

Principles of Communication Engineering II

Fall 2006/2007

Prof. Dr. Stefan M. Moser



Syllabus

<http://moser.cm.nctu.edu.tw/nctu/pce2/>

1 Website

There is a website which is always kept up-to-date:

<http://moser.cm.nctu.edu.tw/nctu/pce2/>

Note that any notes that are handed out during classes will also be available for download on this page. However, while the website is available worldwide, the documents can only be downloaded from within the National Chiao Tung University.

2 Instructor

Stefan M. Moser

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3 Time and Place

There are two lectures per week:

- Tuesday, 10:10–12:00, Engineering Building IV, Room 111 (ED111)
- Thursday, 15:40–17:30, Engineering Building IV, Room 111 (ED111)

The course starts on Tuesday, September 12, and finishes on Wednesday, January 11, 2007. For more detailed program see the above mentioned website.

4 Course Objective

The major goal of Principles of Communication Engineering (I,II) is to teach students about the basic principles underlying the operation and design of a communication system. It is a core course in the Department of Communication Engineering. The course will follow approximately the following schedule:

- Passband digital transmission (Chapter 6)
- Spread spectrum modulation (Chapter 7)

- Multiuser radio communications (Chapter 8)
- Fundamental limits in information theory (Chapter 9)
- Error-control coding (Chapter 10)

For more detail see the above mentioned homepage.

We expect a student who finishes the course to be able to understand the basic operating principles of current communication systems or standards. Moreover, we sincerely hope that a student who learns the course material will be equipped with the ability to analyze and design a communication system.

5 Prerequisites

The following lectures/topics are recommended:

- Signals and Systems (preferably)
- Probability (preferably)
- Principles of Communication Engineering I (preferably)

6 Textbook

The course will mainly be based on

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

Further references and recommended readings:

- R. E. Ziemer and W. H. Tranter: *Principles of Communications*, 5th ed., Wiley, 2002.
- John G. Proakis: *Digital Communications*, 4th ed., McGraw-Hill, 2001.
- Thomas M. Cover and Joy A. Thomas: *Elements of Information Theory*, Wiley, 1991.

7 Grading

Every week there will be an exercise consisting of a couple of problems that needs to be solved at home. For the understanding of the course and also as a preparation for the mid-term and final exam we highly recommend to solve the exercises!

Your grade will be an average of

- your homework (15%),
- the midterm exam (35%), and
- the final exam (50%).

The grade of the homework will not be based on the correctness of the answers, but rather on the effort the student shows in trying to solve them. To pass the course there is the additional condition that **at least 10 exercises have to be handed in**.

This course is worth 3 credits.

8 Special Remarks

The lecture will be held in English.