



National Technical University of
Ukraine "Igor Sikorsky Kyiv
Polytechnic Institute"



Department of machines and
devices of chemical and oil
refining industries

Web design

Working program of the academic discipline (Syllabus)

Details of the academic discipline

Level of higher education	<i>First (undergraduate)</i>
Branch of knowledge	<i>13 Mechanical engineering</i>
Specialty	<i>133 Industrial engineering</i>
Educational program	<i>Computer-integrated technologies of chemical engineering equipment design</i>
Discipline status	<i>selective</i>
Form of education	<i>daytime</i>
Year of training, semester	<i>3rd year, autumn semester</i>
Scope of the discipline	<i>4 ECTS credits / 120 hours</i>
Semester control/ control measures	<i>assessment, modular control work, graphic work</i>
Lessons schedule	<i>3 hours per week (1 hour of lectures and 2 hours of computer workshop)</i> <i>https://rozklad.kpi.ua/</i>
Language of teaching	<i>Ukrainian</i>
Information about the course leader / teachers	Lecturer: Associate Professor Oleh Anatoliyovych Novokhat, <i>email: novokhatoleh@gmail.com , telegram:@Novokhat_Oleh</i> Practical: Associate Professor Oleh Anatoliyovych Novokhat, <i>email: novokhatoleh@gmail.com , telegram: @ Novokhat_Oleh</i>
Placement of the course	<i>https://ci.kpi.ua/cuna6ycy/silabus-24-25/</i>

Program of educational discipline

1. Description of the educational discipline, its purpose, subject of study and learning outcomes

At the present time, free access of consumers to them is necessary for familiarization and sale of both goods and services. One of the most effective means of providing information in free access is the presence of a suitable site.

This discipline is devoted to the study of the principles of building algorithms, basic methods and basic syntax.

the purpose of this discipline is to develop students' knowledge and experience in creating web pages.

Subject of study the disciplines are basic syntax, studying the basics of algorithmization, principles of building web pages.

In the process of studying the discipline, the student will master the methods and approaches of building web pages, their adaptation for mobile devices.

2. Pre-requisites and post-requisites of the discipline (place in the structural and logical scheme of training according to the relevant educational program)

This academic discipline is optional. To successfully master this discipline, a student must meet all of the following criteria:

- have the ability and skills to work with a personal computer at the level of a confident user;
- know and understand the basic principles of information organization in computer systems;
- learn the "Informatics" course;
- be interested in gaining knowledge and experience in developing web pages and building algorithms.

The knowledge, skills and experience gained while studying this discipline will be useful for:

- mastery discipline "Three-dimensional design";
- further professional activity.

3. Content of the academic discipline

The educational discipline "Web design" consists of the following topics:

1. Basics of web technology.
2. Creation of the framework of the site in the HTML language.
3. Customizing the display of the site by creating a cascading CSS style sheet.
4. Technology for creating static and adaptive layouts of web pages.
5. Setting the relationship between web pages

4. Educational materials and resources

Basic literature

1. І. Л. Бородкіна , Г. О. Бородкін. Web-технології та Web-дизайн : застосування мови HTML для створення електронних ресурсів. Видавництво «Ліра, 2020. – 212 с.
2. Пасічник В. В., Пасічник О. В. Веб-дизайн. Підручник – Магнолія, 2023 – 520 с.
3. Пасічник В. В., Пасічник О. В., Угрин Д. І. Веб-технології – Магнолія, 2024 – 336 с.
4. D. Flanagan. JavaScript Pocket Reference, 3rd Edition. - O'Reilly Media. April 2012. – 280 p.

Additional literature

5. С.В. Баран. Основи web-програмування: навч. посіб.. - Кривий Ріг, 2023. –316 с.
6. <https://support.google.com/sites/answer/6372878?hl=uk>
7. Пасічник В. В., Пасічник О. В., Угрин Д. І. Веб-технології – Магнолія, 2024 – 336 с.

