B. Sc. Part – I (Computer science Entire) CBCS Syllabus with effect from June, 2018

Semester: I   Computer science -Paper- I

CC-CS-1303 A

Introduction to computers and programming using C-I

Theory: 60 Hours (75 Lectures) credits -4

Section – I

Specific Objectives:
1) To learn fundamental concepts of computers, inputs, outputs and operating systems.
2) To learn the principles of office automation.
3) To develop a programming logic.
4) To teach basic principles of programming.
5) To develop skills for writing programs using 'C'.

Unit -1: Introduction to Computer and Basic Organization   (07)
Definition of computer, characteristics, limitations, concepts of h/w and s/w, applications of computers in various fields, computer languages –high level, low level, assembly level, compiler, interpreter. Block diagram - Input Unit, Memory Unit, Output unit, Central processing unit

Unit – 2: Input, Output Devices and Concept of Memory   (10)
 Input devices: - Keyboard, Mouse, Light pen, Joystick, Touch screen, Digitizer, Scanner, MICR, OMR, Barcode reader. Output devices: - VDU, Printers – Dot-matrix, Inkjet, Laser, Line, Plotters Memory – Semiconductor and Magnetic memory. Secondary Storage devices: - Magnetic disk, Magnetic tape, Optical disk -CD ROM

Unit – 3: Operating System concepts   (10)
Definition and Functions of Operating System. Types of OS –Single user, Multi-user. Process Management-Multiprogramming, Multitasking, Multiprocessing, Time sharing. Disk Operating System (DOS), Booting Processes, DOS internal and external commands, concept of directory and file. Windows Operating system: Features of Windows O.S., GUI Modules of Windows – Windows Explorer, Control panel, Printer Manager. Windows accessories – Paintbrush, Notepad

Unit – 4: Office automation and Database basic concepts   (10)
 Study of Word Processors and Spreadsheet: Definition of Word Processor, Detail study of features of MS- WORD Definition of Spreadsheet, Detail study of features of MS-Excel Definition of Field, Record, Database. Data Base Management System Concept, (Primary and Foreign key) MS-Access Data types, Creating tables, Handling database-using queries.

Section-II

Unit –1: Programming Concepts (05)

Algorithm: Definition, Pseudo code conventions, Examples, Characteristics of an algorithm, Time complexity, Iterative, Recursion (e.g. Fibonacci Sequence & Array Recursive Sum)), Characteristics of algorithm, Notation of Algorithm, Flowcharts- Definition, Symbol, features.

Unit-2: Introduction to 'C' (11)

History of 'C', Structure of 'C' programming , Running and debugging the program, Character set and keywords, Constant and its type, Variable and its Data types in 'C', Operators-Arithmetic, logical, relational, bitwise, increment, decrement ,conditional, operator precedence

Unit- 3 Input-Output Statements (06)

Character input-output - getch(), getche(),getchar(),putchar(),String input-output - gets(), puts()
Formatted input-output - printf(), scanf()

Unit-4 Control Structures (10)

Conditional control statements- if, if else, nested if, switch, Looping – for statements, nested for, while, do-while statements, Unconditional breaking control statements- break, continue, goto

Unit-5 Arrays and strings (06)

Array definition and declaration, Single and multidimensional array, String functions (strcpy(), strcmp(), strcat(), strlen(), strrev())

Computer science -Lab- I

CC-CS -1303 A

Introduction to computers and programming using C-I

60 Hours (75 Lectures) credits 3.2

1) Demonstration of peripherals
2) Linking of various peripherals
3) Operation of all keys of keyboard
4) DOS – external and internal commands, batch files commands
5) Windows Operating System –Windows explorer, program manger, control panel, print manager, Creating folders, files, icons, shortcuts
6) MS – WORD – Creating new documents, typing, deleting, selecting text, undo, Redo, formatting text – auto format, formatting characters, drop caps, Paragraphs, line spacing, margins, page setup, headers and footers Writer's tools – spelling checker, auto format, auto correct, find and replace Mail merge – Data source, Main document, creating mail merge document.
7) MS – EXCEL - Creating worksheet, Graphs, resizing graphs, formulas, if statement, types of functions
8) MS ACCESS - Creating data bases, writing queries
9) Write a Program to print biodata.
10) Write a program to perform all arithmetic operations on any two numbers.
11) Write a program to check whether given number is even or odd.
12) Write a program to fine largest among three numbers.
13) Write a program to display Fibonacci series.
14) Write a program to find Factorial of Given Number.
15) Write a program to reverse the given number.
16) Write a program to find prime number.
17) Write a program to demonstrate switch statement.

