BACHELOR OF COMPUTER SCIENCE (BCS) COURSE (SUBJECT : COMPUTER SCIENCE)

w.e.f Academic year 2013- 2014onwards

Semester-I

Paper No.	Name of the Paper	Total Marks	Theory Per Week	Practical Per Week Per Batch (20 Students)
1.1	Introduction to Computer and Data Processing- I	Theory : 50 Total :50	03	
1.2	Introduction to Programming Using C - I	Theory : 50 Total :50	03	
			06	04 Hours

Semester-II

Paper No.	Name of the Paper	Total Marks	Theory Per Week	Practical Per Week Per Batch (20 Students)
2.1	Introduction to Computer and Data Processing- II	Theory : 50 Total :50	03	
2.2	Introduction to Programming Using C - II	Theory : 50 Total :50	03	
			06	04 Hours

Practical Annual

1.3/2.3	Laboratory Course in	100	4 Hours
	Computer Science – I &II		

<u>Syllabus</u> Semester- I

Paper Number : 1.1

Paper Title : Introduction to Computer and Data Processing - I

Specific Objectives:

i) To learn fundamental concepts of computers, inputs, outputs and operating systems.

ii) To learn the principles of office automation.

Unit -1 Introduction to Computer and Basic Organization (10) Definition of computer, characteristics, limitations, concepts of h/w and s/w, Evolutions, generations, classification based on size and Purpose, 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 Computer Codes and Number System (10)

Bit, Byte, BCD, EBCDIC, ASCII, Gray Code, Excess 3- code Number System – Binary, Octal, Decimal, Hexadecimal, Conversion of one Number System to another system.

Binary Arithmetic – addition, subtraction, 1's and 2's Complement. Unit - 3 Input, Output Devices and Concept of Memory (10) Input devices: - Keyboard, Mouse, Light pen, Joystick, Touch screen, Digitizer, Scanner, MICR, OMR, Barcode reader.

Out put 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 - 4 Operating System concepts (10)

Definition and Functions of O.S. Types of O.S. –Single user, Multiuser. 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. Reference Books :

- 1) Computer Today --Basandara
- 2) Fundamental of computers --V. Rajaraman.
- 3) Computer Fundamentals -- P.K. Sinha.
- 4) Web Publishing- Monica D'Souza & Jude D'Souza (BPB)
- 5) MS-Office Reference Book
- 6) Introduction to Computer and Data Processing- Pawar, Lad,
- Shinde, Patil (Dreamtech)

Paper Number : 1.2

Paper Title : Introduction to Programming using 'C' - I

Specific Objectives:-

- i) To develop a programming logic.
- ii) To teach basic principles of programming.
- iii) To develop skills for writing programs using 'C'.
- Unit -1 Programming Concepts and Introduction to 'C' (12)
- Algorithm, Characteristics, Notation of Algorithm
- Flowcharts- Definition, Symbol, features
- Running and debugging the program.
- History of 'C'
- Character set and keywords
- Structure of 'C' programming
- Constant and its type
- Variable and its Data types in 'C'.
- Operators- Arithmetic, logical, relational, bitwise, increment, decrement, conditional, operator precedence

Unit- 2 Input-Output Statements (8)

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

Unit-3 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-4 Arrays (10)
- Array definition and declaration
- Single and multidimensional array
- String functions(strcpy(), strcmp(), strcat(), strlen(), strrev()) Reference Books:
- 1) ANCI 'C' E. Balgurusamy
- 2) Let us C-Y. C. Kanetkar
- 3) 'C' programming- Dennis Ritchie
- 4) Programming in C- Gottfried
- 5) Programming in 'C'- Venugopal

6) C Programming – Dr. Vishal M. Lichade , Dreamtech
7) Introduction to Programming Using C- A. J Pawar, R. A. Lad, S. S. Shinde, D. R. Patil(Wiley-Dreamtech)

Paper Number : 1.3

Paper Title : Laboratory Course in Computer Science - I

Lab course on paper 1.1 -

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

Lab course on paper 1.2 -

- 1) Write a Program to convert the Temperature in centigrade degree to the Fahrenheit degree.
- 2) Check whether given number is even or odd.
- 3) Write a program to find out First Fifty Prime numbers.
- 4) Write a program to find GCD & LCM of given number.
- 5) Write a program to convert given Binary number into its Octal/Decimal ,Hexadecimal Equivalent.
- 6) Write a program to display Fibonacci series.
- 7) Write a program to find Factorial of Given Number.
- 8) Write a program to reverse the given number.
- 9) Write a program to calculate sum and average of given n numbers using array
- 10) Write a program to calculate Matrix Addition, Multiplication

