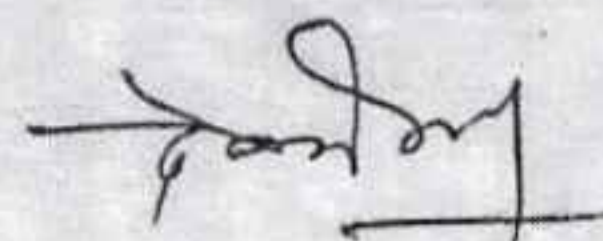


BCA

Major Subject

| PART A: Introduction | | | |
|---|---|--|------------------------|
| Program: Certificate | | Class: B.C.A. | Year: I Year |
| | | Session: 2021-22 | |
| 1. | Course Code | SI-BCAA1T | |
| 2. | Course Title | Computer Fundamentals, Organization and Architecture | |
| 3. | Course Type (Core Course/Elective/Generic Elective/ Vocational) | Major – Paper I | |
| 4. | Pre-Requisite (if any) | To study this course, a student must have basic knowledge of Computers. | |
| 5. | Course Learning Outcomes (CLO) | <p>After the completion of this course, a successful student will be able to :</p> <ul style="list-style-type: none"> • Understand the basic structure, operation and characteristics of digital computer. • Design simple combinational digital circuits based on given parameters. • Understand the working of arithmetic and logic unit. • Know about hierarchical memory system including cache memories and virtual memory. • Know the contributions of Indians in the field of computer architecture and related technologies. | |
| 6. | Credit Value | Theory – 4 Credits Practical - 2 Credits | |
| 7. | Total Marks | Max. Marks : 25+75 | Min. Passing Marks: 33 |
| PART B: Content of the Course | | | |
| No. of Lectures (in hours per week): 2 Hrs. per week | | | |
| Total No. of Lectures: 60 Hrs. | | | |
| Module | Topics | | No. of Lectures |
| I | <p>Fundamentals of computers: Definition, Characteristics, capabilities and limitations.</p> <p>Types of Computers: Analog, Digital, Micro, Mini, Mainframe & Super Computers, Work Station, Server computers. Generations of Computers.</p> <p>Smart Systems: definition, characteristics and applications.</p> <p>Definition of Embedded system, GIS, GPS, Cloud Computing.</p> <p>Uses of computers in e-governance and various public domains and services.</p> | | 8 |
| II | <p>Block diagram of computer and its functional units. Concept of hardware, software and firmware. Types of software.</p> <p>Input devices - keyboard, scanner, mouse, light pen, bar code reader, OMR, OCR, MICR, track ball, joystick, touch screen camera, mic etc.</p> <p>Output devices: monitors – classification of monitors based on technology -CRT & flat panel, LCD, LED monitors, speakers, printers – dot matrix printer, ink jet printer, laser printer, 3D Printers, Wi-Fi enabled printers, plotters and their types, LCD/LED projectors.</p> | | 10 |



| | | |
|---|---|----|
| | Computer memory and its types, Storage devices: Magnetic tapes, Floppy Disks, Hard Disks, Compact Disc – CD-ROM, CD-RW, VCD, DVD, DVD-RW, usb drives, Blue Ray Disc, SD/MMC Memory cards. | |
| III | <p>Fundamentals of Digital Electronics: Data Types, Complements, Fixed-Point Representation, Floating-Point Representation, Binary and other Codes, Error Detection Codes.</p> <p>Logic Gates, Boolean Algebra, Map Simplification, Combinational Circuits, Sequential Circuits, simple combinational circuit design problems.</p> <p>Combinational Circuits- Adder- Subtractor, Multiplexer, Demultiplexer, Decoders, Encoders</p> <p>Sequential Circuits - Flip - Flops, Registers, Counters.</p> | 10 |
| IV | <p>Basic Computer Organization: Instruction codes, Computer Registers, Computer Instructions, Timing & Control, Instruction Cycles, Memory Reference Instruction, Input - Output & Interrupts</p> <p>Instruction formats, Addressing modes, Instruction codes, Machine language, Assembly language.</p> <p>Register Transfer and Micro operations: Register Transfer Language, Register Transfer, Bus & Memory Transfer, Arithmetic Micro-operations, Logic Micro-operations, Shift Micro-operations.</p> | 10 |
| V | <p>Processor and Control Unit: Hardwired vs. Micro programmed Control Unit, General Register Organization, Stack Organization, Instruction Format, Data Transfer & Manipulation, Program Control, Introductory concept of RISC, CISC, advantages and disadvantages of both.</p> <p>Pipelining – concept of pipelining, introduction to Pipelined data path and control – Handling Data hazards & Control hazards.</p> | 10 |
| VI | <p>Memory and I/O Systems - Peripheral Devices, I/O Interface, Data Transfer Schemes - Program Control, Interrupt, DMA Transfer. I/O Processor.</p> <p>Memory Hierarchy, Processor vs. Memory Speed, High-Speed Memories, Main memory & its types, Auxiliary memory, Cache Memory, Associative Memory, Interleaving, concept of Virtual Memory, Hardware support for Memory Management.</p> | 10 |
| VII | <p>Indian contribution to the field – Contributions of reputed scientists of Indian origin - like - Dr. Vinod Dham – Father of Intel Pentium Processor, Dr. Ajay Bhat – Co-Inventor of USB Technology, Dr. Vinod Khosla- co-founder of Sun Microsystems, Dr. Vijay P Bhatkar - architect of India's national initiative in supercomputing, and many others.</p> <p>Parallel Computing projects of India – PARAM, ANUPAM, FLOSOLVER, CHIPPS etc. Other relevant contributors and contributions.</p> | 2 |
| PART C: Learning Resources | | |
| Textbooks, Reference Books, Other Resources | | |
| Suggested Readings | | |
| Textbooks: | | |

1. M.Morris Mano, "Computer System Architecture", PHI.
2. Heuring Jordan, "Computer System Design & Architecture" (A.W.L.)
3. मध्य प्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित विषय से संबंधित पुस्तकें।

Reference Books:

4. William Stalling, "Computer Organization & Architecture", Pearson Education Asia.
5. V. Carl Hamacher, "Computer Organization", TMH
6. Tannenbaum, "Structured Computer Organization", PHI.
7. Er. Rajiv Chopra, "Computer Architecture", Revised 3rd Edition, S. Chand & Company Pvt. Ltd

Suggestive digital platform web links

<https://www.youtube.com/watch?v=4TzMyXmzL8M>

<https://nptel.ac.in/courses/106/106/106106166/>

<https://nptel.ac.in/courses/106/106/106106134/>

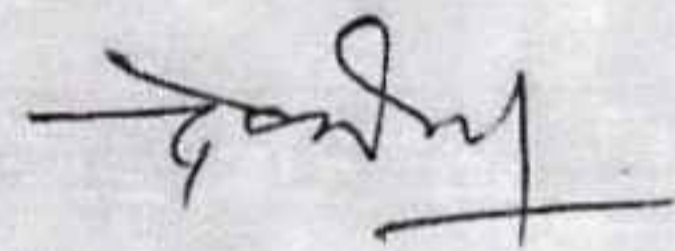
Suggested equivalent online courses

<https://nptel.ac.in/courses/106/105/106105163/>

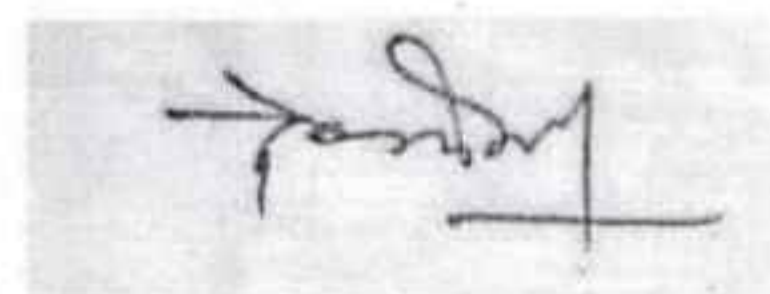
PART D: Assessment and Evaluation

| | | | |
|---|-----------------|--|--------------------------|
| Internal Assessment : Continuous Comprehensive Evaluation (CCE) : 25 Marks Shall be based on allotted assignments and Class Tests. The marks shall be as follows: | | External Assessment: University Exam (UE) : 75 Marks Time : 02.00 Hours | |
| Assessment and presentation of assignment | 4 Marks | Section (A): Three Very Short Questions (50 Words Each) | 03 x 03 = 09 Marks |
| Class Test I (Objective Questions) | 5 Marks | OR Nine MCQ Questions | OR 09 x 01 = 09 Marks |
| Class Test II (Descriptive Questions) | 8 Marks | Section (B) : Four Short Questions (200 Words Each) | 04 x 09 = 36 Marks |
| Class Test III (Based on solving circuit design problems) | 8 Marks | Section (C): Two Long Questions (500 Words Each) | 02 x 15 = 30 Marks |
| Total | 25 Marks | Total | 75 Marks |

