

**DESCRIPTION OF THE STUDY SUBJECT**

**Title**

<b>AUDIO AND VIDEO TECHNOLOGIES</b>
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**Scope of the subject**

Semester	Mode of studies	Structure*				Total number of hours	Number of credits	Group and type of subjects
		L	Lw	C	S			
III	Full-time	19	36	10	71	246	9	Compulsory subjects of the study field
IV		14	30	8	58			
IV	Part-time	10	20	35	71	246	9	
V		6	18	28	58			

\*L – lectures, PS – practical activities, seminars, LW – laboratory work, PR – practice, CP – course paper, C – consultations, S – self-study

**Aim of the subject**

To master principles of digital video and audio technologies and constructing their products, possibilities and specificity of applying technologies, to develop multimedia products.

**Necessary background knowledge for studying the subject**

Students shall have heard subjects basics of contemporary media art and technologies, multimedia signals and multimedia hardware.

**Content of the subject**

Title of the topic and description of the content	Number of contact hours			S	Total number of hours
	L	Lw	C		
1. The image and sound in multimedia. Sound studio. <i>Development of multimedia technologies. Multimedia technologies in art and business. The concept of digital sound and image. Acoustic requirements for the sound studio and equipment. Nature of sound, digitizing technology, main characteristics of digital sound. Databases of sound and video material.</i>	4	-	-	-	<b>4</b>
2. Audio editing software. 2.1. Adobe Audition program. <i>Software deployment, single track and multi track modes, sound recording, main effects. Main elements of an audio composition, automation of effects, composition tempo adjustment procedures. Correction and restoration of an audio recording.</i>	3	-	-	-	<b>3</b>
Laboratory works. The composition in Adobe Audition program. <i>To create a multitrack audio composition, which employs sound recording using a microphone, editing of tempo and pitch, restoration of the recording and acoustic space simulation, musical information management automation technologies, audio effects and mastering, surround variant of the created composition. The work shall be presented in software project format and Wave format.</i>	-	8	2	10	<b>20</b>
2.2. SONAR program. <i>Software deployment, work with audio material. Sound recording methods. Automation of tracks and effects. MIDI material and VST instruments. MIDI track alignment, audio signal routing, mixer, converting the MIDI recording into the audio recording. Chords and arpeggiator. Vocal editing techniques. Adjustment of audio and MIDI material in a multitrack mode.</i>	3	-	-	-	<b>3</b>
Lab works. Composition using SONAR program. <i>To create a multitrack audio and MIDI composition, which employs audio recording techniques using a microphone and MIDI controller or synthesizer, application of VST instruments, tempo and pitch editing, restoration of the recording and acoustic space simulation, music information automation, Crossfade technologies, audio effects. The composition shall contain integrated soundtrack that is based on the selected piece of music and created by the arpeggiator. Mastering procedure shall be performed, surround variant of the composition must be created. The work shall be presented in program project format and Wave format.</i>	-	8	2	12	<b>22</b>
2.3. Hardware for audio recording and editing: microphones, external sound cards, mixing consoles, effects units.	3	-	-	-	<b>3</b>

Title of the topic and description of the content	Number of contact hours			S	Total number of hours
	L	Lw	C		
2.4. Cubase software. <i>Software deployment. Sound recording methods. Rhythmic editing of the audio recording. Restoration of the audio recording and effects. MIDI editing and VST instruments.</i>	2	-	-	-	2
Laboratory works. Composition using Cubase software. <i>To prepare a computer for work with Cubase software. To create a multitrack audio and MIDI composition, which employs audio recording techniques using a microphone and MIDI controller or synthesizer, application of VST instruments, tempo and pitch editing, editing of the internal structure of the audio recording, restoration of the recording and acoustic space simulation, music information automation, Crossfade technologies, audio effects, automation of audio effects. The composition shall contain integrated soundtrack that is based on the selected piece of music and created by the arpeggiator. Mastering procedure shall be performed, surround variant of the composition shall be created. The work shall be presented in program project format and Wave format.</i>	-	6	2	10	18
<b>Preparation for the defence of laboratory works and their defence No. 1</b>	-	4	-	9	13
3. Basics of filming, photographing and video editing. <i>Video camera and camera deployment, essential principles of composition and plot planning. Basics of work using Adobe Premiere Pro program: video uploading, clipping, adjustment, soundtrack, storage of material.</i>	2	-	-	-	2
Laboratory works. Sound design composition. <i>The video composition is created using one's own and other authors' created video samples, extracts. Development of video material and idea shall rhythmically cohere with the student's created soundtrack. The video material shall contain video effects, transitions, neatly presented textual information about the author of the work, authorship of other used sources and the purpose of the work.</i>	-	8	3	12	23
<b>Preparation for the defence of laboratory works and their defence No. 2</b>	-	2	-	9	11
<b>Test No. 1</b> <i>The test consists of 30 questions about hardware and software management actions</i>	2	-	1	10	12
<b>IV semester. Total number of hours</b>	<b>19</b>	<b>36</b>	<b>10</b>	<b>71</b>	<b>136</b>
4. Interactive multimedia technologies. <i>Interactivity in the art and business of multimedia. Video and Project Mapping. Software and hardware for development of interactive audio and video product.</i>	2	-	-	-	2
Laboratory works. Project Mapping composition. <i>To create and, having self-adjusted software, hardware and projection hardware, to present the interactive video projection. It shall contain the material filmed by the author of the projection, photographed and properly developed other authors' material. The composition shall be compatible with the soundtrack and managed by the PC keyboard. Transitions of video and audio elements shall be used.</i>	-	6	2	6	14
<b>Preparation for the defence of laboratory works and their defence No. 3</b>	-	2	-	4	6
5. Photography technologies. <i>Essential stages of photography development. Portrait, landscape, fashion and advertising photography. Photo exhibition and publication. Lighting equipment for photography.</i>	4	-	-	-	4
Laboratory works. A series of photographs. <i>Having selected the model and appropriate lighting techniques, to create series of 8 portraits, 8 landscape photographs (landscape genre is chosen by the student), 8 fashion photographs and 8 advertising photographs (virtually, presenting using a video projector). One of the series is presented in the printed form and displayed in college premises.</i>	-	8	2	8	18
<b>Preparation for the defence of laboratory works and their defence No. 4</b>	-	2	-	4	6
5. Video and film technologies. <i>The plot, dynamic plan, storyboard. The essential principles of the film.</i>	3	-	-	-	3