<u>Semester- II</u>

Paper Number : 2.1

Paper Title : Introduction to Computer and Data Processing - II

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 Internet & HTML (10)

Concept of Internet, Uses and benefits

HTML: Introduction, Features and limitations

Essential Tags: <HTML>, <HEAD>, <TITLE>, <BODY>,

Creating simple web pages using HTML, Adding comments,
, <P> tags

Heading tags: <H1> to <H6>, Formatting tags: , <I>, <U>, <P>, Font tag

Adding lists: Ordered, unordered and definition lists: , , ,

Creating hyperlink using <A>, Marquee tag, inserting images Creating tables

Unit – 3 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.

UNIT – 4 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.

Reference Books :

1) Computer Today --Basandara

2) Computer Fundamentals --P.K. Sinha.

3) Web Publishing- Monica D'Souza & Jude D'Souza (BPB)

4) Introduction to Computer and Data Processing- Pawar, Lad,

Shinde, Patil (Dreamtech)

5) Information Technology for Management : henry C. Lucas Jr. Tata McHill

6) Information Technology Planning – Lori A.Goetsch - Jaiko Books

Paper Number : 2.2

Paper Title : Introduction to Programming using 'C' - II

Specific Objectives:-

i) To develop a programming logic.

ii) To teach basic principles of programming.

iii) To develop skills for writing programs using 'C'.

Unit-1 Pointers (10)

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

Unit-6 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-7 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-8 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) ANCI 'C' E. Balgurusamy
- 2) Let us C-Y. C. Kanetkar
- 3) 'C' programming- Dennis Ritchie
- 4) Programming in C- Gottfried
- 5) Programming in 'C'- Venugopal
- 6) C Programming Dr. Vishal M. Lichade , Dreamtech
- 7) Introduction to Programming Using C-A. J Pawar, R. A. Lad, S. S.

Shinde, D. R. Patil(Wiley-Dreamtech)

Paper Number : 2.3

Paper Title : Laboratory Course in Computer Science - II

Lab course on paper 2.1 -

1) 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.

2) MS – EXCEL - Creating worksheet, Graphs, resizing graphs, formulas, if statement, types of functions

3) MS ACCESS - Creating data bases , writing queries

4) Internet – creating e-mail accounts, browsing, searching information

5) Creating simple Web pages using HTML.

Lab course on paper 2.2 -

1) Write a program to find given string is Palindrome or not using function.

2) Write a program that accepts the Roll No, Name, Marks obtained in three tests of 'N' students & display the total and Average in tabular format.

3) Write a program to add two Matrices; Use two Dimensional array as Pointer & Dynamic Memory allocation.

4) Write a program to input 10 names each of the length at least 8 characters sort them in a alphabetical order.

5) Write a program to separate even and odd numbers available in input file.

6) Write a program to count the no. of words in a given text file.

Equivalence in Accordance with titles and contents of Papers (For revised Syllabus):

Sr. No.	Title of Old Paper	Title of New Paper
1	Paper – I: Introduction to Computer and Data Processing	Sem- I: Paper No. 1.1 Introduction to Computer and Data Processing -I Sem - II: Paper No. 2.1 Introduction to Computer and Data Processing - II
2	Paper – II: Introduction to Programming Using C	Sem- I: Paper No. 1.2 Introduction to Programming Using C -I Sem - II: Paper No. 2.2 Introduction to Programming Using C - II
3	Laboratory Course in Computer Science -	Paper No. 1.3 Laboratory Course in Computer Science – I Paper No. 2.3 Laboratory Course in Computer Science - II

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

Nature of Question Paper	 l otal	50 Marks	

Q.No.1 Multiple Choice based objective type question	10 Marks
(four options for each question be given)	
Q.No. 2 Attempt any two of the following –long Answers (out of Three)	20 Marks
Q.No. 3 Attempt any four of the following -Short Answers - (out of six)	20 Marks

Date : / / 2013

Shri. Devanand A. Patil

Chairman