Any remarks/suggestions:



| PART A: Introduction | | | |
|--|---|--|-------------------------------|
| Program: Certificate | Class: B.C.A | Year: I Year | Session: 2021-22 |
| 1. | Course Code | S1-BCAA1P | |
| 2. | Course Title | Computer Fundamentals and Digital Lab | |
| 3. | Course Type (Core Course/Elective/Generic Elective/ Vocational) | Major – Paper I | |
| 4. | Pre-Requisite (if any) | Open for All | |
| 5. | Course Learning Outcomes(CLO) | <p>After the completion of this course, a successful student will be able to do the following:</p> <ul style="list-style-type: none"> • Familiarity with parts of the computer and peripheral devices used with the computer. • Realization of the basic logic and universal gates. • Verify the behavior of logic gates using truth tables. • Implement Binary-to -Gray, Gray-to -Binary code conversions. • Design half and full adder circuit using basic gates. • Design and construct flip flops and verify the excitation tables. | |
| 6. | Credit Value | Practical - 2 Credits | |
| 7. | Total Marks | Max.Marks: 25+75 | Min. Passing Marks: 33 |
| PART B: Content of the Course | | | |
| No. of Lab. Practicals (in hours per week): 1 Hrs. per week | | | |
| Total No. of Labs: 30 Hrs. | | | |
| | Suggestive list of Practicals | | No. of Labs. |
| | <p>I. Computer Fundamentals</p> <p>a) Identify various parts of the computer by physical examination. b) Identify various parts inside the CPU like motherboard, SMPS, ports, buses, IC chips, Processor, HDD, RAM etc. c) Identify various I/O devices available in the lab physically.</p> <p>II. Digital Electronics</p> <p>a) Verification and interpretation of truth table for AND, OR, NOT gates b) Verification and interpretation of truth table for NAND, NOR gates c) Verification and interpretation of truth table for Ex-OR, Ex-NOR gates d) Study of half adder using XOR and NAND gates and verification of its operation e) Study of full adder using XOR and NAND gates and verification of its operation</p> | | 30 Hrs. |



| | | |
|--|---|--|
| | f) Study of half subtractor and verification of its operation g) Study of full subtractor and verification of its operation h) Realization of logic functions with the help of NAND -Universal Gates i) Realization of logic functions with the help of NOR -Universal Gates j) Verify the truth table of RSflip-flops using NAND and NOR gates k) Verify the truth table of JKflip-flops using NAND and NOR gates l) Verify the truth table of T and D flip-flops using NAND and NOR gates m) Implementation of 4x1 multiplexer using logic gates n) Implementation of 1x4 demultiplexer using logic gates o) Verify Gray to Binary conversion using NAND gates only p) Verify Gray to Binary conversion using NAND gates only | |
|--|---|--|

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- M.Morris Mano, "Computer System Architecture", PHI.
- Heuring Jordan , "Computer System Design & Architecture" (A.W.L.)
- मध्यप्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित विषय से संबंधित पुस्तकें ।

Reference Books:

- William Stalling, "Computer Organization & Architecture", Pearson Education Asia.
- V. Carl Hamacher , "Computer Organization", TMH
- Tannenbaum, "Structured Computer Organization", PHI.

Suggestive digital platform web links

<https://de-iitr.vlabs.ac.in/>

Suggested equivalent online courses

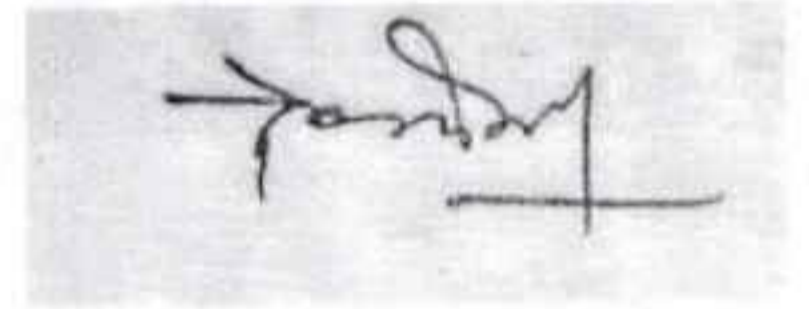
<https://nptel.ac.in/courses/106/105/106105163/>

PART D: Assessment and Evaluation

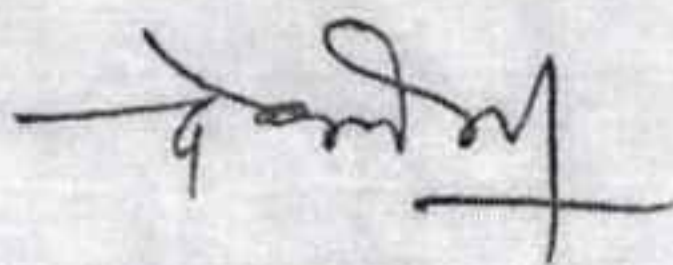
| | | | |
|---|--------------|--|--------------|
| Internal Assessment : Continuous Comprehensive Evaluation (CCE) : 25 Marks | | External Assessment: University Exam (UE): 75 Marks | |
| | | Time : 02.00 Hours | |
| Internal Assessment | Marks | External Assessment | Marks |
| Hands-on Lab Practice | 5 Marks | Practical record file | 10 Marks |
| Viva | 5 Marks | Viva voce practical | 15 Marks |
| Lab Test from practical list | 7 Marks | Table works/ Exercise Assigned (02) in practical exam | 40 Marks |



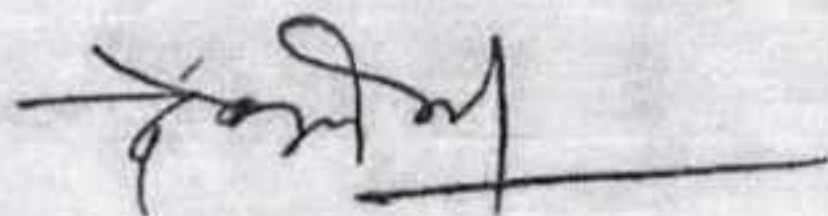
| | | | |
|--|-----------------|---|-----------------|
| Assignments (Charts/ Model)/ Technology Dissemination/ Excursion/ Lab visit/ Industrial Training | 8 Marks | Reports of excursion/ Lab visits/ Industrial training/ Survey/ Collection/ Models | 10 Marks |
| Total <i>Excursion/ Lab visits/ Industrial Training is compulsory</i> | 25 Marks | Total | 75 Marks |



| PART A: Introduction | | | |
|--|--|---|------------------------|
| Program: Certificate | | Class: B.C.A. | Year: I Year |
| | | Session: 2021-22 | |
| 1. | Course Code | S1 - BCAA2T | |
| 2. | Course Title | Programming Methodology & Data Structures | |
| 3. | Course Type (Core Course/Elective/Generic Elective/ Vocational) | Major – Paper II | |
| 4. | Pre-Requisite (if any) | To study this course, a student must have basic knowledge of Computers. | |
| 5. | Course Learning Outcomes(CLO) | <p>After the completion of this course, a successful student will be able to do the following:</p> <ul style="list-style-type: none"> • Develop simple algorithms and flow charts to solve a problem with programming using top down design principles. • Writing efficient and well-structured computer algorithms/programs. • Learn to formulate iterative solutions and array processing algorithms for problems. • Use recursive techniques, pointers and searching methods in programming. • Will be familiar with fundamental data structures, their implementation; become accustomed to the description of algorithms in both functional and procedural styles. • Have knowledge of complexity of basic operations like insert, delete, search on these data structures. • Possess ability to choose a data structure to suitably model any data used in computer applications. • Assess efficiency tradeoffs among different data structure implementations. • Implement and know the applications of algorithms for searching and sorting. • Know the contributions of Indians in the field of programming and data structures. | |
| 6. | Credit Value | Theory – 4 Credits Practical – 2 Credits | |
| 7. | Total Marks | Max. Marks : 25+75 | Min. Passing Marks: 33 |
| PART B: Content of the Course | | | |
| No. of Lectures (in hours per week): 2 Hrs. per week | | | |
| Total No. of Lectures: 60 Hrs. | | | |
| Module | Topics | | No. of Lectures |
| I | Introduction to Programming - Program Concept, Characteristics of Programming, Stages in Program Development, Algorithms, Notations, Design, Flowcharts, Types of Programming Methodologies. | | 8 |



| | | |
|-----|--|----|
| | <p>Basics of C++: A Brief History of C++, Application of C++, Compiling & Linking, Tokens, Keywords, Identifiers & Constants, Basic Data Types, User-Defined Data Types, Symbolic Constant, Type Compatibility, Reference Variables, Operator in C++, Scope Resolution Operator, Member Dereferencing Operators, Memory Management Operators, Manipulators, Type Cast Operator.</p> <p>Functions In C++: The Main Function, Function Prototyping, Call by Reference Call by Address, Call by Value, Return by Reference, Inline Function, Default Arguments, Constant Arguments, Function Overloading, Function with Array.</p> | |
| II | <p>Classes & Objects: A Sample C++ Program with class, Defining Member Functions, Making an Outside Function Inline, Nesting of Member Functions, Private Member Functions, Arrays within a Class, Memory Allocation for Objects, Static Data Members, Static Member Functions, Array of Objects, Object as Function Arguments, Friend Functions, Virtual functions, Returning Objects, Constant member functions, Pointer to Members, Local Classes.</p> <p>Constructor & Destructor: Constructor, Parameterized Constructor, Multiple Constructors in a Class, Constructors with Default Arguments, Dynamic Initialization of Objects, Copy Constructor, Dynamic Constructor and Destructor.</p> | 10 |
| III | <p>Inheritance: Defining Derived Classes, Single Inheritance, Making a Private Member Inheritable, Multilevel Inheritance, Hierarchical Inheritance, Multiple Inheritance, Hybrid Inheritance, Virtual Base Classes, Abstract Classes, Constructor in Derived Classes, Nesting of Classes. Operator Overloading & Type Conversion, Polymorphism, Pointers, Pointers with Arrays C++, Streams, C++ Stream Classes, Unformatted I/O Operation, Formatted I/O Operation, Managing Output with Manipulators, Exception Handling.</p> | 8 |
| IV | <p>Data Structure: Basic concepts, Linear and Non-Linear data structures</p> <p>Algorithm Specification: Introduction, Recursive algorithms, Data Abstraction, Performance analysis.</p> <p>Arrays: Representation of single, two-dimensional arrays, triangular arrays, sparse matrices-array and linked representations.</p> <p>Stacks: Operations, Array and Linked Implementations, Applications-Infix to Postfix Conversion, Infix to Prefix Conversion, Postfix Expression Evaluation, Recursion Implementation.</p> <p>Queues: Definition, Operations, Array and Linked Implementations. Circular Queue-Insertion and Deletion Operations, Dequeue (Double Ended Queue), Priority Queue- Implementation.</p> | 12 |
| V | <p>Linked Lists: Singly Linked Lists, Operations, Concatenating, circularly linked lists-Operations for Circularly linked lists, Doubly Linked Lists- Operations, Doubly Circular Linked List, Header Linked List</p> <p>Trees: Representation of Trees, Binary tree, Properties of Binary Trees, Binary Tree Representations- Array and Linked Representations,</p> | 10 |



