

# **Syllabus: ECE4371 Introduction to Telecommunication Engineering, Fall, 2014**

*Zhu Han*

## **Instructor information**

- Office location: Engineering 2 W302
- Office hours: Mon. 10am-2pm,  
Other time including weekend by appointment
- Email: [zhan2@uh.edu](mailto:zhan2@uh.edu) [hanzhu22@gmail.com](mailto:hanzhu22@gmail.com)
- Phone: 713-743-4437(o), 301-996-2011(c)
- Course website:  
[http://www2.egr.uh.edu/~zhan2/ECE4371/ECE4371\\_4117.html](http://www2.egr.uh.edu/~zhan2/ECE4371/ECE4371_4117.html)

## **Course description and objectives**

This course focuses on the analysis and design of communication systems, including both analog and digital systems. We will cover modulation and demodulation techniques, performance of modulation in noise, and application of these techniques to current systems, including radio, TV, satellite, and cellular systems. The analog communication systems will be studied first. Then the basic theories for the communications are briefly covered, such as random process, estimation and detection, information theory, and error correct coding. With these theories, current digital communication techniques will be investigated. The objectives are to give the students overview of communication systems, instruct the basic theorems for communications, and illustrate the state-of-art for communication techniques.

## **Required textbook:**

Modern Digital and Analog Communication Systems, B.P. Lathi and Zhi Ding, 4<sup>th</sup> edition, Oxford University press.

## **Required software: MATLAB**

## **Recommended textbooks:**

- Digital Communications: J. Proakis, *Digital Communications*
- Random Process: G.R. Grimmett and D.R. Stirzaker, *Probability and Random Processes*
- Estimation and Detection: H.V. Poor, *An introduction to Signal Detection and Estimation*
- Information Theory: T. M. Cover and J. A. Thomas, *Elements of Information Theory*
- Error Correct Coding: P.Sweeney, *Error Control Coding*
- Resource Allocation: Z. Han and K. J. R. Liu, *Resource Allocation for Wireless Networks: Basics, Techniques, and Applications*

**Course content and calendar**

- Late Aug. ~Late Sep.: analog communication systems. Midterm 1
- Late Sep.~ Middle Nov.: technique of digital communications. Midterm 2
- Middle Nov. - Final standard, video.
- Each exam only covers from the previous exam

**Project and homework**

- 2-3 Matlab projects
- 1 Term paper
- Homework 3-4 per week

**Policy on assignment due dates**

- Same day at class or same day in my mailbox

**Exam and grading policy**

- Three exams on analog, digital technique, and digital standard
- Participation: 5%
- Vote for the percentage of homework, project, and exam at the last exam

**Statement for academic dishonesty**

Any violation of academic integrity will receive academic and possibly disciplinary sanctions, including the possible awarding of an XF grade which is recorded on the transcript and states that failure of the course was due to an act of academic dishonesty. All acts of academic dishonesty are recorded so repeat offenders can be sanctioned accordingly.

- CHEATING
- COPYING ON A TEST
- PLAGIARISM
- ACTS OF AIDING OR ABETTING
- UNAUTHORIZED POSSESSION
- SUBMITTING PREVIOUS WORK
- TAMPERING WITH WORK
- GHOSTING or MISREPRESENTATION
- ALTERING EXAMS
- COMPUTER THEFT