Electronic resources

1. Online programming learning service <https://www.codecademy.com>
2. Online programming learning service <https://www.codeavengers.com>
3. Online programming learning service <https://www.codeschool.com>
4. Online programming learning service <https://teamtreehouse.com>

Educational content

5. Methods of mastering an educational discipline (educational component)

The structure of the credit module

Names of topics	Number of hours				
	In total	including			
		lectures	practical	laboratory	SRS
Topic 1. Basics of web technology.	6	2	2		2
Topic 2. Creating a site frame in HTML.	22	4	8		10
Topic 3. Customizing the display of the site by creating a cascading CSS style sheet	22	4	8		10
Topic 4. Technology for creating static and adaptive layouts of web pages.	30	6	12		12
Topic 5. Setting up the relationship between web pages	15	2	6		7
<i>Modular control work</i>	4				4
<i>Calculation work</i>	15				15
<i>Preparation for the test</i>	6				6
In total	120	18	36		66

Lecture classes

No. z/p	The name of the topic of the lecture and a list of main questions (a list of didactic tools, references to the literature and tasks on the SRS)
Topic 1. Basics of web technology	
1	Development of programming languages. Modern programming languages and development environments. Domains. Site structure. Tags, properties. <i>Literature:</i> basic [1, 2, 3]
Topic 2. Creating a site frame in HTML	
2	Web page markup. Tags, attributes. Work with text and images. Setting the color <i>Literature:</i> basic [1, 2, 3] Task on SRS: creating a background from a repeating picture.
3	Links, tables, forms, list <i>Literature:</i> basic [1, 2, 3], auxiliary [5] Tasks on SRS: Emoji.
Topic 3. Customizing the display of the site by creating a cascading table of CSS styles.	
4	Creating a cascading style sheet. Setting the access path. Formatting the sizes of web page elements, centering the web page <i>Literature:</i> basic [1, 3] Tasks on SRS: Frames.
5	Formatting text and images. Positioning of elements <i>Literature:</i> basic [1, 3] Tasks on SRS: Symbols.
Topic 4. Technology for creating static and adaptive layouts of web pages.	

6	Layouts of static web pages. Responsive web pages and their advantages over static ones. <i>Literature:</i> basic [1, 3], auxiliary [5] Task on SRS: using tables to create a static page.
7	Media requests <i>Literature:</i> basic [1, 3], auxiliary [5] Tasks on SRS: Expanding the screens of modern devices.
8	Application of technologies for fast (automated) positioning of site elements. Flexbox technology <i>Literature:</i> basic [1, 3], auxiliary [4] Tasks on CSC: bootstrap.
Topic 5. Setting up the relationship between web pages	
9	Setting up links between web pages. Creating a menu. Debugging a web page:Chrome Developer Tools. <i>Literature:</i> auxiliary [6] Tasks on SRS: JQuery.

Practical classes (Computer workshop)

No. z/p	The name of the topic of the lecture and a list of main questions (a list of didactic tools, references to the literature and tasks on the SRS)
Topic 1. Basics of web technology	
1	Creating a site map <i>Literature:</i> basic [1, 2, 3]
Topic 2. Creating a site frame in HTML.	
2	Creation of the framework of the site. Working with text. Setting the color. Adding an inline stylesheet <i>Literature:</i> basic [1, 2, 3]
3	Adding an image. Adding attributes <i>Literature:</i> basic [1, 2, 3]
4	Adding links to other sites, parts of the current web page, images. Adding a list <i>Literature:</i> basic [1, 2, 3],
5	Creating a table and form <i>Literature:</i> basic [1, 2, 3], auxiliary [5]
Topic 3. Customizing the display of the site by creating a cascading CSS style sheet	
6	Creating an external cascading style sheet. Setting the access path <i>Literature:</i> basic [1, 2, 3], auxiliary [5]
7	Formatting the sizes of web page elements, centering the web page <i>Literature:</i> basic [1, 3]
8	Formatting of text, images and background <i>Literature:</i> basic [1, 3]
9	Positioning of elements <i>Literature:</i> basic [1, 3], auxiliary [5]
Topic 4. Technology for creating static and adaptive layouts of web pages.	
10, 11	Creating a flexible web page. <i>Literature:</i> basic [1, 3], auxiliary [5]

12, 13	Media requests <i>Literature</i> :basic [1, 3], auxiliary [5]
14, 15	Flexbox technology <i>Literature</i> :basic [1, 3], auxiliary [5]
Topic 5. Setting up the relationship between web pages	
16	Creating a one-step menu <i>Literature</i> :basic [1, 3], auxiliary [7]
17	Creating a multi-level menu <i>Literature</i> :basic [3], auxiliary [7]
18	Creating a site using Google Site. <i>Literature</i> :auxiliary [6]

