

Case Study

Investing in education is the key to the future of innovation. Tektronix is committed to helping university engineering programs around the world give their students and faculty the tools they need to own the future.

Inspiring the Next Generation of RF Engineers

University of Oklahoma

THE CUSTOMER CHALLENGE

The University of Oklahoma (OU) faces an ongoing challenge to recruit and successfully graduate enough students to meet industry demands for qualified radio frequency (RF) engineers through its Advanced Radar Research Center and the School of Electrical and Computer Engineering.

This is in part due to the pre-conceived association of “weed-out” classes with mathematically intensive courses such as Electromagnetics (EM). Universities across the nation, including OU, are discovering the need to implement modern teaching methodologies and hands-on experiences in EM courses - offering additional resources beyond purely mathematical lectures.

THE SOLUTION

To get more students excited about engineering careers in RF and help them better understand EM principles, Assistant Professor Jay McDaniel worked with Tektronix to devise a 10-workstation lab for experiential learning opportunities in OU's EM courses.

Tektronix's cost-effective USB instrumentation like the [TTR500 series vector network analyzer](#) and [RSA306B series spectrum analyzer](#) helped OU make a budget-conscious purchase that would attract more students to the program and better prepare those students for jobs after they graduate.

McDaniel also noted that the breadth of Tektronix's product family made a full-bench purchase an easy decision. Piecing together benches with 10 different instruments from 10 different companies would lead to students spending more time trying to make it all work together than learning how to engineer.

By purchasing a complete bench of precise, cohesive equipment from Tek, McDaniel ensured a smoother and more reliable experience for his students.

GROWING DEMAND FOR ENGINEERS

While preparing a proposal asking OU's leadership to invest in hands-on RF benches from Tektronix, Dr. McDaniel's research into the RF industry revealed that there were more than 7,500 RF electrical engineer job openings at the time he investigated. About 1,500 of those openings were associated with the top 6 prime defense contractors.

“That’s a giant need nationally and I think it goes without saying it’s going to explode more and more when you start looking at growing industries such as automotive radar, IoT and 5G.”

- Dr. McDaniel

The University of Oklahoma is uniquely equipped to help meet this demand with its 35,000 sq. ft. state-of-the-art Radar Innovations Laboratory (RIL) which serves as its home for the interdisciplinary Advanced Radar Research Center (ARRC). The RIL includes two precision anechoic chambers with dimensions of 27x38x27 ft. and 13x26x13 ft., both with isolation of at least 100 dB up to 18 GHz of operation.

In addition to the anechoic chambers, the RIL has a dedicated machine shop, high-bay garage, experimental observation roof deck, and a unique “Ideas Room” with state-of-the-art interactive technologies designed to enhance collaboration among researchers and students to move ideas from conception to full prototyping and product creation.

The microwave lab provides more than 4,000 square feet of lab space and state-of-art test equipment covering the DC to 110 GHz frequency range.






“It’s a win for professors from a research perspective and a teaching perspective because now we have another tool to give the students, so they have the best chance possible to understand the material and excel... It’s great for industry because they’re getting a need filled. And it’s great for the students because now there is a new opportunity to learn and master the material.”

- Dr. Jay McDaniel | Assistant Professor at The University of Oklahoma's School of Electrical and Computer Engineering



PRODUCTS, SOFTWARE, AND SERVICES PROVIDED

Bench Configuration		
Hardware	Description	Qty.
	RSA306B USB Spectrum Analyzer » View On Tek.com For a compact, affordable, high fidelity and low noise signal analysis	10
	TTR506A Series Vector Network Analyzer » View On Tek.com For fast and accurate RF measurements	10
	2230G Series Power Supply » View On Tek.com For testing devices, circuit boards, modules, and products that require multiple power sources	10

TO ROUND THIS OUT, CONSIDER THE FOLLOWING EQUIPMENT FOR RF BENCHES:

3 Series Mixed Digital Oscilloscope »

Large HD display and built in spectrum analyzer



SignalVu PC Software »

for easy validation of RF Designs

6500 Series Digital Multimeter »

High-performance, low-cost, touch screen multimeter



Kickstart Software »

for quick and efficient data capture

31000 Series Arbitrary Function Generator »

Patented real-time wave monitoring and new double pulse test software

If you would like to learn more about solutions for the education lab or this project, visit tek.com/education or contact us at 1-800-833-9200.