| | | |
|-----|--|----|
| | Binary Tree Traversals, Threaded Binary Trees. Heap: Definition, Insertion, Deletion. | |
| VI | Graphs: Graph ADT, Graph Representations, Graph Traversals, Searching. Hashing: Introduction, Hash tables, Hash functions, Overflow Handling. Sorting: Bubble Sort, Selection Sort, Insertion Sort, Quick Sort, Merge Sort, Comparison of Sorting Methods, Search Trees: Binary Search Trees, AVL Trees- Definition and Examples. | 10 |
| VII | Indian Contribution to the field: Innovations in India, origin of Julia Programming Language, Indian Engineers who designed new programming languages, open source languages, Dr. Sartaj Sahni – computer scientist - pioneer of data structures, Other relevant contributors and contributions. | 2 |

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

Suggested Readings

Textbooks:

- J. R. Hanly and E. B. Koffman, "Problem Solving and Program Design in C", Pearson, 2015
- E. Balguruswamy, "C++ ", TMH Publication ISBN O-07-462038-X
- Herbert Schildt, "C++ The Complete Reference "TMH Publication ISBN 0-07-463880-7
- मध्य प्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित विषय से संबंधित पुस्तकें।

Reference Books:

- R. Lafore, 'Object Oriented Programming C++'
- N. Dale and C. Weems, "Programming and problem solving with C++: brief edition", Jones & Bartlett Learning.
- Adam Drozdek, "Data Structures and algorithm in C++", Third Edition, Cengage Learning.
- Sartaj Sahani, "Data Structures, Algorithms and Applications with C++", McGraw Hill.
- Robert L. Kruse, "Data Structures and Program Design in C++", Pearson.
- D.S. Malik, "Data Structure using C++", Second edition, Cengage Learning.
- M. A. Weiss, "Data structures and Algorithm Analysis in C", 2nd edition, Pearson.
- Lipschutz, "Schaum's outline series Data structures", Tata McGraw-Hill

Suggestive digital platform web links

<https://www.youtube.com/watch?v=BCIS40yzssA>

<https://www.youtube.com/watch?v=vLnPwxZdW4Y&vl=en>

<https://www.youtube.com/watch?v=Umm1ZQ5ltZw>

Suggested equivalent online courses

| S.No. | Online Course | Duration | Platform |
|-------|--|------------|----------|
| 1 | Programming in C++ https://nptel.ac.in/courses/106/105/106105151/ | 8 weeks | NPTEL |
| 2 | Beginning C++ Programming - From Beginner to Beyond https://www.udemy.com/course/beginning-c-plus-plus-programming/ | Self paced | Udemy |

PART D: Assessment and Evaluation

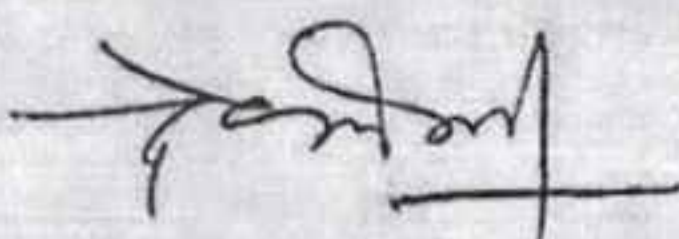
Internal Assessment : Continuous

External Assessment: University Exam (UE) : 75

| | | | |
|---|-----------------|--|--------------------|
| Comprehensive Evaluation (CCE) : 25 Marks Shall be based on allotted assignments and Class Tests. The marks shall be as follows: | | Marks Time : 02.00 Hours | |
| Assessment and presentation of assignment | 8 Marks | Section (A) : Three Very Short Questions (50 Words Each) OR Nine MCQ Questions | 03-x 03 = 09 Marks |
| Class Test I (Objective Questions) | 4 Marks | | |
| Class Test II (Descriptive Questions) | 5 Marks | Section (B) : Four Short Questions (200 Words Each) | 04 x 09 = 36 Marks |
| Class Test III (Based on solving programming problems) | 8 Marks | Section (C): Two Long Questions (500 Words Each) | 02 x 15 = 30 Marks |
| Total | 25 Marks | Total | 75 Marks |
| Any remarks/suggestions: Focus of the course/teaching should be on developing ability of the student in analyzing a problem, building the logic and efficient code for the problem. | | | |



| PART A: Introduction | | | |
|--|---|--|------------------------|
| Program: Certificate | Class: B.C.A. | Year: I Year | Session: 2021-22 |
| 1. | Course Code | S1-BCAA2P | |
| 2. | Course Title | Programming Methodology & Data Structures Lab | |
| 3. | Course Type (Core Course/Elective/Generic Elective/ Vocational) | Major – Paper II | |
| 4. | Pre-Requisite (if any) | To study this course, a student must have basic knowledge of Computers. | |
| 5. | Course Learning Outcomes(CLO) | <p>After the completion of this course, a successful student will be able to do the following:</p> <ol style="list-style-type: none"> 1. Develop simple algorithms and flow charts to solve a problem with programming using top down design principles. 2. Writing efficient and well-structured computer algorithms/programs. 3. Learn to formulate iterative solutions and array processing algorithms for problems. 4. Use recursive techniques, pointers and searching methods in programming. 5. Possess ability to choose a data structure to suitably model any data used in computer applications. 6. Implement and know the applications of algorithms for searching and sorting etc. | |
| 6. | Credit Value | Practical – 2 Credits | |
| 7. | Total Marks | Max. Marks : 25+75 | Min. Passing Marks: 33 |
| PART B: Content of the Course | | | |
| No. of Lab Practicals (in hours per week): 1 hour per week | | | |
| Total No. of Lab.: 30 Hrs. | | | |
| | Suggestive list of Practicals | | No. of Labs. |
| | <p>Given the problem statement, students are required to formulate problem, develop flowchart/algorithm, write code in C++, execute and test it. Students should be given assignments on following :</p> <ol style="list-style-type: none"> 1. Write a program to swap the contents of two variables. 2. Write a program for finding the roots of a Quadratic Equation. 3. Write a program to find area of a circle, rectangle, square using switch case. 4. Write a program to print table of any number. 5. Write a program to print Fibonacci series. 6. Write a program to find factorial of a given number using recursion. 7. Write a program to convert decimal (integer) number into | | 30 |



- equivalent binary number.
8. Write a program to check given string is palindrome or not.
 9. Write a program to print digits of entered number in reverse order.
 10. Write a program to print sum of two matrices.
 11. Write a program to print multiplication of two matrices.
 12. Write a program to generate even/odd series from 1 to 100.
 13. Write a program whether a given number is prime or not.
 14. Write a program for call by value and call by reference.
 15. Write a program to create a pyramid structure


```

1
12
123
1234

```
 16. Write a program to check entered number is Armstrong or not.
 17. Write a program to input N numbers and find their average.
 18. Write a program to find the area and volume of a rectangular box using constructor.
 19. Write a program to design a class time with hours, minutes and seconds as data members. Use a data function to perform the addition of two time objects in hours, minutes and seconds.
 20. Write a program to implement single inheritance.
 21. Write a program to find largest element from an array.
 22. Write a program to implement push and pop operations on a stack using array.
 23. Write a program to perform insert and delete operations on a queue using array.
 24. Write a program for Linear search.
 25. Write a program for Binary search.
 26. Write a program for Bubble sort.
 27. Write a program for Selection sort.
 28. Write a program for Quick sort.
 29. Write a program for Insertion sort.
 30. Write a program to implement linked list.

PART C: Learning Resources

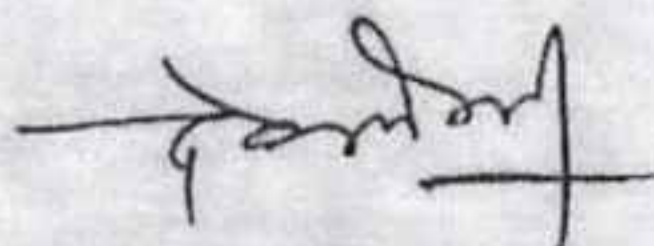
Textbooks, Reference Books, Other Resources

Suggested Readings

- J. R. Hanly and E. B. Koffman, "Problem Solving and Program Design in C", Pearson, 2015
- E. Balguruswamy, "C++", TMH Publication ISBN 0-07-462038-X
- Herbert Schildt, "C++ The Complete Reference" TMH Publication ISBN 0-07-463880-7
- मध्य प्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित विषय से संबंधित पुस्तकें।

Reference Books:

- R. Lafore, 'Object Oriented Programming C++'
- N. Dale and C. Weems, "Programming and problem solving with C++: brief edition", Jones & Bartlett



Learning.

