Learning Objectives

**Module 1**

After completing Module 1, the student will:

* understand the fundamental programming concepts, such as: interpreting and the interpreter, compilation and the compiler, client-side vs. server-side programming;
* have basic knowledge of how to set up and use the basic programming environment (online or local)
* gain skills allowing them to run their first JavaScript program on the client side (both as an element embedded in the HTML page and directly in the browser console).

**Module 2**

After completing Module 2, the student will:

* have the knowledge and skills to work with variables (i.e. naming, declaring, initializing and modifying their values)
* understand concepts such as scope, code blocks, shadowing, and hoisting;
* know the basic properties of primitive data types such as boolean, number, bigint, undefined, null, and be able to use them;
* be familiar with the basic properties of the primitive data type string, including string literals – single or double quotes, the escape character, string interpolation, basic properties and methods;
* know the basic properties of complex data types such as Array and Object (treated as a record) and be able to use them in practice.

**Module 3**

After completing Module 3, the student will:

* know what operators are and how to classify them (by type of operand, by number of operands, etc.)
* be able to use assignment, arithmetic, logical, and comparison operators in practice;
* understand the operation of the conditional operator and the typeof, instanceof, and delete operators;
* understand what the precedence and associativity of basic operators are and be able to influence them by means of bracket grouping;
* be able to perform basic two-way communication with the program user using the alert, confirm, and prompt dialog boxes.

**Module 4**

After completing Module 4, the student will:

* be able to force conditional execution of a group of statements (make decisions and branch the flow) using if-else and switch commands;
* be able to force a group of statements to repeat in a loop using the for, while, and do-while commands, using both dependent and independent conditions on the number of iterations;
* understand and be able to use loop-specific break and continue instructions;
* be able to use the for-in statement to iterate over the properties of an object;
* be able to use the for-of statement to walk through the elements of an array.

**Module 5**

After completing Module 5, the student will:

* be able to declare and call functions;
* know how to pass call arguments to a function and return the result of its operation from it;
* understand the concept of a local variable and the effect of shadowing variables with the same names within a function;
* know that a function in JS is a first-class member and be able to take advantage of this by declaring functions using function expressions and passing functions as arguments to calls of other functions;
* understand the concept of recursion in the context of functions and be able to solve simple programming problems by using it;
* have a basic understanding of the callback function and be able to use it asynchronously in conjunction with the setTimeout and setInterval methods;
* have a clear understanding of arrow function notation and be able to write alternative functions as regular declarations, function expressions, and arrow functions.

**Module 6**

After completing Module 6, the student will:

* gain an understanding of the differences between syntactic, semantic, and logical errors;
* understand the concept of an exception and distinguish between the basic exceptions generated by JS when an error occurs: SyntaxError, ReferenceError, TypeError, RangeError;
* have the ability to handle exceptions using the try-catch-final statement;
* be able to generate their own exceptions using the throw statement;
* have the skills to use the debugger for basic analysis of their own code, including: step-by-step execution, viewing and modifying variables, measuring code execution time.