

A new course in Spring 2016

MTAT.05.128 Introduction to Digital Communications

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- What are the basic principles of modern communications?
- How the billions of bits are transmitted each second?
- How to model a simple communications system?

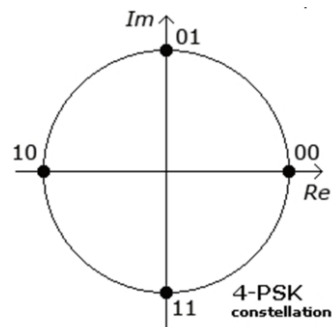
Course description

The course will introduce basic principles and techniques used in modern digital communications systems. The course is targeted towards the last year Bachelor's students, as well as Master's students in Computer Engineering, Computer Science, Physics and Technology.

The students are assumed to pass basic courses in calculus, discrete mathematics and probability theory. The student will learn MATLAB and will use it to test different communications algorithms and techniques.

Preliminary syllabus

1. Wireless channels
2. Digital versus analog communications.
3. Digital communication system model.
4. Source compression.
5. Vector representation of the signal.
6. Quantization and Sampling.
7. Feedback versus Forward error correction.
8. Gaussian noise model.
9. ML and MAP detection for Gaussian noise.
10. Error probability performance analysis.
11. Standard modulation schemes.
12. Pulse amplitude modulation (PAM).
13. Inter-symbol interference.
14. Orthogonal frequency division multiplexing (OFDM).



More information: <https://courses.cs.ut.ee/2016/digicomm/spring>



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