SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.25)
Syllabus with effect from the Academic Year 2022-2023

BSc (Bachelor of Computer Science)
BSc (Computer Science) (Semester-III)

Course Code	US03CCSC51	Title of the Course	**Fundamentals of Computer Programming Using C**
Total Credits of the Course	**4**	Hours per Week	**4**

Course Objectives:	To study the fundamentals of 1. To impart basic knowledge on development of algorithms and flow charts. 2. To provide basic understanding of logic development using structured programming concepts, library functions and arrays. 3. To introduce fundamental concepts related to functions and pointers.

Course Content		
Unit	Description	Weightage* (%)
1.	**Development of Algorithms, Flow Charts and Basics of C Language** − Concept of an algorithm and a flow chart, need and definition − Symbols used to draw a flow chart − Typical (primitive) examples of flow charts and algorithms − Introduction to Translators and editors and details about Turbo C editor − History and Importance of C − Basic Structure of C Programming − Problem analysis − Variables, expressions & manipulation − Data types and various operators − I/O statements, Assignment statements	25
2.	**Logic Development, Structured Programming, Arrays** − Formatted I/O statements − Control strategies, Conditions − Loop statements − Method of structured programming − Arrays	25
3.	**Strings, Library Functions and User-Defined Functions** − Common standard library functions − String handling. − Working with functions − Calling functions, passing arguments − User-defined functions	25

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4.	**Usage of Pointers**	25
	− Introduction and usage of pointers	
	− Declaration, initialization and dereferencing of pointer variables	
	− Pointers and addresses, Pointer arithmetic	
	− Pointers and function arguments	
	− Returning multiple values through pointers, Dynamic memory allocation	
	− Pointers and arrays	

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.

Evaluation Pattern

Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to understand	
1.	the process of development of algorithms and flow charts.
2.	logic development using structured programming concepts, library functions and arrays.
3.	fundamental concepts related to functions and pointers.

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Suggested References:	
Sr. No.	References
1.	Balaguruswami: Programming in ANSI C., Tata McGraw Hill Publication.
2.	Cooper H. & Mullish H: The Spirit of C, Jaico Publication House, New Delhi.
3.	Kernighan B., Ritchie D.: The C Programming Language, Prentice Hall.

On-line resources to be used if available as reference material
On-line Resources
1. https://www.tutorialspoint.com/
2. https://www.w3schools.com/
3. https://www.javatpoint.com/

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BSc (Bachelor of Computer Science)
BSc (Computer Science) (Semester-III)

Course Code	US03CCSC52	Title of the Course	**Web Application Development – I**
Total Credits of the Course	**4**	Hours per Week	**4**
Course Objectives:			

Course Objectives:	To study the fundamentals of 1. fundamental concepts related to Internet and World Wide Web 2. basic knowledge on Web page designing, Frames and Forms 3. basics of HTML5 and DHTML 4. fundamental concepts related to Cascading Style Sheet

Course Content		
Unit	**Description**	**Weightage* (%)**
1.	**Introduction to Internet and Basics of HTML** – Introduction to Internet and Basics of HTML – Services provided by the Internet (email, HTTP, FTP, Telnet, WWW) – Basic terminology and concepts (URL, Webpage, Website, Web servers, Web browsers, Search Engines) – Components of a browser window – Use of menus and toolbar buttons – Security and privacy precautions – Introduction to HTML, HTML tags, Structure of HTML document, – Text and Paragraph Formatting, ordered and unordered lists	25
2.	**Web Page Designing, Frames and Forms** – Hyperlink, image tag – HTML tables – Frames, framesets, nested framesets – Designing HTML forms – Webpage layout – Multimedia tags (audio, video), Webpage layout	25
3.	**Introduction to HTML5 and DHTML** – HTML5: HTML5 new elements – ! Doctype, meta, Input Controls (number, date, time, calendar, ranges) – HTML5 semantics elements: header, footer, article, section. – HTML5 graphics elements: SVG, Canvas – Introduction to DHTML – Uses / Applications of DHTML, Components of DHTML	25

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4.	**Cascading Style Sheet**	25
	– Introduction of Cascading Style Sheet (CSS) – Introduction Way of Specifying Style Inline Internal – Cascading Style Sheet Attributes (font, color, text, background, border, margin, list) – Implement of external style sheet – Advanced CSS (Rounded Corners, Shadows, Text effects, Animations, 2D and 3D transforms)	

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understand fundamental concepts related to Internet and World Wide Web.
2.	understand Web page designing, Frames and Forms.
3.	understand basics of HTML5 and DHTML.
4.	design web pages using HTML5 and CSS3.
5.	create HTML forms.
6.	understand fundamental concepts related to Cascading Style Sheet.

