Introducing Software Defined Radio into Undergraduate Curriculum with a Hands-On Approach

Shiwen Mao
Auburn University
Friday, May 30, 2014
11:00am – 12:30pm
Petty Building, Room 227

Abstract: A software defined radio (SDR) is a modern radio communication system that can be reconfigured on-the-fly. In this paper, we describe a project on introducing SDR to the Bachelor of Wireless Engineering (BWE) curriculum at Auburn University. Our efforts consist of three intertwined themes: (i) We offer well-defined SDR senior design projects, as well as research projects for students supported by the NSF Research Experience for Undergraduate (REU) program; (ii) We also use SDR-related experiments as term projects to enhance the existing wireless engineering courses at Auburn; (iii) We are developing an SDR laboratory course based on the experience and feedback from the SDR projects. We have offered the lab course in Spring 2013 and will offer it on regular basis in the near future.

Bio:
Shiwen Mao (S'99-M'04-SM'09) received Ph.D. in electrical and computer engineering from Polytechnic University, Brooklyn, NY. Currently, he is the McWane Associate Professor in the Department of Electrical and Computer Engineering, Auburn University, Auburn, AL, USA. His research interests include wireless networks and multimedia communications, with current focus on cognitive radio, small cells, 60 GHz mmWave networks, free space optical networks, and smart grid. He is on the Editorial Board of IEEE Transactions on Wireless Communications, IEEE Internet of Things Journal, IEEE Communications Surveys and Tutorials, among others. He is a Distinguished Lecturer of IEEE Vehicular Technology Society in the Class of 2014. He received the 2013 IEEE ComSoc MMTC Outstanding Leadership Award and the NSF CAREER Award in 2010. He is a co-recipient of the IEEE ICC 2013 Best Paper Award and the 2004 IEEE Communications Society Leonard G. Abraham Prize in the Field of Communications Systems.