

**Shree Manibhai Virani and Smt. Navalben Virani Science College, Rajkot
(Autonomous)
Affiliated to Saurashtra University, Rajkot**

**Department of Computer Science & Information Technology
BACHELOR OF COMPUTER APPLICATION (B.C.A.)**

OBJECTIVES OF THE PROGRAMME

The Curriculum is designed to attain the following learning goals which students shall accomplish by the time of their graduation:

- Demonstrating a substantial understanding of concepts in key areas of computer science and its applications
- Specify, design, develop, test and manage application software systems to meet the operational and business requirements of organizations.
- Work in a team using common tools and environments to achieve project objectives

SCHEME OF INSTRUCTION AND EXAMINATIONS
For Students Admitted from A.Y. 2016-2017 & Onwards

Semester – I							
Course Code	Course	Hrs. of Instruction/ week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
Part - I							
16ULCEN01	Functional English-I	3	3	40	60	100	3
Part - II							
16UCACC01	Core 1: Problem Solving Methodology and Programming in C	5	3	30	70	100	5
16UCACC02	Core 2: Computer Fundamental and Basic Networking	4	3	30	70	100	4
16UCADA01	DSE-Allied 1: Mathematics and Statistics -I	4	3	30	70	100	4
16UCACC03	Core Practical 1: Programming in C Practical	4	2	20	30	50	2
16UCACC04	Core Practical 2: PC Software Practical	4	2	20	30	50	2
		24				500	20
Part - III							
	AECC – 1: Environmental Science	1	-	-	-	-	-
16UVE01	SEC – 1: Value Education -I	1	-	Remarks			1
		26					

Semester – II							
Course Code	Course	Hrs. of Instruction/ week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
Part - I							
16ULCEN02	Functional English-II	3	3	40	60	100	3
Part - II							
16UCACC05	Core 3: Advanced C and Data Structure	4	3	30	70	100	4
16UCACC06	Core 4: Computer Organization and Architecture	4	3	30	70	100	4
16UCACC07	Core 5: Web Scripting Languages	4	3	30	70	100	4
16UCADA02	DSE-Allied 2: Mathematics and Statistics -2	4	3	30	70	100	4
16UCACC08	Core Practical 3: Advanced C and Data Structure Practical	4	2	20	30	50	2
16UCACC09	Core Practical 4 Web Scripting Languages Practical	4	2	20	30	50	2
		27				600	23
Part - III							
	AECC-1 : Environmental Science	1	-	Remarks			2
16UVE02	SEC 2: Value Education -II	1	-	Remarks			1
		29					

Semester – III							
Course Code	Course	Hrs. of Instruction/ week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
Part - I							
16ULCEN03	Advanced English Language-I	3	3	40	60	100	3
Part - II							
16UCACC10	Core 6: Object Oriented Programming with JAVA	4	3	30	70	100	4
16UCACC11	Core 7: RDBMS using Oracle	4	3	30	70	100	4
16UCACC12	Core 8: Operating System Concept with Unix/Linux	4	3	30	70	100	4
16UCADA03	DSE Allied 3: Web and M-Commerce Technologies	4	3	30	70	100	4
16UCACC13	Core Practical 5: Object Oriented Programming with JAVA Practical	4	3	40	60	100	2
16UCACC14	Core Practical 6 : RDBMS using Oracle Practical & Operating System Concept with Unix/Linux Practical	4	3	40	60	100	2
		27				700	23

Semester – IV							
Course Code	Course	Hrs. of Instruction/ week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
Part - I							
16ULCEN04	Advanced English Language-II	3	3	40	60	100	3
Part - II							
16UCACC15	Core 9: Programming with C#.NET	4	3	30	70	100	4
16UCACC16	Core 10: Web Development using PHP	4	3	30	70	100	4
16UCACC17	Core 11: System Analysis & Design	4	3	30	70	100	4
16UCADA04	DSE Allied 4: User Interface and User Experience Practical	4	3	40	60	100	2
16UCACC18	Core Practical 7: Programming with C#.NET Practical	4	3	40	60	100	2
16UCACC19	Core Practical 8: Web Development using PHP Practical	4	3	40	60	100	2
		27				700	21

