Institution: Šiauliai State College
Study programme: Information Systems Technology

DESCRIPTION OF THE STUDY SUBJECT

Title

COMPUTER GRAPHICS

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**			
I	Full-time	4	29	6	42	161	6	Compulsory subjects of the study field
II		4	29	6	41			
II	Full-time	2	16	21	42			
III		2	16	21	41			

*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 the knowledge and abilities to use possibilities provided by computer graphics, to apply the requirements for formatting of drawings, to create webpage design, to draw and edit vector drawings, to process raster images, to design and edit three-dimensional images of objects, to prepare technical documentation.

Necessary background knowledge for studying the subject

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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. Basics of computer graphics. Types of computer graphics and their peculiarities. General knowledge of development and processing methods of images. Website design. Colour models and colour modes. Requirements for finalisation and formatting of designs.	1	-	-	-	**1**
2. Processing of images of raster graphics. Basics of raster graphics. Website design. Images of raster graphics. Colour correction. Photo editing possibilities. Optimization of raster graphics files.	2	-	-	4	**6**
Laboratory works: Development of website design. Development and processing of raster graphics. Photo correction and retouching. Preparation of graphic images for displaying on the screen, for publication on the Internet.	-	14	2	6	**22**
Individual work (Website design)				8	**8**
3. Drawing, editing, formatting of two-dimensional objects and preparation for printing. The user's interface and peculiarities. Properties of graphical objects. Scales. Two-dimensional graphical objects. Formation and printing of drawings. Marking of measurements.	1	-	-	4	**5**
Laboratory works: Identification of properties of graphic objects and application of software functions. Drawing of two-dimensional graphic objects. Editing of drawings. Formatting of drawings. Preparation of drawings for printing.	-	11	2	6	**19**
Test (Drawing of objects and preparation for printing)		2	2	3	**7**
Preparation for defence of laboratory works of the I semester and their defence.	-	2	-	11	**13**
Total number of hours of the I semester	**4**	**29**	**6**	**42**	**80**
4. Means of modifying working environment. Preparation of technical documentation. Creation and management of libraries of graphic symbols. Designing of physical and logical diagrams of computer network. Arbitrary signs of drawings of buildings. Preparation of technical documentation.	2	-	-	2	**4**
Laboratory works: Creation of the library of graphic symbols. Designing	-	6	2	6	**14**

Title of the topic and description of the content	Number of contact hours			S	Total number of hours
	L	Lw	C		
of the physical diagram of computer network using the library of symbols. Designing of the logical scheme of computer network.					
Individual work (Creation and management of the library of graphic symbols).	-	-	-	10	**10**
5. Models of objects in space. General knowledge of the three-dimensional space. Design methods. Design systems and their possibilities. Management of spacial images. Three-dimensional objects and arrangement of their images in drawings. Printing of three-dimensional objects.	2	-	-	-	**4**
Laboratory works: Drawing and editing of objects in three-dimensional coordinates system. Volumetric modelling according to axonometrics and images of projections. Representation of three-dimensional objects. Creation of working drawings and preparation for printing.	-	19	2	11	**32**
Test (Designing of a three-dimensional object and preparation for printing).	-	2	2	2	**6**
Preparation for the defence of laboratory works of the II semester and their defence.	-	2	-	10	**12**
Total number of hours of the II semester	**4**	**29**	**6**	**41**	**81**
Total number of hours	**8**	**58**	**12**	**83**	**161**

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 defences of laboratory works (DLw) multiplied by weighted coefficients.
I semester. ICI1 = 0,3 IND + 0,3 T1 + 0,4 DLw,
II semester. ICI2 = 0,3 IND + 0,3 T2 + 0,4 DLw, where IND – individual work; T1, T2 – tests
Overall grade: ICI = 0,5 ICI1 + 0,5 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		
				ŠSC library	Other premises	Other libraries *
1.	2013	Tautvydienė G. Grafika AutoCAD sistemos aplinkoje. Mokymo(si) priemonė	Šiaulių valstybinė kolegija	3	-	-
2.	2010	Sinkevičius V. AutoCad 2009-2010 pradmenys.	Smaltija	1	-	7
3.	2011	Lenkevičius A. Kompiuterinė grafika ir vizualizacija	Technologija	e-knyga		
4.	2011	Budrytė B., Dulinskienė T., Pauliutė J. ir kt. Techninės informacijos vizualizavimas. MS Visio	Technologija	e-knyga		
5.	2013	Ričkutė L. Tinklalapių kūrimas, dizainas ir valdymas.	http://www.esparama.lt/es_parama_pletra/failai/ESFproduktai/2013_Tinklalapiu_kurimas_dizainas_ir_valdymas.pdf.pdf		
Additional literature					
No.	Year of publishing	Author(s) and title of the publication	Publishing house and/or internet link		
1.	2015	Randy H. Shih. AutoCAD 2016 Tutorial First Level 2D Fundamentals.	http://www.sdcpublications.com/pdfsample/978-1-58503-959-3-1.pdf		
2.	2015	AutoCAD 2016 Tutorial Second Level 3D Modeling	http://www.sdcpublications.com/pdfsample/978-1-58503-960-9-3.pdf		
3.	2013	Adobe Photoshop CS6 Tutorial	http://www.marquette.edu/ctl/e-learning/documents/PhotoshopPDF.pdf		
4.	2013	Randy H. Shih. Learning Autodesk Inventor 2013. Modeling, Assembly and Analysis	http://www.scribd.com/doc/212816612/Autodesk-Inventor-Professional-Tutorial-PDF		

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

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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, 3D printer.
- **Software:** *Windows* 7 or later, the Internet, *Adobe Photoshop CC* or later, *AutoCAD* 2016 or later, *Autodesk Inventor* 2016 or later, *MS Visio* 2013 or later.

The description prepared by:

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