Course code 22BITA1	Allied-I A	T/P	C	H/W
	FUNDAMENTALS OF COMPUTER	T	3	3

Objectives	➢ To acquire the basic concepts of computer ➢ To gain knowledge about storage devices, computer applications
Unit -I	**Introduction to Computer**: Introduction - Digital and Analog Computers - Characteristics of Computer - History of Computer - Generations of Computer - Classification of Computer - The Computer System - Application of Computers - **The Computer System Hardware**: Introduction - Central Processing Unit - Memory Unit - Instruction Format - Instruction Set - Instruction Cycle – Microprocessor - Interconnecting the Units of a Computer - Performance of a Computer - Inside a Computer Cabinet.
Unit-II	**Computer Memory**: Introduction - Memory Representation - Memory Hierarchy - CPU Registers - Cache Memory - Primary Memory - Secondary Memory - Access Types of Storage Devices - Magnetic Tape - Magnetic Disk - Optical Disk - Magneto-Optical Disk - Using the Computer Memory.
Unit -III	Data Entry Devices - Source Data Entry Devices - Output Devices - I/O Port - Working of I/O System**- Interaction of User and Computer**: Introduction - Types of Software - System Software - Application Software - Software Acquisition.
Unit -IV	**Operating System**: Introduction - Objectives of Operating System - Types of OS - Functions of OS - Process Management - Memory Management - File Management - Device Management - Protection and Security - User Interface - MS-DOS - Windows Family of OS - Brief History of Windows OS - Linux OS - **Computer Programming Fundamentals**: Introduction - Program Development Life Cycle – Algorithm - Control Structures - Flowchart - Pseudo Code - Programming Paradigms.
Unit -V	The Internet and Internet Services : Introduction - History of Internet - Internetworking Protocol - The Internet Architecture - Managing the Internet - Connecting to Internet - Internet Connections - Internet Address - Internet Services - Uses of Internet.

Text Book:

"Computer Fundamentals", Anita Goel, Pearson Education.

References:

Computer Fundamentals By Anita Goel, Pearon Education India ,2010.

Outcomes	• Students will able to understand the basic concepts of computer • Students will able to learn about memory devices and computer applications.

Course code 22BITAP1	Allied-I A	T/P	C	H/W
	FUNDAMENTALS OF OPERATING SYSTEM LAB	P	2	2

Objectives

To make the students understand DOS, UNIX and WINDOWS operating system commands and effectively use the computer interacting with the OS shell.

Cycle-I

Disk Operating System (DOS)

1. Perform the following operations using DOS commands: Change the system date, Change the System time, clear the screen and use the copy con file to create a text file.
2. Demonstrate the following using DOS commands: Change the drive to user working Drive, Display all the files from the drive, Display the Directory names, Display the file types .C, Display the files with attributes(hidden, read-only, system)
3. Create a batch file to do the following: Display the files in a directory with alphabetical order, print the current path of the directory, Display the "Welcome" message, Display the files starting with character 'd', Display the files having names with two characters and file type .C and execute the crated batch file.
4. Create batch file to do the following: Display the current working directory, Create a new directory called "Student", Change the directory to newly created directory, Create two text files namely "user1" and "user2", Rename the file "user1" to your name, Display the files with its attributes, Remove the newly created directory "Student".
5. Demonstrate the following DOS commands: Display all files with extension .txt, Create three text files, Display the content of the text files one by one, Concatenate the three text files into one called "result.txt", Rename the file "result.txt" to "NewName.txt", Display the directory files by its creation date.
6. Demonstrate the following DOS commands: Display the files from the current directory, create a new directory called "New", Copy all the .C files to the newly created directory, change to the new directory, Display all the files from the New directory, Remove the New Directory.
7. Demonstrate the following DOS commands: Display the files starting with 's' and ending with 't', Display files exactly three character in its name, Display the files with any name and extension .exe, Store all the current directory files to a file called "output.txt", Sort and display the contents of the file "output.txt".