- Adam Drozdek, "Data Structures and algorithm in C++", Third Edition, Cengage Learning.
- Sartaj Sahani, "Data Structures, Algorithms and Applications with C++", McGraw Hill.
- Robert L. Kruse, "Data Structures and Program Design in C++", Pearson.
- D.S. Malik, "Data Structure using C++", Second edition, Cengage Learning.
- M. A. Weiss, "Data structures and Algorithm Analysis in C", 2nd edition, Pearson.
- Lipschutz, "Schaum's outline series Data structures", Tata McGraw-Hill

Suggestive digital platform web links

<https://www.youtube.com/watch?v=BCIS40yzssA>

<https://www.youtube.com/watch?v=vLnPwxZdW4Y&vl=en>

<https://www.youtube.com/watch?v=Umm1ZQ5ltZw>

Suggested equivalent online courses

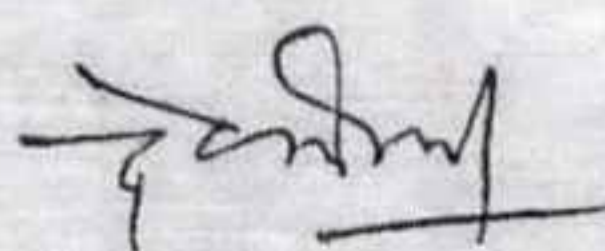
| S.No. | Online Course | Duration | Platform |
|-------|--|------------|----------|
| 1 | Programming in C++ https://nptel.ac.in/courses/106/105/106105151/ | 8 weeks | NPTEL |
| 2 | Beginning C++ Programming - From Beginner to Beyond https://www.udemy.com/course/beginning-c-plus-plus-programming/ | Self paced | Udemy |

PART D: Assessment and Evaluation

Internal Assessment : Continuous
Comprehensive Evaluation (CCE) : 25 Marks

External Assessment: University Exam (UE) : 75
Marks
Time : 02.00 Hours

| Internal Assessment | Marks | External Assessment | Marks |
|--|-----------------|---|-----------------|
| Hands-on Lab Practice | 5 Marks | Practical record file | 10 Marks |
| Viva | 5 Marks | Viva voce practical | 15 Marks |
| Lab Test from practical list | 7 Marks | Table works/ Exercise Assigned (02) in practical exam | 40 Marks |
| Assignments (Charts/ Model)/ Technology Dissemination/ Excursion/ Lab visit/ Industrial Training | 8 Marks | Reports of excursion/ Lab visits/ Industrial training/ Survey/ Collection/ Models | 10 Marks |
| Total <i>Excursion/ Lab visits/ Industrial Training is compulsory</i> | 25 Marks | Total | 75 Marks |



Minor Subject

| PART A: Introduction | | | |
|---|--|---|------------------------|
| Program: Certificate | | Class: B.C.A. | Year: I Year |
| Session: 2021-22 | | | |
| 1. | Course Code | SI - BCAB2T | |
| 2. | Course Title | Operating System | |
| 3. | Course Type (Core Course/Elective/Generic Elective/ Vocational) | Minor | |
| 4. | Pre-Requisite (if any) | Open for all | |
| 5. | Course Learning Outcomes (CLO) | <ul style="list-style-type: none"> • After the completion of this course, a student shall be able to do the following: • Describe the importance of computer system resources and the role of operating system in their management policies and algorithms. • Specify objectives of modern operating systems and describe how operating systems have evolved over time. • Understand various process management concepts and can compare various scheduling techniques, synchronization, and deadlocks. • Describe the concepts of memory management techniques. • Identify the best suited process management technique for any process. • Describe various file operations, file allocation methods and disk space management. • To understand and identify potential threats to operating systems and the security features to guard against them. • Learn to operate the Linux system, | |
| 6. | Credit Value | Theory - 4 Credits Practical – 2 Credits | |
| 7. | Total Marks | Max. Marks : 25+75 | Min. Passing Marks: 33 |
| PART B: Content of the Course | | | |
| No. of Lectures (in hours per week): 2 Hours per week | | | |
| Total No. of Lectures: 60 Hrs. | | | |
| Module | Topics | | No. of Lectures |
| I | Introduction to Operating System: What is Operating System? History and Evolution of OS, Basic OS functions, Resource Abstraction, Types of Operating Systems– Batch Systems, Multiprogramming Systems, Multiprocessing Systems, Time Sharing Systems, Distributed OS, Real time systems. Operating System for Personal Computers, Workstations and Hand-held Devices. Applications of various operating system in real world. Some prevalent operating systems – Windows, UNIX/Linux, Android, MacOS, Blackberry OS, Symbian, Bada etc. | | 6 |
| II | Process Management: Process Concepts, Process states & Process Control Block. Process Scheduling: Scheduling Criteria, Scheduling Algorithms (Preemptive & Non- Preemptive) – FCFS, SJF, SRTN, RR, Priority, | | 14 |

| | | |
|-----|--|----|
| | Multiple-Processor, Real-Time, Multilevel Queue and Multilevel Feedback Queue Scheduling. Deadlock - Definition, Deadlock Characterization, Necessary and Sufficient Conditions for Deadlock. Deadlock Handling Approaches: Prevention, Avoidance, Detection and Recovery. | |
| III | Memory Management: Introduction, Address Binding, Logical versus Physical Address Space, Swapping, Contiguous & Non-Contiguous Allocation, Fragmentation (Internal & External), Compaction, Paging, Segmentation, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement Algorithms. File Management: Concept of File System (File Attributes, Operations, Types), Functions of File System, Types of File System, Access Methods (Sequential, Direct & other methods), Directory Structure (Single-Level, Two-Level, Tree-Structured, Acyclic-Graph, General Graph), Allocation Methods (Contiguous, Linked, Indexed) | 14 |
| IV | Disk Management: Structure, Disk Scheduling Algorithms (FCFS, SSTF, SCAN, C-SCAN, LOOK), Swap Space Management, Disk Reliability, Recovery. Security: Security Threats, Security policy mechanism, Protection, Trusted Systems, Authentication and Internal Access Authorization, Windows Security. | 12 |
| V | LINUX: Introduction, History and features of Linux, advantages, hardware requirements for installation, Linux architecture, file system of Linux - boot block, super block, inode table, data blocks. Linux standard directories, Linux kernel, Partitioning the hard drive for Linux, installing the Linux system, system - startup and shut-down process, init and run levels. Process, Swap, Partition, fdisk, checking disk free spaces. Difference between CLI OS & GUI OS, Windows v/s Linux, Importance of Linux Kernel, Files and Directories. Concept of Open Source Software. | 12 |
| VI | Indian contribution to the field – the BOSS operating system, open source softwares, growth of LINUX, Aryabhata Linux, contributions of innovators – RajenSheth, Sunder Pichai etc. | 2 |

PART C: Learning Resources

Textbooks, Reference Books, Other Resources

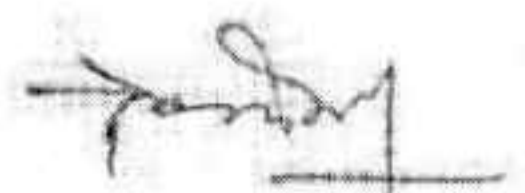
Suggested Readings

Textbooks:

- A Silberschatz, P.B. Galvin, G. Gagne, Operating Systems Concepts, 8th Edition, John Wiley Publications.
- A.S. Tanenbaum, Modern Operating Systems, 3rd Edition, Pearson Education.
- Operating System by Peterson
- Linux by Sumitabh Das
- मध्यप्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित विषय से संबंधित पुस्तकें।

Reference Books:

- G. Nutt, Operating Systems: A Modern Perspective, 2nd Edition Pearson Education.
- W. Stallings, Operating Systems, Internals & Design Principles, 8th Edition, Pearson Education.
- M. Milenkovic, Operating Systems- Concepts and design, Tata McGraw Hill.
- Operating System design and Concepts by Milan Milenkovic.



| | | | |
|---|-----------------|--|--|
| Suggestive digital platform web links | | | |
| https://web.iitd.ac.in/~minati/MTL458.html | | | |
| https://www.cse.iitb.ac.in/~mythili/os/ | | | |
| https://www.youtube.com/watch?v=aCJ3YgoolHQ | | | |
| Suggested equivalent online courses | | | |
| https://nptel.ac.in/courses/106/102/106102132/ | | | |
| PART D: Assessment and Evaluation | | | |
| Internal Assessment : Continuous Comprehensive Evaluation (CCE) : 25 Marks Shall be based on allotted assignments and Class Tests. The marks shall be as follows: | | External Assessment: University Exam (UE) : 75 Marks Time : 02.00 Hours | |
| Assessment and presentation of assignment | 4 Marks | Section (A) : Three Very Short Questions (50 Words Each) OR Nine MCQ Questions | 03 x 03 = 09 Marks OR 09 x 01 = 9 Marks |
| Class Test I (Objective Questions) | 5 Marks | | |
| Class Test II (Descriptive Questions) | 8 Marks | Section (B) : Four Short Questions (200 Words Each) | 04 x 09 = 36 Marks |
| Class Test III (Based on OS commands) | 8 Marks | Section (C): Two Long Questions (500 Words Each) | 02 x 15 = 30 Marks |
| Total | 25 Marks | Total | 75 Marks |
| Any remarks/suggestions: | | | |



