

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR

PART A: Introduction

Program: **Certificate** Class: **B.C.A.** Year: **I (sem 2)** Session: **2022-23**

Subject: Computer Applications

1.	Course Code	
2.	Course Title	Programming using C++ and Data Structure
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Major
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. Will be familiar with fundamental data structures, their implementation; become accustomed to the description of algorithms in both functional and procedural styles. 6. Have knowledge of complexity of basic operations like insert, delete, search on these data structures. 7. Possess ability to choose a data structure to suitably model any data used in computer applications. 8. Design programs using various data structures including hash tables, Binary and general search trees, heaps, graphs etc. 9. Assess efficiency tradeoffs among different data structure implementations. 10. Implement and know the applications of algorithms for searching and sorting.
6.	Credit Value	Theory – 4 Credits Practical – 2 Credits
7.	Total Marks	Max. Marks : 40+60 Min. Passing Marks: 35

PART B: Content of the Course

No. of Lectures (in hours per week): **4 Hrs. per week**

Total No. of Lectures: **60.**

Module	Topics	No. of Lectures
I	Basics of OOPs: Features and Characteristics of OOPs, History of C++, Application of C++, Data Types, Operator in C++, C++ Stream Classes, Unformatted and Formatted I/O Operation, Managing Output with Manipulators, Scope Resolution Operator	12
II	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, Classes & Objects: A Sample C++ Program with class, Defining	12

	Member Functions (Private & Public), Static Data Members, Static Member, Functions, Array of Objects, Object as Function Arguments, Friend Functions.	
III	Arrays: Representation of single, two-dimensional arrays Constructor & Destructor: Constructor, Constructors with Default Arguments, Parameterized Constructor, Copy Constructor, Multiple Constructors in a Class, Destructor. Searching (linear & binary) and sorting (bubble sort, selection sort & insertion sorting)	12
IV	Inheritance: Defining Derived Classes, Single Inheritance, Making a Private Member Inheritable, Multilevel Inheritance, Hierarchical Inheritance, Multiple Inheritance, Hybrid Inheritance, Virtual Base Classes, Abstract Classes, Operator Overloading. Polymorphism: Virtual functions. Pointers, Exception Handling	12
V	Data Structure: Basic concepts, Linear and Non-Linear data structures Stacks: Operations, Array and Linked Implementations, Applications- Infix to Postfix Conversion, Infix to Prefix Conversion, Postfix Expression Evaluation. Queues: Definition, Operations, Array and Linked Implementations. Circular Queue-Insertion and Deletion Operations, Dequeue (Double Ended Queue), Priority Queue- Implementation. Linked Lists: Singly Linked Lists, Operations, Circularly linked lists- Operations Doubly Linked Lists- Operations, Doubly Circular Linked List.	12

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 0-07-462038-X
- Herbert Schildt, "C++ The Complete Reference "TMH Publication ISBN 0-07-463880-7

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=BCIS40yzsA>
<https://www.youtube.com/watch?v=vLnPwxZdW4Y&vl=en>
<https://www.youtube.com/watch?v=Umm1ZQ5tZw>

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) : 40 Marks Three test will be taken of which best of two marks will be considered		External Assessment: University Exam (UE) : 60 Marks Time : 03.00 Hours	
Objective type Text I	20 Marks	Section (A) : Very short questions (1 from each unit)	1 x 5 = 5 Marks
Class Test II (Subjective)	20 Marks	Section (B) : 5 Short Questions (200 Words Each)	4 x 5 = 20 Marks
Class Test III (Subjective)	20 Marks	Section (C): 5 Long Questions (500 Words Each)	7 x 5 = 35 Marks
Total	40 Marks	Total	60 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.			

