Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

A' Grade NAAC
Re-Accredited
(3rd Cycle)
Choice Based Credit System (CBCS)
Syllabus For
F.Y.B.Sc

Computer Science
(With effect from June 2022)

Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon

Proposed Syllabus for F.Y.B.Sc. (Computer Science)

(w.e.f. June-2022)

YEAR I: CORE SUBJECTS (DSC)

Semester	Course as per UGC	Course code	Course Title	Lectures	Credits	Workload (hr)
I	CS-DSC 1 A:	CS 101	Essential of Computer Science	30	02	02
	(Credits: Theory-04, Practicals-02)	CS 102	Programming in C-I	30	02	02
	CS LAB	CS 103	Practical	60	02	04
II	CS-DSC 2A: (Credits: Theory-04,	CS 201	Internet Computing	30	02	02
	Practicals-02) CS LAB	CS 202	Programming in C-II	30	02	02
		CS 203	Practical	60	02	04

Semester I

Computer Science-DSC 1 A:

(Credits: Theory-04, Practicals-02)

Theory: 30 Hours

CS 101: Essential of Computer Science

CS 101: Essential of Computer Science

Unit-1. Introduction to Computer Components

[H: 8]

1.1 Definition of computer

1.2 Block Diagram of Computer, Types of computer, Neumann machine

1.3 Input Devices and Output Devices

1.4 Memory: RAM, ROM, EPROM, PROM, SSD

1.5 Definition: Data, Information, Algorithm, Flowchart, Program, Hardware, and Software:

System Software, Application, Software, Firmware, Interpreter, compiler

1.6 Programming Languages: High level, Middle Level, Low Level

Unit-2 Basics of Algorithms and Flowcharts

[H: 8]

2.1 What is Algorithm? , Steps for creation of Algorithm.

2.2 Properties of Algorithm and Examples

2.3 What is Flowchart?, Symbols for drawing Flowcharts, Examples

2.4 Advantages of algorithm and flowcharts.

Unit -3. Concepts of network

[H:7]

3.1 What is Computer Network?

3.2 Types of Networks (with Features and Application): LAN, WAN, MAN Wired Network, Wireless Network,

3.3: Introduction and application of Internet

3.4 Network Topology

3.5 Study of Web Browsers and Search Engines

Unit -4. Operating System

[H: 7]

4.1 What is booting, POST, Bootstrap, Boot Drive.

4.2 Definition of operating system, functions of operating system

4.3 Introduction of operating systems: DOS, Windows, Linux, Android

4.4 Applications of Operating System,

4.5 Comparison Of various Operating Systems

References:

1. V. Rajaraman, “Fundamentals of Computers”, PHI publication, ISBN: 8120340116, 9788120340114
2. Fundamentals of Data Structures in C by Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed.
3. Fundamentals of Computer Algorithms by Ellis Horowitz, Sartaj Sahni, Sanguthever
4. Abraham Silberschatz, Peter B. Galvin, Greg Gagne,” Operating System concepts”, ISBN:1119017475, 9781119017479
5. Andrew S. Tanenbaum, David J. Wetheral, “Computer Network”, ISBN 0133072622, 9780133072624

Computer Science-DSC 1 A:
(Credits: Theory-04, Practicals-02) Theory: 30 Hours

CS 102: Programming in C-I

UNIT-1. Fundamentals of C (5 Hrs., 15 M)

1.1 Introduction to C- History, character set, structured programming paradigm
1.2 Applications areas and Features
1.3 Structure of C-program
1.4 Program development steps- Introduction to editor, Compilation, Execution and Debugging of C-program

UNIT-2. Element of 'C' Program (7 Hrs., 20 M)

2.1 Variables and Identifiers, Declaration of variables, keywords
2.2 Data types and Qualifiers
2.3 Constants and types of constants, Comments
2.4 Input Output Statements (Standard and formatted)
2.5 Introduction and features of 'C' preprocessor
2.6 Directives and Macros: #define, File inclusion (#include), Conditional Compilation Directives

