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| **Syllabus for Diploma in “IT, Networking and Cloud”** | | |
| **Core Module 2 : Web design and Development : 320Hrs** | | |
| **Learning outcome** | **Professional Skills**  **(Trade Practical) (200 hrs)** | **Professional Knowledge**  **(Trade Theory) (120 hrs)** |
| **Able to create simple web pages using**  **HTML 5 and understand how web works** | **HyperText Markup Language (HTML) - (45 Hrs)**  x Create HTML document using mark up Tags in HTML editor (Notepad) (Open/run the html file in web browser to check the output (30 mins) x Modify above HTML document using heading – paragraphs, Modify above HTML document using Line Breaks , Modify above HTML document using HTML Tags. (30 mins) x Introduce new elements of HTML5 (1 hrs) x Create Text, Lists, Tables and iFrames (2 Hrs) x Create Hyperlinks, Images and Multimedia Working with Forms and controls. (3 Hrs)  x Enable Hypertext Transfer Protocol (HTTP) via GET and POST requests (1 Hrs)  x Obtain input from users. (5 Hrs) | **HyperText MarkUp Language (HTML) - (20 Hrs)** Introduction to Internet, browsing, emailing x Introduction to HTML  x Different editors used for Webpage Developing  - Phase 5 HTML Editor, Programmer’s Notepad, SynWrite Editor,  PlainEdit.net, Notepad++, jEdit HTML Editor, Sublime Text 2, Sublime  Text 2: unofficial documentation, Package Control: packet manager for Sublime Text 2, Adobe Brackets x Application of HTML x Protocols x Forms and Input x Database x User Account and security x APIs and Caching. |
| **Structuring the web** | x Divide a webpage into logical sections (1 Hr) x Display computer code with HTML (1 Hr) x Annotation of images and graphics. (2 Hr) x Marking abbreviations (1 Hr)  x Add quotations and citations to web pages (2 Hrs) x Embed a webpage within another webpage (2 Hrs)  x Create a data spreadsheet (2 Hrs) x Optimize HTML table rendering (1 Hr) x Create collapsible content with HTML (1 Hr) x Add context menus to a webpage (2 Hr) x Create dialog boxes with HTML (2 Hrs) x Add multiple languages into a single webpage (2 Hrs) x Controlling of HTML line breaking (1 Hrs) x Mark changes (added and removed text) (2 Hrs) x Add responsive image to a webpage (3 Hrs) x Add vector image to a webpage (3 Hrs) x Add a hit map on top of an image (2 Hrs) x Animation (1 hr) x Transform (1 hr) |

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| **Able to create**  **Styles of web pages using CSS.** | **Cascaded Style Sheet (CSS) - (15 Hrs)**  x Create CSS document by using ID selector (1 Hr) x Create CSS document by using Class selector, Universal selector and Grouping selector (1 Hr) x Create CSS document with fonts : Bold, Italics, oblique (1 Hr) x Design Style sheet document with text transformation : Uppercase, Lower case and capitalize (1 Hr) x Create CSS document with font size in different pixels (1 Hr) x Create CSS document with font weight thinner, thicker, bold  (1 Hr)  x Create CSS document with alignment centre, right and left (1 Hr)  x Create CSS document with background colours and font colours (1 Hr) x Create CSS document with text hovering (1 Hr) x Create CSS document with text decoration (1 Hr) x Create CSS document with block elements and objects  (1 Hr) x Create Lists and Tables (1  Hr) x Create Box Model by using borders, Padding and | **Cascaded Style Sheet (CSS) - (25 Hrs)** x Introduction to CSS x Limitations of CSS x Advantages of CSS x Three ways to integrate CSS x Merits and demerits of - external Style Sheets, Embedded  Style Sheets x Syntax  x CSS values and units  x Styling text x Styling box x CSS layout |
| **Scripting and**  **Styling the web**  **(CSS)** | **Exercise duration: (50hrs)**  x Apply CSS within a webpage (2 Hrs) x Apply CSS to HTML (3 Hrs) x Select elements via element name, class or ID (2 Hrs) x Select elements via attribute name and content (1 Hrs) x Apply pseudo-elements (2 Hrs) x Specify colors in CSS (2 Hrs) x Debug CSS in the browser (1 Hrs) x Style text and customize a list of elements (2 Hrs) x Add shadows to text (2 Hrs) x Size CSS boxes (2 Hrs)  x Control overflowing content (1 Hr) x Control the part of a CSS box to draw the background (2 Hrs) x Create fancy boxes (also see the Styling boxes module, generally). (2 Hrs) x Use background-clip to control background image (1 Hrs) x Change the box model completely using boxsizing (2 Hrs) x Control backgrounds (3 Hrs) x Apply control borders (2 Hrs) x Style an HTML table (3 Hrs) x Add shadows to boxes (2 Hrs) x Calculate specificity of a CSS selector (3 Hrs) x Control inheritance in CSS (2 Hrs) x Apply filters in CSS (2 Hrs) x Apply blend modes in CSS (1 Hr) x Apply CSS multi-column layouts (3 Hrs) x Apply CSS generated content (2 Hrs) |  |