| PART A: Introduction | | | |
|---|---|---|-------------------------------|
| Program: Certificate | Class: B.C.A. | Year: I Year | Session: 2021-22 |
| 1. | Course Code | S1-BCAB2P | |
| 2. | Course Title | Operating System Lab | |
| 3. | Course Type (Core Course/Elective/Generic Elective/ Vocational) | Minor | |
| 4. | Pre-Requisite (if any) | Open for All | |
| 5. | Course Learning Outcomes (CLO) | After the completion of this course, a student shall be able to: <ul style="list-style-type: none"> • Operate the Linux system. • Do administration • Use Vi Editor | |
| 6. | Credit Value | Practical – 2 Credits | |
| 7. | Total Marks | Max. Marks : 25+75 | Min. Passing Marks: 33 |
| PART B: Content of the Course | | | |
| No. of Lab. Practicals (in hours per week): 1Hr. per week | | | |
| Total No. of Lab.: 30 Hrs. | | | |
| Suggestive List of Practicals | | | No. of Labs. |
| Linux: <ol style="list-style-type: none"> a) Linux Directory Commands: pwd, mkdir, rm -rf, ls, cd, cd / , cd ~ b) Linux File Commands: touch, cat, cat >, cat >>, rm , cp, mv, rename c) Linux Permission Commands:su, id, useradd, passwd, groupadd, chmod, groupdel, chown, chgrp d) Linux File Content & Filter Commands: head, tail, tac, more, less, grep, cat, cut, grep, comm, sed, tee, tr, uniq, wc, od, sort, diff. e) Linux Utility Commands: find, bc, locate, date, cal, sleep, time, df, mount, exit, clear, gzip, gunzip. f) Linux Networking Commands: ip, ssh, mail, ping, host g) Edit Crontab file: to wall message on system on particular time automatically. h) Vi editor: Create file, edit, save and quit. Highlighting the searched term within a file. cut, yank, undo. | | | 30 |
| PART C: Learning Resources | | | |
| Textbooks, Reference Books, Other Resources | | | |
| Suggested Readings | | | |
| Textbooks: <ul style="list-style-type: none"> • Linux by Sumitabh Das • Linux Bible • मध्यप्रदेश हिंदी ग्रंथ अकादमी से प्रकाशित विषय से संबंधित पुस्तकें। | | | |
| Suggestive digital platform web links | | | |
| https://web.iitd.ac.in/~minati/MTL458.html https://www.cse.iitb.ac.in/~mythili/os/ https://www.youtube.com/watch?v=aCJ3YgoolHQ | | | |

| | | | |
|---|-----------------|---|-----------------|
| Suggested equivalent online courses | | | |
| https://nptel.ac.in/courses/106/102/106102132/ | | | |
| https://www.youtube.com/watch?v=OHCMfsNpqCc | | | |
| PART D: Assessment and Evaluation | | | |
| Internal Assessment : Continuous Comprehensive Evaluation (CCE) : 25 Marks | | External Assessment: University Exam (UE) : 75 Marks Time : 02.00 Hours | |
| Internal Assessment | Marks | External Assessment | Marks |
| Hands-on Lab Practice | 5 Marks | Practical record file | 10 Marks |
| Viva | 5 Marks | Viva voce practical | 15 Marks |
| Lab Test from practical list | 7 Marks | Table works/ Exercise Assigned (02) in practical exam | 40 Marks |
| Assignments (Charts/ Model)/ Technology Dissemination/ Excursion/ Lab visit/ Industrial Training | 8 Marks | Reports of excursion/ Lab visits/ Industrial training/ Survey/ Collection/ Models | 10 Marks |
| Total | 25 Marks | Total | 75 Marks |
| <i>Excursion/ Lab visits/ Industrial Training is compulsory</i> | | | |



Elective

| Part A Introduction | | | |
|----------------------------|--------------------------------|---|---------------------------------|
| Program:Certificate Course | | Class:BCAI Year | Year: 2021 Session: 2021-2022 |
| 1 | Course Code | S1-BCAC2G | |
| 2 | Course Title | Discrete Mathematics | |
| 3 | Course Type | Elective | |
| 4 | Pre-requisite (if any) | Open for All | |
| 5 | Course Learning Outcomes (CLO) | <p>The course will enable the students:</p> <ol style="list-style-type: none"> 1. Apply the Boolean algebra, switching circuits and their applications. 2. Minimize the Boolean Function using Karnaugh Map. 3. Understand the lattices and their types. 4. Graphs, their types and its applications in study of shortest path algorithms. 5. Test whether two given graphs are isomorphic. 6. Understand the Eulerian and Hamiltonian graphs. 7. Represent graphs using adjacency and incidence matrices. 8. Understand the discrete numeric functions, generating functions and Recurrence Relations. | |
| 6 | Credit Value | Theory:6Credit | |
| 7 | Total Marks | Max. Marks: 25 + 75 | Min. Passing Marks: 33 |

| Part B - Content of the Course | | |
|---|--|-----------------|
| Total No. of Lectures (in hours per week): 3 hours per week | | |
| Total Lectures: 90 hours | | |
| Unit | Topics | No. of Lectures |
| I | <p>Relations: Binary, Inverse, Composite and Equivalence relation, Equivalence classes and its properties, Partition of a set, Partial order relation, Partially ordered and Totally ordered sets, Hasse diagram.</p> <p>Lattices: Definition and examples, Dual, bounded, distributive and complemented lattices.</p> | 18 |
| II | <p>Boolean Algebra:Definition and properties, Switching circuits and its applications, Logic gates and circuits.</p> <p>Boolean functions: Disjunctive and conjunctive normal forms, Bool's expansion theorem, Minimize the Boolean function using Karnaugh Map.</p> | 18 |
| III | <p>Graphs:Definition and types of graphs, Subgraphs, Walk, path and circuit, Connected and disconnected graphs, Euler graph, Hamiltonian path and circuit, Dijkstra's Algorithm for shortest paths in weighted graph.</p> | 18 |



| | | |
|----|---|----|
| IV | Trees: Definition and its properties, Rooted, Binary and Spanning tree Rank and nullity of a graph, Kruskal's and Prim's Algorithm, Cut-set and its properties, Fundamental Circuit and Cut-Set, Planar graphs. Matrix representation of graphs: Incidence, Adjacency, Circuit, Cut-Set, Path. | 18 |
| V | Discrete numeric and generating functions: Operations on numeric functions, Asymptotic behavior of numeric functions, Generating functions. Recurrence relations and recursive algorithms: Recurrence relations, Linear recurrence relations with constant coefficients, Homogeneous solutions, Particular solutions, Total solutions, Solution by the method of generating functions. | 18 |

Keywords/Tags:

Relation, Hasse diagram, Lattices, Boolean Algebra, Boolean function, Graph and Subgraph, Path and circuit, Tree, Spanning tree, Cut-set, Matrix representation of graph, Discrete numeric function, Generating function, Recurrence relation, Recursive algorithm.

Part C - Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

Text Books:

1. J. P. Tremblay and R. Manohar, Discrete Mathematical Structures With Applications To Computer Science, McGraw Hill Education, 1st edition, 2017.
2. C. L. Liu: Elements of Discrete Mathematics, McGraw Hill Education, 4th edition, 2017.
3. Narsingh Deo: Graph Theory with Applications to Engineering and Computer Science, Prentice Hall India Learning Private Limited, 1979.
4. मध्य प्रदेश हिन्दी ग्रंथ अकादमी से प्रकाशित विषय से संबंधित पुस्तकें।

Reference Books:

1. Seymour Lipschutz and Mark Lipson: Discrete Mathematics (Schaums Outline), McGraw Hill Education, 3rd edition, 2017.
2. Edgar G. Goodaire and Michael M. Parmenter, Discrete Mathematics with Graph Theory, Pearson Education Pt.Ltd., Indian Reprint 2003.

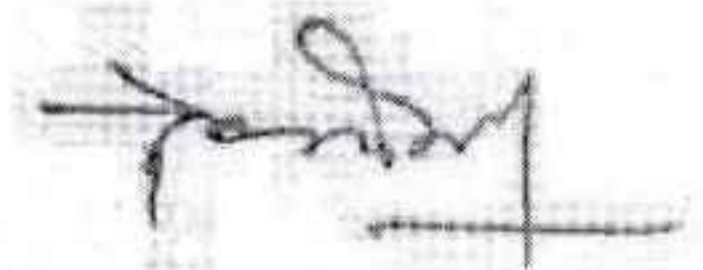
Suggested Digital Platforms Web links:

<https://www.highereducation.mp.gov.in/?page=xhzIQmpZwkylQo2b%2Fy5G7w%3D%3D>

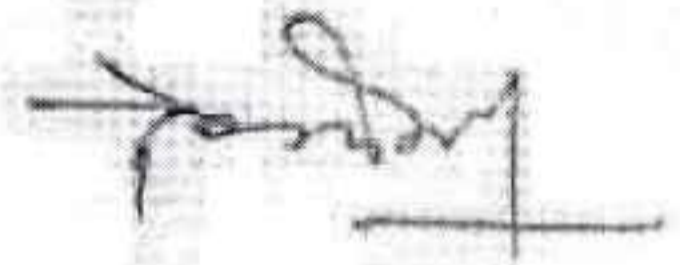
Suggested Equivalent online courses:

<https://nptel.ac.in/courses/111106086/>

https://ugcmoocs.inflibnet.ac.in/index.php/courses/view_ug/311



| Part D: Assessment and Evaluation | | |
|--|--|--|
| Suggested Continuous Evaluation Methods: | | |
| Maximum Marks: 100 | | |
| Continuous Comprehensive Evaluation (CCE): 25Marks | | |
| University Exam (UE): 75Marks | | |
| Internal Assessment: Continuous Comprehensive Evaluation (CCE) | Class Test Assignment/Presentation | 15 10 Total Marks: 25 |
| External Assessment: University Exam (UE) Time: 02.00 Hours | Section (A): Three Very Short Questions (50 Words Each) Section (B): Four Short Questions (200 Words Each) Section (C): Two Long Questions (500 Words Each) | 03 × 03 = 09 . 04 × 09 = 36 02 × 15 = 30 Total Marks: 75 |



