



B.Sc. (CS) Semester-III

Course Code	US03MACSC01	Title of the Course	Fundamentals of Computer Programming Using C
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	<ol style="list-style-type: none">1. To study fundamental concepts of the C programming language.2. To understand logic development and structured programming concepts using C.3. To learn the basics of library functions and user-defined functions.4. To study fundamental concepts related to arrays, strings, and pointers.
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Course Content		
Unit	Description	Weightage* (%)
1.	Basics of C Language <ul style="list-style-type: none">– Introduction to translators and editors– History and Importance of C– Basic structure of a C program– Problem analysis– Various data types and operators– Constants, variables, expressions and manipulation– I/O statements, Assignment statements	25%
2.	Logic Development, Structured Programming, Arrays <ul style="list-style-type: none">– Formatted I/O statements– Control constructs, conditions– Loop statements– Introduction to structured programming– Arrays	25%
3.	Strings, Library Functions and User-Defined Functions <ul style="list-style-type: none">– Standard library functions– User-defined functions– Working with functions– String handling– Calling functions, passing arguments	25%





4.	Usage of Pointers <ul style="list-style-type: none">– 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	25%
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Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to understand	
1.	the fundamental concepts of the C programming language.
2.	logic development and structured programming concepts using C.
3.	the basics of library functions and user-defined functions.
4.	the fundamental concepts related to arrays, strings, and pointers.





Suggested References:

Sr. No.	References
1.	Balaguruswami, Programming in ANSI C., Tata McGraw Hill Publication, 2008.
2.	Cooper H. & MULLISH H., The Spirit of C, Jaico Publication House, New Delhi, 2006.
3.	Kernighan B., Ritchie D., The C Programming Language, Prentice Hall, 1988.

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

On-line Resources

1. <https://www.tutorialspoint.com/>
2. <http://www.w3schools.com/>
3. <https://www.javatpoint.com/>





B.Sc. (CS) Semester-III

Course Code	US03MACSC02	Title of the Course	Web Application Development – I
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	To understand 1. the fundamental concepts related to Internet and World Wide Web. 2. the basics of Web page designing, Frames and Forms. 3. the fundamentals of HTML5 and DHTML. 4. the basic concepts related to Cascading Style Sheets.
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Course Content		
Unit	Description	Weightage* (%)
1.	Introduction to Internet and Basics of HTML <ul style="list-style-type: none">– 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 <ul style="list-style-type: none">– 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 <ul style="list-style-type: none">– HTML5: HTML5 new elements– ! Doctype, meta, Input Controls (number, date, time, calendar, ranges)– HTML5 semantics elements: header, footer, article, section.	25%





	<ul style="list-style-type: none"> – HTML5 graphics elements: SVG, Canvas – Introduction to DHTML – Uses / Applications of DHTML, Components of DHTML 	
4.	Cascading Style Sheet <ul style="list-style-type: none"> – Introduction to Cascading Style Sheet (CSS) – Introduction to the way of specifying Style Inline Internal – Cascading Style Sheet Attributes (font, color, text, background, border, margin, list) – Implementation of external style sheets – Advanced CSS (Rounded Corners, Shadows, Text effects, Animations, 2D and 3D transforms) 	25%

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understand the 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 the fundamental concepts related to Cascading Style Sheets.





SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11))
Syllabus with effect from the Academic Year 2024-2025

Suggested References:

Sr. No.	References
1.	Ivan Bay ross, Web Enabled Commercial Applications Development using HTML, DHTML, Java script, Perl CGI, BPB, 2004.
2.	Bhaumik Shroff, Introduction to Internet and HTML scripting, 2nd edition, Ahmedabad Books India, 2008.
3.	Douglas E Comer, The Internet, Second Edition, PHI, May 2000.

