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!

**COMPONENTS & COURSEWARE TOPICS**

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

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

**Interface Board**
- General control device for analog experiments
- Compatible with NI ELVIS II*

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

**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**

- 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.

**About Quanser:**
Quanser is the world leader in education and research for real-time control design and implementation. We specialize in outfitting engineering control laboratories to help universities captivate the brightest minds, motivate them to success and produce graduates with industry-relevant skills. Universities worldwide implement Quanser’s open architecture control solutions, industry-relevant curriculum and cutting-edge work stations to teach Introductory, Intermediate or Advanced controls to students in Electrical, Mechanical, Mechatronics, Robotics, Aerospace, Civil, and various other engineering disciplines.