Title of the topic and description of the content	Number of contact hours			S	Total number of hours
	L	Lw	C		
<i>Short video genres. Reportages and interviews. Essential principles of work in the television studio and in a filming location.</i>					
6. Non-linear video editing. <i>Video drivers, formats, basic characteristics. Video editing, text, effects and connections. Surround audio track in Adobe Premiere Pro software, Adobe Premiere Pro and Adobe Audition programming interfaces, sound track in Flash technology works.</i>	3	-	-	-	3
Laboratory works. Video reportage. <i>To develop a video reportage on a selected topic and according to the pre-established storyboard, which would employ stop method, animated text technologies, interviews, journalistic reportage and other methods, to develop a soundtrack enhancing a dynamic development of the reportage. To present the work in a DVD project format.</i>	-	10	2	8	20
<b>Preparation for the defence of laboratory works and their defence No. 5</b>	-	2	-	4	6
<b>Test No. 2</b> <i>The test consists of 30 questions about hardware and software management actions</i>	2	-	-	4	6
<b>Preparation of the project and its defence.</b> The student chooses one of the proposed topics in the field of multimedia technologies. Performs the analysis of similar projects, a scenario of the created multimedia product, presents video, audio, textual or other material, prepared by himself / herself, describes selected software and hardware for the development of the product, edits the material, makes sound recording for it, subtitles it, provides in several different formats, projects measures of protection against reproduction.	-	-	2	20	22
<b>V semester. Total number of hours</b>	<b>14</b>	<b>30</b>	<b>8</b>	<b>58</b>	<b>110</b>
<b>Total number of hours</b>	<b>33</b>	<b>66</b>	<b>18</b>	<b>129</b>	<b>246</b>

#### Assessment of learning outcomes

Ten-point criteria-based assessment system as well as cumulative assessment using individual cumulative index (ICI) are applied. The overall grade is the sum of grades for the defence of laboratory works (DLw), test (T) and project (P) multiplied by weighted coefficients.

IV semester.  $ICI1 = 0,4 DLw1 + 0,4 DLw2 + 0,2 T1$

V semester.  $ICI2 = 0,1 DLw3 + 0,2 DLw4 + 0,2 DLw5 + 0,1 T2 + 0,4 P$

Final mark.  $ICI = 0,55 ICI1 + 0,45 ICI2$

#### Recommended literature

Key literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house	Number of copies and/or internet link		
				ŠŠC library	Other premises	Other libraries *
1.	2013	Biver Steven. Šviesa – mokslas ir magija: fotografijos apšvietimo įvadas.	Foto protas	1	-	3
2.	2013	Berzinskas Ilja. Animacijos menas.	Mintis	1	-	6
3.	2013	Feist Jonathan. Project management for musicians: recordings, concerts, tours, studios and more.	Berklee Press	1	-	1
4.	2012	Freeman Michael. Foto grafo mintis: geresnės skaitmeninės fotografijos: kūrybinis požiūris.	Kitos knygos	1	-	4
Additional literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house and/or internet link			
1.	2015	Everest F. Alton. Master handbook of acoustics.	New York, NY: McGraw-Hill			
2.	2015	Gress J. [digital] Visual Effects & Compositing.	New Readers			
3.	2013	Austerberry David. The technology of video and audio streaming.	Abingdon: Focal Press			
4.	2013	Jazgevičiūtė D. Erdvinių formų kūrimo pagrindai.	Edukologija			
5.	2012	Chandler Gael. Cut by cut: editing your film or video.	Studio City (Calif): Michael Wiese			

			Productions
6.	2011	Gammons H. The Art of Music Publishing: An Entrepreneurial Guide to Publishing and Copyright for the Music, and Media industries.	Focal Press
7.	2011	Davis Harold. Kūrybiška nespalvota fotografija: skaitmeninės fotografijos patarimai ir metodai.	Kitos knygos

\* ŠAVB – Šiauliai Region Povilas Višinskis Public Library, ŠU – library of Šiauliai University

**Required material resources and their short description**

- **Equipment (devices):** computers (16 units), computers connected to the local network and connected to the Internet, multimedia projectors, dynamic and condenser microphones, speaker system, MIDI keyboard, video and photo cameras, tripods for cameras, lighting equipment.
- **Software:** Adobe Audition CC, Adobe Premiere CC, Adobe Encore CC, Adobe Photoshop CC or later, Resolume Arena 4.1.8 or later, Free Audio Video Studio 8

**The description prepared by:**

Assoc. Prof. Dr. Vytautas Žalys