"ЗАТВЕРДЖУЮ"
Проректор з навчально-методичної роботи

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Каріна НЕМАШКАЛО

ВЕБ-ТЕХНОЛОГІЇ ТА ВЕБ-ДИЗАЙН

робоча програма навчальної дисципліни

Галузь знань	*12 Інформаційні технології*
Спеціальність	*121 Інженерія програмного забезпечення*
Освітній рівень	*перший (бакалаврський)*
Освітня програма	*Інженерія програмного забезпечення*

Статус дисципліни	**обов'язкова**
Мова викладання, навчання та оцінювання	**англійська**

Завідувач кафедри
кібербезпеки та інформаційних технологій   *Сергій Євсеєв*

Харків
2021

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS

"APPROVED"
Vice-rector for educational and methodical work

_____
Karine NEMASHKALO

WEB-TECHNOLOGIES AND WEB-DESIGN

working program of the discipline

Branch of knowledge   **12 Information Technologies**
Specialty   **121 Software Engineering**
Educational level   **First (Bachelor)**
Educational program   **Software Engineering**

Type of discipline   **Basic**
Language of teaching, learning and evaluation   **English**

Head of Department
Cybersecurity and
Informational Technologies   _____   Serhii YEVSEIEV

Kharkiv
2021

Approved
At a meeting of the cybersecurity department
and Information technologies
Protocol No 1 from 27.08.2021

Developer:
Volodymyr ALEKSIYEV, D.Sc. (Tech.), professor of CIT dept.

Update letter and re-approval
Working program of academic discipline

Academic year	Date of department meeting – developer of Syllabus of Academic Discipline	Protocol number	Head of the Department

<h1 align="center">Annotation of academic discipline:</h1>

The thematic plan of the discipline and its content by modules and topics, plans of lectures and laboratory classes, material on consolidation of knowledge (tasks for individual work), methodical recommendations and assessment of students' knowledge are given.

The web sphere now serves as a platform for the promotion of goods and services, in addition to providing and providing informational and entertaining content to users. The latest technologies and design trends for the development of web resources and web services are the basis for studying the course. The use of HTML5, CSS3 and JavaScript programming languages allows you to create responsive web pages and sites that have user-friendly interfaces and are the basis for creating enterprise-class web solutions.

<h2 align="center">Characteristics of the discipline</h2>

Course	3
Semester	5
Number of credits ECTS	5
Final Control Form	**Exam**

<h2 align="center">Structurally logical scheme of study of academic discipline:</h2>

Prerequisites	Postrequisites
Operating Systems	Web programming
Computer graphics and visualization	Software development and testing technologies
Computer networks	

<h2 align="center">Competencies and studies of training in the discipline:</h2>

Competence	Learning outcomes
Ability to solve complex specialized tasks or practical problems of software engineering providing or in the process of learning that characterized by complexity and uncertainty conditions, using theories and methods of information technologies.	Ability to innovate and comprehensive analysis and synthesis received information.
Ability to communicate in a foreign language orally, and in writing.	Ability to communicate both orally and in writing in a variety of communicative situations in professional activity; official business and scientific spheres.
Information skills and communication technologies.	Effectively use modern operating systems, office software and the Internet to improve the professional activities, professional and personal development.
Ability to develop, implement and coordinate processes, phases and iterations of the life cycle software systems and information technology on based on effective models and approaches to software development.	Apply modern information resources and services in the process solving professional problems, be able to design software for solutions in infocommunications.

<h2 align="center">Program of academic discipline</h2>

The academic discipline program contains two content modules and a laboratory practice. The first module is devoted to the study of site layout, and the second – to the basics of programming with JavaScript.

CONTENT MODULE 1. Development of stand-alone websites
Theme 1. *Web structure and principles. Introduction to HTML. Semantic elements.*
Theme 2. *CSS technology and its browser support.*
Theme 3. *Block-model and layout grid of website pages. Positioning items on a web page.*
Theme 4. *Float, flexbox, and grid technologies for building a simple web page.*

CONTENT MODULE 2. Development using JavaScript
Theme 5. *Basics of JavaScript programming language.*
Theme 6. *Software interaction with HTML documents based on DOM API.*
Theme 7. *JavaScript Libraries for web-sites development.*
Theme 8. *Features of the JavaScript frameworks.*

The list of laboratory classes, as well as questions and tasks for Individual work is given in the table "Rating-plan of the discipline".

