

DESCRIPTION OF THE STUDY SUBJECT

Title

COMPUTER ANIMATION

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			
V	Full-time	12	43	10	70	297	11	Elective subjects for deepening in the branch
VI		10	56	12	84			
VI	Part-time	6	24	35	70	297	11	
VII		6	30	42	84			

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

Aim of the subject

To provide knowledge and skills to use possibilities provided by computer animation technologies, to master basic steps of computer animation development, principles of model animation design and image composition, to animate two-dimensional and three-dimensional models, images, combining various animation techniques and to publish them.

Necessary background knowledge for studying the subject

Students shall have heard subjects graphic design, computer graphics and visualisation, 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. Two-dimensional computer animation and its development process. <i>Animation of models and its principles. Skeletal model. Vector tools, text, symbols, addresses. Timeline. Animation types. Animation of parts of a moving object. Shape changing and motion shots.</i>	6	-	-	-	6
Laboratory works: <i>The user's environment. Drawing tools and their properties. Formation of the text, symbols and addresses. Use of a timeline. Shape changing and motion animations. Filter application. Animation of 3D elements. Creation of a button symbol. Animation of bitmap graphics.</i>	-	25	4	16	45
Test. Creation of animated motions of the object.	-	2	2	6	10
2. Presentation of a two-dimensional computer animation. <i>Sound. Image. Realisation of sound and animation. Development of interactive applications. Publication of animation.</i>	6	-	-	-	6
Laboratory works: <i>Development of an unbroken clip. Sound loading and its editing. Image management. Creation of an interactive button. Publication of an animated video clip.</i>	-	16	2	10	28
Individual work. <i>Development of an animated video clip.</i>			2	24	26
Preparation for the defence of laboratory works and their defence	-	2	-	14	16
Total number of hours in V semester	12	43	10	70	135
3. Three-dimensional computer animation and its development process. <i>Three-dimensional animation of models. Principles of 3D modelling and animation. Three-dimensional object animation, including the laws of physics: gravity, mass, force, attractive force and inertia. Application of motion tethering for parts of animated objects or related objects. Lighting, materials and texturing. Visual Effects. Dynamic properties of objects and physical interaction.</i>	6	-	-	-	6
Laboratory works: <i>Modelling of three-dimensional objects and environment. Modelling and animation of physical phenomena. Construction of the skeleton and controls and animation of their parts. Development of animation of a three-dimensional character and its moving parts. Control of animation workflow. Composition of animation. Ascribing and setting dynamic properties of the object. Animation of groups of objects. Combination of different animation techniques.</i>	-	28	4	20	52

Title of the topic and description of the content	Number of contact hours			S	Total number of hours
	L	Lw	C		
<i>Development and animation of 3D images and objects.</i>					
Test. <i>Modelling and animation of a three-dimensional object</i>	-	2	2	8	12
4. Presentation of three-dimensional computer animation. <i>Composition and image generation. Editing of animation. Sound recording. Publication of animation.</i>	4	-	-	-	4
Laboratory works: <i>Audio insertion into animation. Video and audio combining. Animation recording and optimization. Animations review and presentation.</i>	-	24	4	14	42
Individual work. <i>Development of animated three-dimensional image.</i>			2	26	28
Preparation for the defence of laboratory works and their defence	-	2	-	14	16
Total number of hours in VI semester	10	56	12	84	162
Total number of hours	22	99	22	154	297

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 intermediate accountings and defence of laboratory works (DLw) multiplied by weighted coefficients.
V semester $ICI1 = 0,3 T + 0,3 IND + 0,4 DLw$,
VI semester $ICI2 = 0,3 T + 0,3 IND + 0,4 DLw$, where IND – individual work, T– test
 $ICI = (ICI1 + ICI2) / 2$

Recommended literature

Key literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house	Number of copies and/or internet link		
				ŠSCL library	Other premises	Other libraries *
1.	2014	Šepetienė N. Kompiuterinė animacija Adobe Flash programa.	Vilniaus dailės akademija	1	-	2
2.	2013	Pauliukaitis D. Trimatė kompiuterinė vizualizacija. Laboratoriniai darbai.	Technologija	1	-	-
3.	2013	Vaira Ž., Linkuvienė D. Multimedijos technologijos. Mokytojų vadovas.	VšĮ Socialinių mokslų kolegija	http://www.esparama.lt/es_para_ma_pletra/failai/ESFproduktai/2013_Multimedijos_tehnologijos.pdf.pdf		
4.	2011	Andy Wyatt. Skaitmeninės animacijos pagrindai.	Vilnius „Žara“	3	-	2
5.	2016	Blender tutorials	https://www.blender.org/support/tutorials/			
6.	2016	Windows Movie Maker 2 Training	https://www.atomiclearning.com/moviemaker2			
Additional literature						
No.	Year of publishing	Author(s) and title of the publication	Publishing house and/or internet link			
1.	2016	3DS Max	http://www.autodesk.com/products/3ds-max/features/all			
2.	2016	Tutorialized	http://www.tutorialized.com/			
3.	2016	3DS Max Tutorials	http://www.tutorialspoint.com/listtutorials/3ds-max/1			
4.	2015	Adobe After Effects CC	https://helpx.adobe.com/after-effects/tutorials.html			

* 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, reader, printer.
- **Software:** Windows 8 or later, 3ds Max, Blender, Movie Maker, Adobe: Photoshop Extended CC, After Effects CC, InDesign CC, Illustrator CC, Flash CC, Flash Builder CC or later versions, CorelDraw X6 or later versions.

The description prepared by:

Institution: Šiauliai State College
Study programme: Multimedia Technologies
Lecturer Gražina Tautvydienė