Suggested References:	
Sr. No.	References
1.	Ivan Bay ross, "Web Enabled Commercial Applications Development using HTML, DHTML, Java script, Perl CGI", BPB, 2004.

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2.	Introduction to Internet and HTML scripting 2nd edition, Bhaumik Shroff.
3.	Douglas E Comer: The Internet, PHI, Second Edition, May 2000.

On-line resources to be used if available as reference material
On-line Resources
1. https://www.tutorialspoint.com/
2. https://www.w3schools.com/
3. https://www.javatpoint.com/

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(B. Sc.) (Computer Science)
B. Sc. (CS) Semester-III

Course Code	**US03CCSC53**	Title of the Course	**Practicals based on US03CCSC51 & US03CCSC52**
Total Credits of the Course	**4**	Hours per Week	**8**
Course Objectives:	1. To apply fundamentals knowledge of C programming. 2. To apply the fundamental knowledge of HTML.		

Course Content		
Part	Description	Weightage* (%)
I.	Practical Based on US03CCSC51	50%
II.	Practical Based on US03CCSC52	50%

Teaching-Learning Methodology	Project-based learning in small groups and Hands on training through required ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	University Examination	100%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Learn how to implement programs in C language.
2.	Learn how to implement programs in HTML.

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On-line Resources
w3schools.com

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BSc (Bachelor of Computer Science)
BSc (Computer Science) (Semester-III)

Course Code	US03SICT51	Title of the Course	Information and Communication Technology - I
Total Credits of the Course	2	Hours per Week	2
Course Objectives:	To study the 1. basics of computer systems 2. input/output devices 3. storage devices 4. fundamental concepts related to computer networks		

Course Content		
Unit	Description	Weightage* (%)
1.	**Basics of Computer System** − Introduction to a Computer System and its characteristics − Basic Terminology: Hardware, Software, Firmware − Components of general purpose computer system: I/O devices, CPU, Memory − Generations of computer languages − Introduction to Operating Systems: Windows, Linux	25
2.	**Input and Output Devices** − Input Devices: Keyboards, Numeric keypads, Pointing Devices (Mouse, touch pad), Joysticks, Touch screen, Scanner, Sensor Magnetic strip reader, Microphone, Barcode reader, Webcam, Light pen − Output Devices: Monitors (CRT, TFT, LCD), Projectors, Printers (laser, desk jet, dot matrix), Speaker, Plotter	25
3.	**Storage Devices** − Importance and need of backup − Storage Devices: Hard Disk, CD, DVD, Pen Drive, Memory Cards − Comparative advantages and disadvantages of using different backing storage media. − Difference between main(internal) memory and backing storage.	25

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| 4. | **Computer Networks**
− Introduction to analog and digital data
− Need for conversion between analog and digital data
− Modem and its purpose
− Advantages and disadvantages of Computer Network
− Different types of network (LAN, MAN, WAN)
− Network Topology: (Bus, Star, Ring, Mesh, Hybrid) | 25 |

| Teaching-Learning Methodology | Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools. |

Evaluation Pattern

Sr. No.	Details of the Evaluation	Weightage
1.	University Examination	100%

Course Outcomes: Having completed this course, the learner will be able to understand
1.	basics of computer systems
2.	input/output devices.
3.	storage devices.
4.	fundamental concepts related to computer networks.

Suggested References:

Sr. No.	References
1.	Tanenbaum A.S. : Structured Computer Organization, Prentice-Hall of India Pvt. Ltd.
2.	Rajaraman V. : Computer Fundamentals, Prentice-Hall of India Pvt. Ltd.
3	Tanenbaum A. S., Computer Networks, Prentice-Hall of India Pvt. Ltd., New Delhi, 1997.

| On-line resources to be used if available as reference material |

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