Advanced IoT Teaching Lab Solution

End-to-end IoT Learnings, from Fundamentals to Real-world Design Considerations

The IoT revolution races on, and now educators and students alike can leap ahead with Keysight's ready-to-teach advanced IoT teaching solution. Designed to teach students practical design and test techniques from the fundamentals of system design to wireless communication and power measurement, this solution also covers critical design considerations that is emerging with the evolution of the Internet of Things, such as device and network cybersecurity, radio certification and compliance, and power continuity.

All this content is not rooted in theory alone – the advanced IoT teaching solution comes with editable slides and lab sheets for the classroom and for the lab, and a training kit with detailed lab procedures that is designed to work hand-in-hand with industry standard test and measurement instruments and software, giving students the opportunity to work with the same equipment they would use when they are out in the industry. This results in a future engineer with the practical skills and real-world application knowledge to fully understand what it takes to bring an IoT device from design to the market.

Advanced IoT Teaching Lab Solution

- IoT Training Kit
  - Beagle Bone Green - 2.4G ZigBee, Digital and Analog sensors, Lora Module
- Courseware
  - Editable PowerPoint slides that cover 75+ hours of classroom sessions
  - Editable lab sheets, model answers, problem-based assignments able to covers 50+ hours of lab sessions
- Recommended Instruments and software
  - IoT system design and validation fundamental lab – Digital Multimeter and Oscilloscope
  - IoT wireless connectivity and network security lab – CXA signal analyzer, anechoic chamber, VSA software and X series application in WAN, Bluetooth and EMI
  - IoT precision power measurement and MEMS sensors lab – Digital multimeter, oscilloscope, power analyzer, 2-quadrant source, event detector and analysis software

Advanced IoT Teaching Lab Solutions	
Lab Solution Module	**Required Keysight Instruments/Software for Lab Setup**
IoT System Design and Validation Fundamentals 	• DSOX1204G Oscilloscope • 34465A DMM
IoT Wireless Connectivity and Network Security 	• N9000B CXA Signal Analyzer • U3830A Anechoic Chamber • 89600 VSA software • X series measurement application (WLAN, Bluetooth, EMI)
IoT Precision Power Measurement and MEMS Sensors 	• 34465A (DMM + DIG + MEM + 34138A) • DSOX1204G Oscilloscope • N6705C DC Power Analyzer • N6781A 2-Quadrant source • X8712AFD Event detector and X8712AS event analysis software

More Information: www.keysight.com/find/advanceiot

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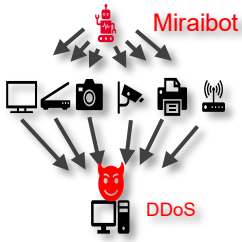
Advanced IoT Teaching Lab Solution Learning Outcome

Basic IoT Topics

Theoretical → Design → Simulation → Measurement

- IoT System Design and Validation Fundamentals
- IoT Wireless Connectivity and Network Security
- IoT Precision Power Measurement and MEMS Sensors

Advanced IoT Topics



Cybersecurity – Device / network security	Compliance – Radio certification and pre-compliance	Power Analysis – Power optimization
• Understand data security • Analyze and hands-on with examples	• Understand the RF regulatory criteria • Hands-on in pre-compliance test	• Power optimization techniques for maximum battery life

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office.
The complete list is available at: www.keysight.com/find/contactus

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