

## DESCRIPTION OF THE STUDY SUBJECT

### Title

**MULTIMEDIA HARDWARE**

### 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			
II	Full-time	30	25	10	68	133	5	Compulsory subjects of the study field
III	Part-time	14	16	35	68	133	5	

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

### Aim of the subject

To know multimedia hardware for work with graphics, video recordings, sound and mobile devices and its operating principles. To maintain and modernize multimedia devices. To be able to choose hardware suitable for work with multimedia applications.

### Necessary background knowledge for studying the subject

-

### 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. Multimedia systems. Multimedia computers, their parameters, operation principles. Adjustment, use, file formats, information input, processing and output.	4	-	-	-	4
Laboratory work. Choice of the multimedia computer, considering user needs, assembly, adjustment, preparation for work.	-	4	2	6	12
2. Image and text input and output hardware, positioning devices, operation. OCR, fonts, encoding, scanners, monitors, printers, plotters, multi-media projectors.	4	-	-	-	4
Laboratory work. To select a scanner / monitor / printer / plotter / multimedia projector / microphone / repeaters.	-	4	1	6	11
3. Audio hardware: speakers, microphones, synthesizers and other sound processing hardware. MIDI standards. Audio recording, mixing, noise, sound director consoles.	4	-	-	-	4
Laboratory work. Choice of professional sound card / microphone / speaker / mixer, operating principles, structure analysis, operation.	-	2	1	7	10
<b>Preparation for the defence of laboratory works and their defence No.1</b>	-	2	-	4	6
4. Digital video cameras, still cameras, settings, adjustment, use, operation principles, their use cases. VHS, digital image, its formats. Lighting equipment. Video Maker. Characteristic failures.	8	-	-	-	8
Laboratory works. • To select a still camera / video camera / lighting equipment / video editing equipment, to carry out their adjustment. • To adjust a digital video camera / still camera, changing settings, to develop digital photo / filmed material prototypes.	-	7	2	10	19
<b>Preparation for the defence of laboratory works and their defence No.2</b>	-	1	-	8	9
5. Virtual reality. Virtual reality goggles, binoculars, a helmet, gloves, specialized sensors, suits, manipulators, avatars.	2	-	-	2	4
6. Servers, dedicated servers, hosting service, virtual storage and other solutions. Technical solutions of video conference broadcasting.	4	-	-	-	4
7. Mobile multimedia devices. Fliers, tablets, smart phones, bracelets and other modern smart equipment.	3	-	-	-	3
Laboratory work. To select a flier (drone) / tablet / smartphone / other device according to the given situation and to perform its adjustment.	-	3	1	6	10
<b>Preparation for the defence of laboratory works and their defence No.3</b>	-	1	-	4	5

Title of the topic and description of the content	Number of contact hours			S	Total number of hours
	L	Lw	C		
8. Interactive systems. Video projection systems, communication management systems, integrated survey systems and other interactive systems.	2	-	-	-	2
<b>Preparation for the examination and taking the examination</b>	-	-	2	16	18
<b>Total number of hours</b>	<b>30</b>	<b>25</b>	<b>10</b>	<b>68</b>	<b>133</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) and examination (E) multiplied by weighted coefficients.

$$ICI = 0,2 DLw1 + 0,2 DLw2 + 0,2 DLw3 + 0,4 E.$$

#### Recommended literature

Key literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house	Number of copies and/or internet link		
				ŠSSC library	Other premises	Other libraries *
1.	2008	Skeivalas J. GPS tinklų teorija ir praktika	Technika	2	-	2
2.	2008	Kirdeikis S. Kompiuterio konstravimas ir remontas	Smaltija	3	1	-
Additional literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house and/or internet link			
1.	2015	Kaklauskas L. Nuotolinis kursas „Multimedija techninė įranga“	<a href="http://moodle.svako.lt">http://moodle.svako.lt</a>			
2.	2014	Hardware: News, Tests and Reviews	<a href="http://www.tomshardware.com">http://www.tomshardware.com</a>			
3.	2010	Manjit Singh Sidhu. Technology-Assisted Problem Solving for Engineering Education: Interactive Multimedia Applications	Universiti Tenaga Nasional, Malaysia			
4.	2010	Kumetaitenė A. Skaitmeninių žemėlapių sudarymas ir duomenų apdorojimas	Technika			
5.	2004	Dave Johnson. Skaitmeniniai fotoaparatai.	Smaltija			
6.		Įrenginių naudojimo instrukcijos				

\* 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 projector, printer, interactive board, computer components, digital video cameras, digital still cameras, plotters, A4 format scanners and printers, tablet computers, GPS, smart phones, drones.
- **Software:** Windows 10 or later, distribution of Linux or Unix family operating systems, devices with Android, iOS and Windows Mobile operating systems.

#### The description prepared by:

Assoc. Prof. Dr. Liudvikas Kaklauskas