

Study Program: Informatics			
Type and level of studies: Bachelor studies			
Course name: Multimedia Systems in Informatics			
Lecturer: Stamenković M. Negovan			
Status: Compulsory			
ECTS: 7			
Attendance Prerequisites: Basic, high-school level informatics knowledge.			
Course aims Acquiring theoretical knowledge about multimedia systems, as well as practical skills in working with multimedia tools for the design and implementation of multimedia systems. Gaining practical skills in handling, archiving, programming, synchronization, transmission and presentation of multimedia data streams.			
Course outcome The students are able to apply the techniques of collecting, handling, archiving, programming, synchronizing, transmitting and presenting multimedia content. They have gained knowledge of basic principles of multimedia content compression, multimedia data flow characteristics, and proficiency in working with Macromedia / Adobe multimedia software abstractions.			
Course content <i>Theoretical part</i> Introduction to Multimedia Technologies. Multimedia applications. Hardware and software for multimedia systems. Creating multimedia content. Working with text. Working with sound. Working with video. Audio / video material processing. Processing and coding. Digital television. Compression without and with losses. Standards. Overview of compression and optical storage standards (standard algorithms; JPEG2000 and MPEG 1, 2, 4, 7 and 21; CD DA-ROM-WO-RW). Multimedia operating systems. Multimedia transmission and saving. Integration of image and sound software. Sound and image sync. Advanced techniques and non-linear editing. Ways of transferring audio / video material from external analog and digital devices to the hard drive (Y / C composite and switch over FireWare 1394 protocol). Colorimetric correction of recorded video. Web and NET technologies. Multimedia and the Internet. <i>Practical part</i> Transferring audio / video from different digital formats to computers. Using Adobe Premier and Adobe Photoshop. Integrating sound and image software. Combining motion graphics with live audio / video. Combining live images with 3D software: Adobe Photoshop, Sony Vegas. Colorimetric correction of recorded video material from AVI format to various MPEG and H.263 and H.264 formats. Other forms of teaching. Students' research work.			
Literature:			
<ol style="list-style-type: none"> 1. D. Feng, W.C. Siu, H.J. Zhang (Eds.), <i>Multimedia Information Retrieval and Management</i>, Springer, Berlin, 2003 2. M.S. Nixon, A.S. Aguado, <i>Feature Extraction and Image Processing</i>, Second Ed., Elsevier, 2008 3. Miodrag V. Popović: <i>Digitalna obrada slike</i>, Akademska Misao, Beograd, 2006 4. Rafael C. Gonzalez, Richard E. Woods: <i>Digital Image Processing</i>, Third Ed., Pearson Prentice Hall, NJ, 2008 			
Number of active classes			Other classes
Lectures: 2	Practical classes: 3	Other forms of teaching:	
Students' research work			
Teaching methods Lectures are in accordance with the topic in <i>course content</i> , computer practice and independent student research work..			
Assessment (maximum 100 points)			
Course assignments	points	Final exam	points
activity during lectures	10	written exam	20
practical classes	20	oral exam	30
term test(s)	20	
seminar(s)			
Total	50		50