MD

PART A: Introduction			
Program: Certificate	Class: B.C.A.	Year: I (sem 2)	Session: 2022-23
Subject: Computer Application			
1.	Course Code		
2.	Course Title	Programming using C++ Lab	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Core Course	
4.	Pre-Requisite (if any)	To study this course, a student must have basic logical and analytical skills.	
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 : 40+60	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lab Practicals (in hours per week): 2 hours per week			
Total No. of Lab.: 15 (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 find area of a circle, rectangle, square using switch case. 2. Write a program to convert decimal (integer) number into equivalent binary number. 3. Write a program to check given string is palindrome or not. 4. Write a program to print digits of entered number in reverse order. 5. Write a program to print sum of two matrices. 6. Write a program whether a given number is prime or not. 7. Write a program to check entered number is Armstrong or not. 8. Write a program to find the area and volume of a rectangular box using constructor. 9. Write a program to implement single inheritance. 10. Write a program to find largest element from an array. 11. Write a program to implement push and pop operations on a stack using array. 		15

	12. Write a program to perform insert and delete operations on a queue using array. 13. Write a program for Linear search. 14. Write a program for Binary search. 15. Write a program for Bubble sort. 16. Write a program for Selection sort. 17. Write a program for Insertion sort. 18. 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

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=BCIS40yzsA>
<https://www.youtube.com/watch?v=vLnPwxZdW4Y&vI=en>
<https://www.youtube.com/watch?v=Umm1ZQ5ltZw>

Suggested equivalent online courses

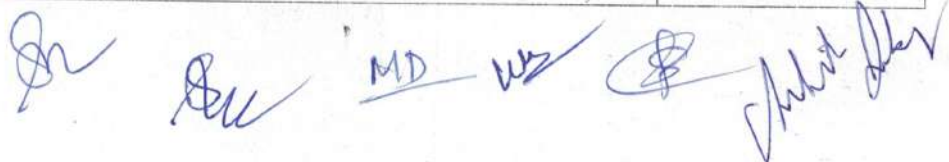
S.No.	Online Course	Duration	Platform
1	Programming in C++ https://nptel.ac.in/courses/106/105/106105151/	8 weeks	NPTEL
2	Beginning C++ Programming - From Beginner to Beyond https://www.udemy.com/course/beginning-c-plus-plus-programming/	Self paced	Udemy

PART D: Assessment and Evaluation

Internal Assessment : Continuous Comprehensive Evaluation (CCE) : 40 Marks		External Assessment: University Exam (UE) : 60 Marks Time : 02.00 Hours	
Internal Assessment	Marks	External Assessment	Marks
Lab Attendance	10 Marks	Practical record file	25 Marks
		Viva voce practical	10 Marks
Internal Viva	10 Marks	Execution	5 Marks
Practical File	20 Marks	Answer script	20 Marks
Total	40 Marks	Total	60 Marks

ST. ALOYSIUS COLLEGE (AUTONOMOUS) JABALPUR M.P.

PART A: Introduction			
Program: Certificate		Class: B.C.A	Semester: II Session: 2022-23
Subject- Computer Application			
1.	Course Code	S1-BCAB2T	
2.	Course Title	Operating System	
3.	Course Type (Core Course/Elective/Generic Elective/Vocational)	Minor	
4.	Pre-Requisite (if any)		
5.	Course Learning Outcomes	<p>After the completion of this course, a student shall be able to do the following:</p> <ol style="list-style-type: none"> 1. Describe the importance of computer system resources and the role of operating system in their management policies and algorithms. 2. Specify objective of modern operating system and describe how operating systems and describe how operating systems have evolved over time. 3. Understand various process management concept and can compare various scheduling techniques, synchronization, ad deadlocks. 4. Describe the concepts of multithreading and memory management techniques. 5. Identify the best suited memory management techniques for any process. 6. Describe various file operations, file allocation methods and disk space management. 7. To understand and identify potential threats to operating systems and the security features design to guard against them. 8. Learn to operate the Linux system. 	
6.	Credit Value	Theory – 4 Credits	
7.	Total Marks	Max.MARKS:30+70	Min. Passing Marks:33
PART B: Content of the Course			
No. of Lectures (in hours per week): 2hr Lecture 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- Multiprogramming Systems, Time Sharing system, Distributed Operating System, Real time system, Operating System for Personal Computers, Workstation and Hand-held Devices,	10	