Laboratory and seminar classes

According to the curriculum, laboratory and seminar classes are not provided

6. Independent work of student

Independent work of students within this course involves:

- preparation for the lecture, which includes familiarization with the provided text of the lecture, identification of poorly understood fragments and theses, identification of issues that, in the student's opinion, require more extensive coverage, preparation of questions to the teacher that are planned to be asked during the lecture (up to 1 hour for each lecture);
- preparation for practical classes, which includes familiarization with the topic and purpose of the class, task, familiarization with control questions and formation of answers to them (up to 30 minutes for each practical work);
- preparation of reports based on the results of work carried out in practical classes (up to 30 minutes for each practical class);
- performance of calculation work according to the assigned task (15 hours);
- preparation for the modular control work (2 hours);
- preparation for the test (6 hours).

Policy and control

7. Policy of educational discipline

The system of requirements that the teacher sets before the student:

7.1. Attendance and behavior in classes.

- the student must come to class prepared (see clause 6 of the syllabus);
- turning off mobile phones or switching them to silent mode in all classes and during consultations is mandatory;
- attendance at lectures on the discipline is welcome and will contribute to better learning of the discipline;
- the student's activity in lectures and the ability to ask questions about the topic of the lecture to the teacher are welcome;
- attending practical classes and completing tasks during the practical class is mandatory;
- the use of information search tools is allowed (except for control classes);

- free movement of the audience is allowed during practical (but not lecture) classes.

7.2. Issuance of penalty and incentive points.

- a separate procedure for the protection of estimated work is not foreseen, the submitted work is evaluated;
- incentive points are awarded to students who completed additional work tasks or tasks of increased complexity during the class;
- incentive points are awarded to students who proposed a different way of completing the task, not provided for in the work plan;
- skipping practical classes without a good reason leads to the issuance of zero points according to its results, but it is absolutely necessary to complete the work tasks;
- skipping the modular test without a good reason leads to the issuance of zero points based on its results;
- one penalty point is charged for every three days of delay in submitting calculation and graphic work for verification.

7.3. Policy of deadlines and rescheduling.

- at the beginning of the next practical session, the student must submit a completed report based on the results of the previous session;
- calculation work is submitted for review no later than Monday of the fifteenth week of the semester;
- re-execution of calculated and graphic work is not allowed;
- repeated execution of modular control work is not allowed;
- writing a modular test by students who did not write it on time without a good reason is not allowed;
- retaking the exam is allowed only in the manner prescribed by the regulatory documents on the organization of the educational process of KPI named after Igor Sikorsky.

7.4. Academic Integrity Policy.

- students studying the discipline must adhere to the rules and norms of academic integrity when performing all types of work;
- calculation and graphic work performed in gross violation of the rules and norms of academic integrity is evaluated with a score of 0 points, in addition, the student is awarded 4 penalty points when issuing a repeated assignment.

8. Types of control and rating system for evaluating learning outcomes (RSO)

The student's credit module rating consists of points obtained for:

- 1) performance of 18 practical works in classroom classes;
- 2) execution of modular control work;
- 3) performance of calculation work.

8.1. Performance of practical works.

A total of 18 practical tasks are provided during the semester (some complex, combined - see section 5). The weighted point is 4. The maximum number of points for all works is $4 \times 18 = 72$ points. Points are awarded as follows:

- work tasks were completed correctly and on time, within the set time of the lesson, correct answers were received - 4 points;

- admitted minor inaccuracies - 3 points;
- mistakes made that affected the result obtained, which, however, was generally fulfilled - 2 points;
- the work task was completed partially correctly within the set time of the lesson, or it was not completed completely, in a time exceeding the time of the practical lesson, a part of the correct answers received - 1 point;
- the work task was not completed or was completed completely incorrectly - 0 points.

Note: if the student was absent from class for a valid reason, which is documented and presented at the next class the completed task of the missed work, the work is considered completed on time.

8.2. Modular control work.

The weighted score is 8. The evaluation of the work task is carried out according to the following scale:

- the task is completely completed and contains a maximum of one inaccuracy - 8 points;
- the task is completely completed and contains a maximum of two inaccuracies - 7 points;
- the task is completed almost completely, one insignificant task is missing, or the execution contains one more significant error - 6 points;
- the task is partially completed, but not less than 60% of the main tasks, or contains a number of inaccuracies or errors - 3-5 points;
- the task is partially completed (less than 60%), there are a number of errors that affected the accuracy of the result - 1-2 points;
- incorrectly selected data analysis method, incorrectly selected analysis algorithm or missing task - 0 points.