Teaching and learning methods

In the course of teaching the discipline the teacher uses explanatory-illustrative (information-receptive) and reproductive teaching methods. Lectures (1-8), presentations (1-8) are used as teaching methods that are aimed at activating and stimulating the educational and cognitive activities of applicants.

Evaluation procedure for Learning outcomes

The system of assessment of formed competencies in students considers the types of classes, which according to the curriculum of the discipline include lectures and laboratory classes, as well as Individual work. Assessment of the formed competencies of students is carried out according to the accumulative 100-point system. Control measures include:

1) current control, which is carried out during the semester during lectures and laboratory classes and is estimated by the amount of points scored (maximum amount – 60 points; the minimum amount that allows a student to take the exam - 35 points);

2) final / semester control, which is conducted in the form of a semester exam, in accordance with the schedule of the educational process.

The procedure for the current assessment of students' knowledge.

Assessment of student knowledge during lectures and laboratory classes is carried out according to the following criteria:
- ability to set a task for the development of a website;
- кnow the technologies of website prototyping;
- be guided in the capabilities of version control systems in the direction of front-end technologies;
- understanding the layout and technological processes of creating a website;
- the ability to create the appearance of the site;
- understanding the basics of JavaScript;
- orientation in the basic concepts of the frontend development of modern responsive sites.

Final control of knowledge and competencies of students in the discipline is carried out on the basis of a semester exam, the task of which is to test students' understanding of the program material in general, logic and relationships between individual sections, ability to creatively use accumulated knowledge, ability to formulate their attitude to a particular problem. disciplines, etc.

Active work on lectures: the maximum number of points is 8.

Laboratory classes: the maximum number of points is 52, and the minimum - 35.

Individual work: consists of time that the applicant spends on preparation for laboratory work and preparation for the exam in the discipline, in the technological map points for this type of work are not allocated.

Final control: is carried out considering the exam.

The examination paper covers the program of the discipline and provides for the determination of the level of knowledge and the degree of mastery of competencies by students.

Each exam paper consists of 3 practical situations (one stereotypical, one diagnostic and one heuristic task), which involve solving typical professional tasks in the workplace and allow to diagnose the level of theoretical training of the student and his level of competence in the discipline. Evaluation of each task of the examination paper is as follows: the first task is the implementation of the initial logical design of CPU circuit, evaluated by 16 points; the second task is devoted to the numerical calculations is evaluated by 18 points; the third task is to perform the circuit engineering of analog nodes is evaluated by 6 points.

The result of the semester exam is evaluated in points (maximum number - 40 points, minimum number of credits - 25 points) and is affixed in the appropriate column of the examination "Information of performance".

A student should be considered certified if the sum of points obtained from the final / semester test is equal to or exceeds 60. The minimum possible number of points for current and modular control during the semester is 35 and the minimum possible number of points scored in the exam is 25.

The final grade in the discipline is calculated considering the scores obtained during the exam and the scores obtained during the current control of the accumulative system. The total result in points for the semester is: "60 or more points – credited", "59 or less points - not credited" and is entered in the test "Statement of performance" of the discipline.

Assessment scale: national and ECTS

The sum of points for all types of educational activities	Rating ECTS	Score on a national scale	
		for exam, course project (work), practice	for test
90 – 100	A	excellent	
82 – 89	B	good	passed
74 – 81	C		
64 – 73	D	satisfactory	
60 – 63	E		
35 – 59	FX	unsatisfactory	not passed

Rating plan of the discipline

Theme	Forms of education		Forms of control	Max. mark
Theme 1	*Auditorial work*			
	Lecture number 1	Theme 1. *Web structure and principles. Introduction to HTML. Semantic elements.*	Working at lecture	**1**
	Laboratory lesson number 1	*Development of a web page skeleton by HTML.*	Active participation in the performance of laboratory research / laboratory work	**3**
	Individual work			
	Preparation classes	Search, selection, and review of the literature on a given topic		

