

SEMESTER-I

St. Xavier's College (Autonomous), Ahmedabad

Syllabus of Semester – I of the following departments under Faculty of Computer Science based on Undergraduate Curriculum Framework to be implemented from the Academic Year 2024-25.

DEPARTMENT OF COMPUTER SCIENCE

BCA. (Hons.)
Category – IV

Minor Course: Basic and Advanced HTML

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Pre-requisite(s) of the Course (if any)
	Lecture	Tutorial	Practical / Practice		
Basics and Advanced HTML BCA-1101	2	0	2	10 + 2 from a recognized board in any stream	Nil

Learning Objectives

This minor course is designed to provide an introduction web development using HTML. This course shall insight students about the hypertext mark-up language. The course will cover the tags and attributes of the different elements to design webpage. The course will also include different elements such as structure of webpage, headings, text formatting, tables, list forms, and other html 5 elements.

Learning Outcomes

- To understand the markup language.
- To acquire the concept to design simple html structure.
- To learn the various tags to add comments, lines and formatting to webpage.
- To familiarize students with the html table and list operations.
- To give awareness about the form and related elements.
- To give an insight to HTML 5.

Syllabus of BCA-1101 Basics and Advanced HTML

Unit 1: Introduction to HTML

15 Hours

- HTML
 - Introduction
 - HTML document structure
 - Adding text in newline(
</BR>)
 - Creating heading (<h1></h1> to <h6></h6>).
 - Creating a paragraph (<P>---</P>)
 - Creating a horizontal ruler (<HR>---</HR>)
 - Sub Script, Super Script, Text
 - Alignment(<align>---</align>)
 - Formatting Of text (, <U>, <I>)
 - Font tag with all attributes
 - Grouping of text (<Div>---</Div>, ---)
 - Scrolling text<marquee>---</marquee> with its attributes)
 - Working with Character entity / Special character Codes
 - HTML Comments
- Order list
 - Unordered list
 - Definition list
- Working with Links: anchor tag with its entire attribute. To link documents with “target” attributes.
- Working with table:
 - Creating table
 - Specifying caption
 - Table headings
 - All table related Tags & attributes.(rowspan ,colspan

Unit 2 Introduction to advance HTML

15 Hours

- Advanced HTML
- Working with Images:
 - ❑ --- & all its Attributes
 - ❑ Creating Image maps (<map>---</map> & <area>---</area>) and their attributes
- Working with Forms:
 - ❑ Creating form(<form>---</form>) & all its attributes
 - ❑ Adding controls to an HTML form
 - ❑ <Input>---</input> tag and its all attribute
 - ❑ <text area> ---</text area>
 - ❑ Adding a selection control
 - ❑ Grouping the control of html forms(<Field set> and <legend> tags)
 - ❑ HTML5 form elements
- Introduction to HTML5
 - ❑ The <!DOCTYPE html> Element
 - ❑ Introduction to new elements in HTML 5
- The Markup Elements using :
 - ❑ <section>
 - ❑ <article>
 - ❑ <aside>
 - ❑ <details>
 - ❑ <figcaption>
 - ❑ <figure>
 - ❑ <footer>
 - ❑ <header>
- The Media Elements
 - ❑ <audio>
 - ❑ <video>
 - ❑ <plug-ins>
- HTML Graphics:
- The Canvas Elements
- And SVG (Scalable Vector Graphics)

List of Practicals

60 Hours

1. Creating and saving simple HTML document. And opening in web browser
2. Modifying the background of HTML webpage (with colors & images)
3. Insert a line break in web page content. (use of
) using headingtags(<h1>...<h6>)
4. Creating a paragraph(Using <p> </p>) using <hr> tag
5. Demonstrate use of subscript, super script, align tag ,with different textformatting bold , italic, underline
6. Create web page which demonstrate the use of font tag
7. Create web page with <div> tag.
8. Create web page with tag.

9. Create web page with <blockquote> tag.
10. Create webpage using different attributes of body tag.
11. Demonstrate the use of Marquee tag. (including its all attributes)
12. Write HTML program to insert special characters And comment
13. Write HTML program to insert special characters in Chess board.
14. Write HTML program to create a simple order list.
15. Write HTML program to create a simple Unordered list.
16. Write HTML program to create definition list.
17. Write HTML program to create order list within Unordered list.
18. Write HTML program to create Unordered list within Unordered list.
19. Write HTML program to create order list within order list using Like fruits, vegetables, subjects etc.
20. Create any example according to you using all types of list with its attributes.
21. Write HTML program to create simple table with its border attribute.