	Application of various Operating System in real life. Some prevalent operating system – Windows, UNIX/Linux, Android, MacOS, Blackberry OS, Symbian, Bada etc.	
II	<p>Process Management: Process Concepts, Process state & Process Control Block.</p> <p>Process Scheduling: Scheduling Criteria, Scheduling Algorithms (Preemptive & Non- Preemptive) – FCFS, SJF, SRTN, RR, Priority, Multiple-Processor, Real-Time, Multilevel Queue and Multilevel Feedback Queue Scheduling.</p> <p>Deadlock – Definition Characterization, Necessary and Sufficient Conditions for Deadlock.</p> <p>Deadlock Handling Approaches: Prevention, Avoidance, Detection and Recovery.</p>	
III	<p>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.</p> <p>File Management: Concept of File System (File Attributions, 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)</p>	12
IV	<p>Disk Management: Structure, Disk Scheduling Algorithms (FCFS, SSTF, SCAN, C-SCAN, LOOK), Swap Space Management, Disk Reliability, Recovery.</p> <p>Security: Security Threats, Security policy mechanism, Protection, Trusted Systems, Authentication and Internal Access Authorization, Windows Security.</p>	12
V	<p>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.</p> <p>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, Window v/s Linux, Importance of Linux Kernel, Files and Directories, Concept of Open Source Software.</p>	12

En

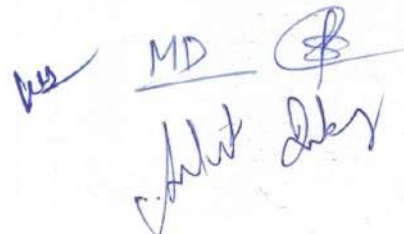
MB

MD

[Signature]

PART C : Learning Resources	
Textbooks, Reference Books, Other Resources	
Suggested Reading	
Textbooks:	
<ul style="list-style-type: none"> • A Silberschatz, P.B. Galvin, G. Gagne, Operating Systems Concepts, 8th Edition John Willey Publications. • A.S. Tanenbaum, Modern Operating Systems, 3rd Edition, Pearson Education. • Operating System by Peterson • Linux by Sumitabh Das. • Related books from MP Hindi Granth Akadami Publications. 	
Reference Book:	
<ul style="list-style-type: none"> • 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 Milenkovie. 	
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 A: Introduction			
Program: Degree	Class: B.C.A.	Year: I Year	Session:2022-23
Subject- Computer Application			
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)	This course can be opted as an elective by the students of Computer Science.	
5.	Course Learning Outcomes (CLO)	After the completion of this course, a student shall be able to: <ul style="list-style-type: none"> • Operating Linux system • Understanding system administration using Vi editor 	
6.	Credit Value	Practical – 2 Credits	
7.	Total Marks	Max. Marks:30+70	Min. Passing Marks:33

PART B: Content of the Course		
No. of Lab. Practicals (in hours per week): 1 Hr Lab. Per week		
Total No. of Lab: 30 Hrs.		
	Suggestive List od Practicals	No. of Labs
	Linux: 1. Linux Directory Commands : pwd ,mkdir ,rm – rf, ls, cd, cd/, cd ~ 2. Linux File Commands : touch, cat, cat>, cat>>, rm, cp, mv, rename 3. Linux Permission Commands : su, id, useradd, passwd, groupadd, chmod, groupdel, chown, chgrp 4. Linux File Content & Filter Commands : head, tail, tac, more, less, grep, cat, cut, grep, comm, sed, tee, tr, uniq, wc, od, sort, diff. 5. Linux Utility Commands : find, bc, locate, date, cal, sleep, time, df, mount, exit, clear, gzip, gunzip. 6. Linux Networking Commands : ip, ssh, mail, ping, host 7. Edit Crontab file : To wall message on system on particular time automatically. 8. 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 Reading		
Textbooks:		
<ul style="list-style-type: none"> • Linux by Sumitabh Das • Linux Bible • Topic Related books from MP Hindi GranthAkandami Publication 		
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		
https://nptel.ac.in/courses/106/102/106102132		

MD

PART D: Assessment and Evaluation			
Internal Assessment : Continuous Comprehensive Evaluation (CCE) : 40 Marks		External Assessment: University Exam (UE) : 60 Marks	
Internal Assessment	Marks	External Assessment	Marks
Lab Attendance	10 Marks	Practical record file	25 Marks
		Viva voce practical	10 Marks
Internal Viva	10 Marks	Execution	5 Marks
Practical File	20 Marks	Answer script	20 Marks
Total	40 Marks	Total	60 Marks

