



## CASE STUDY

# PSG College of Technology Better Prepares Next-Generation Engineers for Employment Through Collaboration with Keysight Technologies

One of the major gaps in Indian Engineering is that while the number of engineering colleges are plenty, the number of employable degreed graduates is not. What has become clear is that due to old curriculum, lack of practical knowledge and limited technology exposure, industry expectations for industry-ready students are not always met. Industry and academia are working to bridge the gap between degree and employability, but these efforts are typically limited to just a few select institutes, depriving students from other colleges in India of good quality research and jobs.

**PSG College of Technology** in Coimbatore, India — established in 1951 and offering a total of 48 full-time and part-time programs in Science, Engineering, and Management — recognized this challenge and set out to minimize the gap. Its goal was to create an innovative learning environment and increase student exposure to industry. For help in achieving these goals it turned to Keysight Technologies. Keysight had previously engaged with PSG Tech on engineering curriculum, as well as a range of technology and measurement workshops.



### Company:

- PSG College of Technology

### Key Issues:

- Resolve gap between engineering degree and employability
- Create differentiation among the colleges; attract talent

### Solution:

- Creation of PSG-Keysight CoE labs for baseband, embedded and advanced wireless communications

### Results:

- Students trained on industry-grade equipment and software
- Innovative learning environment, in line with industry needs and demands
- Improved engagement with industry research work and employability



## Identifying A Need

Telecom is one of the fastest growing sectors in India with an acute shortage of skilled workforce. With multiple government initiatives underway and increasing demand for RF and microwave engineers, PSG Tech wanted to find a way for its students to learn the skills they needed to work competently in this high-tech arena.

To solve this challenge, PSG Tech and Keysight decided to establish Center of Excellence (CoE) labs on embedded and advanced wireless communications (Figure 1). As part of the school's ECE department, the labs would provide students a hands-on learning experience with industry-grade software and instruments. The idea was that the labs would be manually set up, depending on specific technology and measurement needs, as well as industry requirements.

## Innovating Engineering Education

PSG Tech's first CoE lab focused on baseband communications and advanced embedded systems. The lab was equipped with Keysight's industry-standard test and measurement instruments and industry-leading software measurement tools. Multiple test benches were set up to cater to students needs on 1:2 basis (number of test benches: number of students). This provided students an ample amount of time to work on the instruments and also learn the practical aspects of technology and measurement science.

With a mix of Keysight instruments that included mixed signal oscilloscopes, logic analyzers, digital multimeters, power supplies, data acquisition systems, and function generators, the faculty at PSG Tech was able to customize the lab for various applications, such as as automotive electronics, medical electronics, embedded systems, industrial instrumentation, sensor development, FPGA debug, and a host of serial protocols like CAN/LIN, RS232/UART, I<sup>2</sup>C/SPI, MIL-STD 1553/ARINC 429, and I<sup>2</sup>S. Best of all, once the CoE lab was established, it paved the way for other departments to collaborate with the ECE department on learning and design, development, and validation of technologies in the automotive, medical electronics, and robotics fields, among others (Figure 2).

One of the unique concepts implemented in the CoE lab was remote accessibility through the intranet/internet. Thanks to Keysight's LXI compliance feature, most of the lab's test equipment was easily connected to the LAN with a built-in web server. This provided both faculty and students the ability to access the lab anytime, anywhere without having to physically go into the lab.



Figure 1. PSG Tech Center of Excellence



Figure 2. Collaboration within the CoE lab



Figure 3. Keysight-PSG association

## Bridging the Gap

Since PSG Tech's creation of the CoE lab, it has witnessed a major boost in student learning behaviors and a significant improvement in its students' engineering skillsets. The industry intake and interaction also grew, which encouraged PSG Tech to extend its relationship with Keysight (Figure 3) by establishing an advanced wireless technology lab using a co-funding model. The lab further strengthened the ECE department's research offerings and provided students a direct learning experience on RF measurement techniques. Thanks to efforts like this throughout PSG Tech's decade long association with Keysight, it has now reaped benefits for both its students and faculty alike in terms of internship projects, workshops, paper presentations, and job placements.

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Ranked as a top 20 school in India, PSG Tech was the first recipient of the AICTE-CII Award for the Best-Industry Linked Institute for Electronics & Communication Engineering. ECE is one of our most sought-after courses, with a number of our programs accredited by the National Board of Accreditation (NBA) and others in process. Keysight's continued support and excellent hardware and software solutions have played a pivotal role in making this all possible. Today, our Keysight wireless CoE lab is running successfully and is delivering rewards for our students, while also taking on industry projects.

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