Talk at FER, October 2013

Active learning and hardware projects in (microwave) engineering education

Abstract:

We will provide a larger context for what is going on in higher-education in the United States and will report on our lessons-learned regarding teaching microwave/RF classes at PSU for the last five years. Central themes of our pedagogy involve having students do as much as possible by themselves (active learning), using authentic/realistic projects, and using the lab for true experimentation, which encourages failure-iteration cycles. Students are given many different opportunities to demonstrate their knowledge, skills and abilities with projects and soft-skills (writing, presentations) playing a prominent role. An example of "classroom interaction system" (provided by Learning Catalytics) will be demonstrated and pedagogical reasons for its use explained. We will briefly discuss the role of misconceptions and how they hamper student learning. Finally, we will propose a development of "community of practice" at FER that will focus on better understanding current educational trends and their implementation in electrical and computer engineering curriculum.

Attendees are encouraged to bring their laptops, tablets or smartphones.

Short bio for Branimir Pejcinovic:

Branimir Pejcinovic received a B.S. degree from University of Zagreb, and M.S. and Ph.D. degrees from University of Massachusetts, Amherst. He is a Professor and former Associate Chair for Undergraduate Education at Portland State University, Electrical and Computer Engineering department. In this role he led department-wide changes in curriculum with emphasis on project- and lab-based instruction and learning. His research interests are in the areas of semiconductor device characterization, design and simulation, signal integrity and THz sensors. He is a member of IEEE and ASEE.