18) Write a program to calculate sum and average of given n numbers using array
19) Write a program to calculate Matrix Addition, Multiplication

- **Shikshanmaharshi Dr. Bapuji Salunkhe**

Shri Swami Vivekanand Shikshan Sanstha's

VIVEKANAND COLLEGE (AUTONOMOUS), KOLHAPUR

B. Sc. Part – I (Computer science Entire) CBCS Syllabus with effect from June, 2018

Semester II   Computer science -Paper- II

CC-CS -1303 B

Introduction to computers and programming using C-II

Theory: 60 Hours (75 Lectures) credits -4

Section –I

Introduction to computers

Unit – 1: Computer Network Basic Concepts   (10)

Basic elements of a communication system – sender, receiver and medium Data Transmission modes – Simplex, Half Duplex, Full Duplex Data Transmission Media – wire pairs, Co-axial cable, Microwave System, Communication Satellite, Optical fiber Definition of networking, Types of networking – LAN, MAN, WAN Network Topologies - BUS, Ring, Star, Mesh and Hybrid

Unit – 2: IT Management   (10)

Definition of Information Technology IT Assets and its managements- Data –Access rules, confidentiality of data, Backup procedure. IT Act in brief , Define different terms as mentioned in IT Act – Access , Address , Data , Digital signature , Electronic form , Electronic Gazette , License , Electronic record , License , Private key, Public key etc.

Unit- 3: Introduction to RDBMS   (10)

Data, Database, Database Management System, Concept of Data Models (Network, Hierarchical ,Relational), Concept of RDBMS, RDBMS Terminologies : relation, attribute, domain, tuple, entities, DBA & Responsibilities of DBA, Relational Model: Structure of Relational Databases, Relational Algebra

Unit 4: Structured Query Language (SQL)   (07)

Oracle Data types, Classification of SQL commands. 3. Create Table Command 4. Insert Command, Select Command using Where Clause, Delete Command and Update Command 5. Data Constraints : Primary Key and Foreign key.

Section-II

Unit-1: Pointers   (10)

Definition and declaration, Operations on pointer, Pointer initialization, Pointer And Array, Pointer of pointer, Dynamic memory allocation

Unit-2: Functions   (10)

Definition, declaration, prototype of function, Local and global variable, User defined functions Storage classes, Recursion, Pointer and function, Call by value and Call by reference, Preprocessor

Unit-3: Structures and Union   (10)

Definition and declaration, Array of structures, Passing structure to function, Pointer to structure Nested structure, self referential structure, Sizeof and typedef, Definition of Union and declaration, Difference between structure and Union

Unit-4: File Handling (10)

Concept of File ,Text and binary files, Opening and closing files, File opening mode- read, write, append, character and integer handling (getc(), putc() , getw() , putw()), Formatted input-scanf(), sscanf(), fscanf(), fread(), Formatted output- printf(), sprintf(), fprintf(), fwrite() Functions- fseek(), ftell(), fflush(), fclose(), fopen(), rewind()

Reference Books:

1. Computer Today --Basandara
2. Fundamental of computers --V. Rajaraman.
3. Computer Fundamentals --P.K. Sinha.
4. MS-Office Reference Book
5. Introduction to Computer and Data Processing- Pawar, Lad, Shinde, Patil (Dreamtech)
6. ANCI 'C' – E. Balgurusamy
7. Let us C- Y. C. Kanetkar
8. 'C' programming- Dennis Ritchie
9.   Programming in C- Gottfried
10. Programming in 'C'- Venugopal
11. Introduction to Programming Using C- A. J Pawar, R. A. Lad, S. S. Shinde, D. R. Patil (Wiley-Dreamtech)

<p align="center">Computer science -Lab- II
CC-CS -1303 B
Introduction to computers and programming using C-II
60 Hours (75 Lectures) credits 3.2</p>

1) SQL: Create student table with appropriate field and do following things.
1. Insert 10 appropriate records.
2. Update record
3. Delete records.
4. Alter table
5. Drop table.
2) Create emp table and dept table with appropriate field and apply following integrity
   Constraint on appropriate fields.
   1. Primary key.
   2. Foreign key.
3) Use any tables and do simple select operations.
4) Write a program to demonstrate pointers.
5) Write a program to swap two numbers using call by value and call by reference.
6) Write a program to find given string is Palindrome or not using function.
7) Write a program that accepts the Roll No, Name, Marks obtained in three tests of 'N' students and display the total and Average in tabular format.
8) Write a program to separate even and odd numbers available in input file.
9) Write a program to count the no. of words in a given text file.

Nature of Question Paper for all (Theory) papers U.G. Courses under Faculty of Science.

Nature of Question Paper ----- Total 80 Marks

Section-I

Q.No.1 Multiple Choice based objective type question 08 Marks

(Four options for each question be given)

Q.No. 2 Attempt any two of the following –long Answers (out of three) 16 Marks

Q.No. 3 Attempt any four of the following -Short Answers - (out of six) 16 Marks

Section-II

Q.No.4 Multiple Choice based objective type question 08 Marks

(Four options for each question be given)

Q.No.5 Attempt any two of the following –long Answers (out of three) 16 Marks

Q.No. 6 Attempt any four of the following -Short Answers - (out of six) 16 Marks