Semester - V							
Course Code	Course	Hrs. of Instruction/ week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
Part - II							
16UCACC20	Core 12: Network Technology and Administration	4	3	30	70	100	4
16UCACC21	Core 13: Administration of SQL Server	4	3	30	70	100	4
16UCACC22	Core 14: Web services API-JSON/XML (self study)	1	2	15	35	50	4
16UCADC01 / 16UCADC02	DSE Core 1: Advanced JAVA Programming / Programming with ASP.NET	4	3	30	70	100	4
16UCACC23	Core Practical 9: Administration of SQL Server Practical	4	3	40	60	100	2
16UCADC03 / 16UCADC04	DSE Core Practical 1: Advanced JAVA Programming Practical / Programming with ASP.NET Practical	4	3	40	60	100	2
16UCACC24	Core 15: CBT	-	-	50	-	50	1
	Generic Elective -1	2	-	100	-	100	2
	Project	4	-	-	-	-	-
		27				700	23

Semester - VI							
Course Code	Course	Hrs. of Instruction/ week	Exam Duration (Hours)	Maximum Marks			Credits
				CIE	SEE	Total	
Part II							
16UCACC25	Core 16: Mobile Computing using Android	4	3	30	70	100	4
16UCACC26	Core 17: Software Testing and Project Management	4	3	30	70	100	4
16UCADC05 / 16UCADC06	DSE Core 2: MVC Design Pattern in PHP / MVC Design Pattern in .NET	4	3	30	70	100	4
16UCACC27	Core Practical 10: Mobile Computing using Android Practical	4	3	40	60	100	2
16UCADC07 / 16UCADC08	DSE Core Practical 2: MVC Design Pattern in PHP Practical / MVC Design Pattern in .NET Practical	4	3	40	60	100	2
16UCACC28	Project	6	3	60	40	100	4
	Generic Elective -2	2	-	100	-	100	2
		28				700	22
Total Marks : 3900							

Part - III						
Course Code	Semester	Particulars	Hrs of instruction/week	No. of Courses	Credit/Course	Total Credits
<i>Ability Enhancement Compulsory Course (AECC)</i>						
As per common list	I & II	AECC-I Environment Science	1	1	2	2
	IV & V	AECC-II Communication Skill/Soft Skills	2	2	1	2
					Sub Total	4
<i>Skill Enhancement Course (SEC)</i>						
As per common list	I	SEC-I Value Education-I	1	1	1	1
	II	Value Education-II	1	1	1	1
	Any Semester between II - V	SEC-II *Co-Curricular Course	> 40 hours in total	1	1	1
	Any Semester between II - V	SEC-III **Value Added Courses	40 hours in total	1	1	1
					Sub Total	4
					Grand Total	8

***Co-Curricular Courses** - Option to students to choose 1 from a list of courses offered by the college, such as Add on Courses, Gandhian Studies Certificate Course, Women Studies Course, etc.

****Value Added Courses** - Option to student to choose at least 1 from a list of courses offered by UG departments.

• **TOTAL MARKS & CREDIT DISTRIBUTION**

S.NO	PART	Total Marks	Total Credits
1.	PART I: Language Course	400	12
2.	PART II : Core, DSE Allied, DSE Core, GE	3500	120
3.	PART III: AECC-I & II, SEC-I, II & III	Remarks	08
TOTAL		3900	140

• **PART – I : LANGUAGE COURSE**

The following are compulsory courses offered in first to fourth semesters.

