

ECE 5610 – Error Control Coding

Professor Stephen B.Wicker

wicker@ece.cornell.edu

386 Rhodes Hall

Lecture MW 1:25 – 2:40 in 403 Phillips Hall

Office Hours: TA – Prof. Wicker – T, 12 - 1:15 or by appointment

Course Website: <http://wisl.ece.cornell.edu/ECE5610/> Please consult regularly for homework assignments, solutions, test dates, and other course information.

Introduction to the theory and practice of error control codes. Topics include algebraic codes, convolutional codes, and codes on graphs. Considers the construction and decoding of Reed-Solomon (RS) codes in some detail as well as the iterative (turbo) decoding of concatenated codes. The use of error control in wireless systems is discussed throughout the course, with an emphasis on the codes used in 3G and 4G cellular.

Prerequisites: ECE 3200 or 5210 or equivalent; strong familiarity with linear algebra.

Required Text: Stephen Wicker, *Error Control Systems for Digital Communication and Storage*. Available on course website as individual chapters are revised.

Grading:

- | | |
|---|-----|
| • 3 tests | 45% |
| • 1 project (algebraic coding theory) | 20% |
| • 8 homework assignments (lowest grade dropped) | 35% |

Course Policies:

- Late homework is not accepted for any reason. The lowest grade will be dropped.
- Makeup tests will only be allowed for students who can provide a written excuse from a physician or Gannet Health Services.