

# University Professor Cuts Lab Setup and Configuration Time by 75 Percent

Learn by doing is an educational approach adopted by Universities around the world to better prepare students for their future careers, especially when it comes to electrical engineering studies. But enabling that “hands on” engineering experience in an educational setting using real, industry-standard bench instruments is often easier said than done. The tedious and time-consuming process requires extensive pre-lab setup and tracking of lab instruments—time that could be better spent helping students gain the practical experience they need to thrive in the workplace. Outfitting your university or teaching center lab with the right lab management tool can ensure you simplify the configuration, monitoring and tracking of instruments, while maximizing the time you spend educating the next generation of engineers.

The Electrical Engineering (EE) department of a prominent North American University faced the challenge of how best to manage its undergraduate engineering lab without cutting into actual teaching time. A tenured professor who had worked in the department for many years, found himself overwhelmed by the task. With dozens of test benches in the lab, each equipped with multiple instruments, he was spending increasingly more time manually setting up test benches, configuring and updating instrument firmware, and tracking the lab’s assets for calibration and repair. Every minute he spent pre-configuring the instruments in his lab before starting a class, meant less time he could spend optimizing his lesson plans and teaching techniques for his students.



## Company:

- Electrical Engineering Department at a North American University

## Key Issues:

- Speed lab preparation time
- Simplify instrument monitoring and tracking

## Solutions:

- BenchVue Lab Management and Control Solution

## Results:

- Cut instrument setup and configuration time by 75%
- Automated instrument monitoring and tracking
- Improved overall teaching and learning experience



## Redefining Lab Management

For a solution to his dilemma, the EE department turned to Keysight Technologies and its' BenchVue Lab Management and Control Solution. The software provides centralized control for educators and training center lab managers to seamlessly connect and monitor all instruments within a lab. Built on the BenchVue software platform, the Education Control Collection bundle, it leverages all the same key capabilities, including easy control, data capture, logging, automation, and report generation, without requiring any manual programming.

BenchVue Lab Management and Control Solution comprises both a Manager application, Client application, and the Education Control Collection. The professor first installed the Manager application on his PC so that it could serve as the main software for centralized control and management. Next, he loaded the Client application on each test bench PC. Using the home dashboard of the Manager application, he then quickly connected all instruments at the individual test benches to the network (Figure 1). The Education Control Collection was also enabled on all bench PCs, allowing students to utilize its powerful control applications.

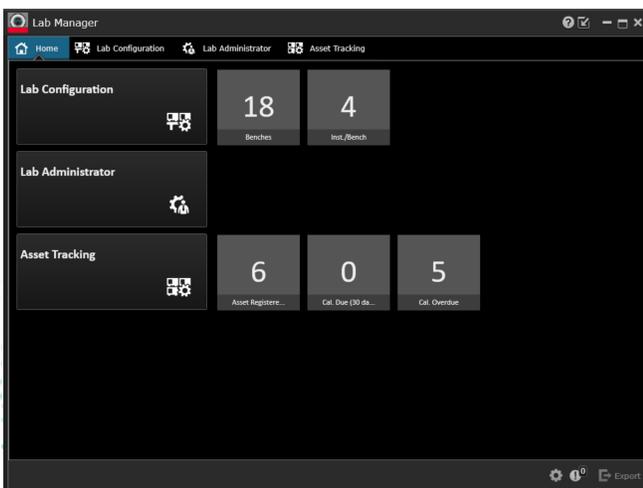


Figure 1: Homepage dashboard view

The software even connected the professor's non-Keysight equipment to the same LAN network. BenchVue Lab Management and Control Solution supports up to 400 Keysight instruments and up to 100 non-Keysight test instruments compliant with the VISA connection protocol (up to 100 benches in total, each supporting 5 instruments: 4 Keysight and 1 non-Keysight). This flexibility made it easy for the professor to easily configure instruments into his existing lab setup for both Keysight and non-Keysight instruments.

With BenchVue Lab Management and Control Solution successfully installed, the professor used its intuitive graphical user interface and ability to import CSV files, to quickly set up and configure his lab without ever having to touch individual lab

instruments. Instead, he configured the measurement settings on all the lab's instruments at one time using his PC with the Manager application software loaded (Figure 2).

