Study program: Modern computer technologies

Course title: Computer Networks

Professor/assistant: Mirko Kosanovic / Dusan Stefanovic

Type of course: compulsory

ECTS credits: 7

Pre-requisites: none

Aims of the course:
Acquisition of basic knowledge about the techniques and ways of networking computers.

Learning outcomes:
Preparing students for further study of network technology and individual connecting of computers.

Syllabus

Theoretical part

Practical part:
Getting different data coding (Morse code, ASCII, EBCDIC, and Unicode). Different schemes for digital encoding (NRZ, NRZI and Manchester), modulation type (amplitude, phase and QAM). Problems related to data compression (Huffman coding, arithmetic compression, run-length, Lempel - Ziv). Error detection by cyclic redundancy checks, Hamming codes. Algorithms for Data Encryption: Caesar and poly alphabetic encryption, and DES standards, public keys and digital signatures. Introduction to the media (serial cable, parallel cable, coaxial cable, fiber optic cable). Introduction to the devices for establishing a connection between computers (amplifier, hub, switch, router, bridge) and console commands to control and configure network devices from TCP/IP. Practical introduction to the program to simulate the operation of the network "CISKO Config Maker". Introduction to the network device, router and design of a small network and its testing through "CISKO Config Maker".

Literature

Number of active classes
Lectures: 45
Practical classes: 30
Research work:

Other forms of teaching:

Teaching methods
Combination of interactive approach with practical problem solving.

Grading system (maximum 100 points), grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.

Pre-exam obligations

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<th>activity during theoretical lectures</th>
<th>points</th>
<th>Final exam</th>
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<tr>
<td>practical training</td>
<td>20</td>
<td>oral exam</td>
<td>15</td>
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<td>colloquium(s)/seminar papers</td>
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<td>Sum</td>
<td>70</td>
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