

# Introduction to Digital Communications

## MTAT.05.128

Vitaly Skachek

Lecture 1

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- Signal processing
- Information theory
- Coding theory
- Network communications, protocols, algorithms
- Compression
- Image processing

## Books

- JOHN PROAKIS, Digital communications
- ROBERT G. GALLAGER, Principles of digital communications
- HWEI HSU, Analog and digital communications

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## Grade

- Homeworks 60% (both math and MATLAB exercises)
- Final exam 40%

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- 1844: Morse code

## International Morse Code

1. The length of a dot is one unit.
2. A dash is three units.
3. The space between parts of the same letter is one unit.
4. The space between letters is three units.
5. The space between words is seven units.

A	• —	U	• • —
B	— • • •	V	• • • —
C	— • — •	W	— — • —
D	— • • •	X	— • • • —
E	•	Y	— • — —
F	• • — •	Z	— — • •
G	— — • •		
H	• • • •		
I	• •		
J	• — — —		
K	— • — —	1	• — — — —
L	• — • •	2	• • — — —
M	— —	3	• • • — —
N	— •	4	• • • • —
O	— — —	5	• • • • •
P	• — — •	6	— • • • •
Q	— — • —	7	— — • • •
R	• — • •	8	— — — • •
S	• • •	9	— — — — •
T	—	0	— — — — —

Source: Wikipedia

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- 1980: first fiber optics system, Bell Systems