数字通信
Digital Communications
(620101)

李晓峰 教授
Prof. Xiaofeng Li
信息与通信工程学院
School of Info & Comm Engineering

What, Why and How of the Course

What is this course about?

Why I need to study this course?

How I need to learn this course?

Course Aims

This course aims:

- to introduce the theory and systems engineering of modern digital communications, and
- to enhance understanding of communication systems protocols.

Intended Learning Outcomes

By the end of this course students will be able to:

- state features and advantages of digital communication;
- describe common forms of digital communication, including radio and wire transmission;
- explain typical forms of modulation, such as amplitude, phase and frequency-shift keying and interpret their waveforms;
- compare the attributes and performances of different forms of modulation;
- develop the structures for optimal receivers and describe the impact of nonoptimality;
- design an appropriate transmission method for a given type of signal;
- understand modem wireless schemes, such as OFDM and spread spectrum

Prerequisite: Calculus, Linear algebra,
Probability, Signals and systems

Textbook：(You are **not required** to buy any textbook)

Communication Systems Engineering

2nd edition

Author：

John G. Proakis

and Masoud Salehi

Reference

1. U. Madhow, Introduction to Communication Systems, Cambridge University Press, 2014
2. B. P. Lathi. Modern Digital and analog communication systems, 4th ed. 电子工业出版社，2011.
3. Simon Haykin, Communication systems, 4th ed.电子工业出版社，2003
4. A.V.Oppenheim, Signals and systems, 2nd ed.电子工业出版社，2002/8
5. 李晓峰等，《通信原理》2d，清华大学出版社，2013. （In Chinese）

Contents of Course

Ch1 Introduction

Ch2 Analog signal transmission and reception

Ch3 Effects of noise on ...

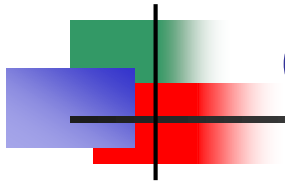
Ch4 Information source and source coding

Ch5 Digital transmission through the AWGN channels

CH6 Digital transmission through bandlimited AWGN channels

CH7 Channel capacity and ...

Ch8 Wireless communications

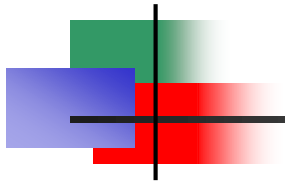


Course Assessment

Xiaofeng Li (李晓峰)

- Professor, head of the Dept.of Comm. Engineering；
- Research building KB232b, (科B232b)
- xfli@uestc.edu.cn；

- Research areas：
  - Communication systems, Signal processing
  - Image processing, DSP implementation.
- Lectures：
  - Principles of communication, Random signal analysis
  - Applied stochastic processes, Digital communications.



End of this chapter

Thank you