

Success Story

James Cook University Professor Embraces NI AWR Software for RF Coursework, Leading to e-book on Electronic Design

Company Profile

James Cook University (JCU) is a public teaching and research institution and is the second oldest university in Queensland, Australia. It has been graduating engineering students since its inception. The College of Science, Technology and Engineering is the home of JCU's expertise in the physical sciences, chemistry, earth sciences, and engineering, forming a strong grouping uniquely placed to tackle the grand challenges facing the tropical world.

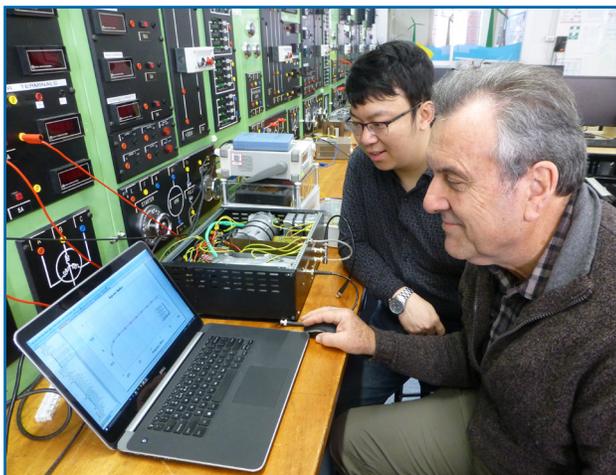
The Design Challenge

The challenge for Dr. Kikkert, professor of electrical and electronic engineering at JCU, was to provide his electronic engineering students with a successful learning experience in the complex discipline of RF/microwave design. He wanted to develop course materials and supporting labs that would help his students learn the basics of high-frequency design. His aim was for the students to understand and explore all the design options, prior to building the required hardware in their design projects, without getting so bogged down in trying to learn the software that it was difficult to achieve a positive design learning experience.

The Solution

Prof. Kikkert had been using Keysight (formerly Agilent EDA) software for many years. In 2000 he switched to NI AWR Design Environment™ and his students found it significantly easier to use.

As NI AWR software has a much shorter learning curve, Prof. Kikkert found himself using it more and more during his RF electronics teaching and research. Ultimately wanting to share his coursework and labs in a way that would benefit staff and students at universities worldwide, he created an electronic version of his textbook, ***RF Electronics: Design and Simulation***. Partnering with NI (formerly AWR Corporation), the e-textbook and associated project files are now available free of charge through its [Professors in Partnership](#) program.



PhD student Shucheng Zhu, and Dr. Kikkert using NI AWR software for the design and optimization of inductive shunt online impedance analyzer.



Application:

Electronic Design Education

Software:

NI AWR Design Environment

Microwave Office

AXIEM



“ My students have found NI AWR software to be significantly easier to get their head around because it has a lot less steep learning curve. As a result, I started using AWR more and more during my RF electronics teaching and research and ultimately decided to share my work, embodied in my RF electronic design textbook, as an electronic textbook downloadable free of charge to universities and students worldwide. ”

– Dr. C. J. Keith Kikkert

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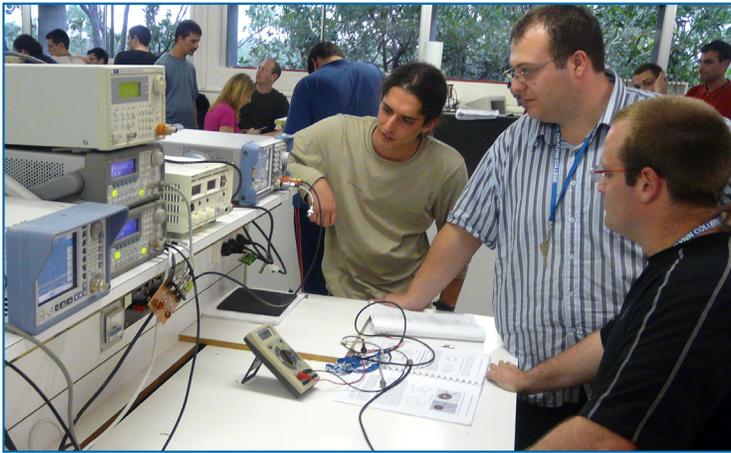
jcu.edu.au

Why NI AWR Design Environment

Dr. Kikkert and his students have found NI AWR software tools to be very powerful. The software provides professors with an excellent teaching experience and students with a very easy learning curve in high-frequency electronic design. At JCU, the use of NI AWR software has been extended for teaching electronics at other levels as well as in teaching network theory, from mains frequency to microwaves. Chapter 2 of the e-book is used for the second year teaching of electronics and the rest of the book is used in subsequent courses. The book download includes NI AWR Design Environment project files for all the design examples in the book as a zip file, so that the students can repeat the simulations themselves, or so that the lecturers can demonstrate them.

Dr. Kikkert is pleased that through the Professors in Partnership agreement he will be able to extend the reach of his course material to engineering students at other universities. He believes this is a positive step toward ensuring that the next generation of designers will be well prepared to meet the challenges of the commercial job market

The latest edition of Prof. Kikkert's RF Electronics: Design and Simulation e-book is available at: awrcorp.com/professors-in-partnership/professor-keith-kikkert/rf-electronics-design-and-simulation - (registration required).



JCU students in the lab where they make and test double balanced mixers, as described in Prof. Kikkert's RF Electronics e-book.