UNIT -3. Operators and Expression (7 Hrs., 20 M)

3.1 Types of Operators –Arithmetic, Relational, Logical, Assignment, Compound assignment operator (short hand assignment), Bitwise, Increment-Decrement, Conditional Operator, Special Operator – Comma, sizeof operator
3.2 Operator Precedence and Associativity
3.3 Type Conversion – implicit and explicit
3.4 Library Functions: abs (), sqrt( ), pow( ), ceil( ), floor( )

UNIT -4. Conditional Statements and looping (6 Hrs., 20 M)

4.1 If Statement, if-else Statement, nested if-else Statement, else-if ladder,
Switch Statement
4.2. Break, continue and goto statements
4.3 Looping Concepts -While, do-while, for loop Nested loops Concept

UNIT-5. Arrays (5 Hrs., 15 M)

5.1 Definition: Array: declaration and Initialization
5.2 Types of array (One Dimensional and Multidimensional)
5.3 Advantages and disadvantages of array
5.4 Applications of array

References:-

1. Denis Ritchie. "C" Programming – Prentice Hall Software Series- ***ISBN***. 10 9 8 7
2. Yashwant P. Kanetkar - ANSI C ,BPB publication. ***ISBN***: 9788183333245
3. Byron Gottfried – Programming with C –Tata McGRAW-Hill ***ISBN***-10: 0070145903
4. Yashwant P. Kanetkar -Understanding pointers in "C" -BPB publication. ***ISBN***-13: 978-8176563581
5. E.Balguruswami -Programming in ANSI- C- Tata McGRAW-Hill- ***ISBN***-10: 933921966X
6. Mike McGrath - C programming in easy step – Wiley publication I***SBN***-10: 1840785446

CS LAB: DSC 1A LAB: Lab Course on Essential of Computer and Programming in C-I
Credit -2

CS 103: LAB (Students should perform at least ten experiments from the following list)

Part –A Lab Course on Essentials of Computer

1. Introduction to Computer, Input devices, Output devices, Booting – POST.
2. Installation of Software and operating system
3. Introduction to Web Browsers
4. Creation of an e-mail account, sending and receiving emails with attachment
5. Searching information text, videos
6. How LAN work in laboratory, Sharing of Computer and printer in Network.

Part – B Lab Course on Programming in C-I

1. Program using standard input output Statements (getchar(),putchar(),gets(),puts())

and formatted input output statements.

2. Program to illustrate various operators like arithmetic, relational, logical, Conditional etc.

3. Program to illustrate various control statement (if, if-else, nesting if-else, Switch) at least one

program on each control statement.)

4. Program using various loops (for, while, do-while, nested loops)

(eg no. is palindrome, prime ,factorial, fibbonacci, Armstrong etc.)

5. To write sample program using goto, continue, break, and return statement.

6. Program using 1-D and 2-D arrays.

Semester -II

Computer Science-DSC 1 B: (Credits: Theory-04, Practicals-02)

CS 201: Internet Computing

Theory: 30 Hours

Unit-1 Introduction to Website: **[H: 05]**

1.1. Web page and its types
1.2.Website and Types of Website
1.3 What is Navigation?
1.4 Web Process Model- Modified Waterfall Model, JADModel

Unit-2 Introduction to HTML Programming: **[H: 09]**

2.1 Introduction and features of HTML
2.2 Structure of HTML Document
2.3 Text Formatting Tags and Character Entity References
2.4 List Tags
2.5 Anchor Tag
2.6 Image Tag
2.7 Map Tag
2.8 Table Tags
2.9 Media Elements: Audio tag, Video tag

Unit 3:- Forms and Frames in Html **[H: 06]**

3.1. Frame in HTML
3.2. Form Tag with Form elements and Form methods
3.3. Script Tag

Unit-4 Introduction to CSS **[H: 5]**

4.1. What is CSS
4.2. Types of Style sheet (Internal, External, and Inline)
4.3. Syntax of CSS with Example
4.4. Selectors (Class, ID, Group, Element)