Vocational

| भाग ए परिचय | | |
|--|---|------------------|
| कार्यक्रम: प्रमाण पत्र | वर्ष: प्रथम वर्ष | सत्र : 2021 - 22 |
| पाठ्यक्रम क्रमांक | V1-COM-DIGT | |
| पाठ्यक्रम शीर्ष | डिजिटल मार्केटिंग | |
| पाठ्यक्रम का प्रकार | व्यवसायिक | |
| पूर्व आवश्यकता | सभी संकाय के विद्यार्थियों के लिए उपलब्ध | |
| पाठ्यक्रम सीखने के परिणाम (सीएलओ) | <p>पाठ्यक्रम के सफल समापन के बाद, छात्र निम्नलिखित में सक्षम होगा:</p> <ul style="list-style-type: none"> डिजिटल मार्केटिंग , उसका महत्व, वेब साइट का अर्थ और वेब साइट के स्तर, ब्लॉग, पोर्टल और वेबसाइट के बीच अंतर. पेज ऑप्टिमाइजेशन, ऑफ पेज ऑप्टिमाइजेशन पर SEO (सर्च इंजन ऑप्टिमाइजेशन) की कार्यप्रणाली की समझ और रिपोर्ट तैयार करना फेसबुक, ट्विटर, लिंकडइन, टम्बलर, पिंटेरेस्ट और अन्य सोशल मीडिया सेवाओं के अनुकूलन जैसे एसएमओ (सोशल मीडिया ऑप्टिमाइजेशन) के बारे में ज्ञान भुगतान किए गए टूल जैसे Google विज्ञापन शब्द, प्रदर्शन विज्ञापन तकनीक वेबसाइट ट्रैफ़िक, कीवर्ड विश्लेषण और ईमेल मार्केटिंग और विज्ञापन डिज़ाइनिंग सीखने के लिए SEO के लिए उपयोगी टूल पर व्यावहारिक अनुभव । | |
| अपेक्षित नौकरी की भूमिका कैरियर के अवसर | <ul style="list-style-type: none"> डिजिटल मार्केटिंग मैनेजर खोज इंजन अनुकूलक सोशल मीडिया मार्केटर सामग्री विपणक एआर-वीआर के लिए सामग्री निर्माता आवाज सहायता के लिए एसईओ विशेषज्ञ | |
| क्रेडिट मूल्य | 4 | |

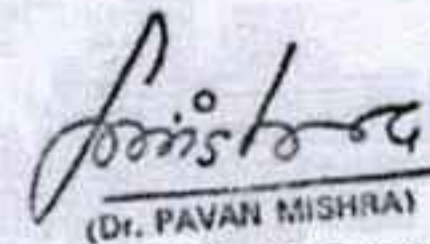
भाग बी पाठ्यक्रम की सामग्री

व्याख्यानों की कुल संख्या व्यावहारिक प्रति सप्ताह घंटों में: एल 1 घंटे / पी - 1 प्रायोगिक घंटा

व्याख्यान प्रैक्टिकल की कुल संख्या: एल 30 घंटे पी 30 घंटे

| Module | Topics | No. of Hours |
|--------|--|--------------|
| I | <p>डिजिटल मार्केटिंग का परिचय: डिजिटल मार्केटिंग का अर्थ, पारंपरिक मार्केटिंग से अंतर, डिजिटल मार्केटिंग बनाम पारंपरिक मार्केटिंग पर निवेश की वापसी, ई कॉमर्स, सफल मार्केटिंग के लिए उपयोग किए जाने वाले उपकरण, डिजिटल मार्केटिंग के लिए व्यवसाय का SWOT विश्लेषण, ब्लॉग का अर्थ, वेबसाइट, पोर्टल और उनके अंतर, दृश्यता, आगंतुक जुड़ाव, रूपांतरण प्रक्रिया, अवधारण, प्रदर्शन मूल्यांकन। कीवर्ड: शीर्षक, मेटाटैग</p> | 10 |
| II | <p>खोज इंजन अनुकूलन (एसईओ): ऑन पेज ऑप्टिमाइज़ेशन तकनीक, ऑफ पेज ऑप्टिमाइज़ेशन तकनीक, रिपोर्ट तैयार करना, खोज अभियान बनाना, प्रदर्शन अभियान बनाना। सोशल मीडिया ऑप्टिमाइज़ेशन (एसएमओ) : सोशल मीडिया मार्केटिंग, एडवांस्ड फेसबुक मार्केटिंग, वर्ड प्रेस ब्लॉग क्रिएशन, ट्विटर मार्केटिंग, लिंकडइन मार्केटिंग, इंस्टाग्राम मार्केटिंग, सोशल मीडिया एनालिटिकल टूल्स का परिचय। कीवर्ड: गूगल, वर्ड प्रेस, एफबी, लिंकडइन, इंस्टाग्राम, एनालिटिक्स, एसएमओ, वर्बल कम्युनिकेशन, नॉन-वर्बल कम्युनिकेशन, इंटर पर्सनल और इंटरपर्सनल कम्युनिकेशन।</p> | 10 |
| III | <p>खोज इंजन विपणन : खोज इंजन विपणन का अर्थ और उपयोग, प्रयुक्त उपकरण - प्रति क्लिक भुगतान, Google ऐडवर्ड्स, प्रदर्शन विज्ञापन तकनीक, रिपोर्ट निर्माण वेबसाइट यातायात विश्लेषण, संबद्ध विपणन और विज्ञापन डिजाइनिंग : Google विश्लेषिकी, ऑनलाइन प्रतिष्ठा प्रबंधन, ईमेल विपणन, संबद्ध विपणन, विज्ञापन शब्द एल्गोरिदम को समझना, विज्ञापन डिजाइनिंग। कीवर्ड: पीपीसी, गूगल विज्ञापन शब्द, रिपोर्ट, एसईएम, गूगल एनालिटिक्स, विज्ञापन डिजाइन, सोशल मीडिया, संबद्ध</p> | 10 |

| प्रायोगिक पाठ्यक्रम | | |
|---|--|----|
| | <ul style="list-style-type: none"> • डिजाइन एसईओ हमारे कॉलेज के पेज रैंक में सुधार करने के लिए। • Google विश्लेषिकी का उपयोग करके अपनी वेबसाइट के ट्रैफिक की निगरानी करें। • सर्च इंजन सबमिशन का उपयोग करने से वेबसाइटों की ऑनलाइन पहचान और दृश्यता में सुधार होता है। • ब्लॉग डिजाइन करना। • क्रॉस लिंकिंग का उपयोग। • वेबसाइट का ऑन/ऑफ ऑप्टिमाइजेशन। • वेबसाइट का बैक लिंक और आउटबाउंड लिंक डिजाइन करें। • वेब विकास, ऑडियो वीडियो उत्पादन, • डिजिटल सामग्री निर्माण, उत्पाद और बिक्री समीक्षा विश्लेषण | 30 |
| भाग स-अनुशंसित अध्ययन संसाधन | | |
| पाठ्य पुस्तकें, संदर्भ पुस्तकें, अन्य संसाधन | | |
| <p>अनुशंसित सहायक पुस्तकें /ग्रन्थ/अन्य पाठ्य संसाधन/पाठ्य सामग्री:</p> <p>Textbooks :</p> <ol style="list-style-type: none"> 1. Ahuja Vandana (2016) Digital Marketing. Oxford University Press ISBN: 9780199455447, 2. Sainy Romi, Nargundkar Rajendra (2018) Digital Marketing: Cases from India, Notion Press ISBN 9781644291931, 1644291932 3. Digital Marketing 2.0- Dr.Rushen Chahal –Himalya pub.Nagpur | | |
| <p>अनुशंसित डिजिटल प्लेटफॉर्म वेब लिंक</p> <p>https://www.wordstream.com/linkbuilding#:~:text=Building%20links%20is%20one%20of,build%20links%20to%20your%20site.</p> <p>https://www.targetinternet.com/the-top-32-most-useful-digital-marketing-links/</p> <p>https://digitalmarketingphilippines.com/8-strategic-steps-to-natural-link-building/ https://www.the-web-guys.com/digital-marketing/</p> | | |
| <p>अनुशंसित समकक्ष ऑनलाइन पाठ्यक्रम :-</p> <p>https://onlinecourses.swayam2.ac.in</p> | | |


(Dr. PAVAN MISHRA)

(PROF.PAVAN MISHRA)

Chairman

Central Board of Studies(Commerce)

| Part A Introduction | | |
|---|--|---------------------------|
| Program: Certificate | Year: First Year | Session: 2021-2022 |
| Course Code | V1-COM-DIGT | |
| Course Title | DIGITAL MARKETING | |
| Course Type | Vocational | |
| Pre-requisite (if any) | Open for All | |
| Course Learning outcomes (CLO) | <p>After the successful completion of the course, the student shall be able to-:</p> <ul style="list-style-type: none"> ● Understand digital marketing, importance thereof, meaning of web site and levels of web site, difference between blog, portal & website. ● Understand the working of SEO (search engine optimization) on page optimization, off page optimization, and will learn to prepare reports ● Learn about SMO (social media optimization) like Face book, twitter, LinkedIn, Tumblr, Pinterest and other social media services optimization ● Understand paid tools like Google ad words, display advertising techniques ● Learn and apply hands on experience on tools useful to SEO for analysis on website traffic, keyword analysis and learn email marketing and ad designing. | |
| Expected Job Role / career opportunities | <ul style="list-style-type: none"> ● Digital Marketing Manager ● Search Engine Optimizer ● Social Media Marketer ● Content Marketer ● Content creator for AR-VR (Augmented Reality –Virtual Reality) ● SEO Specialist for voice assistance | |
| Credit Value | 4 | |

