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Leveraging Industry Interaction for Course Creation: `DSP for Practicing Engineers`

Corporate training is becoming a multi-billion dollar business and many universities are feeling pressure to become more involved through continuing education and/or distance learning programs. Although a few schools have had such programs for years, educating practicing engineers is new for many universities. In addition, the landscape of distance learning and continuing education has changed dramatically in the last few years, as the Internet has become a viable delivery mechanism.

Traditional university involvement in corporate training or continuing education has been through short courses or video courses. Short courses are usually offered over several days at the university campus. They can be effective but may also disrupt an engineer`s work schedule. Since the course is often offered in a remote location, there may be added inconveniences of travel and increased cost. Internet-based education shows promise in many respects: materials may be delivered either synchronously or asynchronously; there are multiple modes of presentation available; many types of interactivity are possible; world-wide delivery may be possible, and delivery costs may be reduced.

In cooperation with Texas Instruments, we developed an online course, `DSP for Practicing Engineers,` that is being delivered to students worldwide. The course was developed to introduce digital signal processing (DSP) theory and practice to engineers. TI provided funding for students to help develop course and lab materials, and promotes the course in their literature. The course has been offered six times will full or nearly full enrollment, and much of the success of the course has been because of the joint advertising and promotion model we adopted with TI.

Tools and techniques that we developed for this course have been applied to several additional courses, both in the School of Electrical and Computer Engineering, and elsewhere on campus. In particular, we have created tools for developing reuseable instructional modules, and developed effective tools for collaborative promotion and course updates.