

COURSE DESIGNED TO PREPARE FOR

JSE – Certified Entry-Level JavaScript Programmer Certification Exam (JSE-40-01)



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JSE – Certified Entry-Level JavaScript Programmer

JSE – Certified JavaScript Entry-Level Programmer certification shows that you are familiar with universal computer programming concepts like data types, containers, functions, conditions, and loops, as well as JavaScript programming language syntax, semantics, and the runtime environment.

Becoming JSE certified ensures that you are acquainted with the most essential means provided by JavaScript, which enable you to start your own studies at an intermediate level and to continue your professional development.

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- ▶ JSE certification allows you to demonstrate that not only are you up to date with JavaScript-related issues, but also that you can competently deal with them.
- ▶ Furthermore, with the OpenEDG JavaScript Institute, you gain access to a large network of JavaScript programming professionals, a valuable resource for solving JavaScript-related problems, and for developing innovative solutions.



Course Details

- ▶ The main goal of the course is to guide you from a state of complete programming illiteracy to a level of programming knowledge which allows you to **design, write, debug, and run programs** encoded in the JavaScript language, and to understand the basic concepts of software development technology.
- ▶ The course focuses on the JavaScript language **core concepts**, including the essentials of the JavaScript **syntax and semantics, best programming practices**, JS tools and resources, and coding concepts such as **variables, data types, type casting, operators, user interaction, control flow, functions, errors, exceptions, debugging, and troubleshooting**.



What you will learn?

- ▶ Learn the universal concepts of computer programming
- ▶ Learn the syntax and semantics of the JavaScript language
- ▶ Practice skills in resolving typical implementation challenges
- ▶ Design, develop, and debug JS scripts
- ▶ Algorithmic and analytical thinking
- ▶ Best practices in programming



Course Syllabus

In this course you will learn:

- ▶ Introduction to javascript and computer programming;
- ▶ Variables, data types, type casting and comments;
- ▶ Operators and user interaction;
- ▶ Control flow – conditional execution and loops;
- ▶ Functions;
- ▶ Errors, exceptions, debugging and troubleshooting.



Why should you learn JAVASCRIPT?

- ▶ It's the most popular programming language
- ▶ It's in your browser
- ▶ JavaScript is Ideal for Newbies
- ▶ JavaScript is Easy to Learn
- ▶ You Can Create Visual Effects and Other Eye-catching Aesthetic Features
- ▶ JavaScript experts are in-demand (and well-paid)



Uses / Applications of Javascript?

- ▶ Adding interactive behavior to web pages
 - ▶ Show or hide more information with the click of a button
 - ▶ Change the color of a button when the mouse hovers over it
 - ▶ Slide through a carousel of images on the homepage
 - ▶ Zooming in or zooming out on an image
 - ▶ Displaying animations
 - ▶ Using a drop-down hamburger menu
- ▶ Creating web and mobile apps
- ▶ Building web server and developing server applications
- ▶ Game development
- ▶ Machine Learning



Get JSE certified

- ▶ Upon completion of this course, you will be prepared to attempt the qualification **JSE – Certified Entry-Level Javascript Programmer certification exam.**
- ▶ *JSE – Certified JavaScript Entry-Level Programmer certification shows that you are familiar with universal computer programming concepts like data types, containers, functions, conditions, and loops, as well as JavaScript programming language syntax, semantics, and the runtime environment.*



Skills of a Certified Entry Level Javascript Programmer

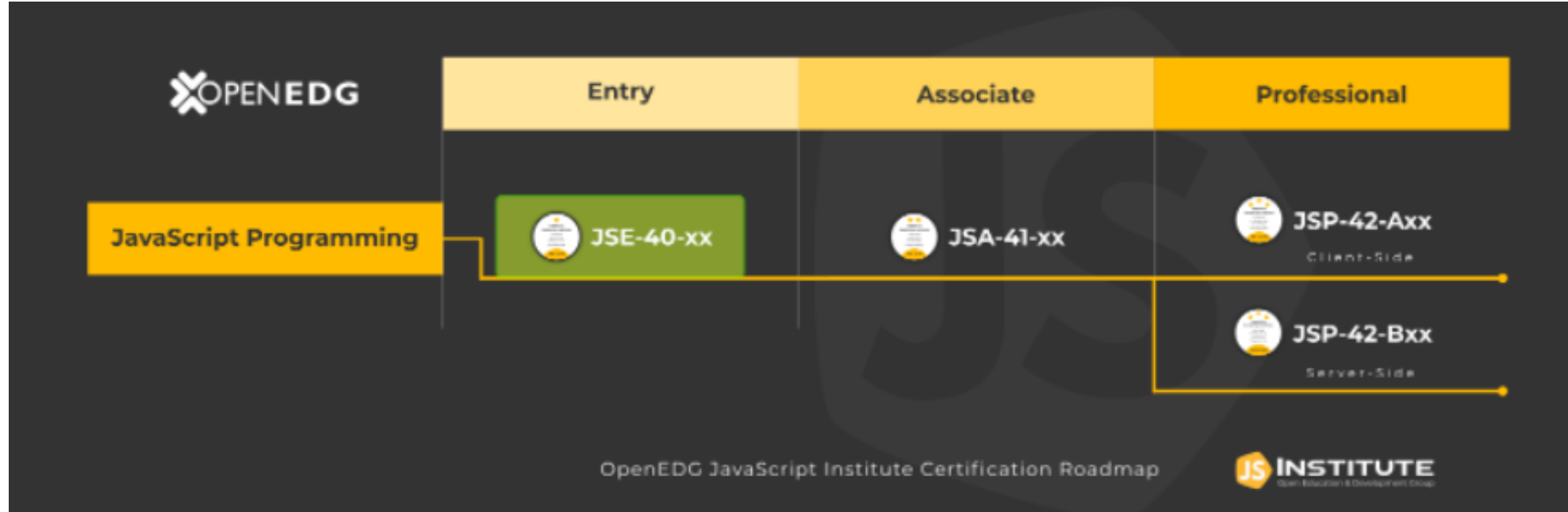
The holder of the *JSE – Certified Entry-Level JavaScript Programmer* certification demonstrates the following skills and expertise:

- ▶ knows the syntax of the core JavaScript language to a degree that allows them to work with variables, operators, flow control, and functions;
- ▶ knows the basics of the JavaScript data types system, distinguishing between primitive and complex types, and is able to choose a type adequate to their needs;
- ▶ thinks algorithmically and can analyze a problem using a programmatic conceptual apparatus;
- ▶ can choose a data type adequate to the problem being solved, and use suitable flow control means;
- ▶ can design, develop, and improve very simple JavaScript programs;
- ▶ can interpret and handle basic exceptions related to errors in program execution;
- ▶ understands a programmer's work in the software development process and the role of fundamental development tools;
- ▶ knows how a program is interpreted and executed in an actual computer environment, local or remote;
- ▶ can create and develop their own programming portfolio.

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Milestones





Verify this certificate's authenticity at
verify.openedg.org
Certification Code: 2137.XDJP.2323

CERTIFICATE

of proficiency in the JavaScript
programming language

Jane Doe

JSE - Certified Entry-Level JavaScript Programmer

Exam Version: **JSE-40-01**
Date Certified: **March 11, 2022**

Scope:

- Introduction to JavaScript and Computer Programming
- Variables, Data Types, and Type Casting
- Operators
- User Interaction
- Control Flow - Conditional Execution and Loops
- Functions
- Errors, Exceptions, Debugging, and Troubleshooting


Maciej Wichary
VP & CEO, JavaScript Institute

JS INSTITUTE
Open Education & Development Group

JSE Includes 6 Modules

The course is divided into 6 modules:

- ▶ **Module 1:** Introduction to Javascript and computer programming;
- ▶ **Module 2:** Variables, Data Types and Type Casting;
- ▶ **Module 3:** Operators and User Interaction;
- ▶ **Module 4:** Control Flow – Conditional Execution and Loops.
- ▶ **Module 5:** Functions;
- ▶ **Module 6:** Errors, exceptions, debugging, and troubleshooting;

Module 1:

Introduction to JavaScript and computer programming

In this module, you will learn about:

- ▶ understand the fundamental programming concepts, such as: interpreting and the interpreter, compilation and the compiler, client-side vs. server-side programming;
- ▶ have a basic knowledge of how to set up and use a 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:

Variables, Data Types and Type Casting

In this module, you will learn:

- ▶ 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, 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, 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:

Operators and User Interaction

In this module, you will cover the following topics:

- ▶ know what operators are and how we classify them (by type of operands, by number of operands, etc.)
- ▶ be able to use assignment, arithmetic, logical, and comparison operators in practice;
- ▶ have an understanding of 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 it 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:

Control Flow – Conditional Execution and Loops

In this module, you will cover the following topics:

- ▶ 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 properties of an object;
- ▶ be able to use the for-of statement to walk through the elements of an array.

Module 5: Functions

In this module, you will cover the following topics:

- ▶ 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 expression 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 functions alternatively as a regular declaration, a function expression, and an arrow function.



Module 6:

Errors, exceptions, debugging, and troubleshooting

In this module, you will cover the following topics:

- ▶ understand 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-finally 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, and measuring code execution time.

JSE – Certification Details

- ▶ **Exam name:** JSE – Certified Entry-Level JavaScript Programmer
- ▶ **Exam Code/Exam Version:** JSE-40-0x/JSE-40-01 (Release Date: Nov 5, 2021)
- ▶ **Exam Level:** Entry
- ▶ **Associated Certifications:** JSA – Certified Associate JavaScript Programmer (JSA-41-0x)
- ▶ **Pre-requisites:** HTML & CSS
- ▶ **Duration:** 40 minutes (exam) + approx. 5 minutes (Non-Disclosure Agreement/Tutorial)
- ▶ **Number of Questions:** 30
- ▶ **Format:** Single-selection and multiple-selection items
- ▶ **Passing Score:** 70%
- ▶ **Language:** English



Further Details

Resource: Edube Interactive

Teaching Mode: Online through zoom

Level: Beginner

Cost: 400 USD for training + 59 USD Certification Exam

Study Time: 6 months - 50 hours (Recommended: 2h/week + Homework)

Language: English

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