Part B- Content of the Course

Total No. of Lectures + Practical (in hours per week): L-1Hr / P-1 Lab Hr

Total No. of Lectures/ Practical: L-30hrs/P-30hrs

| Module | Topics | No. of Hours |
|--------|---|--------------|
| I | <p>Introduction to Digital Marketing:</p> <p>Meaning of Digital Marketing, Differences from Traditional Marketing, Return of Investments on Digital Marketing vs. Traditional Marketing, E Commerce, Tools used for successful marketing, SWOT Analysis of Business for Digital Marketing, Meaning of Blogs, Websites, Portal and Their Differences, Visibility, Visitor Engagement, Conversion Process, Retention, Performance Evaluation.</p> <p><i>Keywords: Titles, Meta Tags</i></p> | 10 |
| II | <p>Search Engine Optimization (SEO):</p> <p>On page Optimization Techniques, Off Page Optimization Techniques, Preparing Reports, Creating Search Campaigns, Creating Display Campaigns.</p> <p>Social Media Optimization (SMO):</p> <p>Introduction to Social Media Marketing, Advanced Facebook Marketing, Word press Blog Creation, Twitter Marketing, LinkedIn Marketing, Instagram Marketing, social media Analytical Tools.</p> <p><i>Keywords: Google, Word press, FB, LinkedIn, Instagram, Analytics, SMO, Verbal Communication, Non- Verbal Communication, Intra personal and Interpersonal communication.</i></p> | 10 |
| III | <p>Search Engine Marketing:</p> <p>Meaning and Use of Search Engine Marketing, Tools used – Pay Per Click, Google Adwords, Display Advertising Techniques, Report Generation</p> <p>Website Traffic Analysis, Affiliate Marketing and Ad Designing:</p> <p>Google Analytics, Online Reputation Management, EMail Marketing, Affiliate Marketing, Understanding Ad Words Algorithm, Advertisement Designing.</p> <p><i>Keywords: PPC, Google Ad words, Reports, SEM, Google Analytics, Ad Design, Social Media, Affiliate</i></p> | 10 |

| Practical | | |
|-----------|---|----|
| | <ul style="list-style-type: none"> ● Design SEO To improve page rank of our college. ● Monitor traffic of your website using google analytics. ● Using search engine submission improves online recognition and visibility of websites. ● Designing a blog. ● Use of cross linking. ● On /Off optimization of the website. ● Design Back link and outbound link of website. ● Web Development, Audio Video Production, ● Digital Content Creation, Product & Sales review analysis | 30 |

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Textbooks:

1. Ahuja Vandana Digital Marketing. Oxford University Press (2016) ISBN: 9780199455447,
2. SainyRomi, NargundkarRajendra Digital Marketing: Cases from India, Notion Press (2018) ISBN 9781644291931, 1644291932

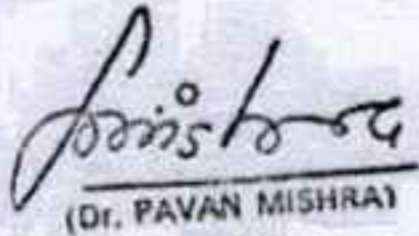
2. Suggestive digital platforms web links:

<https://www.wordstream.com/linkbuilding#:~:text=Building%20links%20is%20one%20of,build%20links%20to%20your%20site>.

<https://www.targetinternet.com/the-top-32-most-useful-digital-marketing-links/https://digitalmarketingphilippines.com/8-strategic-steps-to-natural-link-building/https://www.the-web-guys.com/digital-marketing/>

Suggested equivalent online courses:

<https://onlinecourses.swayam2.ac.in>



(DR. PAVAN MISHRA)

(PROF.PAVAN MISHRA)
Chairman
Central Board of Studies (Commerce)

| Part A Introduction | | |
|---|---|-------------------------|
| Program: Certificate | Year: First Year | Session: 2021-22 |
| | | |
| Course Code | V1-COA-DTPT | |
| Course Title | Desk Top Publishing | |
| Course Type | Vocational | |
| Pre-requisite (if any) | Open for All | |
| Course Learning outcomes (CLO) | <p>After studying this Course the Student will be able to</p> <ul style="list-style-type: none"> • Understand basics of computer and its related terminology. • Write, Edit & Print documents using MS-WORD & EXCEL. • Understand various software used for Desktop Publishing and would be able to create and design documents with text and graphics like newspaper ad, wedding cards, visiting cards, greeting cards etc. • Using PageMaker, CorelDraw & Photoshop. Understand Colour concept in Printing | |
| Expected Job Role / career opportunities | <p>After studying this Course the Student will be able to pursue his/her career as a/an:</p> <ul style="list-style-type: none"> • Graphic designer • Multimedia Editor • Logo Designer • Office Assistant • Desktop Publishing Operator | |
| Credit Value | 4 | |

Part B- Content of the Course

Total No. of Lectures + Practical (in hours per week): L-1 Hr / P-1 Lab Hr

Total No. of Lectures/ Practical: L-30hrs/P-30hrs

| Module | Topics | No. of Hours |
|------------------|--|--------------|
| I | Computer Fundamentals - Generations of Computer, Advantage and disadvantage of Computer, Block Diagram of a Computer, Description of Different parts of a computer. System Software and Application Software MS Office Introduction to MS Office, Word Processing Software, Electronic Spreadsheet, MS Paint | 8 |
| II | PageMaker Introduction to various versions, concepts and applications of PageMaker Guides & rulers. Drawing tools. Fills & outlines. Photo Shop -History & introduction, the file menu, the tools, Drawing lines & shapes. Photo editing /inserting starting with Setting Up, introduction of layers, Understanding Design principles and color theory | 12 |
| III | Coral Draw - Drawing –lines, shapes .inserting-pictures, objects, tables, templates, Use of various tools such as Pick tools, Zoom tools, Free hand tool, square tool, rectangle tool, Text tool, Fill tool etc. and all fonts used in designing of monograms, logos, posters, stickers, greeting cards, wedding cards, visiting cards, etc Design Principles & Color Harmony Introduction to colors – Primary and Secondary in both RGB & CMYK schemes/modes. | 10 |
| Practical | | |
| | <ol style="list-style-type: none"> 1. Using windows explorer and other windows elements 2. Creating and opening a document in page maker 3. Formatting and editing a document 4. Saving and printing a given document 5. Insertion of text and graphics in a given document from external source 6. Using columns utility, to give the document column look 7. Using various fonts and styles to make a document more beautiful 8. Use of page maker to make transparencies 9. Saving and printing a file that has been created 10. Formatting a given file by using undo/redo, repeat, cut, copy, paste, delete, duplicate and clone utilities 11. Inserting objects in the drawing, aligning, ordering, grouping and ungrouping of those objects 12. Use of combine, break apart, weld, intersection, trim and separate tools in a given drawing 13. Use of mode edit tools i.e., to line, to curve, to stretch, and rotate 14. Creating special effects i.e., transform roll-up, envelop roll up, add perspective, extrude roll up, contour roll up, power line, power clip, clear effects 15. To insert character and paragraph text in a drawing and frame, setting of tabs, indents, bullets and spacing in paragraph text 16. Filling of text to a given path, aligning it to base line, straighten text and edit text 17. Using tools such as spell checker, and thesaurus 18. Using find and replace text utility and type assist 19. Adding various symbols to a drawing and creating different pattern | 30 |

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Desk Top Publishing From A to Z by Bill Grout and Osborne; McGraw Hill
2. DTP (Desk Top Publishing) for PC user by Houghton; Galgotia Publishing House Pvt. Ltd., Daryaganj, New Delhi.
3. ADOBE PAGEMAKER 6.5 - Shashank Jain & Satish Jain – First Edition 2001, BPB Publications.
4. DESKTOP PUBLISHING ON PC – M.C. Sharma, BPB Publications
5. Corel draw the Official Guide By Gray David Bouton , Corel Press.
6. The complete Reference Getting Started with Page Maker , McGraw-Hills
7. Adobe Photoshop CS2 Classroom In A Book (2020) , Adobe Press.
8. Computers Today S.K.Basandra, Galgotia Publications.
9. Microsoft Office : Will Train , Gini Courter, Annette Marquis BPB Publication.