ST. ALOYSIUS' COLLEGE(AUTONOMOUS) JABALPUR			
PART A: Introduction			
Program: Certificate		Class: B.C.A.	Year: II Semester
Session: 2022-23			
Subject: Computer Science			
1.	Course Code	SI-COSC1G	
2.	Course Title	Multimedia & Animation	
3.	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Elective	
4.	Pre-Requisite (if any)	To study this course, a student must have prior basic Knowledge of using computer and internet. This course is open for all.	
5.	Course Learning Outcomes (CLO)	<p>On completion of this course, learners will be able to:</p> <ol style="list-style-type: none"> 1. Describe the various elements and aspects of multimedia and animation. 2. Understand the role played by various multimedia platforms. 3. Learn to add pictures, graphics, sound and animation to prepare a project. 4. Learn the presentation skills and ideas with creativity by using multimedia tools. 5. Apply tools and techniques to create basic 2D and 3D animation. 	
6.	Credit Value	Theory — 2 Credits	
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lectures (in hours per week): 1 Lecture per week			
Total No. of Lectures: 30 Hrs.			
Module	Topic		No. of Lectures
i	<p>Introduction to Multimedia: What is multimedia, Multimedia and Hypermedia, Components of multimedia -textual, images, graphics, animation, audio and video, Linear and Non-Linear Multimedia, Application of Multimedia, Requirement of Multimedia System</p> <p>Multimedia Authoring Tools: Multimedia Authoring, Multimedia Production, Multimedia Presentation and tools, Editing and Authoring tools, Multimedia Hardware, Compression & Decompression.</p>		6
ii	<p>Fonts and Hypertext: Usage of text in Multimedia, Families and faces of fonts, outline fonts, bitmap fonts, International character sets and hypertext, Digital font's techniques.</p> <p>Image fundamentals: Image formats, Bitmap and Vector, Color Models, Color palettes, 2D Graphics, Image Compression and File Formats: GIF, JPEG, JPEG 2000, PNG, TIFF, EXIF, PS, PDF.</p> <p>Basic Image Processing, Use of image editing software, Photo Retouching, Image resolution, Colour, Raster and Vector Graphics.</p>		6

III	Corel 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. Working of Menu bar options. Design Principles & Color Harmony Introduction to colors -Primary and Secondary in both RGB & CMYK schemes/modes.	6
IV	Photoshop- Introduction of Photoshop, Anatomy of Photoshop, Concept of White, Background and Layer, Basic operations on image-Altering Size, Working of tools, Changing of mode of an image, Save Selection, Effects on image by Adjustment, Flatten image, preparation of image, Effect of filter on image, Animation using Image Ready	6
Keywords/Tags: Multimedia, Hardware, Software, Images, GIF, JPEG, JPEG 2000, PNG, TIFF, EXIF, PS, PDF, Video, Compression, Animation, 2D, 3D		

—PART C: Learning Resources

**Textbooks, Reference Books,
Other Resources**

Suggested Readings :

- Tay Vaughan. "Multimedia Making It Works". Tata McGraw-Hill.
- Ze-Nian Li and Mark S. Drew "Fundamentals of Multimedia" Pearson Education International.
- Rajneesh Aggarwal & B. B Tiwari, "Multimedia Systems", Excel Publication, New Delhi
- Li & Drew, "Fundamentals of Multimedia", Pearson Education.
- Parekh Ranjan, "Principles of Multimedia", Tata McGraw-Hill.
- M.Mahalakshmi. "Multimedia", Margham Publications,
- Pakhira, Malay K. "Computer Graphics, Multimedia and Animation", Prentice Hall India Pvt. Ltd.
- Liz Blazer "Animated Storytelling: Simple Steps for Creating Animation and Motion Graphics."
- Andy Beane "JD Animation Essentials" John Wiley.