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| **Javascript** | **Exercise duration- (50 hrs)**  Write a JavaScript function that reverse a number. (30 mins)  x Write a JavaScript function that returns a passed string with letters in alphabetical order. (30 mins)  x Write a JavaScript function that accepts a string as a parameter and counts the number of vowels within the string. (1 hr)  x Write a JavaScript function that accepts a string as a parameter and converts the first letter of each word of the string in upper case. (1 hr)  x Write a JavaScript program to calculate number of days left until next Christmas. (1 hr)  x Write a JavaScript conditional statement to find the sign of product of three numbers. Display an alert box with the specified sign. Sample numbers : 3, -7, 2 Output : The sign is - (1 hr)  x Write a simple JavaScript program to join all elements of the following array into a string. Expected Output : "Red,Green,White,Black" "Red,Green,White,Black" "Red+Green+White+Black" (1 hr)  x Write a JavaScript function to check whether an `input` is an array or not.(1 hr)  x Write a JavaScript function to clone an array. Test Data : [1, 2, 4, 0]  [1, 2, [4, 0]] (1 hr)  x Write a JavaScript program to sort the items of an array. Sample array : var arr1 = [ 3, 8, 7, 6, 5, -4, 3, 2, 1 ]; Sample Output : -4,-3,1,2,3,5,6,7,8 (1 hr)  x Write a JavaScript program to display the colors in the following way : Here is the sample array: color = ["Blue ", "Green", "Red", "Orange", "Violet", "Indigo", "Yellow "];  o = ["th","st","nd","rd"] Output "1st choice is Blue ." "2nd choice is Green." "3rd choice is Red." ( 2 hr)  x Create the following four functions in a separate JavaScript file. Also create+B13 a separate HTML file to test the functions.  a) Create a function that uses an alert to display the hostname of the current URL when the button is clicked.  b) Create a function to display a confirmation box with the message "Are you human?", and output what the user clicked  c) Display a prompt box which asks the user for her/his name, store the user’s response in person, and output a message; "Hello " + person + "! How are you today?"  d) Use the switch statement together with prompt() to execute a block of code based on user input. Click the button to display a dialog box which will ask for the user’s favourite drink. (3 hr)  x Write a JavaScript function to remove specified number of characters from a string. (1 hr)  Develop and demonstrate a HTML5 file that includes JavaScript script that uses functions for the following problems:  a. Parameter: A string  Output: The position in the string of the left-most vowel b. Parameter: A number  Output: The number with its digits in the reverse order  ( 2 hr)  Write a JavaScript code that displays text “TEXT-GROWING” with increasing font size in the interval of 100ms in RED COLOR, when the font size reaches 50pt it displays “TEXT-SHRINKING” in BLUE color. Then the font size decreases to 5pt. (3 hr)  x Create a Tip Calculator as a single page web application (SPA). Design an interface that allows you to enter the amount of the tip. The percentage you would like to tip, and the number of people to split the tip with. Do not use 3 text input elements! Calculate and dynamically display the tip.(3 hr)  x Write a JavaScript function to validate whether a given value is object or not. (1 hr )  x Write a JavaScript function to validate whether a given value type is pure json object or not. (1 hr)  Write a JavaScript program to count number of words in string.  Note :  - Remove white-space from start and end position.  - Convert 2 or more spaces to 1.  - Exclude newline with a start spacing. (3 hr)  Write a JavaScript function to check a given value contains alpha, dash and underscore. (1 hr)  Write a JavaScript function to check whether a given value represents a domain or not. Write a JavaScript function to check whether a given value is html or not. (1 hr) | **Introduction to Javascript (30 hrs)**  Javascript DataType & Operator  Javascript Condition & Loop Control statement  JavaScript Array & Object  JavaScript Function predefined  JavaScript Function user Define  JavaScript Event Programming  Exception Handling  BOM,Navigation,Settimeout,timeinterval  Date,& Ajax  JSON |
