Undergraduate lab solution to accompany Microelectronic Circuits textbook by Sedra and Smith*

BRING EXCITEMENT AND RELEVANCE TO ANALOG CIRCUIT DESIGN

Conventional breadboard labs can only do so much, and stop far short of applications of any meaningful complexity. Designed with guidance from renowned author Dr. Adel Sedra, Analog Electronics Labs (AELabs) is an easy to deploy, PCB-based lab platform that takes your students from a single op amp on a breadboard to systems and real applications. Introduce your students to the excitement of analog design and extend the use of your NI ELVIS II+ platform!
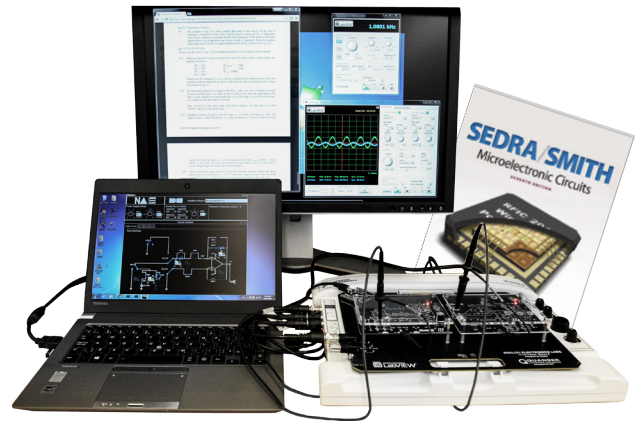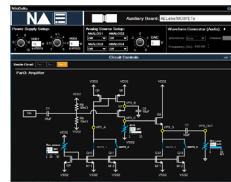
System specifications on reverse page

COMPONENTS & COURSEWARE TOPICS
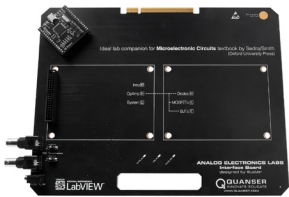
Interface Board
- General control device for analog experiments
- Compatible with NI ELVIS II+

NileDelta Software
- Control hardware configurations
- Powered by LabVIEW

Intro Board
- Resistor network
- Voltage divider
- Series RLC
- LED color mixing

MOSFETs Board
- MOSFET I-V characteristics
- Two-stage MOSFET amplifier

OpAmp Board
- Inverting and non-inverting amplifier
- Difference and summing amplifier
- Differentiator and integrator
- Comparator with/without hysteresis
- Oscillator (astable multivibrator)
- Buffer (voltage follower)

BJTs Board
- BJT I-V characteristics
- BJT in saturation
- BJT audio amplifier

System Board
- PWM fan control with heat sensor and monitoring
- Closed loop temperature control system

Diodes Board
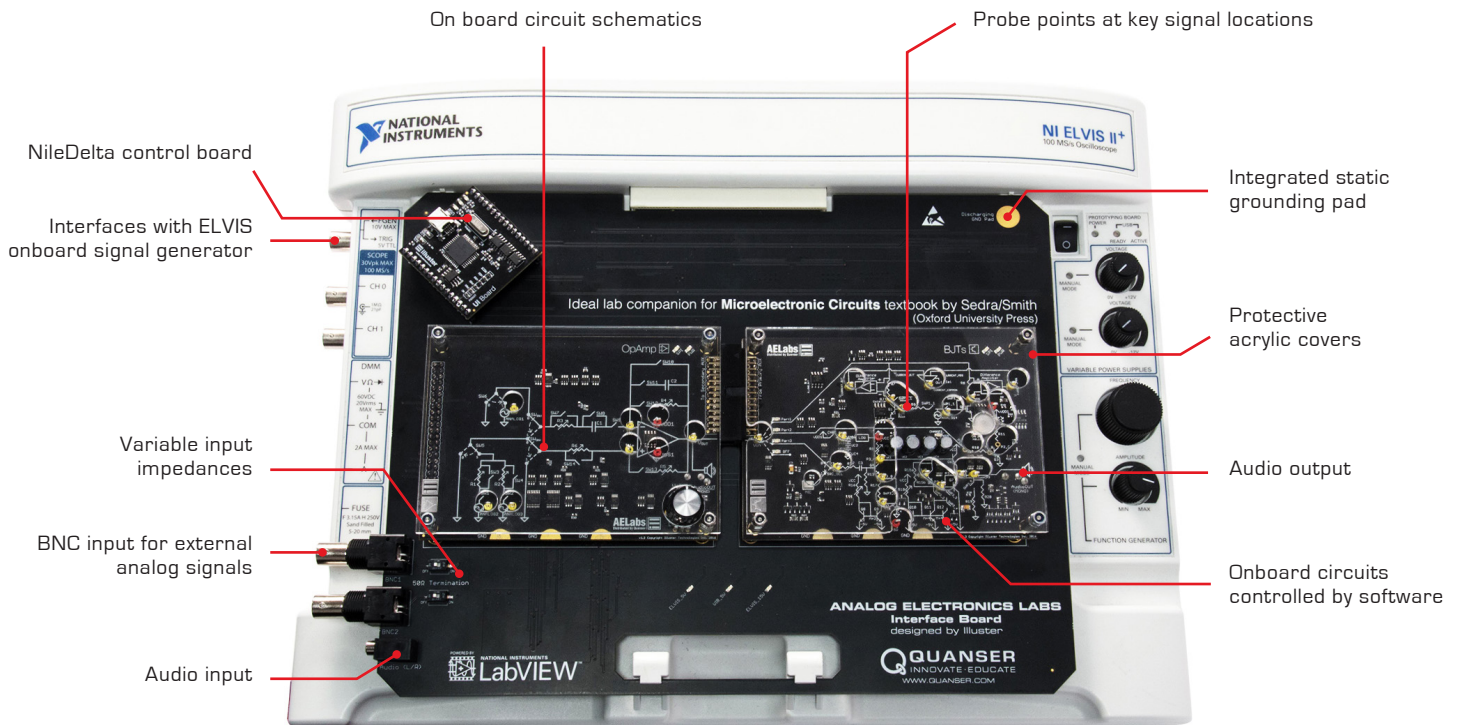- Diodes I-V characteristics
- Charge pumps
- Rectifiers
- Small signal resistance

* Microelectronic Circuits by Sedra and Smith is published by Oxford University Press. AELabs™ is also consistent with other comparable texts on the topic.

SYSTEM SPECIFICATIONS
AELabs

On board circuit schematics

Probe points at key signal locations

NileDelta control board

Interfaces with ELVIS
onboard signal generator

Integrated static
grounding pad

Protective
acrylic covers

Variable input
impedances

BNC input for external
analog signals

Audio output

Audio input

Onboard circuits
controlled by software

OpAmp and BJT boards shown
(NI ELVIS II⁺ not included)

FEATURES

- Digitally controlled platform with 6 plug-and-play boards for design-oriented teaching of analog electronics
- Comprehensive courseware tied to Microelectronic Circuits by Sedra and Smith
- Leverage all NI ELVIS II⁺ instrumentation, such as function generators, oscilloscopes, multimeters
- On-board circuit diagrams match components to schematic representation used in textbooks
- True analog I/O signals demonstrate real world signal behavior
- Probe points for observing signal waveforms

WORKSTATION CONFIGURATION

- AELabs boards
- NI ELVIS II⁺
- LabVIEW Run-Time Engine 2016 or newer
- NI ELVISmx 16.0 or newer
- Scope probes
- 3.6mm audio cable
- BNC cable

For more information on the NI ELVIS, visit www.ni.com.

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