S. No	Semester	Course Code	Course
1.	I	16ULCEN01	Functional English-I
2.	II	16ULCEN02	Functional English-II
3.	III	16ULCEN03	Advanced English Language-I
4.	IV	16ULCEN04	Advanced English Language-II

• **PART – II : CORE, DSE ALLIED, DSE CORE, GE**

CORE COURSES [Theory]

S. No	Semester	Course code	Course
1.	I	16UCACC01	Problem Solving Methodology and Programming in C
2.		16UCACC02	Computer Fundamental and Basic Networking
3.	II	16UCACC05	Advanced C and Data Structure
4.		16UCACC06	Computer Organization and Architecture
5.		16UCACC07	Web Scripting Languages
6.	III	16UCACC10	Object Oriented Programming with JAVA
7.		16UCACC11	RDBMS using Oracle
8.		16UCACC12	Operating System Concept with Unix/Linux
9.	IV	16UCACC15	Programming with C#.NET
10.		16UCACC16	Web Development using PHP
11.		16UCACC17	System Analysis & Design
12.	V	16UCACC20	Network Technology and Administration
13.		16UCACC21	Administration of SQL Server
14.		16UCACC22	Web services API- JSON/XML (self study)
15.		16UCACC24	Computer Based Test
16.	VI	16UCACC25	Mobile computing using Android
17.		16UCACC26	Software Testing and Project Management

CORE COURSES [Practical]

S. No	Semester	Course code	Course
1.	I	16UCACC03	Programming in C
2.		16UCACC04	PC Software
3.	II	16UCACC08	Advanced C and Data Structure
4.		16UCACC09	Web Scripting Languages
5.	III	16UCACC13	Object Oriented Programming with JAVA
6.		16UCACC14	RDBMS using Oracle and Operating System Concept with Unix/Linux
7.	IV	16UCACC18	Programming with C#.NET
8.		16UCACC19	Web Development using PHP
9.	V	16UCACC23	Administration of SQL Server
10.	VI	16UCACC27	Mobile Computing using Android

- OTHER CORE COURSES**

S. No.	Semester	Course Code	Course
1	V-VI	16UCACC28	Project

- DSE ALLIED COURSES [Theory]**

S. No.	Semester	Course code	Course
1.	I	16UCADA01	Mathematics and Statistics -1
2.	II	16UCADA02	Mathematics and Statistics -2
3.	III	16UCADA03	Web and M-Commerce Technologies

- DSE ALLIED COURSES [Practical]**

S. No.	Semester	Course code	Course
4.	IV	16UCADA04	User Interface and User Experience

- **DSE CORE COURSES [Theory & Practical]**

Students are required to opt for any one of the courses offered in 5th & 6th semesters respectively.

S. No	Semester	Theory		Practical	
		Course code	Course	Course code	Course
1.	V	16UCADC01/	Advanced JAVA Programming/	16UCADC03 /	Advanced JAVA Programming Practical/
		16UCADC02	Programming with ASP.NET	16UCADC04	Programming with ASP.NET Practical
2.	VI	16UCADC05/	MVC Design Pattern in PHP/	16UCADC07 /	MVC Design Pattern in PHP Practical/
		16UCADC06	MVC Design Pattern in .NET	16UCADC08	MVC Design Pattern in .NET Practical

- **GENERIC ELECTIVE**

S. No	Semester	Course
1.	V	Any one course from list of courses offered across UG departments
2.	VI	

• PART -III : AECC & SEC

Part - III						
Course Code	Semester	Particulars	Hrs of instruction/week	No. of Courses	Credit/Course	Total Credits
<i>Ability Enhancement Compulsory Course (AECC)</i>						
As per common list	I & II	AECC-I Environment Science	1	1	2	2
	IV & V	AECC-II Communication Skill/Soft Skills	2	2	1	2
					Sub Total	4
<i>Skill Enhancement Course (SEC)</i>						
As per common list	I	SEC-I Value Education-I	1	1	1	1
	II	Value Education-II	1	1	1	1
	Any Semester between II - V	SEC-II *Co-Curricular Course	> 40 hours in total	1	1	1
	Any Semester between II - V	SEC-III **Value Added Courses	40 hours in total	1	1	1
					Sub Total	4
					Grand Total	8

***Co-Curricular Courses** - Option to students to choose 1 from a list of courses offered by the college, such as Add on Courses, Gandhian Studies Certificate Course, Women Studies Course, etc.

