

Course Information

JavaScript is a lightweight, interpreted programming language. It is designed for creating network-centric applications. It is complementary to and integrated with Java. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross-platform.

This is a two-month course. With this course, you will be able to build amazing real-world applications on your own.

Goals

- Provide an understanding of the role computation can play in solving problems.
- Provide a skill-set to compete for professional-level application building

Textbook

We will not follow any textbook, but follow the course outline provided by the instructor.

Problem Sets and Quizzes

Each problem set will involve programming in Javascript. There will be 6 problem sets in the course. There will be a graded quiz at the start of the lecture (topics we covered on the previous day) and at the end of the lecture (topics we covered on that day)

Assignments will be given to the students every Sunday and students have to submit them next Saturday before class.

The final project will be assigned to the students individually after completing two months of javascript training.

Grading Policy

Grades will be roughly computed as follows:

ACTIVITIES	PERCENTAGES
Problem sets	30%
Completion of mandatory finger exercises	10%
Midterm Quiz	20%
Final Quiz	40%

Calendar

d a y #	TOPICS	ASSIGNMENTS
1	<p>1. JAVASCRIPT – Overview</p> <ul style="list-style-type: none"> a. What is JavaScript? b. Client-Side JavaScript c. Advantages of JavaScript d. Limitations of JavaScript e. JavaScript Development Tools f. Where is JavaScript Today? <p>2. JAVASCRIPT – Syntax</p> <ul style="list-style-type: none"> a. Your First JavaScript Code b. Whitespace and Line Breaks c. Semicolons are Optional d. Case Sensitivity e. Comments in JavaScript <p>3. JAVASCRIPT – Enabling</p> <ul style="list-style-type: none"> a. JavaScript in Internet Explorer b. JavaScript in Firefox c. JavaScript in Chrome d. JavaScript in Opera e. Warning for Non-JavaScript Browsers <p>4. JAVASCRIPT – Placement</p> <ul style="list-style-type: none"> a. JavaScript in <head>...</head> Section b. JavaScript in <body>...</body> Section c. JavaScript in <body> and <head> Sections d. JavaScript in External File e. Defer in script f. Async in script <p>5. JAVASCRIPT – Variables</p> <ul style="list-style-type: none"> a. JavaScript Data Types b. JavaScript Variables c. JavaScript Variable Scope d. JavaScript Variable Names e. JavaScript Reserved Words <p>6. JAVASCRIPT – Variables</p> <ul style="list-style-type: none"> a. What is an Operator? b. Arithmetic Operators c. Comparison Operators d. Logical Operators e. Bitwise Operators f. Assignment Operators g. Miscellaneous Operators 	<ul style="list-style-type: none"> 1. 1 quiz 2. 1 assignment
2	<p>1. JAVASCRIPT – If-Else</p> <ul style="list-style-type: none"> a. FlowChart of if-else 	<ul style="list-style-type: none"> 1. 2 quiz

	<ul style="list-style-type: none"> b. if Statement c. if...else Statement d. if...else if... Statement <p>2. JAVASCRIPT – Switch-Case</p> <ul style="list-style-type: none"> a. Flow Chart <p>3. JAVASCRIPT – While Loop</p> <ul style="list-style-type: none"> a. The while Loop b. The do...while Loop <p>4. JAVASCRIPT – For Loop</p> <ul style="list-style-type: none"> a. The for Loop <p>5. JAVASCRIPT – For-in Loop</p> <p>6. JAVASCRIPT – Loop Control</p> <ul style="list-style-type: none"> a. The break Statement b. The continue Statement c. Using Labels to Control the Flow <p>7. JAVASCRIPT – Functions</p> <ul style="list-style-type: none"> a. Function Definition b. Calling a Function c. Function Parameters d. The return Statement e. Nested Functions f. Function () Constructor g. Function Literals 	<p>2. 1 assignment</p>
3	<p>1. JAVASCRIPT – Events</p> <ul style="list-style-type: none"> a. What is an Event? b. onclick Event Type c. onsubmit Event Type d. onmouseover and onmouseout e. HTML 5 Standard Events <p>2. JAVASCRIPT – Cookies</p> <ul style="list-style-type: none"> a. What are Cookies? b. How Does It Work? c. Storing Cookies d. Reading Cookies e. Setting Cookies Expiry Date f. Deleting a Cookie <p>3. JAVASCRIPT – Page Redirect</p> <ul style="list-style-type: none"> a. What is Page Redirection? b. JavaScript Page Refresh c. Auto Refresh d. How Page Redirection Works? <p>4. JAVASCRIPT – Dialog Box</p> <ul style="list-style-type: none"> a. Alert Dialog Box b. Confirmation Dialog Box c. Prompt Dialog Box <p>5. JAVASCRIPT – Void Keyword</p> <p>6. JAVASCRIPT – Page Printing</p> <ul style="list-style-type: none"> a. How to Print a Page? . 	<ul style="list-style-type: none"> 1. 2 quiz 2. 1 assignment