Linux Operating System

1. Write a shell script to get the current date, time, username and current working directory.
2. Write a shell script that adds an extension ".new" to all the files in a directory.
3. Write a shell program to reverse the digits of five digit integer
4. Write shell program to find the number of characters, words and line in a given file.
5. Write a shell script to delete the lines containing a word <dd> if it appears between the 5th and 7th position?
6. Write a shell script to get the total count of the word "Linux" in all the ".txt" files
7. Write a shell script to do the following: displays present working directory, displays

	current date and time, lists files in the current directory, creates a directory called test, copies file1 to test directory, renames file1 to file2, displays contents of File2, lists files in the long format. **Windows Operating System** 1. Change the appearance of the windows desktop with new wallpaper and Display settings. 2. Use the control panel to change the system date and time 3. Using the windows folder to do the following: search and display the selected files from the folder, Display the files with the extension .C, Delete all the files with the extension .BAK 4. Do the following operations on folders and files: create a new folder, change to the new folder, create some text files on the folder, rename any one of the file to "reNamedFile", Delete the file just renamed, Remove the new folder created by you. 5. Demonstrate the following: Create a new text file using any text editor, Display the text file on the folder, Change the file attributes to read-only and hidden, Remove the file created by you.
Reference and Textbooks:- DOS: The Complete Reference Paperback, Kris Jamsa, 4th Edition, McGraw Hill 1993. Linux: The Complete Reference, Sixth Edition – Illustrated, Richard Petersen,McGraw Hill, 2008. Windows 10: The Missing Manual, 2nd Edition, David Pogue, O'Reilly Media, Inc., 2018.	
Outcomes	➢ Understand the commands and services in operating systems. ➢ Develop solutions for a range of problems by writing scripts. ➢ Automation of oft-repeated operations with scripts and short cuts

Course code 22BITA2	Allied-I B	T/P	C	H/W
	DIGITAL ELECTRONICS	**T**	**3**	**3**
Objectives	➢ To acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits. ➢ To impart how to design Digital Circuits.			
Unit -I	**Digital Logic**: The Basic Gates-NOT, OR, AND – Universal Logic Gates - NOR, NAND – And - OR Invert Gates – Positive Negative Logic – **Data Processing Circuits**: Multiplexers – Demultiplexers – 1 to 16 Decoder – BCD To Decimal Decoders – Seven Segment Decoders.			
Unit-II	Encoders – Exclusive OR Gates – Parity Generator Checkers – Read Only Memory – Programmable Array Logic – **Number Systems and Codes**: Binary Number system – Radix Representation of Numbers - Binary to Decimal Conversion – Fixed Point Representation - Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers – The ASCII Code – The Excess-3 Code – The Gray Code.			
Unit -III	**Arithmetic Circuits**: Binary Addition – Binary Subtraction – Unsigned Binary Numbers – Sign-Magnitude Numbers – 2's Complement Representation – 2's Complement Arithmetic – Arithmetic Building Blocks – The Adder - Subtractor – Fast Adder – Arithmetic Logic Unit – Binary Multiplication and Division.			
Unit -IV	**Clocks and Timers**: Clock Waveforms – TTL Clock – Schmitt Trigger - 555 Timer Astable – 555 Time Monostable – Monostables with Input Logic - **Flip-Flops** : RS Flip-Flops – Gated RS Flip-Flops – Edge-Triggered RS Flip-Flops - Edge-Triggered D Flip-Flops – Edge-Triggered JK Flip-Flops - Flip-Flop Timing – JK Master-Slave Flip-Flops.			
Unit -V	**Registers**: Types of Registers – Serial In-Serial Out – Serial In-Parallel Out – Parallel In-Serial Out – Parallel In-Parallel Out – Universal Shift Register – **Counters**: Asynchronous Counters - Decoding Gates – Synchronous Counters – Decade Counters – Presettable Counters - A Digital Clock.			

Text Book:

"*Digital Principles and Applications",* Donald P. Leach, Albert Paul Malvino, Goutam Saha , Eighth Edition, McGraw-Hill International Editions.

Books for Reference:

S.Salivahanan and S.Arivazahagan. "*Digital circuits and design",* Vikas publishing house Ltd., 2000.

Tocci T.I "D*igital systems: principle and applications",* sixth edition, PHI 1997.

