

Course title: WAN Protocols
Course code: 50053
ECTS credits: 6
Requirements: None
Basic information
Level of studies: Undergraduate applied studies
Year of study: 3
Trimester: 9
Goal: Introducing the fundamentals of WAN protocols in computer networks. Training students to connect remote local computer networks and administrate WAN links.
Outcome: Students should be able to define and configure a connection between remote LANs based on certain criteria and select technology and settings of WAN links. They should independently recognize, locate and eliminate errors in WAN links administration.
Contents of the course
Theoretical instruction
1. WAN technologies and smart options for dual homed and single homed architecture
2. VPN with special reference to DMVPN
3. Virtualization, virtual network infrastructure and the impact of cloud services in enterprise network architecture
4. BGP, eBGP for routing between the company headquarters and its remote branches
5. Using Path Trace applications for access lists
6. Application Policy Infrastructure Controller – Enterprise Module (APIC-EM)
7. QoS service quality parameters
8. Layer 3 redundancy. HSRP protocol
9. HDLC protocol. Point-to-Point protocol
10. NAT protocol
Practical instruction (Problem solving sessions/Lab work/Practical training)
1. Configuring PPP protocols on a router
2. Configuring NAT protocols on a router

3. Configuring VPN and DMVPN on a router
4. Configuring BGP and eBGP protocols
5. Configuring HSRP protocols
Textbooks and References
1. J. F. Kurose, K. W. Ross, Умрежавање рачунара од врха ка дну са Интернетом у фокусу, превод шестог издања, РАФ Рачунарски факултет, Београд, CET Computer Equipment and Trade, Београд, 2013, оригинално издање: Computer Networking: A Top-Down Approach Featuring the Internet, Pearson Education, Inc., 2013.
2. Cisco Networking Academy, "Connecting Networks Companion Guide", Cisco Press, 2014, ISBN-10: 1-58713-332-6
3. W. Odom, "CCNA Routing and Switching 200-125 Official Cert Guide Library", Cisco Press, 2016, ISBN-10: 1-58720-581-5
Number of active classes (weekly)
Lectures: 3
Practical classes: 3
Other types of classes: 0
Grading (maximum number of points: 100)
Pre-exam obligations: Points
Activities during lectures: 0
Activities on practical exercises: 25
Seminary work: 0
Colloquium: 25
Final exam: Points
Written exam: 50
Oral exam: 0
Lecturer: Marija Zajeganović, MSc
Associate: Nikola Kurbalija