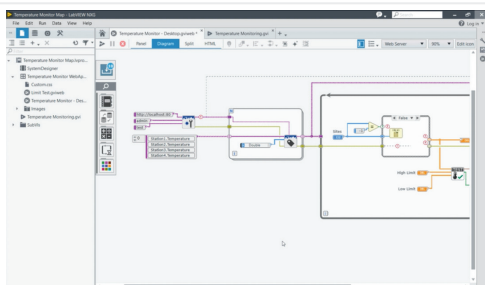
NI G Web Development Software

A graphical toolset optimized for building web-based monitoring and control applications. Great for collaborative labs where students create interactive dashboards, observe experiments remotely, and learn how to share real-time data via web interfaces.

Academic Single-Seat P/N: 789980-35
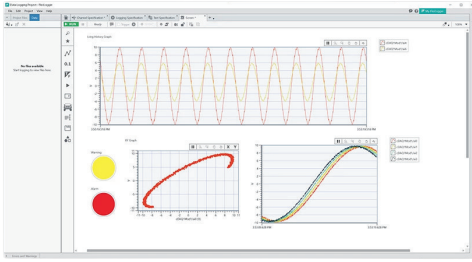
NI FlexLogger Software

A no-code solution for quickly configuring, acquiring, and logging sensor data. Ideal for academic labs wanting a fast, programming-free approach to measurement—enabling students to focus on analyzing results and understanding test methodologies.
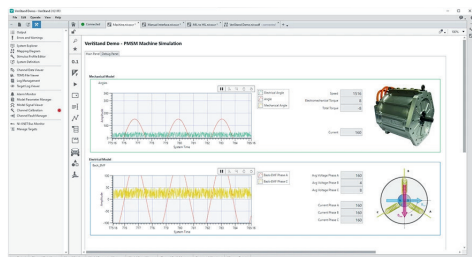
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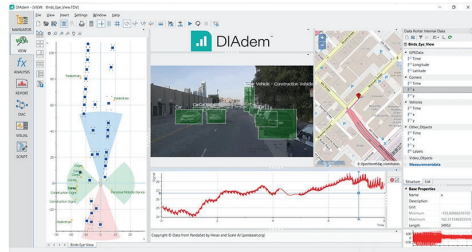
NI DIAdem

A data-analytics platform for organizing, visualizing, and reporting measurement data. Ideal for labs that involve large datasets, letting students interpret experimental results, create interactive graphs, and produce professional lab reports.

Academic Single-Seat P/N: 789979-35

NI VeriStand

A real-time test environment designed for hardware-in-the-loop (HIL) simulations and embedded control testing. Perfect for courses covering control systems, mechatronics, or automotive applications, where students learn to validate complex designs under deterministic conditions.

Academic Single-Seat P/N: 789977-35

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