



CS331

**PROCESSING OF VECTOR AND RASTER IMAGES**

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**ANNOTATION**

The discipline introduces students to: raster images, such as a set of dots (pixels) arranged in a rectangular matrix, vector images -described using mathematical formulas, functions, vectors. A comparison is made between vector and raster computer images. Skills are acquired for: processing of raster images using the Adobe Photoshop tool and processing vector images using the Adobe Illustrator tool. The discipline ends with the protection of course projects on-going evaluation.

**MAIN OBJECTIVES**

The main objective of the discipline is to form the knowledge and skills of students to work with vector and raster images.

After studying in the discipline, the student will be able to:

Create vector and raster graphics, raster images combining images and text;

Independently process raster graphics and vector images; Justify their choice of appropriate means in solving practical tasks independently and in a team;

Respect intellectual property rights in individual and group use of products created with graphic editors;

Prepare their project for printing and exposure, use finished objects from previous projects, optimize images.

**PREREQUISITES**

The discipline lays the foundation for working with raster and vector imaging skills and does not require any prior preparation of students in other disciplines.

**STATUS AND STRUCTURE**

specialty	status	ECTS	full-time training				part-time training			
			L	C	t	total	L	C	t	Total
ICS	Elective	6	30	30		60	15	15		30
Applied informatics	Elective	6	30	30		60	15	15		30
Software Engineering	Mandatory	6	30	30		60	15	15		30

## **COURSE CONTENT**

### **MODULE 1. VECTOR GRAPHICS**

Topic 1. Getting acquainted with the work area. Tools and tapes. User setup. Search for help information.

Topic 2. Work with basic geometric shapes. Application of filling and contour lines. Combining objects.

Topic 3. Geometrical transformations of objects. It's a rescaling. Turning objects. Change of perspective. Tilting objects.

Topic 4. Drawing with tools. Creating sections and curves. Working with key points. Editing and layout of the arcs of curves.

Topic 5. Coloring of objects. Fill with a gradient. Apply and edit patterns.

Topic 6. Text. Creating an artistic text. Formatting the text. Wrap the text around a graphic object. Converting text into contour lines.

Topic 7. Layers. Insert, lock and merge layers. Creating masks.

Topic 8. Printing and color separation. Color models RGB and CMYK. Create color compartments. Storing the image in a file.

### **MODULE 2. RASTER GRAPHIC**

Topic 1. Getting acquainted with the work area. Tools and ribbons. User setting. Search help information.

Topic 2. Main photo adjustments. Resolution and size of the image. Image cut. Automatic adjustments. Brightness and contrast adjustments. Apply filters.

Topic 3. Work with selections. Selecting tools and their use. Rotate selection. Cut an image and excavate in a selection.

Topic 4. Basics of the layers. Rearranging layers. Add a gradient to a layer. Save files.

Topic 5. Maskey. Mask work. Apply filters and effects to a mask. Coloring. Inverting a mask.

Topic 6. Working with text. Create a paragraph of text. Distortion of the text. Create a design element of text.

Topic 7. Color separating and printing. Color management. A color sample of an image. Storing an image as in a file.

### **COURSEWORK**

The course project is an individual topic of each student selected in advance by the student and agreed with the student's lecturer. With and from the following sub-tasks:

- Vector trademark of the company
- Business card of a company
- Author's font
- Flyer
- Magazine cover/book
- Poster

The project is presented and defended on the day of the exam. The presentation of the project consists of submitting a development in the format: electronic medium (disk). The defense of the project

consists of a brief explanation and demonstration to the discipline lecturer, thus representing the level of the learning material mastery.

## PLANNED LEARNING ACTIVITIES AND TRAINING METHODS

In the first lecture students receive complete information about the content of the program of the discipline, the requirements for them and the way of testing and formation of the assessment. Students can make suggestions regarding the organisation of the classes.

Seminars are practical and take place in a computer room. During the classes, real tasks of practice are exercised.

The basis for the implementation of the training in this discipline are the recommendations and principles of blended learning constructive training in an interactive educational environment. The learning process is carried out based on training with an active role of the learner, training through examples, training through practice, training through research and teamwork.

Coursework is required at the end of the semester submitted electronically.

Electronic materials support the learning process of students.

### Assessment methods

To form the assessment, the student earns points, the maximum value of which is 100.

- Vector trademark of the company- 10 p.
- Business card of a company- 10 p.
- Author's font - 10 p.
- Flyer - 20 p.
- Magazine cover/book - 20 p.
- Poster - 30 p.

## RECOMMENDED LITERATURE

1. Adobe Photoshop CC: Adobe Systems official course, AlexSoft, 2014, ISBN: 9789546562777.
2. Adobe Illustrator CC Classroom in a Book: The Official Training Workbook from Adobe Systems., Pearson Education, 2013, ISBN: 9780321929495
5. <http://www.adobe.com/products/photoshop.html>
6. <http://www.adobe.com/products/illustrator.html>