

# Introducing StudentZone—October 2016

By **Walt Kester**

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## From an ADI Engineering Intern

*My journey as a mixed-signal physical design intern at ADI has been quite enlightening so far. Being surrounded by such knowledgeable colleagues makes every encounter with them, be it a casual talk or a meeting, a learning process in itself. The best part is that I get to put my theoretical knowledge from school to practical use, every day. Getting the opportunity to work with sophisticated circuit design tools and simulators is perhaps the primary difference between grad school and industry. As a circuit design enthusiast, it is quite incredible to fathom the great depths of circuit analysis that can be achieved using such tools. This has helped me to better understand and strengthen my fundamentals of circuit design implementation at advanced nodes.*

*Apart from this, there are numerous other resources available at ADI, such as the Education Library that helped a great deal with my learning during my first days here. Analog Dialogue is a jewel of a resource if one wants to get the designer's perspective on a wide range of topics in mixed-signal design. The StudentZone, a unique addition to this magazine, will be a useful resource for budding circuit design engineers like me, who wish to keep themselves up to date. As a student pursuing a master's degree in electrical engineering, I want to keep my education aligned with the advancements in the industry so that when I embark upon a career in this field, the transition is smooth. Keeping myself abreast with the help of initiatives such as the Analog Dialogue StudentZone will help me realize that.*

Shanthosh Selvarajan, Analog Devices  
2016 Summer Engineering Intern

## The StudentZone Is Open

Welcome to the first installment of the StudentZone in *Analog Dialogue*. If you're an electrical engineering student or recent graduate with an interest in analog electronics, this column is for you.

When *Analog Dialogue* first published almost 50 years ago, the typical E.E. student had at least four courses in fundamental dc and ac circuit analysis before taking specialized courses in electronic circuits, power systems, electrical machinery, communications, or perhaps logic circuits (note that this was before PCs, microprocessors, or DSPs were available). There may have been a course or two in FORTRAN programming, with punch cards used to enter programs into a mainframe computer. There were no computer science courses. Circuit analysis was a manual process, using paper, pencil, and a slide rule. Hand calculators were not available until the early 1970s.

Today, the modern E.E. curriculum includes so many topics (microprocessors, DSPs, integrated circuits, robotics, wireless communications, etc.) that the basic fundamentals of dc and ac circuit analysis are usually compressed into one or two courses at best. So when you graduate, you may feel at home with microprocessors and DSPs, but a little bit intimidated by linear circuits that utilize analog-to-digital converters, digital-to-analog converters, operational amplifiers, and other signal conditioning circuits.

This is where Analog Devices comes in, with a wealth of experience in linear signal conditioning and mixed-signal circuits and access to thousands of components on [analog.com](http://analog.com).

Here are just some of the ways we can help:

1. Free access to technical books, tutorials, technical articles, application notes, webcasts, and online resources to aid in your current studies, research projects, or designs.
2. Free access to EngineerZone®, Analog Devices' community site designed to provide a quick and easy way for users of ADI products to help each other with technical questions. The communities are monitored by ADI technical support engineers, who provide answers to member questions.
3. The affordable [ADALM1000](#) Active Learning Module and [ADALP2000](#) Analog Parts Kit allow hands-on learning inside or outside the classroom.
4. Use of breakout boards, evaluation boards, and FPGA development platform solutions for easy breadboarding of circuits, projects, and code development.
5. Online classes in fundamental electronics, including lab experiments.
6. Analog project ideas.
7. Information on how to use selection guides and parametric search to find a part for your design.

## Information, Tailored Just for You

Over the next months we will explore some of these areas in greater detail. To make sure you don't miss any of the information you want, the first step is to set up a myAnalog account and register for EngineerZone. It's easy.

Your myAnalog account lets you choose the kind of information you want to receive from Analog Devices on a regular basis. You can sign up for a variety of electronic newsletters, including *Analog Dialogue* magazine. Students, as well as practicing engineers, tell us that they find this to be a very valuable resource.

You can register for myAnalog by clicking on the myAnalog icon in the upper right-hand corner of most [analog.com](http://analog.com) pages.