****Value Added Courses** - Option to student to choose at least 1 from a list of courses offered by UG departments.

Courses offered by the department to UG students of other departments

I. Generic Elective Course

S. No.	Semester	Course Code	Course	Name of Program
1	V			For all other UG Programs
2	VI			For all other UG Programs

Bachelor of Computer Application (B.C.A.)

SEMESTER - I

16UCACC01	Core 1: Problem Solving Methodology and Programming in C	05 hrs/wk	5 Credits
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Objectives:

To enable the students to

1. Understand the basic concepts of programming.
2. Design algorithms and flow-charts to solve fundamental programming problems.
3. Understand how to implement, dry-run and debug programs.
4. Understand the memory allocation of numbers, alphabets and other characters using the concept of basic, derived and user defined data types.
5. Understand how to write and use functions and parameter passing options.
6. Understand the concept of control structures including looping and branching statement.

Unit -1 Pre-programming techniques & Introduction to C

(12 hrs)

- Importance of pre-programming techniques
- Pre programming tools:
 - Algorithm Flow charts
 - Writing algorithms and development of flowcharts with dry run for the given list of problems
- C Character sets
- Constants, Variables and Keywords in C
- Various Data Types
- Symbolic Constants
- C Preprocessor : #define, #include
- Type Casting
- Various Operators, Hierarchy of Operations

Unit -2 Control Structure

(12 hrs)

- Decision: if, if-else, Nested if-else, else-if ladder, Conditional (Ternary) operator, Switch Case
- Loops: for, while, do while, Nesting of loops
- Use of break and continue statements, goto with label

Unit – 3 Functions (12 hrs)

- Built in Function & UDF
- Introduction to some popular header files and its library functions:
<stdio.h> : printf(), scanf(), fflush(), gets(), puts()
<conio.h>: getch(), getche(), getchar(), clrscr(), gotoxy(), textcolor(),
textbackground(), cprintf()
<math.h>: abs(), exp(), sqrt(), ceil(), floor(), pow(), fmod(), fabs()
<ctype.h>: isalpha(), isdigit(), isalnum(), isspace(), isupper(), islower(), toupper(),
tolower()]
- Different type of UDF (call by value only), Functions with no arguments no return value, Functions with no arguments with return value, Functions with arguments no return value, Functions with arguments with return value
- Creation of your library, Storage classes & scope of variables

Unit – 4 Array (12 hrs)

- Concept of Single & Two dimensional arrays
- Initializations & working with array
- Passing array elements to function
- Sorting of numeric & string array
- String operations
 - <string.h> : strlen(), strcpy(), strcmp(), strcat(), strev(), strlwr(),strupr()

Unit – 5 Structure & Union (12 hrs)

- How to define a structure
- Accessing structure elements
- Memory allocation
- Array of structure, Array within structure,
- Union
- Typedef
- Structure as function argument

Text Books

1. *Balagurusamy, Programming in ANSI C*, Tata McGraw-Hill Publishing Company Limited, New Delhi.

Reference Books

1. *Yashavant Kanetkar, Let Us C*, Published by BPB Publications, New Delhi.

16UCACC02	Core 2: Computer Fundamental and Basic Networking	04 hrs/wk	04 Credits
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Objectives:

To enable the students to

1. Understand the functions of a computer.
2. Identify types and characteristics of various generations of computers.
3. Identify types and characteristics of various peripherals including storage and I/O.
4. Understand various numbering system.
5. Understand the basic concepts and principles of networking.
6. Understand types of networks and topologies.