<ol style="list-style-type: none"> 1. Linux 2. Apache 3. MySQL 4. PHP 	HELLO
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22. Create Mark sheet, Electricity bill, telephone bill, time –table with use of Text formatting tags, back-ground color, and font.
23. Create Web page to Print BCA HTML Syllabus using table.
24. Write HTML program to demonstrate use of different LINK, ALINK and VLINK attributes of body tags
25. Create a webpage for online Jewellery shopping. Display Menu in left frame. Clicking on menu should display related webpage in right frame. Keep header and footer frames to display related information.
26. Create Web page to apply in job using filling form online.
27. Create a webpage with images, with audio and video.
28. Inserting Image on a web page (with all attributes).
29. Write HTML program in which make image as a link.
30. Write HTML program to e-mail registration form.
31. Write code for create images using canvas
32. Create a web page for user registration form. Assume related information and use appropriate control

Essential / Recommended Readings:

- Internet Technology and Web Design(First Edition-2011), Publisher: Tata McGraw Hill, By ISRD group
- HTML 5 in SIMPLE STEPS, Publisher : DREAMTECH PRESS, BY Kogent Learning Solutions Inc.
- Internet and HTML, Computer world publication

Suggestive Readings:

- Internet and HTML, Computer world publication, World wide web Design with HTML(First Edition-2010), Tata McGraw Hill, By C Xavier
- Web Enabled commercial application development using HTML, Javascript, DHTML and php, BPB Publication, By Ivan Bayross

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DEPARTMENT OF COMPUTER SCIENCE

BCA. (Hons.)
Category – IV

Skill Enhancement Course: Computer Basics & Office Automation

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Prerequisite(s) of the Course (if any)
	Lecture	Tutorial	Activity/Case study analysis		
Computer Basics and Office Automation BCA-1650	1	0	1	10 + 2 from a recognized board in any stream.	None

Learning Objectives

This Skill Enhancement Course is specially designed to enhance basic computer skills. The objective of this course is to expert the students with Documentation skills, presentation skill, Data entry and analysis of data.

Learning Outcomes

- Recognize when to use each of the Microsoft Office tools (MS Word, MS PowerPoint and MS Excel)
- To create professional and academic documents.
- To create personal, academic and business documents following current professional and/or industry standards.
- Apply skills and concepts for basic use of computer Word, Excel, Power point.

- Students will be able to communicate effectively.

Syllabus of BCA-1650 Computer Basics and Office Automation

Unit 1: Computer Basics

15 Hours

- Evolution of Computers – Generations of Computers – Classification of Computers – Computing Concepts – The Computer System – Introduction to Application System – MS DOS (DIR, DIR/P, CD, MD, DATE, TIME, CLS & EXIT)
- Introduction to Computer Codes – Types of Number Systems – 4-BIT BCD System – 8-BIT BCD System – Conversion of Numbers (includes fixed and fractional number)

Unit 2: Office Automation

30 Hours

- Starting MS-Word - Screen and its Components - The Office Button - The Ribbon and the tabs (Home, Insert, Page Layout, Reference, Review, View)
- Basics of PowerPoint - Starting MS-PowerPoint - Screen and its Components - The Office Button - The Ribbon and the tabs (Home, Insert, Design, Animation, Slid Show, View)
- Starting MS-PowerPoint – Basics of Spreadsheet (Numbers, Formulas, Text) - Screen and its Components - The Office Button - The Ribbon and the tabs (Home, Insert, Page Layout, Formula, Data, Reference, Review, View)

Suggestive Readings:

1. Computer Fundamentals – Anita Goel – Publisher: PEARSON
2. Office 2013 in Simple StepBible – Lisa A. Bucki, John akenbanch, Fathe wempen, Michael Alexander and Dick kuseika - Publisher: Wiley

SEMESTER-II

Faculty of Computer Science based on Undergraduate Curriculum
Framework to be implemented from the Academic Year 2024-25.