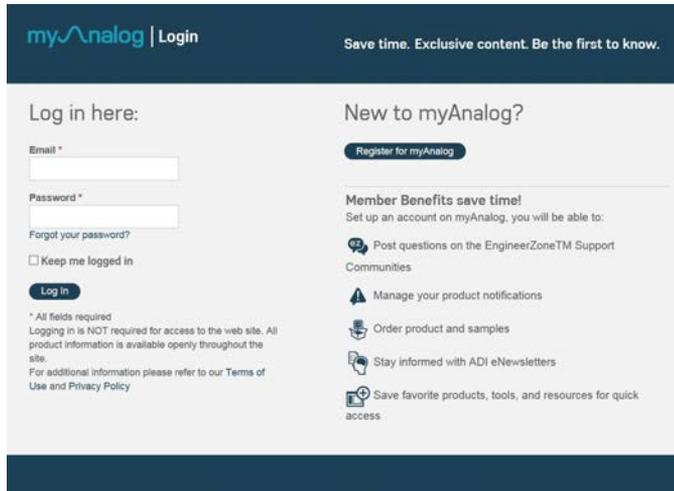


Figure 1. myAnalog registration page.

Registering for EngineerZone is easy. Simply register for myAnalog, click join EngineerZone, choose an EngineerZone username, and click to view your profile. Once registered, you may join in discussions, ask questions, and interact with engineers from inside and outside of ADI.

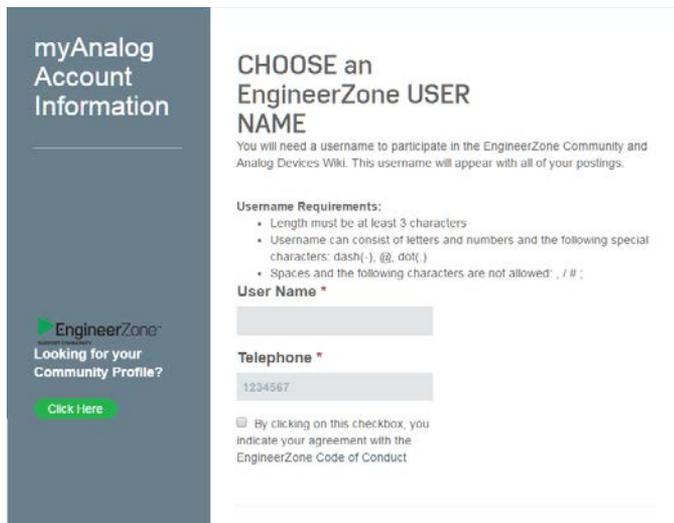


Figure 2. EngineerZone login page.

## Get a Lot of Information for Just a Little Information

We ask only for your name, email address, company or university affiliation, and mailing address. And you can be assured that your information will be treated with the utmost privacy and you'll only be sent what you ask for.

## Join the Community

Do you have a topic for a student column? Need an answer to a question? Want to share thoughts and ideas? We've created a place for you called the EngineerZone, [StudentZone forum](#). This is the place to let us know what you think and what you want. We'll do our best to address it in a future StudentZone section.

## Stay Informed

In addition to myAnalog and EngineerZone, you can always get the latest news by following Analog Devices on your favorite social media channel.

## Blast from the Past

This wouldn't be a true engineering journal without a problem. Here's one from an actual electrical engineering course in 1961. The course was EE-201, Electrical Engineering Circuits, taught by Professor Wayland P. Seagraves at NC State University. This problem was one of five to be completed in the 50 minute exam period. It was given just after covering loop equations in class. Can you solve it? No calculators, please. After all, this was 1961.

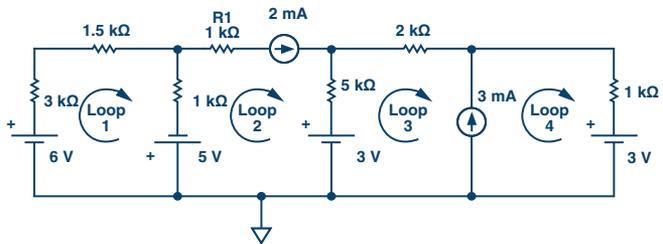


Figure 3. Quiz problem: Assume ideal circuit elements. Calculate the voltage across  $R_1$ .

You can check your answer in the EngineerZone, [StudentZone forum](#). Don't forget to register. While you're there, take a look around and let us know how we can help with your journey to E.E.

Until next time, see you on the circuit.  
Walt Kester

Walt Kester



Walt Kester [walt.kester@analog.com] is a corporate staff applications engineer at Analog Devices. During his many years at ADI, he has designed, developed, and given applications support for high speed ADCs, DACs, SHAs, op amps, and analog multiplexers. An author of many papers and articles, he prepared and edited 11 major applications books for ADI's global technical seminar series; topics include op amps, data conversion, power management, sensor signal conditioning, mixed-signal circuits, and practical analog design techniques. His latest book, *Data Conversion Handbook* (Newnes), is a nearly 1000-page comprehensive guide to data conversion. Walt has a B.S.E.E. from NC State University and an M.S.E.E. from Duke University.