Unit - 1 Introduction and Input Devices

(10 hrs)

- Introduction to Computer
- Characteristics of Computer
- Data Processing Cycle (Data Process Information)
- Classification of Computer by Data Processed Analog, Digital and Hybrid Computers,
- History and Generations of Computers: First to Fifth Generation Computers
- Classification of Computer by Processing Capabilities: Micro - Mini - Mainframe and Super Computers
- Types of Input Devices: Keyboard, Mouse, Trackball, Glide, Pad, Joystick, Light Pen, Touch Screen, Mic (Sound Input), Camera (Photo and Video Input), Types of Scanners: OMR, MICR, OBR, Flat bed scanner, Handheld scanner

Unit - 2 Output and Storage devices

(10 hrs)

- Types of Output Devices: CRT, LCD, LED, Plasma Displays
- Types of Printers: Impact Printers and types (Dot Matrix Printer, Daisy Wheel Printer, Chain Printer, Drum Printer), Non Impact Printers and types (Ink Jet Printer, Laser Printer)
- Types of Storage Devices: Internal storage, RAM, SRAM, DRAM, SD, DDR, ROM, PROM, EPROM, EEPROM, External Storage with Storage Mechanism
- Floppy Disk, Hard Disk, Magnetic Tape, USB, CD, DVD, Blu-Ray Disk
- Ports: USB, Serial, Parallel, PS2
- Types of Processors

Unit - 3 Numbering System

(10 hrs)

- Introduction to Binary Codes:, Bit, Byte, Nibble, KB, MB, GB, TB, HB, Carry Bit, Parity Bit, Sign Bit
- Types of Numbering System: Binary, Octal, Decimal, Hexa Decimal
- Conversion: Binary to Octal, Decimal and Hexa Decimal, Decimal to Binary, Octal and Hexa Decimal, Octal to Binary, Decimal and Hexa Decimal, Hexa Decimal to Binary, Octal and Decimal

- Binary Arithmetic: Addition, Subtraction (1's Compliment and 2's Compliment), Division, Multiplication
- Types of Codes : ASCII, BCD, EBCDIC, UniCode

Unit - 4 Introduction of Networking (10 hrs)

- Network concepts: What is network, Use of network
- Network model: peer to peer, client – server
- Network Types: LAN, MAN, WAN
- Network Services: File service, Print service, Communication Service, Data base service, Security service, Application service
- Network Topologies: Bus, Ring, Star, Mesh, Tree, Hybrid

Unit - 5 Network Models (10 hrs)

- OSI reference model with 7 layers
- TCP/IP network model with 4 layers

Text Books:

1. *Pradeep K. Sinha*, 2002, **Foundations of Computing** [Third Edition] BPB Publications, New Delhi. (UNIT 1 to 3)
2. *Glenn Berg* , 1998, **MCSE: Networking Essentials**, [Second Edition]. MCSE Training Guide: Networking Essentials, New Riders Publishing, Attn: Associate Publisher, Indianapolis IN. (UNIT 4 to 5)

Reference Books:

1. *A. Jaiswal*, 2003, **Fundamentals of Computer and Information Technology**, Dreamtech Press
2. *Andrew S. Tanenbaum*, 2002, **Computer Networks** [Fourth Edition], Pearson Publication

16UCACC03	Core Practical 1 : Programming in C	04 hrs/wk	02 Credits
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- Practical based on C Programming Language.

16UCACC04	Core Practical 2 : PC Software	04 hrs/wk	02 Credits
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- Practical of Word Processing, Spreadsheet and Presentation tools.

SEMESTER – II

16UCACC05	Core 3: Advanced C and Data Structure	04 hrs/wk	04 Credits
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Objectives:

To enable the students to

1. Understand the concept of pointers and dynamic memory allocation.
2. Design data structures including linked list, stack, queue and tree by using static or dynamic implementations.
3. Understand and implement sorting and searching techniques.
4. Understand the basic concept of file handling.
5. Demonstrate different methods for traversing trees.
6. Understand the concept of recursion and describe how it can be implemented using a stack.
7. Identify the benefits of dynamic and static data structures implementations.

