New Course Announcement  
Spring 2005  
Software Defined Radios  
ECEN 5042/CSCI 7000-006  
MW 10:00-11:15 ECCS 106  
3 credits

Why take this course? Radios are becoming more flexible as more functional blocks are implemented in software. This enables the radios to adapt to different situations and to communicate using a variety of wireless protocols. Ultimately, radios will be able to download functionality on the fly to implement new updates or to match local spectrum policy. Designing such radios requires a unique integrated view of software, hardware, RF, and protocols that will be taught in this course.

What will we do in this course? This course describes the fundamental radio components and how these components are implemented in software. The principles of a software architecture to support the SDR will be developed. Policy and cooperation mechanisms that enable SDR to interoperate will be developed. Software security and performance assurances will be studied. The implications for future radio systems will be discussed.

A significant portion of the course will be spent in the lab implementing SDR using FPGA and flexible wireless building blocks as shown here. The goal is to teach computer science, electrical engineering, and telecom students the span of problems from hardware to algorithms to protocols and policy.

Who should take this course? The course is open to students in communications, RF, software, networking, and spectrum policy who are interested in this new technology; how to build it, how to use it, its limitations, and its potential. EE, CE, CS, and ITP students will all find familiar entry points and challenging new material. Students will need to implement algorithms at a variety of levels including software simulation, hardware configuration, and embedded real-time control. A background in these areas is helpful but not required.

For more info: [http://morse.colorado.edu/sdr](http://morse.colorado.edu/sdr) or contact Prof. Tim Brown at 303-492-1630, timxb@colorado.edu