

Course title: Computer networks and communications

Course code	Course status	Semester	Number of ECTS credits	Lecture hours
132004174	Mandatory	IV	6	3+0+2

Study program:
Basic applied studies, ELECTRICAL ENGINEERING, study program: Computer engineering (studies last for 6 semesters, 180 ECTS credits).

Prerequisites: No prerequisites required.

Course aims:
Students are introduced with principles of computer networks and communications. They learn about LAN networks, TCP/IP architecture and basics of digital communications in more details.

Teacher(s) and assistant(s):
Ph.D. Igor Radusinović, assistant professor – teacher, Ph.D. Zoran Veljović, assistant professor – teacher, M.Sc. Enis Kočan – assistant, M.Sc. Maja Ilić – assistant.

Teaching method:
Lectures and laboratory exercises performed in computer classroom/laboratory. Studying and doing home exercises. Consultations.

Course synopsis:

Preliminary weeks	Preparation and semester enrolment.
I week	Introduction (networking concepts, efficacy, topologies, performances and history of computer networks). Basic principles of computer communications. Model. Signals. Transmission types. Signal processing by modulation. Signal processing by coding. Noise. Transmission mediums. Classification. Wired transmission mediums. Wireless transmission mediums. First test Free week Computer network architecture. TCP/IP architecture. Application layer protocols (HTTP, SMTP, DNS). Transport layer protocols (UDP and TCP). Internet protocols. IP addressing. Local area networks (LAN). Protocol architecture of LAN networks. Physical layer. MAC layer. LLC layer. IEEE 802.3 standards. IEEE 802.11 standards. IEEE 802.16 standards. Second test WAN networks Final exam
II week	
III week	
IV week	
V week	
VI week	
VII week	
VIII week	
IX week	
X week	
XI week	
XII week	
XIII week	
XIV week	
XV week	
XVI week	
Final week	Administrative procedures.
XVIII-XXI week	Additional lessons, correction of the final exam and administrative procedures.

STUDENT WORKLOAD

<u>per week</u>	<u>per semester</u>
6 credits x 40/30 = 8 hours	Teaching and the final exam: (8 h) x 16 = 128 h
Working hours structure:	Necessary preparation (before semester): 2 x (8 h) = 16 h
3 hours for teaching	Total work hours for the course: 6 x 30 hours = 180 hours
2 hours for laboratory exercises	Additional hours for preparing correction of the final exam, including the exam taking: up to 36 hours (the rest of the time from the first two items, up to the total work hours for the course, 180 hours).
3 hours for individual work, including consultations.	Work hours structure:
	128 h (lectures) + 16 h (preparation) + 36 hours (additional work)

Lessons attendance is mandatory for students, as well as doing home exercises, laboratory exercises and both tests.

Literature: M. Pejanović, I. Radusinović, Z. Veljović, "Računarske mreže i komunikacije".

The forms of knowledge testing and grading:

- 5 home exercises carry 5 points total (1 point each).
- Laboratory exercises tests carry 20 points.
- Each test carries 15 points (30 points total).
- Final exam carries 45 points.

Student gets the passing grade by collecting 51 points at least.

Special remarks for the course: The teaching is organized for student groups of about 100 students, and laboratory exercises for student groups of about 60 students. If needed, the course can also be taught in English.

Teacher(s) who provided the information: Ph.D. Igor Radusinović, assistant prof.

Remark: