

Study program: Multimedia Communications Technologies			
Course title: IP Communications			
Professor/assistant: Zoran Veličković, Ph. D.			
Type of course: elective			
ECTS credits: 7			
Pre-requisites:			
Aims of the course: Getting to know the IP communications networks and network standards. The use of IP communications networks in business.			
Learning outcomes: Mastering the skills to independently design, implement and maintain IP communications networks.			
Syllabus			
<i>Theoretical part</i> Communication networks. Circuit Switching and packet switching. The basis of packet-switched networks. Communication protocols. OSI model of network communication. IP networks. TCP / IP protocol stack architecture. Features IP protocol. Basic TCP / IP protocols. IP addressing. IP version 6 protocol. IP routing. Protocols Application, Presentation and Session layer . The protocols of the transport and network layers. UDP, TCP. Higher layer protocols and the physical layer. Wireless IP networks. IP telephony. Infrastructure of IP telephony. The topology of VoIP systems. VoIP H.323 standard. Encryption. Authentication. Virtual Private Network VPN. E-commerce and on- line payments. Protection of electronic transactions. SSL. Digital signature and digital certificate.			
<i>Practical part</i> Design of communication networks based on TCP / IP protocols. Design of business VoIP system.			
Literature 1. Hersent O., Petit J., Gurle D., IP Telephony, Deploying Voice-over-IP Protocols, J.W.&Sons, 2005. 2. Jevtović M., Veličković Z., Komunikacioni protokoli prepletenih slojeva, Akademska misao, 2013.			
Number of active classes 75			Other forms of teaching:
Lectures: 30	Practical classes: 45	Research work:	
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	points	Final exam	points
activity during theoretical lectures	10	written exam	15
practical training	20	oral exam	15
colloquium(s)/seminar papers	40		
Sum	70	Sum	30