DEPARTMENT OF COMPUTER SCIENCE

**BCA (Hons.)
Category – IV**

Minor Course – 1: BCA-2101 Web-Designing with DHTML

**CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE
COURSE**

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Pre-requisite(s) of the Course (if any)
	Lecture	Tutorial	Practical / Practice		
Web-Designing with DHTML (Theory)	2	0	2	10 + 2 from a recognized board in any stream	Nil

Learning Objective

This course is aimed to make students familiar with dynamic web page creation tools like cascading style sheet, JavaScript and jQuery. The student would be able to develop dynamic webpage/website using DHTML.

Learning Outcome

- Understand the basic as well as advanced features of CSS.
- Acquire the knowledge to develop dynamic webpages using JavaScript.
- Learn the fundamentals of jQuery.

Syllabus of BCA-2101 Web-Designing with DHTML

UNIT 1:

Introduction to CSS: Understanding the concepts of CSS - Advantages and disadvantages - **CSS syntax** - Grouping selectors and rulers - Using the class selectors - Using the ID selectors - Comparing ID and classes selectors - Using CSS comments

Types of Style sheets: External – Internal – Inline

CSS properties and text attributes: Color – Alignment – Decoration – Transformation – Indent - Letter spacing and word spacing - White - pace - Line-height – Direction - Unicode-bidi

CSS Padding: Using padding properties - Setting padding for all sides - Setting padding

for each side - List properties (list-style-images, list-style-position, list-style-type, list-style) - CSS positioning (relative, absolute, fixed and Z-index) - CSS properties and table attributes **Advance CSS:** Css rounded corners - Border images - Css gradient - Css shadow - Css font & Text effects - Css 2D & 3D Transform – CSS transition & Animations

UNIT 2:

JavaScript Introduction: Understanding JavaScript - About Dynamic HTML - Selecting a development environment for JavaScript - HTML and JavaScript

Advanced JavaScript: Element of JavaScript – Variables – Operators - Flow control statement – Arrays – Functions - Event handling - Browser and JavaScript - Web page and JavaScript - validating User forms

Introduction to jquery: About jquery

Using jquery: The two jquery downloads - Including jquery (Using script) - Basic jquery syntax - Connecting jquery to the load event

List of Practicals:

UNIT 1:

1. Write HTML program which contains internal cascaded style sheet for p, h2, h3, body and font attribute.
2. Write HTML program which contains inline cascaded style sheet for text attributes.
3. Write HTML program which contains external cascaded style sheet for List properties user defined Classes and Id.
4. Write HTML program which contains all the css positioning properties through internal css using class selector.
5. Write HTML program using clip property & z-index property through external css.
6. Write HTML program which contains cascaded style sheet with margin attributes of style sheet.
7. Write HTML program which contains internal style sheet with background & border attributes of style sheet.
8. Write HTML program which contains external style sheet with Css font & css text effects
9. Write HTML program which contains cascaded style sheet with Css 2D & 3D Transform.
10. Write HTML program which contains external css using CSS transition & animations.

UNIT 2:

11. Write a Javascript to print your name and surname on screen.
12. Write a JavaScript program to calculate area of circle. $(3.14 * r * r)$
13. Write a javascript to find the grade from student result using if condition.
14. Create JavaScript program to create mathematical calculator. (functionality +, *, -, /)
15. Write JavaScript to demonstrate the use of different dialogue boxes. For example: write messages good morning, good bye etc, take value from alert, confirmation for any operation.
16. Write a JavaScript program to validate a form which consist of name, Age, address, hobby (checkbox), gender (radio button), email.

17. Write a simple jquery program to print alert message hello world.
18. Test if jQuery is loaded.
19. Write a jquery program to hide the paragraph using class.
20. Write a jquery program to hide the division block using id.

To enhance programming skills

- Write a javascript to find sum of first 7 numbers in series.
- Write a JavaScript program to find factorial of a number.
- Write a javascript to find reverse of given string.
- Write the javascript program to print the reverse number from 10 to 1 using dowhile loop.
- Create JavaScript program which have list of color buttons, if user moves the mouse over to any color button that color will set to the background of document.
- Small Project: Select the topic for website designing and design five attractive web pages using all css properties also use java script for login , registration form ect.
- Scroll to the top of the page with jQuery
- Disable right click menu in html page using jquery
- Write a jquery for Limit character input in the text area including count
- Write a jquery to Display a message when the context menu event is triggered on the paragraph elements.
- Write a Write a jquery program to hide link provided inside division section in program using selecting the element by its Hierarchy.
- Write a Write a jquery program to change the color of second paragraph. (provide 3 paragraphs in program)
- Write a Write a jquery program to change the height of the image using selecting the element by its attribute.
- Create the table for “IPL match”. Add minimum five records for player name, score, age, player type. if score greater than 50 than display that records in red color font using jQuery.
- Write the jquery to demonstrate to change the text using text(), Val(), html() .
- Write the jquery to demonstrate the click() dblclick() and keypress() events.