Mano M.M, "*Digital logic and complete design*" PHI 1992.

Palmer, J.E and Periman, D.E, "*Introduction to Digital systems*"

Outcomes	• Students will able to understand the basic concepts of Digital Electronics • Students will able to design circuits and how to implement.

Course code 22BITAP2	Allied-I B	T/P	C	H/W
	DIGITAL ELECTRONICS LAB	**P**	**2**	**2**

Objectives	• To Understand the Digital Electronics Practically • To know how to solve gates and other functions.

1. AND, OR and NOT Gate using Truth Table
2. Universality of NAND & NOR gates.
3. Verification of Boolean laws using NAND gates (Associative, Commutative & Distributive Laws)
4. Verification of Boolean laws using NOR gates (Associative, Commutative & Distributive Laws)
5. Sum of Products using NAND gates and Product of Sums using NOR Gates.
6. 4-bit binary parallel adder and Subtractor IC 7483
7. Counter using IC 7473
8. Study of RS, D, T and JK Flip-Flops with IC's.
9. Study of Encoder & Decoder.
10. Study of Multiplexer & De-Multiplexer.
11. Half and Full Adder using Simple & NAND Gates.
12. Half and Full Subtractor using Simple & NAND Gates.

Outcomes	• Students were able to solve simple gate functions. • Students were able to solve and Design circuits using IC.

Course code 22BITA3	Allied	T/P	C	H/W
	Multimedia and Its Applications	**T**	**3**	**3**

Objectives	➢ This course gives an exposure to Multimedia and its applications. ➢ Students will understand the hardware and software needed to create application using creativity
Unit -I	Multimedia Definitions – Delivering - Uses of multimedia. Text : The Power of Meaning – About Fonts and Faces –Using Text in Multimedia – Computers and Text – Font Editing and Design Tools – Hypermedia and Hypertext.
Unit-II	Images: Making Still Images –Understating natural light and color- Image File formats. Sound: The Power of Sound – Multimedia System Sounds- Digital Audio - MIDI Versus Digital Audio — Making MIDI Audio – Audio file formats – Adding Sound– Copyright Issues.
Unit -III	Animation: The Power of motion – Principles of Animation - Making Animation. Video : Using video – How it works – Broadcast Video Standards – Integrating Computers and Television – shooting and Editing Video – Video Tips – Recording Formats – Digital video.
Unit -IV	Making Multimedia- Hardware Peripherals: Connection- Memory and storage Devices – Input / Output Devices-Communication Devices Software-Editing tools for Text, Image, Sound, Animation and Video Multimedia Skills-Designing for the World Wide Web.
Unit -V	Adobe Animate: Animate Interface-Managing workspaces and Panels Customizing the tools and Timeline panels- Animating with Diverse Techniques-Working with Shapes-Tweens-Symbols-Interactive Motion Graphics for the Web-Character design through Layer.

Reference and Text Books:

- Multimedia: Making It Work-Ninth Edition-Tay Vaughan-McGraw Hill
- Mastering Adobe Animate 2021-Joseph Labrecque - Packt Publishing Limited
- Multimedia Application and Web Designing - Dinesh Maidasani- Laxmi Publications
- Multimedia Programming: A Practical Approach- Dr. Siddhartha Bhattacharyya & Dr. Paramartha Dutta - Vikas Publishing

Outcomes	➢ Understand the concepts of Sound, Image, Animation and Video. ➢ Work with Animation tools.

Course code 22BITAP3	Allied-II A	T/P	C	H/W
	Multimedia LAB	P	2	2

LIST OF PRACTICAL PROGRAM
Note : Use Adobe Animate Latest Software

1. Draw an animation to show a bouncing ball.
2. Draw an animation to show a moving stick man.
3. Draw an animation with banana.
4. Draw an animation to show sunrise and sunset.
5. Draw an animation to show a disappearing house.
6. Draw an animation to show two boats sailing in river
7. Draw an animation to show a scene of cricket match.
8. Draw an animation to help teach a poem or a song
9. Draw an animation to show cartoon with a message
10. Draw an animation to move Butterfly from one flower to other.
11. Draw an animation for health tips.
12. Draw an animation for Kids Mathematics.
13. Make a movie showing Shape Tweening.
14. Make a movie showing Motion Tweening.
15. Add sound and button to the movie.