Suggested equivalent online courses:

http://www.nptelvideos.com/adobe/adobe_photoshop_tutorials.php

https://onlinecourses.swayam2.ac.in/cec20_cs05/preview

https://eskillindia.org/Course/course_detail/117206920200221051647

<https://www.udemy.com/course/desktop-publishing-for-you/>

<https://www.youtube.com/watch?v=FJYgNUYUvZc>

| भाग अ - परिचय | | |
|--|---|---------------|
| कार्यक्रम: प्रमाण पत्र | वर्ष: प्रथम वर्ष | सत्र: 2021-22 |
| पाठ्यक्रम का कोड | V1-PSY-DEVT | |
| पाठ्यक्रम का शीर्षक | व्यक्तित्व विकास | |
| पाठ्यक्रम का प्रकार : | व्यावसायिक | |
| पूर्वापेक्षा (Prerequisite) (यदि कोई हो) | सभी संकाय के विद्यार्थियों हेतु | |
| पाठ्यक्रम अध्ययन की परिलब्धियां (कोर्स लर्निंग आउटकम)(CLO) | <p>इस कोर्स का अध्ययन करने के बाद छात्र सक्षम हो जाएगा-</p> <ol style="list-style-type: none"> 1. सफल जीवन के लिए कौशल संवर्धन और असफलता को नियंत्रित करने में 2. लक्ष्य निर्धारण और स्मॉट विश्लेषण की प्रक्रिया सीखने में 3. समय और तनाव प्रबंधन के महत्व को समझने में 4. रोजगार परकता के लिए मूल कौशल विकसित करने में 5. प्रभावी संचार कौशल विकसित करने में 6. व्यक्तित्व विकास में प्रौद्योगिकी की भूमिका को समझने में | |
| अपेक्षित रोजगार / करियर के अवसर | संबंधित जॉब प्रोफाइल में वृद्धि और मूल्यवर्धन | |
| क्रेडिट मान | 4 | |

भाग ब- पाठ्यक्रम की विषयवस्तु

व्याख्यानों की कुल संख्या + प्रैक्टिकल (प्रति सप्ताह घंटों में): व्याख्यान -1घंटे / प्रैक्टिकल अवधि 1प्रायोगिक घंटा

व्याख्यान/प्रैक्टिकल की कुल संख्या : L-30hrs/P-30hrs

| मॉड्यूल | विषय | घंटे |
|---------|--|------|
| I | <p>व्यक्तित्व, सफलता, और असफलताओं का सामना करना</p> <p>व्यक्तित्व की अवधारणा. सफलता क्या है? - सफलता प्राप्त करने में बाधाएं, सफलता के लिए जिम्मेदार कारक, प्रभावी आदतें विकसित करना.</p> <p>असफलता क्या है? - असफलताओं को प्रभावित करने वाले कारक, असफलताओं से सीखना, असफलताओं पर काबू पाना, विश्वास की शक्ति, विश्वास का अभ्यास, स्वाँटविश्लेषण और लक्ष्य-निर्धारण(स्पेसफिक, मापन योग्य, प्राप्ति योग्य, वास्तविक, समयबद्ध; SMART लक्ष्य)</p> | 10 |
| II | <p>समय और तनाव प्रबंधन और रोजगारपरकता-लब्धि</p> <p>एक संसाधन के रूप में समय, समय की बर्बादी के कारकों की पहचान, बेहतर समय प्रबंधन के लिए तकनीक, तनाव का परिचय, तनाव के कारण और प्रभाव, तनावप्रबंधन</p> <p>रिज्यूमे बिलिंडिंग, ग्रुप डिस्कशन में भाग लेने की कला, साक्षात्कार-अक्सर पूछे जाने वाले प्रश्न, साक्षात्कार, अभ्यास सत्र</p> | 10 |
| III | <p>संचार कौशल और डिजिटल शिष्टाचार</p> <p>संचार कौशल: प्रभावी पठन/लेखन/श्रवणके कौशल, हार्ड स्किल्स और सॉफ्ट स्किल्स, मंच के डर पर काबू पाना, बॉडी लैंग्वेजकी भूमिका, पेशेवर प्रस्तुति की कला, प्रस्तुतियों में श्रव्य और दृश्य माध्यमोंका उपयोग, सामाजिक शिष्टाचार</p> <p>दिन-प्रतिदिन के प्रबंधन में सूचना और संचार प्रौद्योगिकी (आईसीटी) का उपयोग, सोशल मीडिया का प्रभावी उपयोग, ई-मेल शिष्टाचार, नेटिकेट, उपयोगी इलेक्ट्रॉनिक गैजेट और मोबाइल एप्लिकेशन</p> | 10 |

| प्रायोगिक पाठ्यक्रम | |
|---|----|
| <ol style="list-style-type: none"> 1. स्वाँटविश्लेषण 2. लक्ष्य-निर्धारण (SMART लक्ष्य) 3. समय प्रबंधन 4. रिज्यूमे लेखन और मॉक साक्षात्कार सत्र 5. संचार कौशल 6. ई-मेल लेखन | 30 |
| Project/ Field trip : | |
| <ol style="list-style-type: none"> 1. किसी एक सफल व्यक्तित्व के जीवन से प्राप्त सीख के आधार पर एक रिपोर्ट प्रस्तुत करें। 2. व्यक्तित्व विकास प्रशिक्षण संस्थान का भ्रमण तथा वहाँ से प्राप्त जानकारी के आधार पर रिपोर्ट प्रस्तुत करें। | |
| भाग स-अनुशंसित अध्ययन संसाधन | |
| पाठ्यपुस्तकें, संदर्भपुस्तकें, अन्यसंसाधन | |
| <ol style="list-style-type: none"> 1. अनुशंसित सहायक पुस्तकें / ग्रन्थ/ अन्य पाठ्य संसाधन/ पाठ्यसामग्री: <ol style="list-style-type: none"> 1. Andrews, Sudhir (1988). How to Succeed at Interviews. 21st (rep.) Tata McGraw-Hill, New Delhi. 2. Covey, Stephen. (1989). The 7 Habits of Highly Effective People. NY: Free Press 3. Hindle, Tim (2003). Reducing Stress. Essential Manager series. Dk Publishing. 4. Lucas, Stephen (2001). Art of Public Speaking. Tata - Mc-Graw Hill, New Delhi. 5. मार्डन, स्वेट, "व्यक्तित्वकाविकास", आनंदपेपरबैक्स। 6. Petes S. J., Francis (2011). Soft Skills and Professional Communication. Tata McGraw-Hill Education, New Delhi 7. शर्मा, पी.के., (2014) "व्यक्तित्वविकास", भारतीश्री प्रकाशन। 8. Smith, B. (2004). Body Language. Rohan Book Company, Delhi. 2. अनुशंसित डिजिटल प्लेटफॉर्म / वेबलिंग <ol style="list-style-type: none"> 1. Basics of Communication: https://www.glowandlovelycareers.in/en/course-detail/niit-156/basics-of-communication 2. Social Etiquettes: https://www.glowandlovelycareers.in/en/course-detail/englisledge-904/social-etiquette 3. Self-Presentation: https://www.glowandlovelycareers.in/en/course-detail/niit-161/self-presentation | |

| Part A Introduction | | |
|---|--|------------------------|
| Program: Certificate/Diploma/Degree | Year: First Year | Session:2021-22 |
| | | |
| Course Code | V1-PSY-DEVT | |
| Course Title | PERSONALITY DEVELOPMENT | |
| Course Type | Vocational | |
| Pre-requisite (if any) | Open for all | |
| Course Learning outcomes (CLO) | <p>After studying this course the Student will be able to</p> <ul style="list-style-type: none"> • To cultivate skills for successful life and learn to handle failures • To learn the process of goal setting and SWOT analysis • To understand the importance of time and stress management • To develop core skills for employability • To develop effective communication skills • To realize the role of technology in personality development | |
| Expected Job Role / career opportunities | <ul style="list-style-type: none"> • Growth and value addition in the respective job profiles | |
| Credit Value | 4 | |

| Part B-Content of the Course | | |
|--|---|---------------------|
| Total No. of Lectures + Practical (in hours per week): L-1 Hr / P-1 Lab Hr | | |
| Total No. of Lectures/ Practical: L-30hrs/P-30hrs | | |
| Module | Topics | No. of Hours |
| I | Personality, Success, and Facing Failures Concept of Personality. What is success? - Hurdles in achieving success, Factors responsible for success, developing effective habits. What is failure? - Factors affecting failures, learning from failures, overcoming failures, power of faith, practicing faith, SWOT analysis and Goal-Setting (Specific, Measurable, Achievable, Realistic, Time-bound- SMART goals) | 10 |
| II | Time and Stress Management and Employability Quotient Time as a Resource, Identifying Time Wasters, Techniques for better Time Management, Introduction to Stress, Causes and Effects of Stress, Managing Stress Resume building, The art of participating in Group Discussion, Interview-Frequently Asked Questions, Mock Interview Sessions | 10 |
| III | Communication Skills and Digital Etiquettes Communication Skills: Effective reading/writing/listening skills, Hard skills & soft skills, overcoming stage fear, role of body language, art of professional presentation, use of audio & visuals in presentations, social etiquettes Use of Information & Communication Technology (ICT) in day-to-day management, Effective use of social media, E-mail etiquette, Netiquette, Useful electronic gadgets and mobile applications | 10 |
| Practical | | |
| | 1. SWOT analysis 2. Goal-Setting (SMART goals) 3. Time Management 4. Resume writing and mock interview sessions 5. Communication skills 6. E-mail writing | 30 |
| Project/ Field trip | | |
| | 1. Submit a report based on your learning from the life of any one successful personality. 2. Visit to personality development training institute and submit its report. | |

Part C-Learning Resources

Text Books, Reference Books, Other resources

Suggested Readings:

1. Andrews, Sudhir (1988). How to Succeed at Interviews. 21st (rep.) Tata McGraw-Hill, New Delhi.
2. Covey, Stephen. (1989). The 7 Habits of Highly Effective People. NY: Free Press
3. Hindle, Tim (2003). Reducing Stress. Essential Manager series. Dk Publishing.
4. Lucas, Stephen (2001). Art of Public Speaking. Tata - Mc-Graw Hill, New Delhi.
5. मार्टन, स्वेट, "व्यक्तित्व का विकास", आनंद पेपरबैक्स।
6. Petes S. J., Francis (2011). Soft Skills and Professional Communication. Tata McGraw-Hill Education, New Delhi
7. शर्मा, पी. के., (2014) "व्यक्तित्व विकास", भारतीश्री प्रकाशन।
8. Smith, B. (2004). Body Language. Rohan Book Company, Delhi.

Suggested equivalent online courses:

1. Basics of Communication: <https://www.glowandlovelycareers.in/en/course-detail/niit-156/basics-of-communication>
2. Social Etiquettes: <https://www.glowandlovelycareers.in/en/course-detail/englishedge-904/social-etiquette>
3. Self-Presentation: <https://www.glowandlovelycareers.in/en/course-detail/niit-161/self-presentation>