Course Curriculum : Web Development

Front-End

Html/Html5

- Introduction of different Web Technology
- Introduction
- HTML Elements
- HTML Attributes
- HTML Headings
- HTML Paragraphs
- HTML Formatting
- HTML Fonts
- HTML Styles
- HTML Links
- HTML Images
- HTML Tables
- HTML Lists
- HTML Forms
- HTML Iframe
- HTML Layout
- HTML Doctypes
- HTML Head
- HTML Meta
- HTML Scripts
- HTML Media
- HTML Audio
- HTML Object
- HTML Video
- HTML YouTube
- HTML Media Tags

Structure of a Web Page

- HTML5 DOCTYPE
- Page Encoding
- HTML5 Mark-up
  - New And Updated Elements
  - Structural Elements
  - New Attributes
  - Deprecated Elements And Attributes

Forms

- What Are The Needs For Web Applications?
- Current Solutions
- New Input Types
- New Attributes
- Form Validation

Audio and Video

- The State of Web Audio And Video Based On Plug-in
- The State Of Audio And Video Codec (e.g. H.264, WebM, etc.)
  - Video/Audio Codec And Browser Support
- New Audio/Video Mark-up
- Attributes And Methods
- Understanding Audio/Video Events
- Customizing Audio/Video Controls

HTML5 Canvas

- Overview Of Graphics In The Browser
  - Canvas Vs. SVG
  - Accessibility
- Using A Canvas
- Context And Coordinates
- Drawing Shapes
- Working With Paths

- - Drawing Straight Lines
  - Drawing Circles Or Arcs
- Drawing Text
- Drawing Images
- Working With Pixels
- Understanding Transforms
  - Translation
  - Rotation
  - Scaling

CSS/CSS3

- CSS Introduction
- CSS Syntax
- CSS Id & Class
- CSS Styling
- Styling Backgrounds
- Styling Text
- Styling Fonts
- Styling Links
- Styling Lists
- Styling Tables
- CSS Box Model
- CSS Border
- CSS Outline
- CSS Margin
- CSS Padding
- CSS Display
- CSS Positioning
- CSS Floating
- CSS Align
- CSS Navigation Bar
- CSS Image Opacity
- CSS Media Types

CSS3

- Selectors and Pseudo Classes
  - Attribute Selectors
  - The Target Pseudo-Class
  - UI Element States Pseudo-Classes
  - Negation Pseudo-Class
  - Structural Pseudo-Classes
- Fonts and Text Effects
  - Fonts on the Web
  - Font Services
  - The @font-face Rule
  - Text Shadow
  - Word Wrapping
- Colors, Gradients, Background Images, and Masks
  - Color
  - The Opacity Property
  - Backgrounds
  - background-origin, and background-size
- Borders and Box Effects
  - Image Borders
  - Rounded Corners
  - Box Shadow
- Transitions, Transforms, and Animations
  - Transitions and Transforms
  - Transitions
- Layout: Columns and Flexible Box
  - Layout: Columnsand Flexible Box
  - Flexible Box Model
- Embedding Media
  - Video Formats
  - Styling Video
- Media Queries
  - Targeting Widths and Devices with CSS3 Media Queries
  - Responsive Images and the viewport Meta

JavaScript

JavaScript Fundamentals

- variables
- Data types
- Type Conversions
- Operators
- Conditional operators: if, '?'
- Logical operators
- Loops: while and for
- The "switch" statement
- Functions
- Arrow functions, the basics
- JavaScript specials

Data types

- Strings
- Arrays
- Array methods
- Iterables
- Map and Set
- Object.keys, values, entries
- Destructuring assignment
- Date and time
- JSON methods, toJSON

classes

- Class basic syntax
- Class inheritance
- Static properties and methods
- Private and protected properties and methods
- Extending built-in classes

Error handling

- Error handling, "try...catch"
- Custom errors, extending Error

Promises, async/await

- Introduction: callbacks
- Promise
- Promises chaining
- Error handling with promises
- Promise API
- Promisification
- Async/await

Generators, advanced iteration

- Generators
- Async iterators and generators

Modules

- Modules, introduction
- Export and Import
- Dynamic imports

Browser: Document, Events, Interfaces

Document

- Browser environment, specs
- DOM tree
- Walking the DOM
- Searching: getElement*, querySelector*

- Node properties: type, tag and contents
- Attributes and properties
- Modifying the document
- Styles and classes
- Coordinates