			Auditorial work	
Theme 2	Lecture number 2	Theme 2. _CSS technology and its browser support._	Working at lecture	**1**
	Laboratory lesson number 1	_Development of a web page skeleton by HTML._	Active participation in the performance of laboratory research / laboratory work	**10**
			Individual work	
	Preparation classes	Search, selection and review of the literature on a given topic		
Theme 3			_Auditorial work_	
	Lecture number 3	Theme 3. _Block-model and layout grid of website pages. Positioning items on a web page._	Working at lecture	**1**
	Laboratory lesson number 2	_Styling a web page using CSS._	Active participation in the performance of laboratory research / laboratory work	**3**
			Individual work	
	Preparation classes	Search, selection and review of the literature on a given topic		
Theme 4			_Auditorial work_	
	Lecture number 4	Theme 4. _Float, flexbox, and grid technologies for building a simple web page._	Working at lecture	**1**
	Laboratory lesson number 2	_Styling a web page using CSS._	Active participation in the performance of laboratory tests	**10**
			Individual work	
	Preparation classes	Search, selection and review of the literature on a given topic		

			Auditorial work	
Theme 5	Lecture number 5	Theme 5. *Basics of JavaScript programming language.*	Working at lecture	**1**
	Laboratory lesson number 3	*Programming with JavaScript.*	Active participation in the performance of laboratory research / laboratory work	**3**
			Individual work	
	Preparation classes	Search, selection and review of the literature on a given topic		
Theme 6			*Auditorial work*	
	Lecture number 6	Theme 6. *Software interaction with HTML documents based on DOM API.*	Working at lecture	**1**
	Laboratory work number 3	*Programming with JavaScript.*	Active participation in the performance of laboratory tests	**10**
			Individual work	
	Preparation classes	Search, selection and review of the literature on a given topic		
		Preparation for laboratory classes		
Theme 7			*Auditorial work*	
	Lecture number 7	Theme 7. *JavaScript Libraries for web-sites development.*	Working at lecture	**1**
	Laboratory work number 4	*Development of a dynamic web page using the JS-library.*	Active participation in the performance of laboratory research / laboratory work	**3**
			Individual work	
	Preparation classes	Search, selection and review of the literature on a given topic		
		Preparation for laboratory classes		
Theme 8			*Auditorial work*	
	Lecture number 8	Theme 8. *Features of the JavaScript frameworks.*	Working at lecture	**1**

	Laboratory lesson number 4	*Development of a dynamic web page using the JS-library.*	Active participation in the performance of laboratory tests	**10**
		Individual work		
	Preparation classes	Search, selection and review of the literature on a given topic		
	Exam			**40**

Recommended Literature

Main

1. Front-End Developer Handbook 2019 / Cody Lindley – Frontend Masters. – 2019. – 145 p. [Electronic resource]. – Access mode : https://github.com/FrontendMasters/front-end-handbook-2019.

2. Marijn Haverbeke. Eloquent JavaScript, 3rd Edition: A Modern Introduction to Programming – No Starch Press, 2018. – 472 p. Also available online https://eloquentjavascript.net/

3. Meyer J. HTML5 and JavaScript Projects. Build on your Basic Knowledge of HTML5 and JavaScript to Create Substantial HTML5 Applications. New York : Apress, 2018. 432 p. URL: https://ikamy.ch/public/img/books//HTML5+and+JavaScript+Projects.pdf

4. Erin Glass. How To Build a Website With HTML eBook. – 2020. [Electronic resource]. – Access mode : https://www.digitalocean.com/community/books/how-to-build-a-website-with-html-ebook

5. Interneting Is Hard. HTML & CSS tutorial [Electronic resource]. – Access mode : https://www.internetingishard.com/

Additional

6. The Modern JavaScript Tutorial [Electronic resource]. – Access mode : https://javascript.info/

7. Learn to Code HTML & CSS [Electronic resource]. – Access mode : https://learn.shayhowe.com/html-css/

8. Adaptive Web Design - 2015. [Electronic resource]. – Access mode : https://adaptivewebdesign.info/1st-edition/

9. Google HTML/CSS Style Guide [Electronic resource]. – Access mode : https://google.github.io/styleguide/htmlcssguide.html

10. Airbnb JavaScript Style Guide [Electronic resource]. – Access mode : https://airbnb.io/javascript/css-in-javascript/

Information resources

11. The box model [Electronic resource]. – Access mode : https://developer.mozilla.org/en-US/docs/Learn/CSS/Building_blocks/The_box_model

12. A Complete Guide to Flexbox [Electronic resource]. – Access mode : https://css-tricks.com/snippets/css/a-guide-to-flexbox/

13. A Complete Guide to Grid [Electronic resource]. – Access mode : https://css-tricks.com/snippets/css/complete-guide-grid/

14. Site of personal educational systems of S. Kuznets KhNEU in the discipline "Web-technologies and web-design" https://pns.hneu.edu.ua/course/view.php?id=3789.