Unit 5: CSS Properties **[H:05]**

5.1 CSS Background
5.2 CSS colors
5.3 CSS Font
5.4 CSS Text
5.5 CSS Links
5.6 Opacity Property

References:

1. Thomas A. Powell, "The Complete reference –Web Design", Second Edition, TMH, ISBN:0-07-041186.
2. Internet in easy steps By Dremtech press.
3. James L. Mohler, "How to become web master in 14 days" TechMedia, ISBN:81-
4. E.Stephen Mack &Janan Platt, "HTML 4.0" BPB publication, ISBN:9780782121438
5. Thomas A. Powell, "The Complete reference HTML & CSS ", Fifth Edition, TMH,

Computer Science-DSC 1 B:
(Credits: Theory-04, Practicals-02)
CS 202: Programming in C-II **Theory: 30 Hours**

Unit-1 Function (7 Hrs., 20 M)
1.1 Definition and Need of Function
1.2 Declaration and Prototypes
1.3Function calling (Call by value, call by reference)
1.4 Function with return and Function with argument
1.5 Recursion
1.6 String Function: strcpy(), strlen(), strcmp(), strcat(), strrev()

Unit-2 Pointers (7 Hrs., 20 M)
2.1 Introduction
2.2 Address and arguments
2.3 Declaration, accessing value through a pointer
2.4 Operations on Pointers: Pointers and Arrays, Array of Pointer, Pointer to Function, Pointer to pointer
2.5 Dynamic memory allocation and releasing dynamically allocated memory.

Unit-3 Structure and union (5 Hrs., 20 M)
3.1 Introduction, Declaration and accessing of structure and union
3.2 Need of structure and union
3.3 Nested structure
3.4 Self Referential Structure
3.5 Array of structure, typedef

Unit-4 Graphics (5 Hrs., 15 M)
4.1 Introduction to Graphics in C
4.2 Graphics functions: Initgraph(), putpixel(),closegraph(),outtextxy(), setcolor(),line(),circle(),rectangle(),ellipse(),arc(), bar()

Unit-5 File handling in C (6 Hrs., 15 M)
5.1 Concept of files, records, field
5.2 Various mode of file opening and closing files.
5.3 File Processing putc(), getc(), getw(), putw() etc. -fopen() , fclose(),fprintf(),fscanf()
5.4 Command line arguments

References:-

1. Denis Ritchie. "C" Programming – Prentice Hall Software Series- ***ISBN***. 10 9 8 7
2. Yashwant P. Kanetkar – ANSI C, BPB publication. ***ISBN***: 9788183333245
3. Byron Gottfried – Programming with C –Tata McGRAW-Hill ***ISBN***-10: 0070145903
4. Yashwant P. Kanetkar -Understanding pointers in "C" -BPB publication. ***ISBN***-13: 978-8176563581
5. E.Balguruswami -Programming in ANSI- C- Tata McGRAW-Hill- ***ISBN***-10: 933921966X
6. Mike McGrath - C programming in easy step – Wiley publication I***SBN***-10: 1840785446

CS LAB: DSC 1A LAB: Lab Course on Essential of Computer and C Programming

Credit -2

CS 203: LAB (Students should perform at least ten experiments from the following list)

Part-A Lab Course on Internet Computing

1. Demonstration of the Basic Tags of HTML
2. Demonstrate the List Tags
3. Design Web Page showing information of your college using various text-
4. Formatting tags.
5. Design Web Page to create image gallery using image and link tags.
6. Demonstrate the use of Audio tag.
7. Demonstrate the use of Video tag.
8. Demonstrate the use of Table tag.

Part-B Lab Course on C-Programming-II

1. Program to illustrate concept of function (call by value, call by reference, recursive)
2. Write program using Function with return and Function with argument
3. Program using user defined function to find length of string
4. Write the program using std. string functions(like strlen(). strcat(),strcmp(), strrev(), strcpy()etc.)
5. Program using pointers (arrays, functions, structures)
6. Program using structures (at least two practical)
7, Program using graphics function (at least two practical using all graphics functions)