Suggestive digital platform web links

<https://eggg.inflibnet.ac.in/Home/ViewSubject?catid=7>
<https://onlinecourses.swayam2.ac.in/cec2>

Suggested equivalent online courses

<https://www.classcentral.com/course/swayam-animations-13880>




MD



PART A: Introduction			
Program: Certificate	Class: B.C.A.	Year: II SEMESTER	Session: 2022-23
Subject: Computer Science			
1.	Course Code	SI-COSC IR	
2.	Course Title	Multimedia & Animation Lab	
	Course Type (Core Course/Elective/Generic Elective/ Vocational)	Elective	
4.	Pre-Requisite (if any)	To study this course, a student must have prior basic knowledge of Using computer and internet. This course is open for all.	
5.	Course Learning Outcomes (CLO)	On completion of this course, learners will be able to: 2. Describe the various elements and aspects of multimedia and animation. 3. Understand the role played by various multimedia platforms. 4. Learn to add pictures, graphics, sound and animation to prepare a project. 5. Learn the presentation skills and ideas with creativity by using multimedia tools. 6. Apply tools and techniques to create basic 2D and 3D animation.	
6.	Credit Value	Practical - 2 Credits	
7.	Total Marks	Max. Marks: 40+60	Min. Passing Marks: 35
PART B: Content of the Course			
No. of Lab. Practical's (in hours per week): 2 Hrs. per week			
Total No. of Lab. 16 hrs.			
	Suggestive List of Practical's		No. of Labs.
	<p>Note: In the first week of the lab, the instructor must facilitate the students with the basic operation of multimedia tools and software like Coreldraw, Photoshop, Picasa, Sound forge, Waveform Editor, Moviemaker, Dreamweaver, Macromedia Flash, 3D Max, Blender etc. or any other open source suitable multimedia tools.</p> <ol style="list-style-type: none"> 1. Design an identity card in corel draw. 2. Design a certificate in corel draw. 3. Design a template card in corel draw. 4. Design a logo in corel draw. 5. Design a greeting card in corel draw. 6. Create an identity card in photoshop. 7. Create an ATM card in photoshop. 8. Design a certificate in photoshop. 9. Design an invitation card in photoshop. 10. Create an animated in photoshop. 		8

[Handwritten Signature]

[Handwritten Signature]

MD

[Handwritten Signature]

[Handwritten Signature]

Keywords/Tags: Multimedia, Hardware, Software. Images, GIF, JPEG, JPEG-2000, PNG, TIFF, EXIF, PS. PDF, Video, Compression. Animation, 2D, 3D.
--

PART C: Learning Resources	
Textbooks, Reference Books, Other Resources	
Suggested Readings :	
<ul style="list-style-type: none"> • Tay Vaughan, "Multimedia Making It Works", Tata McGraw-Hill. • Ze-Nian Li and Mark S. Drew "Fundamentals of Multimedia" Pearson Education International. • Rajneesh Aggarwal & B. B Tiwari, "Multimedia Systems", Excel Publication, New Delhi • Li & Drew, "Fundamentals of Multimedia", Pearson Education. • Parekh Ranjan, "Principles of Multimedia", Tata McGraw-Hill. • M.Mahalakshmi, "Multimedia". Margham Publications. • Pakhira, Malay K, "Computer Graphics, Multimedia and Animation", Prentice Hall India Pvt. Ltd. • Liz Blazer "Animated Storytelling: Simple Steps for Creating Animation and Motion Graphics." • Andy Beane "JD Animation Essentials" John Wiley. 	
Suggestive digital platform web links	
https://eggg.inflibnet.ac.in/Home/ViewSubject?catid=7 https://onlinecourses.swayam2.ac.in/cec2	
Suggested equivalent online courses	
https://www.classcentral.com/course/swayam-animations-13880	

PART D: Assessment and Evaluation			
Internal Assessment : Continuous Comprehensive Evaluation (CCE) : 40 Marks		External Assessment: University Exam (UE) : 60 Marks Time : 02.00 Hours	
Internal Assessment	Marks	External Assessment	Marks
Lab Attendance	10 Marks	Practical record file	25 Marks
		Viva voce practical	10 Marks
Internal Viva	10 Marks	Execution	5 Marks
Practical File	20 Marks	Answer script	20 Marks
Total	40 Marks	Total	60 Marks




MB