4	<ul style="list-style-type: none"> ❖ JAVASCRIPT – Objects <ul style="list-style-type: none"> ➤ Object Properties ➤ Object Methods ➤ User-Defined Objects ➤ Defining Methods for an Object ➤ JAVASCRIPT – Void Keyword ❖ JAVASCRIPT – Number <ul style="list-style-type: none"> ➤ Number Properties ➤ MAX_VALUE ➤ MIN_VALUE ➤ NaN ➤ NEGATIVE_INFINITY ➤ POSITIVE_INFINITY ➤ Prototype ➤ constructor ➤ Number Methods ➤ toExponential () ➤ toFixed () ➤ toLocaleString () ➤ toPrecision () ➤ toString () ➤ valueOf () ❖ JAVASCRIPT – Boolean <ul style="list-style-type: none"> ➤ Boolean Properties ➤ constructor () ➤ Prototype ➤ Boolean Methods ➤ toSource () ➤ toString () ➤ valueOf () ❖ JAVASCRIPT – String <ul style="list-style-type: none"> ➤ String Properties ➤ constructor ➤ Length ➤ Prototype ➤ String Methods ➤ charAt() ➤ charCodeAt () ➤ concat () ➤ indexOf () ➤ lastIndexOf () ➤ localeCompare () ➤ match () ➤ replace () ➤ Search () ➤ slice () ➤ split () ➤ substr () ➤ substring () ➤ toLocaleLowerCase() ➤ toLocaleUpperCase () ➤ toLowerCase () 	<ol style="list-style-type: none"> 1. 2 quiz 2. 1 assignment 3. Ideas for Project selection
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- toString ()
- toUpperCase ()
- valueOf ()
- String HTML Wrappers
- anchor()
- big()
- blink ()
- bold ()
- fixed ()
- fontColor ()
- fontsize ()
- italics ()
- link ()
- small ()
- strike ()
- sub()
- sup ()

❖ **JAVASCRIPT – Arrays**

- Array Properties
- constructor
- length
- Prototype
- Array Methods
- concat ()
- every ()
- filter ()
- forEach ()
- indexOf ()
- join ()
- lastIndexOf ()
- map ()
- pop ()
- push ()
- reduce ()
- reduceRight ()
- reverse ()
- shift ()
- slice ()
- some ()
- sort ()
- splice ()
- toString ()
- unshift ()

❖ **JAVASCRIPT – Date**

- Date Properties
- constructor
- Prototype
- Date Methods
- Date()
- getDate()
- getDay()
- getFullYear()
- getHours()

	<ul style="list-style-type: none"> ➤ getMilliseconds() ➤ getMinutes () ➤ getMonth () ➤ getSeconds () ➤ getTime () ➤ getTimezoneOffset () ➤ getUTCDate () ➤ getUTCDay () ➤ getUTCFullYear () ➤ getUTCHours () ➤ getUTCMilliseconds () ➤ getUTCMinutes () ➤ getUTCMonth () ➤ getUTCSeconds () ➤ getYear () ➤ setDate () ➤ setFullYear () ➤ setHours () ➤ setMilliseconds () ➤ setMinutes () ➤ setMonth () ➤ setSeconds () ➤ setTime () ➤ setUTCDate () ➤ setUTCFullYear () ➤ setUTCHours () ➤ setUTCMilliseconds () ➤ setUTCMinutes () ➤ setUTCMonth () ➤ setUTCSeconds () ➤ setYear () ➤ toString () ➤ toGMTString () ➤ toLocaleDateString () ➤ toLocaleDateString () ➤ toLocaleFormat () ➤ toLocaleString () ➤ toLocaleTimeString () ➤ toSource () ➤ toString () ➤ toTimeString () ➤ toUTCString () ➤ valueOf () ➤ Date Static Methods ➤ Date.parse () ➤ Date.UTC () 	
5	❖ JAVASCRIPT – Math <ul style="list-style-type: none"> ➤ Math Properties ➤ Math-E ➤ Math-LN2 ➤ Math-LN10 	1. 2 quiz 2. 1 assignment