| **Bootstrap**  **Framework** | **Excercise duration - ( 30 hrs) x** Building responsive webpage using bootstrap (20 hrs) x Use jQuery selectors to identify elements with these properties in a hypothetical page: (2 hrs)  ◦ All p tags that have no children, but only if they don't have a class of ignore  ◦ Any element with the text "REPLACE\_ME" in it.  ◦ All div tags with a child that has a class of special ◦ All heading elements (h1, h2, h3, h4, h5, h6) ◦ Every other visible li. x Write jQuery Code to change the hyperlink and the text of a existing link. (30 mins)  x How to Print a Page Using JQuery? (30 mins) x Display and hide message shown in the div tag on click of the buttons. (30 mins) x Create one button and a textbox. On click of the button the text written in text box should display on the button. (1 hr) x Toggle a specified class when an element is clicked. (30 mins) x Disable the submit button until the visitor has clicked a check box. (30 mins) x Create a text input field. Listen for the keyup event. Alert the value of the text box whenever keyup occurs. (1 hrs) x Set a timer to delay execution of subsequent items in the queue. ( 30 mins) x Find all the text nodes inside a paragraph and wrap them with an italic tag. (1 hr) x Write a jquery to attach a change event to the select element (Use to create a drop-down list.) that gets the text for each selected option and writes them in a paragraph.(1 hr) x Find the widths and heights of various elements. Get the scroll top and left of an element.Access the position of an element. (1 hr) | **Overview of Bootstrap- (20 hrs)**  Introduction of Bootstrap, Syntax of Bootstrap, Advantages of bootstrap, Container and Container-fluid, Connectivity of  Bootstrap in page  **Bootstrap Component-**  Jumbotron, Button, Grid, Table, Form, Alert, Badge and label, Panels, Pagination, Image, Glyphicon, Carousel,  Progress Bar, List Group, Dropdown, Collapse  **Bootstrap Advance Component -**  Tabs/Pill, Navbar, Input Types, Modals, Popover, Scrollspy **Bootstrap Utilities -**  Bootstrap Border, Bootstrap Clearfix, Bootstrap Close Icons,  Bootstrap Colors, Display Flexbox, Display Property, Image  Replacement, Invisible Content, Bootstrap Position, Responsive helpers, flexbox, Bootstrap sizing, Bootstrap spacing, Bootstrap Typography  Introduction to JQuery  JQuery Basics JQuery Selectors jQuery – DOM Attributes jQuery – DOM Traversing jQuery – CSS Methods jQuery – Effects |

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| **DBMS** | **Excercise duration - (10 hrs)**  Installing SQL (1 hrs)   1. Creating and Manipulating Database objects and Applying 2. Constraints (DDL) (2 hrs) 3. Manipulating Data with Database Objects (DML) (1 hrs) 4. SQL Single Row Functions (1 hrs) 5. Displaying Data from Multiple Tables (Join) (2 hrs) 6. SQL Multiple Row Functions (Aggregate Function) (1 hrs) 7. SQL using sub query (2 hrs) | **Basic Concepts of DBMS (20 Hrs.)**  x Purpose of database systems – Data abstraction – Database  Users – Data Independence  (Logical & Physical) – Instance & Schemes –Three layered  Architecture of DBMS –  Different Levels of Abstraction.  x DATA MODELLING, E-R MODELLING x LOGICAL MODELS: Object & Record based – Object oriented model – Entity relationship models – Entity sets & relationships sets  – Attributes — KEYS in entity & relationship sets: (a) super key, (b)  candidate key, (c) primary key, (d) unique key — Mapping constraints – E-R Diagrams –Relational Model – Hierarchical model – Network Model.  x RELATIONAL DATABASE MANAGEMENT,  RELATIONAL ALGEBRA & RELATIONAL CALCULUS  RDBMS Technology, The relational Data Structure, Keys,  Relational Data Manipulation, The Relational Algebra,  Relational algebraic Operations, The Set Operations, Fundamental Operations, Relational Calculus. Data definition language – Data manipulation language – Relational algebra — OPERATORS: select, project, join, rename etc – Simple examples. |
| **Software**  **Development Life**  **Cycle** |  | **Overview 5 hrs)**  x What is SDLC?  x Phases of Software Development Life Cycle (SDLC), x Software Development Life Cycle Models x Software Test Levels |