Unit - 1 Pointer and UDF (10 hrs)

- Introduction
- Advantage of using pointer, Pointer arithmetic, Array & Pointer, Static & Dynamic Array, Pointer to Structure
- Call by value & call by reference function, Recursion, Array as a function argument, Structures as a function argument, Pointer as a function argument
- Memory allocation functions
 - malloc(), calloc(), realloc() and free()

Unit - 2 Data file handling (08 hrs)

- Concept of data files and file structure
- Opening and closing of data file, File modes
- File handling functions
 - fopen(), fclose(), fputc(), fgetc(), fputs(), fgets(), fprintf(), fscanf(), getw(), putw(), fseek(), ftell(), rewind(), freopen(), feof(), ferror(), fflush(), fgetpos()
- I/O operations
- Command line argument

Unit – 3 Sorting & Searching Techniques (10 hrs)

- Bubble sort, Selection sort, Insertion sort, Merge sort, Quick sort
- Searching Techniques: Linear search, Binary search

Unit - 4 Introduction to Data structure, Stack & Queue (10 hrs)

- Linear & Non-Linear Data Structure, Primitive and non-primitive Storage
- **Stack** : Definition and concept, Operation on stack, Application of stack in recursion.
- **Queue** : Definition and concept, Operation on Queue, Circular Queue

Unit - 5 Linked List & Tree

(12 hrs)

- **Linked List** : Definition and concept, Operation on linked list, Insertion at different position, Deletion from different position, Traversal Types of linked list: singly linked list, circular linked list, Doubly linked list, Sorting and Searching in linked list, Ordered singly linked list.
- **Tree** : Definition and concept, Operation on binary tree (create, traverse) (pre, post, in)

Text Books

1. *R. B. Patel*, 2004, **Expert data structure with C** [Second Edition], Khanna Book Publishing Pvt. Ltd.

Reference Books

1. *Yashavant Kanetkar*, 1997, **Understanding Pointer in C** [Second Edition], BPB Publications, New Delhi.
2. *Yashavant Kanetkar*, 2003, **Data Structure though C** [First Edition], BPB Publications, New Delhi.

16UCACC06	Core 4: Computer Organization and Architecture	04 hrs/wk	04 Credits
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Objectives:

To enable the students to

1. Understand the basic structure and operation of a digital computer.
2. Understand different digital components of integrated circuit.
3. Implementation of fixed-point and floating-point addition, subtraction, multiplication & division.
4. Understand the major components of a computer including CPU, memory, I/O and storage.
5. Understand stack implementation by register stack and memory stack and working method of DMA.

Unit - 1 Digital Logic Circuit (10 hrs)

- Logic Gates (AND, OR, NOT, NAND, NOR, Exclusive OR, Exclusive NOR gates), Universal Gate
- Boolean Algebra: Introduction to Boolean algebra, Boolean variable and Boolean function (Analog and Digital Signals), Truth table
- Postulates, Theorem related to postulates, Simplified Boolean function using postulates with logical diagram of simplified function, Simplified Boolean function using karnaugh map (K-map) method and discuss DON'T CARE condition.

Unit - 2 Sequential and Combinational Circuits (10 hrs)

- Clock pulses, Combinational circuit and sequential circuit after discussion of adders and flip flops, Flip Flops (SR, Clocked SR, D, JK, JK – Master Slave, T)

Unit - 3 Digital Component (10 hrs)

- Integrated Circuits: Decoders (2 X 4, 3 X 8), Encoders (Octal to Binary – 8 X 3), Multiplexer (4 X 1), Demultiplexer (1 X 4), Register, Block diagram of register, Parallel register and shift register, Asynchronous 4-bits Binary Counter.
- Multiplication and division of two binary numbers, floating point representation, fixed point representation. Error Detection code – (Parity Bit)

Unit - 4 Central Processing Unit (10 hrs)

- Introduction of CPU, Major component of CPU, General Register Organization (Control word, Accumulator Register)
- Stack Organization, Register stack, Memory stack
- Polish notation and reverse polish notation with example
- Arithmetic and Logic Unit: Block diagram of ALU, Working of ALU
- Interrupts: What is interruption, How it useful and work.

