

Course title: Multimedia Communications
Course code: 41080
ECTS credits: 4
Requirements: None
Basic information
Level of studies: Undergraduate applied studies
Year of study: 3
Trimester: 9
Goal: Introduction to signal compression techniques, algorithms and standards as well as the applications in practice. Acquisition of professional knowledge related to characteristics of multimedia traffic within distribution, broadcasting systems especially within packet switched networks.
Outcome: Students should be able to demonstrate detailed understanding of signal compression basics, to use appropriate software tools, and to apply them in multimedia applications design, implementation and administration. Besides that, students are trained to demonstrate detailed understanding of multimedia transmission and network basics which can be applied by working for network operators, service providers, vendors, and system integrators.
Contents of the course
Theoretical instruction
1. Transform coding
2. Intraframe and Interframe compression
3. Still image: DCT and JPEG
4. Video – motion compensation
5. MPEG-x standards
6. Audio and voice coding
7. Network architecture and DVB standards
8. Interactive and multimedia services based protocols
9. Video conferencing
10. IPTV hardware and software structure of system elements
Practical instruction (Problem solving sessions/Lab work/Practical training)
1. Multimedia content coding using programming languages
2. Network bandwidth and traffic calculations
3. Resolving engineering problems from networking practice

4. Introduction to daily routine in the real broadcasting environment of TV stations in Serbia with national coverage
Textbooks and References
1. A.Sugaris, Multimedia Communications, Compiled lecture notes, 2019
2. K.R.Rao et al., Video coding standards, Springer, 2014
3. U.Reimers, Digital Video Broadcasting, Springer, 2005
4. W. Simpson, Video over IP: A Complete Guide to Understanding the Technology, Elsevier, 2008
5. ITU-T G.7xx standards
Number of active classes (weekly)
Lectures: 3
Practical classes: 1
Other types of classes:
Grading (maximum number of points: 100)
Pre-exam obligations: Points
Activities during lectures: 10
Activities on practical excersises: 20
Seminary work:
Colloquium: 40
Final exam: Points
Written exam: 30
Oral exam:
Lecturer
Aleksandar Sugaris, PhD
Associate