8.3. Graphic work

The weighted score is 20. The calculation work consists of a complex task.

Evaluation of the work task is carried out according to the following scale:

- performance of the task is correct, the answer is correct - 20 points;
- the progress of the task is generally correct, but there are non-critical errors, the prompt correction of which will allow you to get a correct answer - from 16 to 18 points;
- the progress of the task is generally correct, but there are sufficiently gross errors that do not make it possible to get a correct answer - from 10 to 14 points;
- only certain fragments are given correctly, but the task itself is not completed, or is completed completely incorrectly - from 4 to 8 points;
- there are many errors, the task is completed by at least 30% - 2-3 points;
- the method of performing the task is incorrectly chosen, the calculation formulas are incorrectly specified or the task is missing, work performed in gross violation of the rules and norms of academic integrity is evaluated with a score of 0 points.

Graphic work for which less than 2 points are received is considered uncredited. A student who submits such a work for review will be awarded four penalty points and will be issued a repeat work assignment.

The maximum number of points during the semester is: $R = 72 + 8 + 20 = 100$ points.

Calendar control: conducted twice a semester in the form of certification as a monitoring of the current state of meeting the requirements of the syllabus.

Semester control: assessment.

Conditions for admission to the semester control: a positive assessment for the graphic work (2 points or more), completed modular control work, the total number of points is greater than or equal to 60 points.

Table of correspondence of rating points to grades on the university scale:

Scores	Rating
100 ... 95	<i>perfectly</i>
94 ... 85	<i>very good</i>
84 ... 75	<i>fine</i>
74 ... 65	<i>satisfactorily</i>
64 ... 60	<i>enough</i>
0 ... 60	<i>unsatisfactorily</i>
0 ... 23	<i>not allowed</i>

9. Additional information on the discipline (educational component)

9.1. Completion of credit work.

Students who wish to increase the total score obtained during the semester, provided that all assignments are completed, can complete credit work. In this case, points for practical classes and modular control work are canceled. In the event that the total score obtained after completion of the credit work is lower than the score before it was completed, it is not possible to return the previous score.

The weighted score of the credit work is 80 points. The work consists of a complex task, which includes the requirement to create several web pages connected to each other and forming a flexible site containing the so-called site header, substrate, main body of the site, work with text, links, images, background, external cascading style sheet, element positioning, media queries. It is also possible to use flexbox technology.

- All elements are present, active, some inaccuracies in execution are possible - from 67 to 72 points;
- Some elements of web pages are missing (at least 60% of available elements), possible broken links, many inaccuracies or non-critical errors - from 40 to 66 points;
- Some elements of the site are missing (from 40% to 80%), there are sufficiently critical errors that affected the display or functionality of the site - from 10 to 39 points;
- The site elements are missing (more than 80%), there are a number of critical errors, the visualization of the site differs significantly from the required one - 5-9 points
- the calculation method is incorrectly chosen, the solution strategy is incorrectly chosen or the task is almost absent - 0-4 points;
- there is no visual result of the site layout - 0 points.

9.2. Enrollment of distance or online course certificates.

For students who have completed distance learning or online courses on the relevant subject, this training can be counted as studying this academic discipline if all the following conditions are met:

- the student provided a certificate or other document that confirms his completion of a distance or online course and provided an opportunity to verify its authenticity;
- a distance or online course posted on the platform or conducted by an organization that is recommended or recognized by KPI named after Igor Sikorskyi;
- the volume of the distance or online course is at least 108 study hours;

- the list of topics studied in the distance or online course contains at least four topics specified in the content of the academic discipline (item 3 of the syllabus); in the case of a difference in titles, the correspondence of the content of the topics is established on the basis of a comparative analysis with the distance or online course program;
- the student's success rate based on the results of studying a distance or online course is at least 75% of the maximum.

Working program of the academic discipline (syllabus):

- **composed** *associate professor of the Department of machines and devices of chemical and oil refining industries, candidate technical Science* **Oleh NOVOKHAT**
- **approved** *department of machines and devices of chemical and oil refining industries*
(protocol No. 20 dated June 20, 2024)
- **agreed** *Methodical Commission of the Faculty of Chemical Engineering*
(protocol No. 11 dated June 28, 2024)