Unit - 5 Input-Output Organization

(10 hrs)

- Memory buses: Explain with block diagram, How it works, Data Bus, Address Bus and Control lines, Input Output Buses
- Concept of Input Output Interface, Input Output Processor (IOP)
- Introduction to Direct Memory Access: How DMA works, Explain DMA controller, How DMA transfer data in computer system.

Text Books

1. *M. Morris mano*, 2007, **Computer System Architecture** [Third Edition]. PEARSON Education India, New Delhi. (UNIT 1 to 5)

Reference Books

1. *M. Morris mano*, 2004, **Digital Logic and Computer Design** [Second Edition], PEARSON Education India, New Delhi.
2. *A. Anand Kumar*, 2003, **Fundamentals of Digital Circuits** [Third Edition], PEARSON Education India, New Delhi.
3. *Albert paul Malvino, Ph.D. Jerald A. Brown*, 1992, **Digital Computer Electronics** [Third Edition], Tata McGraw-Hill Publishing Company Limited, New Delhi.

16UCACC07	Core 5 : Web Scripting Languages	04 hrs/wk	04 Credits
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Objectives:

To enable the students to

1. Understand the principles of designing effective, dynamic and interactive web pages.
2. Become familiar with graphic design principles that relate to web design and learn how to implement these theories into practice.
3. Develop skills in analyzing the usability of a web site.
4. Learn the language of the web: HTML and CSS.
5. Understand and use JavaScript to enhance HTML documents

Unit - 1 Introduction (09 hrs)

- Introduction to Internet
- What is HTML, Block Structure of HTML
- Basic tags : Texts formatting, Line breaks, Link, Color, Image, List creation, Table

Unit - 2 Introduction of Frame & Form (09 hrs)

- Use of Frame Tags
- HTML multimedia: HTML Plug-in, HTML Audio, HTML Video
- HTML FORM: Controls of Forms
- Introduction to HTML 5.

Unit - 3 Introduction of CSS (09 hrs)

- Use of CSS, Types of CSS, Creating class and id.
- CSS Properties: Background, Text, Font, Table, Border, Margin, Padding, Align, Image property.
- Page layouts: Use of DIV and SPAN tag. Introduction to DHTML

Unit - 4 Introduction to Javascript (12 hrs)

- Use of scripting language, difference between client side script and server side script,
- Javascript syntax, variables, Operators
- Control structures: Control statements, Looping statements, Sequential statements, Use of Dialog boxes, User defined functions, Built-in objects and properties: Number, Date, Math, String, Array. Browser Objects: History, Navigator, Window, Location, Built-in functions

Unit - 5 Use of Events (09 hrs)

- Mouse events, Keyboard events, Timer events, other events
- Javascript DOM: Methods and Properties. Cookies
- Error handling: throw and try catch block

Text Books

1. *Ivan Bayross*, 2009, **Web Enabled Commercial Application Development Using HTML, JavaScript, DHTML and PHP (English)** [Fourth Edition], Published by BPB Publications, New Delhi. (UNIT 1 to 5)

Reference Books

1. *Kogent Learning Solutions*, 2015, **Web Technologies HTML, Javascript, PHP, Java, JSP, ASP.NET, XML and AJAX Black Book**, Dreamtech Press, New Delhi
2. *Danny Goodman, Michael Morrison, Paul Novitski, Tia Gustaff Rayl*, 2010, **JavaScript Bible**, [Seventh Edition] Wiley Inc. IN

16UCACC08	Core Practical 3 : Advanced C and Data Structure	04 hrs/wk	02 Credits
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- Practical of Data Structure using C Programming Language.

16UCACC09	Core Practical 5 : Web Scripting Languages	04 hrs/wk	02 Credits
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- Practical of HTML, DHTML, CSS and JAVASCRIPT