Events

- Introduction to browser events
- Bubbling and capturing
- Event delegation
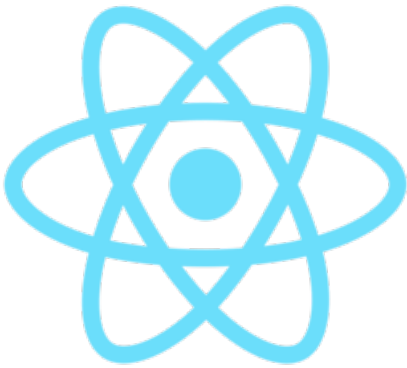- Browser default actions
- Dispatching custom events

UI Events

- Mouse events basics
- Moving the mouse: mouseover/out, mouseenter/leave
- Drag'n'Drop with mouse events
- Keyboard: keydown and keyup
- Scrolling

Forms, controls

- Form properties and methods
- Focusing: focus/blur
- Events: change, input, cut, copy, paste
- Forms: event and method submit

Document and resource loading

- Page: DOMContentLoaded, load, beforeunload, unload
- Scripts: async, defer
- Resource loading: onload and onerror

ReactJS

Module 1

why React

- Introduction

- Installing and setting

- Intro to JSX
  - Why use Captial component name
  - diff b/w `HTML` and `JSX`

- components

  - What is component
    - types of components
    - class components
    - with es6 with and without super without es6 bind method
    - functional components
  - reusable components:
    - why we need

Module 2

State Management

- what is state

2. State Object

- setState()
    - state with class components
    - state with functional components (with Hooks)

- Props
    - passing data from parent to child
    - passing data from child to parents
    - propTypes for type check and debug

- Controlled components

Module 3

React Lifecycle

- componentWillMount
- componentDidMount
- componentWillUpdate

Using External API

- Axios and Fetch API
    - use of GET, POST, PATCH, PUT, DELETE
    - Async/Await with Axios and promise
    - Using Promise.all to resolve the above API data

Module 4

React-Router

- Introduction

- Link and its exact attributes

- Nav-Link and its 'isActive' class

- Browser Router

- Router
    - Render
    - component

- Switch

- Setting 404 page

- Dynamic Routes

- using History and Location and Params

Module 5

Redux

- Redux Method

- createStore()
- action
- Dispatch()
- Subscribe()

- Redux Advance

  - Reducer
  - combineReducer
  - Redux middleware
    - Thunk middleware

- Fetching data in Redux through API

- React-Redux

  - Installation
  - Using provider
  - connect()

- Project

  - Individual project
    - Healthcare
      - Tvastra
      - Northern health
  - Team project
    - Social Media
      - Coub
      - Krazily
    - Blogging
      - Medium
    - E-commerce
      - Ozon
      - shop.

Back-End

Module 1

Introduction to Node JS

- Introduction
- What is Node JS?
- Advantages of Node JS
- Traditional Web Server Model
- Node.js Process Model

Module 2

Setup Dev Environment

- Install Node.js
- Working in REPL
- Node JS Console

Module 3

Node JS Modules

- Functions
- Buffer
- Module
- Module Types
- Core Modules
- Local Modules
- Module.Exports

Module 4

npm Node Package Mananger

- What is NPM
- Installing Packages Locally
- Adding dependency in package.json
- Installing packages globally
- Updating packages

Module 5

Creating Web server

- Creating a web server
- Handling HTTP requests
- Sending requests

Module 6

File System

- Fs.readFile
- Writing a File
- Writing a file asynchronously
- Opening a file
- Deleting a file
- Other IO Operations

Module 7

Debugging Node JS Application

- Core Node JS debugger
- Debugging with Visual Studio

Module 8

Events

- EventEmitter class
- Returning event emitter
- Inhering events

Module 9

express **JS**

Express.JS

- Configuring routes
- Working with express

Module 10

Serving Static Resources

- Serving static files
- Working with middleware

Module 11

Database connectivity

- Connection string
- Configuring
- Working with select command
- Updating records
- Deleting records

Module 12

Template Engines

- Why Template Engine
- EJS
- Example

Module 13

Unit testing with mocha & chai

- What is unit testing
- Install and setup mocha and chai
- Write unit tests to test API

Module 14

projects

- Individual project
  - Healthcare
    - Tvastra
    - Northern health
- Team project
  - Social Media
    - Coub
    - Krazily
  - Blogging
    - Medium
  - E-commerce
    - Ozon
    - shop.mts

Module 15

Deployment

- AWS
- Google Cloud