

Enclosure – BCAIV

| Core 2 | | |
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| For the students admitted from A.Y. 2023-2024 & onwards | | |
| Offering Department: Computer Application | Offered to: Bachelor of Computer Application | |
| Semester - I | | |
| Course Code | Course Title | Course Credit and Hours |
| 23UGSA101 | Problem Solving Methodology and Programming in C (F) | 4 Credits - 4 hrs/wk |

Course Description:

This course contains basic understanding of problem solving using C Language. It provides basic idea of tokens, details of control structures and array which are essential to solve problems. This course also explains use of different types of library (header files) for inbuilt function as well as user defines functions. Course also includes use of structures and union and its differences.

Course Purpose:

This course aims to provide basic understanding of problem solving and detailed understanding of a programming language. C is high level language having features of low level language so it is suitable to understand all another high level languages and student can also develop interest in programming language for future career.

Course Outcomes: Upon completion of this course, the learners will be able to

| CO No. | CO Statement | Bloom's Taxonomy Level (K₁ to K₆) |
|-----------------|---|--|
| CO ₁ | Understand the basic concepts of programming. | K1 |
| CO ₂ | Understanding concepts how to design algorithms and flow-charts to solve fundamental programming problems. | K2 |
| CO ₃ | Understand the memory allocation of numbers, alphabets and other characters using the concept of basic, derived and user defined data types | K2 |
| CO ₄ | Understand the concept of control structures including looping and branching statement. | K2,K3 |
| CO ₅ | Define and use functions with parameter passing options. | K2,K3 |

| Course Content | Hours |
|--|---------------|
| Unit-I: Pre-programming techniques& Introduction to C | 12 hrs |
| <ul style="list-style-type: none"> • Importance of pre-programming techniques • Pre programming tools: <ul style="list-style-type: none"> ○ Writing Algorithm ○ Representation of Algorithm as Flow charts • Programming structure of C language • C Character sets • Constants, • Variables and Keywords in C • Various Data Types • Various Operators • C Pre-processor : #define, #include | |
| Unit-II: Control Structure | 12 hrs |
| <ul style="list-style-type: none"> • Decision Making Statements: if (Simple if, if...else, Nested if, else...if ladder), Switch Case • Conditional (Ternary) operator • Loops: for, while, do while, Nesting of loops • Jumping statements: goto with lable, break, continue • Recursion | |
| Unit-III: Functions (UDF & In-built) | 12 hrs |
| <ul style="list-style-type: none"> • Built in Function (library functions): <ul style="list-style-type: none"> <stdio.h> : printf(), scanf(), fflush(), gets(), puts() <conio.h>: getch(), getche(), getchar(), clrscr(), gotoxy(), textcolor(), textbackground(), cprintf() <math.h>: abs(), exp(), sqrt(), ceil(), floor(), pow(), fmod(), fabs() <ctype.h>: isalpha(), isdigit(), isalnum(), isspace(), isupper(), islower(), toupper(), tolower() • User Defined Functions (UDF) Without argument, with argument and with return value functions. • Scope of variables | |
| Unit-IV: Array | 12 hrs |
| <ul style="list-style-type: none"> • Concept of Single & Two dimensional arrays • Initializations & working with array • Array as a function argument (Passing array elements to function) • <string.h> : strlen(), strcpy(), strcmp(), strcat(),strev(), strlwr(),strupr() | |
| Unit-V: Structure, Union | 12 hrs |

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| <ul style="list-style-type: none"> • Concept to define Union • Concept to define a structure • Accessing structure members • Memory allocation of structure and union • Array of structure, • Array within structure, • Structure as function argument | |
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Text books:

- Balagurusamy, *Programming in ANSI C*, Tata McGraw-Hill Publishing Company Limited, New Delhi.
- Yashavant Kanetkar, *Let Us C*, Published by BPB Publications, New Delhi.

Reference books:

- Kanetkar, Y. (1997), *Understanding Pointer in C*. BPB Publications, New Delhi. 2nd edition
- Herbert, S. (2017), *C: The Complete reference*. Mac Graw Hill, 4th edition.

Pedagogic tools:

- Chalk and Board
- Power point presentation
- Seminar
- Videos
- Demonstrations using Application

Methods of Assessment & Tools:

Components of CIA: 30 marks

| Sr. No. | Component | Content | Duration (if any) | Marks | Sub Total |
|--------------------|----------------|---|------------------------|-----------------|-----------|
| A | Test 1 | 1 st & 2 nd units | 1 ^{1/2} hours | 5 (Set for 30) | 20 |
| | Test 2 | 3 rd , 4 th & 5 th units | 2 hours | 15 (Set for 45) | |
| B | Assignment-1 | - | - | 5 (20 marks) | 10 |
| | Class activity | - | - | 5 (20 marks) | |
| Grand Total | | | | | 30 |
| Assignment | | <ul style="list-style-type: none"> • Abstract and executive summary • Case study writing • Concept mapping | | | |

| | |
|-----------------------|--|
| | <ul style="list-style-type: none">• Student generated handbook• Presentations |
| Class activity | <ul style="list-style-type: none">• Quizzes• Poster Presentation• Group Discussion |

Note: Any other assessment tools or methods can be adopted as per requirement of the course.

