JavaScript Development

I. Program Description

The development of interactive web pages and web applications is one of the most sought-after professions today, and the rapid development of web technologies and the internet will only increase the demand for experts who specialize in front-end JavaScript programming. Frontend developers are responsible for creating, programming, and customizing the entire visual identity of a webpage or web application. In other words, their job is to provide functionality and interactivity to all the elements you see on a web page. On the other hand, the role of frontend developers is also to design a user interface that is tailored to different devices and users. This program covers the use of Adobe Photoshop and Adobe Illustrator software for creating visual elements, techniques for manipulating the DOM, and the JQuery and JQuery UI libraries for interface design. A special section is dedicated to creating web games using JavaScript.

II. This program includes 12 subjects

This course is designed for students who are trying to acquire beginner-level skills in text-based programming, and it is an excellent starting point for learning JavaScript programming.

Бр.	Предмет	Бр. на Часови
1	Introduction to fronted development	6
2	HTML & CSS Fundamentals	20
3	JavaScript Programming Fundamentals	25
4	Advanced CSS	20
5	Website Building	17
6	UI/UX Design Tools	22
7	Advanced JavaScript Programming	20
8	Data Access	11
9	JavaScript Application Development	20
10	Animation and Game Development	14
11	Blockchain Technologies	3
12	Project	30

1. Introduction to fronted development

The course "Introduction to frontend development" is primarily designed for beginners in this field. It covers the basic concepts of software development in the context of modern web pages and applications, allowing you to establish a solid foundation for further training and advancement in the field of programming. The course covers the fundamental principles of software development, with a special focus on web development and introduces the basic languages used in frontend and backend development. It also addresses the internal structure of today's modern web pages and their development process. It describes the most common techniques for creating web applications at various levels.

2. HTML & CSS Fundamentals

The HTML & CSS Fundamentals course is dedicated to the basics of the computer languages HTML and CSS. These languages are essential for creating modern web pages and web applications. HTML stands for HyperText Markup Language, which is the foundational descriptive language for creating HTML documents. CSS, in combination with special HTML elements, is used to define the appearance of elements on a web page. One complete module of the HTML & CSS Fundamentals course focuses precisely on this issue, allowing participants to learn how to create the basic layout of modern web pages.

3. JavaScript Programming Fundamentals

The JavaScript Programming Fundamentals course covers the JavaScript scripting language, which is designed to define the functionality of client-side web pages. However, this scripting language can also be used effectively to access objects in other applications. JavaScript is functional in many internet browsers, including Internet Explorer, Mozilla, Chrome, Firefox, Netscape, and Opera. Like the vast majority of modern programming languages, JavaScript is based on the C programming language, making it relatively easy to code. On web pages, JavaScript is used to enhance design, validate forms, create cookies, and much more.

4. Advanced CSS

The Advanced CSS course is an extension of HTML and CSS material. It builds upon the elementary knowledge gained in previous basic HTML and CSS courses and introduces new terms and concepts used for building competitive and modern web pages. The foundational knowledge is enhanced with specific technologies and concepts such as responsive design, advanced HTML elements (audio and video tags, new input tags), as

well as advanced CSS handling, including advanced selectors, transformations, and animations, such as LESS and SASS technologies.

5. Website Building

The Website Building course is dedicated to modern approaches for web development. Through several interconnected units, the course enables participants to independently create web pages using HTML, CSS, and JavaScript languages, as well as some of the most popular software frameworks and libraries available today. The Website Building course specifically focuses on one of the oldest and most well-known JavaScript libraries - jQuery. It is a library that greatly simplifies many aspects of client-side programming by streamlining the logic required to execute certain standard operations.

6. UI/UX Design Tools

The UI/UX Design Tools course is here to enable participants to use Adobe Photoshop and Adobe Illustrator for the purpose of manipulating web application resources. Adobe Photoshop has been an indispensable tool for digital preparation and photo editing over the years, while Adobe Illustrator is focused on drawing and working with vector graphics. The content itself includes familiarizing oneself with the work environments, importing or creating custom graphic resources, processing graphic resources, and saving or exporting them for application purposes. Given that the majority of this course is dedicated to these two tools, their options and uses are explored extensively.

7. Advanced JavaScript Programming

The Advanced JavaScript course introduces students to the world of advanced JavaScript programming. The subject covers various techniques for achieving object-oriented, multithreaded, and asynchronous programming. The course also deals with advanced usage of functions in the JavaScript language. The Advanced JavaScript Programming course begins by introducing participants to the world of object-oriented programming. Objects are central to JavaScript, so understanding different approaches to creating and manipulating objects is crucial for writing JavaScript code successfully.

8. Data Access

The Data Access course covers all relevant approaches for working with data in client-side logic of modern web applications. The first two modules of the course familiarize participants with the fundamental formats for representing data in textual form that are widely used on the web: XML and JSON. The third part of the course is dedicated to various forms of server-client communication, enabling browsers and web

servers to exchange data with each other. After covering various techniques for communicating with the server, the Data Access course also addresses different data storage options within the web browser.

9. JavaScript Application Development

To create the client-side part of a web application, it is necessary to be familiar with various technologies and areas. With the fulfillment of this prerequisite, the job of a front-end web developer doesn't have to be difficult. Therefore, this course requires a solid understanding of JavaScript and focuses more on the product that can be built with it rather than the basic concepts of the language. However, at the beginning of the course, we still review the most important language and technological rules, without which it is impossible to proceed. The majority of this course deals with ready-made tools for web application development. These are the most well-known frameworks today: Vue, Angular, and React. While it is not necessary to know all three in the market, it is inconceivable for a web developer to work without knowing at least one of them.

10. Animation and Game Development

The course focuses on the topic of creating games in a web browser using JavaScript. It enables students to explore the fundamental branches of JavaScript necessary for controlling the timeline and animations, such as DOM methods and events, as well as functions for working with time and communication with the server for in-game purposes through the WebSocket technology. The goal of the course is to prepare participants for the most challenging tasks in the field of JavaScript programming.

11. Blockchain Technologies

This course provides participants with basic knowledge in the field of blockchain technology. They will become familiar with the concept and types of cryptocurrencies, the role and importance of this concept in the modern economy, as well as its perspectives and development trends. Attendees will also have the opportunity to learn about blockchain security, blockchain architecture, and the potential applications of this technology as an initial project.

12. Project

The goal of the final project at the Programming Department is to independently prepare a final project that encompasses all the areas covered in the training program. The project involves the development of a software solution, approved by an expert committee, which includes program design, implementation, testing, and the

development of accompanying documentation. Upon completion of the work and approval by the mentor, a defense of the final project is organized before the committee.

III. Exam/Certification

The candidate who successfully completes the training is required to take the official exams PCEP (30-02) - Certified Entry-Level Python Programmer and JSA (41-01) - Certified Associate JavaScript Programmer. These exams assess the candidate's knowledge and skills in Python and JavaScript programming respectively.

IV. Job Positions

JavaScript Developer,Front End Developer,Junior Front End Developer.