Course code 22BITA4	Allied-II B	T/P	C	H/W
	Open Source Technologies	**T**	**3**	**3**

Objectives	➢ Learn more server side scripting. ➢ To understand Python programs with lists, tuples, sets and dictionaries.
Unit -I	Introduction to Open sources-Need of Open Sources-Advantages of Open Sources – Application of Open Sources. Introduction to PHP: Evaluation of PHP, Basic Syntax, Defining variable and constant, PHP Data type, Operator and Expression. Introduction to Control Structures – Using Conditional and Looping Statements. Handling Html Form with PHP- Capturing Form, GET- POST method and redirecting a form after submission.
Unit-II	Array: Anatomy of an Array, Creating index based and Associative array, Accessing array, Looping with Index based array, Looping with associative array using foreach(). String: String Searching & Replacing String, Formatting String, String Related Library function and regular expression.
Unit -III	Function: What is a function, Define a function, Call by value and Call by reference, Recursive function, Date and Time Function. Working with file and Directories: Understanding file & directory, Opening and closing a file, Copying, renaming and deleting a file, working with directories, Creating and deleting folder, Exception Handling: Understanding Exception and error, Try, catch, throw. Error tracking and debugging. Sending and receiving E-mails
Unit -IV	Introduction to Python: History of Python- Futures of Python-Application of Python Installation of Python-Keywords-Identifiers-Statements-Indentation-Data types-Literal Variable-Operators and Expression-Input/Output Statements. Conditional and Looping Statements. Sequences–Lists-Methods--Mutability-Creating Tuple- Accessing / Updating / Deleting elements in Tuple-Nested Tuples–Making a Dictionary-Adding and Modifying an Item in a Dictionary-Sorting Items-Looping over a Dictionary- Sets-Iterators and Generators.
Unit -V	Functions-Defining a Function-Calling Function – Type of Arguments –return statement - Recursive functions-Modules- Installing Packages. Strings and Regular Expressions-Files and Directory Access-Opening a file modes-Reading / Writing Operations on a File-File Position-Renaming and Deleting File-Object Oriented Programming-Errors and Exceptions- Handling Exceptions

Text Book:

PHP: The Complete Reference -Steven Holzner -McGraw Hill Education-2017

PHP Programming -The Complete Guide - Code Academy-2022

Python Programming- Ch Satyanarayana, M Radhika Mani, B N Jagadesh -Universities Press.

Python Programming Using Problem Solving Approach - Reema Thareja-Oxford University Press.

Outcomes	• Understand process of executing a PHP-based script on a webserver. • Explain the various operations for manipulating Tuples, Sets, Dictionaries and use List to perform simple and sorting operations.

Course code 22BITAP4	Allied	T/P	C	H/W
	Open Source Lab	P	2	2

1. Write a PHP Program to create a page using functions for comparing three integers and print the largest number.
2. Write a PHP Program to calculate the factorial of a number (non-negative integer). The function accept the number as an argument.
3. Write a PHP Program to convert Number into Word.
4. Write a PHP Program to check whether the given number is prime or not.
5. Write a PHP Program that checks whether a passed string is palindrome or not.
6. Write a PHP Program to prepare the EB Bill using File Handling.
7. Write a PHP program to check the email-id is valid or not using regular expression
8. Write a Python Program for checking whether the given number is an odd or even number.
9. Write a Python Program to check leap year.
10. Write a Python Program to Check Prime Number.
11. Write a Python program to check whether the given no is Armstrong or not.
12. Write a Python program to generate list of Fibonacci number up to n Fibonacci numbers.
13. Write a python program to create, append and remove lists in python.
14. Write a program to demonstrate working with tuples in python.
15. Write a program to demonstrate working with dictionaries in python.
16. Write a python program to define a module to find Factorial Numbers and import the module to another program.
17. Write a Python program to find the given string is Palindrome or Not.
18. Write a python program by using exception handling mechanism.