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| Core 1 | | |
| For the students admitted from A.Y. 2023-2024 & onwards | | |
| Offering Department: Computer Application | Offered to: Bachelor of Computer Application | |
| Semester – I | | |
| Course Code | Course Title | Course Credit and Hours |
| 23UGSA102 | Fundamentals of Computer (F) | 4 Credits - 4 hrs/wk |

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| <p>Course Description: Course comprised of all basic terminologies and started with history explains basics like hardware software, input output devices and memory devices. It contains operating system concepts with different number system by which computer works. Course includes Networking fundamentals and Basics of internet in which website basics and with its types like dynamic, statics is included. Also HTML Basics and Elements are added in this course for the purpose of improve the design skills.</p> <p>Course Purpose: This course includes basics of computer which is essential for students to go ahead. Students should be aware how operating system works and its relations with hardware. All input output and memory devices if understood then it can be effectively used by them. To develop web application and to design web application student should start with networking and application of internet and go towards HTML.</p> |
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| Course Outcomes: Upon completion of this course, the learners will be able to | | |
|--|---|---|
| CO No. | CO Statement | Bloom's Taxonomy Level (K ₁ to K ₆) |
| CO ₁ | Understand Basics of Computer | K1,K2 |
| CO ₂ | Input - Output and Storage devices | K2 |
| CO ₃ | Introduction of Networking & Website Basics | K2 |
| CO ₄ | Basics of HTML | K2,K3 |
| CO ₅ | HTML Form & Elements | K2,K3 |

Course Content

Unit-I: Basics of Computer

- Introduction to Computer
- Characteristics of Computer
- Operating System and its type.
- Classification of Computer by Data Processed Analog, Digital and Hybrid Computers,
- History and Generations of Computers: First to Fifth Generation Computers
- Classification of Computer by Processing Capabilities: Micro - Mini - Mainframe and Super Computers
- Types of Processors
- Types of Codes : ASCII, BCD, EBCDIC, UniCode

Unit-II: Input - Output and Storage devices

- Types of Input Devices: Keyboard, Mouse, Trackball, Glide, Pad, Joystick, Light Pen, Touch Screen, Mic (Sound Input), Camera (Photo and Video Input), Types of Scanners: OMR, MICR, OBR, Flat bed scanner, Handheld scanner
- Types of Output Devices: CRT, LCD, LED, Plasma Displays
- Types of Printers: Impact Printers and types (Dot Matrix Printer, Daisy Wheel Printer, Chain Printer, Drum Printer), Non Impact Printers and types (Ink Jet Printer, Laser Printer)
- Types of Storage Devices: Internal storage, RAM, SRAM, DRAM, SD, DDR, ROM, PROM, EPROM, EEPROM, External Storage with Storage Mechanism
- Floppy Disk, Hard Disk, Magnetic Tape, USB, CD, DVD, Blu-Ray Disk
- Ports: USB, Serial, Parallel, PS2

Unit-III: Introduction of Networking

- Network concepts: What is network, Use of network
- Network model: peer to peer, client – server
- Network Types: LAN, MAN, WAN
- Network Topologies: Bus, Ring, Star, Mesh, Tree, Hybrid
- World Wide Web (WWW)
- Website Basics
 - WebPages; Hyper Text Transfer Protocol, File Transfer Protocol, Domain Names
 - URL
 - Website[Static, Dynamic, Responsive etc.]
 - Web browser, Web Servers, WebHosting.

Unit-IV: Basics of HTML

- Introduction of HTML
- HTML Structure & Tags
- HTML Elements
 - Body
 - Heading
 - Table
 - Image
 - Hyperlink

- Marquee

Unit-V: HTML Form & Elements

- HTML Forms
 - ✓ Form Attributes(name, action, method)
 - ✓ <Input> tag (text, password, radio, checkbox, submit, button, reset, date, email)
 - ✓ <textarea> tag with attributes
 - ✓ <Select> tag with attributes
 - ✓ Restricted Attributes in Input elements(Maxlength, requires, min, max, readonly, disabled)
- HTML5 elements
 - ✓ <Mark>,
 - ✓ <Progress>,
 - ✓ <Fieldset> & <Legend>,
 - ✓ <OptGroup>,
- Multimedia Elements
 - ✓ Video,
 - ✓ Audio

Text books:

- Sinha, P. K. (2002), *Foundations of Computing*. BPB Publications. New Delhi.; 3 edition
- Berg, G (1998), *MCSE: Networking Essentials. MCSE Training Guide: Networking Essentials*. New Riders Publishing, Attn: Associate Publisher, Indianapolis IN.; 2 edition

Reference books:

- Jaiswal, A., (2003), *Fundamentals of Computer and Information Technology*. Dreamtech Press
- Tanenbaum, A. S., (2002), *Computer Networks (Fourth Edition)*. Pearson Publication

Pedagogic tools:

- Chalk and Board
- Power point presentation
- Seminar
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Methods of Assessment & Tools:

Components of CIA: 30 marks

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| | | | | | |
|-----------------------|----------------|--|---|--------------|-----------|
| | | 5 th units | | | |
| B | Assignment-1 | - | - | 5 (20 marks) | 10 |
| | Class activity | - | - | 5 (20 marks) | |
| Grand Total | | | | | 30 |
| Assignment | | <ul style="list-style-type: none"> • Abstract and executive summary • Case study writing • Concept mapping • Student generated handbook • Presentations | | | |
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