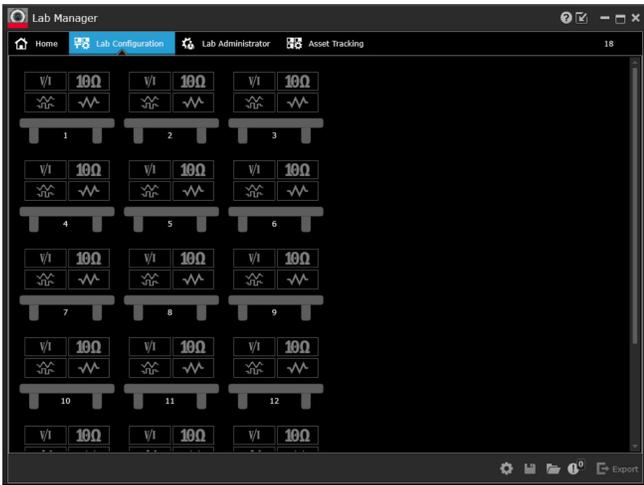


Figure 2: Lab and bench configuration view

This type of centralized lab control, coupled with the software's ability to automate monitoring and tracking of both Keysight and non-Keysight lab instruments, enabled the professor to easily track his instrument inventories (Figure 3). He even received email notifications alerting him to their calibration/loaner period status. These capabilities significantly streamlined and simplified his lab management task, freeing him to focus on teaching.

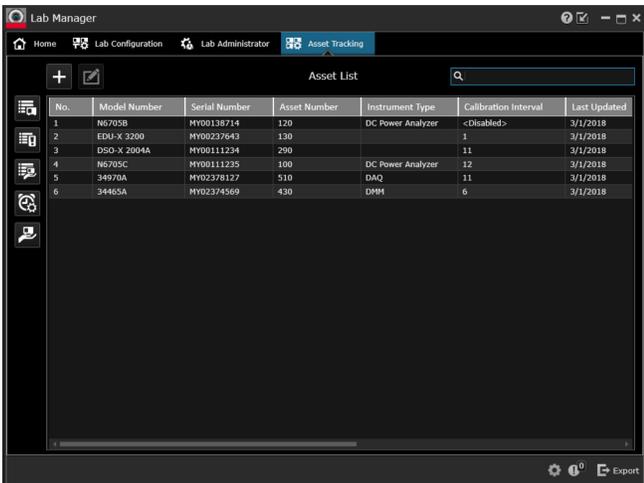


Figure 3: Asset tracking and management view

## A Powerful Teaching Tool

Once installing BenchVue Lab Management and Control Solution, the professor discovered it had an added benefit. It didn't just give him more time to devote to teaching instructional labs, it also improved the overall teaching and learning experience. Because the software runs on the BenchVue platform, the professor had access to full desktop and BenchVue application sharing. This meant that he was able to remotely monitor his students' activities in the test lab. When necessary, he could remotely assist them using the bench-desktop sharing feature.

The professor was also able to easily control and analyze measurements, and quickly build automated tests with Keysight instruments using the software's test automation feature. With the Client application installed at each test bench computer, students could easily control the lab instruments, log their data and screen shots, and automatically join lab sessions.

## Better Lab Management and Control, Higher Quality Teaching

Using Keysight's BenchVue Lab Management and Control Solution, the EE professor successfully connected all of his lab instruments to a network, managed from his PC. This approach enabled him to drastically cut his typical lab setup and configuration time by 75%. Centralized control of the lab instruments allowed him to quickly and easily monitor and track instruments and manage instrument calibration, saving even more time. And, because BenchVue Lab Management and Control Solution runs on the BenchVue platform, he was able to leverage its remote monitoring and bench-desktop sharing, improving the way he taught his labs and providing a better overall learning experience for his students. The EE department now has a solution that can easily scale across all of its teaching labs and the professor has more satisfied students well equipped to enter the workforce following graduation.

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*“Providing engineering students with the practical knowledge they need to compete in the workplace is a key part of my job. Thanks to Keysight's solution, I was able to spend less time on manual instrument set up and tracking, and focus on what really matters, providing my students a high-quality teaching experience designed to help them succeed in the real world.”*

- EE Professor

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