	<ul style="list-style-type: none"> > Math-LOG2E > Math-LOG10E > Math-PI > Math-SQRT1_2 > Math-SQRT2 > Math Methods > abs () > acos () > asin () > atan () > atan2 () > ceil () > cos () > exp () > floor () > log () > max () > min () > pow () > random () > round () > vili > sin () > sqrt () > tan () > toSource () <p>❖ JAVASCRIPT – RegExp</p> <ul style="list-style-type: none"> > Brackets > Quantifiers > Literal Characters > Metacharacters > Modifiers > RegExp Properties > constructor > global > ignoreCase > lastIndex > multiline > source > RegExp Methods > exec () > test () > toSource () > toString () <p>❖ JAVASCRIPT – DOM</p> <ul style="list-style-type: none"> > The Legacy DOM > The W3C DOM > The IE 4 DOM > DOM Compatibility 	
6	<p>1. JAVASCRIPT – Errors and Exceptions</p> <ul style="list-style-type: none"> a. Syntax Errors b. Runtime Errors c. Logical Errors d. The try...catch...finally Statement 	<ul style="list-style-type: none"> 1. 2 quiz 2. 1 assignment

	<ul style="list-style-type: none"> e. The throw Statement f. The onerror() Method <ol style="list-style-type: none"> 2. JAVASCRIPT – Form Validation <ul style="list-style-type: none"> a. Basic Form Validation b. Data Format Validation 3. JAVASCRIPT – Animation <ul style="list-style-type: none"> a. Manual Animation b. Automated Animation c. Rollover with a Mouse Event 4. JAVASCRIPT – Multimedia <ul style="list-style-type: none"> a. Checking for Plug-Ins b. Controlling Multimedia 5. JAVASCRIPT – Debugging <ul style="list-style-type: none"> a. Error Messages in IE b. Error Messages in Firefox or Mozilla c. Error Notifications d. How to Debug a Script e. Useful Tips for Developers 6. JAVASCRIPT – Image Map 7. JAVASCRIPT – Browsers <ul style="list-style-type: none"> a. Navigator Properties b. Navigator Methods c. Browser Detection 8. JAVASCRIPT – Classes <ul style="list-style-type: none"> a. Inheritance b. Static 9. JAVASCRIPT – ES6 (Features) 	
7	<ol style="list-style-type: none"> 1. NODE JS – Introduction <ul style="list-style-type: none"> a. Synchronous vs Asynchronous b. NVM (Node version manager, install) c. Install multiple versions of Node through NVM 2. NODE JS – Packages <ul style="list-style-type: none"> a. How to select a best suitable package b. How to install a specific version of the package 3. NODE JS – Package Managers <ul style="list-style-type: none"> a. NPM b. Yarn c. PNPM 4. NODE JS – Package.json <ul style="list-style-type: none"> a. Dependencies b. Dev-dependencies c. Peer-dependencies d. Scripts e. NODE JS – package-lock f. NODE JS – Building Package 5. NODE JS – Syntax <ul style="list-style-type: none"> a. Explore different types of syntaxes, es6 specifically. Async awaits and promises included. 6. NODE JS – Functional programming <ul style="list-style-type: none"> a. Learn about the function and event-driven programming 7. NODE JS – Eslint 	<ol style="list-style-type: none"> 1. 2 quiz 2. 1 assignment

	a. Implement eslint with Airbnb configurations on git pre-commit	
8	<ol style="list-style-type: none"> NODE JS – Migrations and Models <ol style="list-style-type: none"> Write down models and migrations along with their respective relations NODE JS – Routes, middlewares and docs <ol style="list-style-type: none"> Write routes, both protected and open for your project exclude controller logics Write docs for routes using API docs or Swagger NODE JS – Controller Logic and error handling <ol style="list-style-type: none"> Write controller logic for your routes along with validations in your migrations. Error handle all controller logic 	<ol style="list-style-type: none"> 2 quiz 1 assignment
9	<ol style="list-style-type: none"> NODE JS – Triggers <ol style="list-style-type: none"> Add DB Triggers in your migrations for your project NODE JS – Events <ol style="list-style-type: none"> Add Events to your project. NODE JS – Scheduled Jobs aka cron jobs <ol style="list-style-type: none"> Add Jobs to your project. 	<ol style="list-style-type: none"> 2 quiz 1 assignment
10	<ol style="list-style-type: none"> NODE JS – Typescript <ol style="list-style-type: none"> Convert your project to Typescript. NODE JS – Explore Other ORMs and DB's <ol style="list-style-type: none"> NestJS, MongoDB, etc 	<ol style="list-style-type: none"> 2 quiz 1 assignment
11	<ol style="list-style-type: none"> Introduction to React & React Props, functional components vs class components Typescript & Types React and eslint/prettier React Router and Custom Hooks 	
12	<ol style="list-style-type: none"> Headless Components and Form Handling React states, effects, hooks 	<ol style="list-style-type: none"> 2 quiz 1 assignment
13	<ol style="list-style-type: none"> Redux Webworkers & Saga 	1.
14	<ol style="list-style-type: none"> Context API's Redux with hooks Redux Clustering 	<ol style="list-style-type: none"> 2 quiz 1 assignment

1 5	3rd Party Integrations	5. 2 quiz 6. 1 assignment
1 6	Continuation	7. 2 quiz 8. 1 assignment