Textbook:

1. A Complete Guide to Internet and Web Programming (Edition-2010)

Publisher: Dream Tech Press.

By Deven N. Shah Publisher: DreamTech Press

(Chapter- 3, 4 for unit 1,2)

2. Javascript 2nd Edition Step by step

Publisher: Microsoft Corporation by: O'Reilly Media, Inc

By Steve suehring (Chapter-22 for unit 3)

Reference Books:

1. Dynamic HTML & XML

Publisher: Computer world

By: vimal pandya, Manali brahmbhatt, Maulik patel

2. DHTML and CSS Advanced(First Edition-2006)

Publisher: Pearson Education.

By Jason cranford Teau

3. Java Script Indian Edition(First Edition-2008)

Publisher: CENGAGE Learning

By Gosselin

4. HTML 5, Javascript and jQuery 24-Hour Trainer

Publisher: Wiley Publication

By Dane Cameron

St. Xavier's College (Autonomous), Ahmedabad

Syllabus of Semester –II of the following departments under

**Faculty of Computer Science based on Undergraduate Curriculum
Framework to be implemented from the Academic Year 2024-25.**

DEPARTMENT OF COMPUTER SCIENCE

BCA (Hons.)

Category – IV

Skill Enhancement Course – 1: Database Management System – I (BCA-2650)

**CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE
COURSE**

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Pre-requisite(s) of the Course (if any)
	Lecture	Tutorial	Practical / Practice		
Database Management System - I	1	0	1	10 + 2 from a recognized board in any stream	Nil

Learning Objective:

1. This course introduces students to information of data, working of related data to gain, students would be able
2. To understand the concept, role and importance of Database
3. To recognize the elements of Database for real applications
4. To identify the key relationship between the Database components
5. To be aware of the real functions of Database Management Software
6. To comprehend the type of relational model to apply according to the scenery of applications
7. To normalize the Tables to remove the anomaly existing in Database
8. To deal with every tiny element of the Database.

Learning Outcome:

1. Able to create a database to store data
2. Fire queries to fetch the required data from the database.
3. Will enable them to create database for the really world applications.

Syllabus of Database Management System – I (BCA-2650)

UNIT 1: Database System, Data Models and Relational Database Model Data, Information and Database **45 Hours**

- Data Vs. Information
- Introduction of the Database and the DBMS
- Why Database Design is Important
- Role and Advantage of DBMS
- Types of Databases

Database Systems

- The Database System Environment

Data Model Basic Building Block

- The Hierarchical Model
- The Network Model
- The Relational Model
- The Object-Oriented Model
- The ER Model

The Relational Database Model

- Logical view of Data
- Tables and Their characteristics
- Keys
- Integrity Rules
- Concept of Functional Dependency
- Relational Set Operators
- The Data Dictionary and The System Catalog

Relationship within the Relational Database

- The 1 : M Relationship
- The 1 : 1 Relationship
- The M : N Relationship
- Data Redundancy Revisited

Codd's Relational Database Rules

UNIT 2: Entity Relationship Modeling and Normalization The Entity Relationship Model **45 Hours**

- Entities
- Attributes
- Relationships
- Connectivity and Cardinality
- Existence Dependence
- Relationship Strength
- Weak Entities
- Relationship Participation

- Relationship Degree
- Recursive Relationship
- Composite Entities

Developing an ER diagram Normalization of Database Tables

- The need of Normalization
- The Normalization process
 - Conversion to First normal form
 - Conversion to Second normal form
 - Conversion to Third normal form
 - Boyce-Codd Normal Form

Textbook:

Database System Concepts (First Edition: 2008) Publisher: Cengage Learning

By Peter Rob and Carlos Coronel

Chap-1(1.1, 1.2, 1.6), chap-2(2.5(2.5.1, 2.5.2, 2.5.3)),

Chap-3(3.1, 3.2, 3.3, 3.4, 3.5, 3.6), chap-4(4.1, 4.2), chap-5(5.2, 5.3)

Reference Books:

1. Introduction to Database Management Systems (First Edition 2006) Publisher: Tata McGraw-Hill
By ISRD Group
2. An Introduction to Database Systems (Eighth Edition 2006) Publisher : Pearson
By C. J. Date, A. Kannan & S. Swamynathan
3. An Introduction to Database Systems Publisher: Pearson
By : IITL Education Solutions Limited.

SEMESTER-III

St. Xavier's College (Autonomous), Ahmedabad

Syllabus of Semester – III of the following departments under
Faculty of Computer Science based on Undergraduate Curriculum
Framework to be implemented from the Academic Year 2024-25.

DEPARTMENT OF COMPUTER SCIENCE

BCA(Hons.) Category-IV

Skill Enhancement Course: BCA-3650 Computer Organization and Microprocessors

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credit Distribution of The Course			Eligibility Criteria	Pre-requisite(s) of the Course (if any)
	Lecture	Tutorial	Practical / Practice		
Data structures using C++ Practical	2	0	0	10 + 2 from a recognized board in any stream	Nil

Learning Objective:

The objective of the course is to make student aware about the basic structure of computer system, organization of main components inside the system, functions of these components, Boolean expression for digital logic, circuit design using logic gates, different integrated circuits (ICs), circuit design from truth table, data representation inside the processor following IEEE745 standard. It also gives ideas about various types of memories used in computer systems, their organizations and working patterns, architecture of 8086 microprocessors and latest microprocessors for computer systems as well as for mobile devices.

Learning Outcome:

After completing this course, student will be able to:

- Describe the internal architecture and organization of components in a computer system.
- Analyze functions of different components of computers.
- Demonstrate various types of digital circuits and their use.
- Create basic digital circuit using logic gates by applying Boolean algebraic expressions and truth tables. (On paper)
- Illustrate how computers store data internally using different arithmetic operations by following IEEE standard 754 for data representation.

- Categorize the various memory types and their working and arrangement in computer systems.
- Discuss microprocessor's working architecture and latest microprocessors for both computers and mobile.

Syllabus of BCA-3650 Computer Organization and Microprocessors

UNIT 1 Computer Organization and Digital Systems (15 Hours)

Basic Computer Organization:

- Von-Neumann Architecture
- Functional Units (CPU, Memory, Input/Output)
- CPU Operational Concept
- Interrupt Concept
- Bus Concept

Digital Systems and Circuit Design:

- Binary Information and Signals
- Binary Logic with Boolean Algebra
- Logic Gates (AND, OR, NOT, NAND, NOR, XOR)
- Analysis and Design of Digital Circuits:
 - Combinational Circuits (Half Adders, Full Adders)
 - Sequential Circuits (Flip-Flops)

Data Representation:

- Fixed Point Numbers: 1's Complement, 2's Complement
- Floating Point Numbers: Normalization, IEEE Single Precision Representation

UNIT 2 Memory, Microprocessors, and Advanced Concepts (15 Hours)

Memory Organization & Management:

- Memory Parameters
- Classification of Memory (By functionality, access method, capability)
- Main Memory Limitations
- Cache Memory: Principle, Cache Hit/Miss, Mapping Techniques (Direct, Associative, Set-Associative)

Introduction to Microprocessors:

- Overview of Microprocessor and Microcontroller
- RISC vs. CISC Architecture
- Intel 8086 Overview: Pin Diagram, Register Organization, BIU & EU, Addressing Modes

Introduction to Advanced Processors:

- Brief Overview of AMD, MIPS, and SUN's Sparc
- Introduction to Mobile Processors and their Applications

Textbook:

- 1) Computer System Architecture By: M. Morris Mano Publisher: PHI
- 2) Computer Architecture and Organization By: B. Govindrajalu Publisher: McGrawHill
- 3) Computer Organization and Advanced Microprocessors By: Tripti Dodiya & Zakiya Malek Publisher: Cengage

Reference Books:

- 1) Advanced Microprocessors and Interfacing By: - Badri Ram Publisher: Tata Mcgraw Hill