Course title: New Generation Networks
Course code: 41085
ECTS credits: 6
Requirements: None
Basic information
Level of studies: Master applied studies
Year of study: 1
Trimester: 2
Goal: Introduction to the latest achievements in network technologies that are applied globally as well as in Serbia. Acquisition of professional knowledge related to technical solutions implemented in next generation networks on system level and within its hardware and software components.
Outcome: Students should be able to constantly improve the performance of core and access networks of service providers. Besides that, students are trained to research and develop technical solutions by working for vendors and system integrators.
Contents of the course
Theoretical instruction
1. Current converged all-IP network technologies
2. New generation network layers and its elements
3. Horizontal architecture and IMS core softswitch servers
4. Signaling protocols in all-IP networks
5. Peer-to-peer applications
6. Application level QoS protocols for advanced services
7. Network level QoS protocols for advanced services
8. LTE technologies
9. 5G services, QoS mechanisms and applications
10. Edge computing and artificial intelligence in mobile networks
Practical instruction (Problem solving sessions/Lab work/Practical training)
1. Research methodologies and procedures
2. ICT market trends
3. Network platforms
4. ICT research exercises

Textbooks and References
1. A.Sugaris, New generation networks, Compiled lecture notes, 2020
2. John G. van Bosse, Fabrizio U. Devetak, Signaling in Telecommunication Networks, Wiley-Interscience; 2 edition , 2006
3. Neill Wilkinson, Next Generation Network Services: Technologies & Strategies, John Wiley & Sons; 1st edition, 2002
4. Jim Kurose, Keith Ross, Computer Networking: A Top Down Approach, Pearson/Addison Wesley, 7th edition April 2016
5. 3GPP TS 23.501 V16.4.0 (2020-03), Technical Specification Group Services and System Aspects; System architecture for the 5G System (5GS)

Number of active classes (weekly)
Lectures: 4
Practical classes: 2
Other types of classes:

Grading (maximum number of points: 100)
Pre-exam obligations: Points
Activities during lectures:
Activities on practical excersises: 20
Seminary work:
Colloquium: 20
Final exam: Points
Written exam: 60
Oral exam:
Lecturer
Aleksandar Sugaris, PhD
Associate