

CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA  
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

## SYLLABUS

ECE 405 Communication Systems (4)

Prerequisite: ECE 307 and ECE 315

Instructor: Dr. James S. Kang

Office: 9 - 321

Office Telephone: (909) 869 - 2532

[jskang@esupomona.edu](mailto:jskang@esupomona.edu)

[www.esupomona.edu/~jskang](http://www.esupomona.edu/~jskang)

2009. Text: Lathi and Ding, *Modern Digital and Analog Communication Systems*, 4th ed., Oxford,

Previous Text: Haykin, *Communication Systems*, 4th ed., Wiley, 2001.

10%. Grading: Quizzes - 40%, Midterm - 25%, Final - 25%, Homework and computer assignment -

- All exams and quizzes are open book, open notes
- No make-up quizzes or tests are allowed unless approved by the instructor in advance

### Topics

Review of Fourier Series and Fourier Transform

Amplitude Modulation and Demodulation

Double-sideband modulation  
Amplitude modulation  
Single-sideband modulation  
AM receiver design

Frequency Modulation and Demodulation

Phase modulation  
Frequency modulation  
Superheterodyne receiver

ADC and DAC

Ideal sampling  
Practical sampling  
Pulse code modulation  
Differential pulse code modulation

Adaptive differential pulse code modulation  
Delta modulation  
Adaptive delta modulation

**Baseband Transmission**

Line coding  
Pulse shaping  
Equalizer design