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

On-line Resources

4. <https://www.tutorialspoint.com/>

5. <http://www.w3schools.com/>

6. <https://www.javatpoint.com/>





B.Sc. (CS) Semester-III

Course Code	US03MACSC03	Title of the Course	Practical Based on US03MACSC01 and US03MACSC02
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.
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Course Content		
Part	Description	Weightage* (%)
I.	Practical Based on US03MACSC01	50%
II.	Practical Based on US03MACSC02	50%

Teaching-Learning Methodology	Practical-based learning in small groups and hands-on training through required ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understand how to implement programs in C language.
2.	understand how to implement programs in HTML.
On-line resources to be used if available as reference material	
On-line Resources	
w3schools.com	





B.Sc. (CS) Semester-III

Course Code	US03IDCSC01	Title of the Course	Basics of Computer Programming Using C
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	1. To study fundamental concepts of the C programming language. 2. To understand logic development for solving problems. 3. To learn the basics of control constructs, loops, functions and arrays.
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Course Content		
Unit	Description	Weightage* (%)
1.	Basics of C Language <ul style="list-style-type: none">– Introduction to translators and editors– History and Importance of C– Basic structure of a C program– Problem analysis and logic development– Basic data types and operators– Constants, variables, expressions and assignment statements– I/O statements, Formatted I/O statements	25%
2.	Logic Development, Arrays and Functions <ul style="list-style-type: none">– Control constructs,– Loop statements– Arrays– Functions :User-defined functions and library functions	25%

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination	50%
2.	University Examination	50%





Course Outcomes: Having completed this course, the learner will be able to understand

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| 1. | the fundamental concepts of the C programming language. |
| 2. | logic development for solving problems.. |
| 3. | the fundamental concepts related to control constructs, arrays and functions. |

Suggested References:

Sr. No.	References
1.	Balaguruswami, Programming in ANSI C., Tata McGraw Hill Publication, 2008.
2.	Cooper H. & Mullish H., The Spirit of C, Jaico Publication House, New Delhi, 2006.
3.	Kernighan B., Ritchie D., The C Programming Language, Prentice Hall, 1988.

On-line Resources

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| 1. https://www.tutorialspoint.com/ |
| 2. http://www.w3schools.com/ |
| 3. https://www.javatpoint.com/ |





B.Sc. (CS) Semester-III

Course Code	US03IDCSC03	Title of the Course	Practical Based on US03IDCSC01
Total Credits of the Course	2	Hours per Week	4

Course Objectives:	<ol style="list-style-type: none"> 1. To apply fundamentals knowledge of C programming. 2. To learn implementation of various control constructs, arrays and functions in C.
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Description	Weightage* (%)
Practical Based on US03IDCSC01 (Basics of Computer Programming Using C)	100%

Teaching-Learning Methodology	Practical-based learning in small groups and hands-on training through required ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Examination	50%
2.	University Examination	50%

Course Outcomes: Having completed this course, the learner will be able to	
1.	understand how to implement programs in C language.
2.	understand how to implement various control constructs, arrays and functions in C.

On-line Resources
w3schools.com





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

Course Code	US03SECSC01	Title of the Course	Information Technology Fundamentals – III (ITF-III)
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	1. To understand the fundamental concepts of operating systems. 2. To learn the basic concepts of CPU scheduling and memory management.
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Course Content		
Unit	Description	Weightage* (%)
1.	Operating Systems – I <ul style="list-style-type: none">– Introduction to operating systems, Services provided by operating systems.– Evolution of operating systems: Batch operating systems, multiprogramming, real-time, time sharing, distributed and network operating systems.– Process Management: Introduction to process, process state diagram, process control block, process scheduling, FCFS Scheduling, SJF scheduling, Priority scheduling, Round-Robin scheduling	25
2.	Operating Systems – II <ul style="list-style-type: none">– Memory Management: Concept, functions– swapping- Contiguous Memory Allocation : single process monitor, partitioning techniques: static and dynamic– Non-contiguous Memory Allocation<ul style="list-style-type: none">a. Pagingb. Virtual Memory: Demand Paging– Page Replacement Algorithms: FIFO, OPT, LRU	25

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Evaluation	
2.	University Examination	100%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Gain basic knowledge on Operating Systems.
2.	understand the concepts of CPU scheduling and memory management.

Suggested References:	
Sr. No.	References
1.	Andrew S. Tanenbaum, Operating System - Design & Implementation, Prentice Hall International, 2005.
2.	James Peterson and Abraham Silberschatz, Operating System Concept, Addison Wesley, 2009.

On-line resources to be used if available as reference material	
Sr. No.	References
1.	https://www.tutorialspoint.com/
2.	https://www.w3schools.com/
3.	https://www.javatpoint.com/

