

Course title: Routing in WANs
Course code:
ECTS credits: 6
Requirements: None
Basic information
Level of studies: Master applied studies
Year of study: 1
Trimester:
Goal: Introducing advanced routing technologies in the network of Internet service providers (ISPs).
Outcome: Students should acquire the skills necessary for implementing the routing protocols used in the network of Internet service providers (ISPs) and be able to solve real problems that may arise when administering the ISP network.
Contents of the course
Theoretical instruction
1. Introduction to architecture and transport technologies in the service provider's network
2. Implementation of multi-area OSPF protocols
3. Implementation of BGP protocols and security options
4. BGP attributes
4. Scalability iBGP
5. BGP Route Reflectors
6. MP-BGP
7. Implementation of routing maps
8. Route redistribution with VPN technologies in ISP
9. Implementation of MPLS
10. MPLS traffic engineering, MPLS VPN solutions
Practical instruction (Problem solving sessions/Lab work/Practical training)
1. Implementation of OSPF multiarea
2. Configuration of route redistribution
3. Implementation of BGP

4. MPLS
5. MPLS VPN
6. Configuration of MP-BGP and PE-CE routing protocols
7. Troubleshooting in L3 MPLS VPN
Textbooks and References
1. Mark Lewis, Comparing, Designing, and Deploying VPNs
2. Randy Zhang, Micah Bartell, BGP Design and Implementation
3. Raymond Lacoste, Brad Edgeworth, CCNP Enterprise Advanced Routing ENARSI 300-410 Official Cert Guide
Number of active classes (weekly)
Lectures: 3
Practical classes: 2
Other types of classes: 1
Grading (maximum number of points: 100)
Pre-exam obligations: Points
Activities during lectures: 0
Activities on practical exercises: 50
Seminary work: 0
Colloquium: 20
Final exam: Points
Written exam: 30
Oral exam: 0
Lecturer
Associate