ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

MINOR

Subject: Computer Applications

w.e.f. AY 2023-24

COURSE STRUCTURE

Year	Semester	Course	Title of the Course	No. of Hrs /Week	No. of Credits
I	II	1	Office Automation Tools	3	3
			Office Automation Tools Lab	2	1
II	III	2	Database Management System	3	3
			Database Management System Lab	2	1
	IV	3	Python Programming	3	3
			Python Programming Lab	2	1
		4	Operating Systems	3	3
			Operating Systems Lab	2	1
III	V	5	Web Programming	3	3
			Web Programming Lab	2	1
		6	Web Development Using PHP & MySQL	3	3
			Web Development Using PHP & MySQL Lab	2	1

COURSE 1: OFFICE AUTOMATION TOOLS

Theory   Credits: 3   3 hrs/week

Course Objectives:
- ✓ To introduce theenvironment of GUI in Ms-Word and its features..
- ✓ To introduce the fundamental concepts using Ms-Word and its features to make it more useful.
- ✓ To provide hands-on use of Word, Excel and PowerPoint.

Course Outcomes:

The students will be able:

- ✓ To understand concept of Word Processor and use its features.
- ✓ To use the advanced features of Ms-Word to make day to day usage easier.
- ✓ To work comfortably with Ms-Excel Environment.
- ✓ To Create worksheets and use advanced features of Excel.
- ✓ To create presentations and inserting multimedia items in them.

Syllabus

UNIT–I : Introduction to Ms-Office &Ms-Word

MS-Word: Features of MS-Word, MS-Word Window components, working with formatted text, Shortcut keys, Formatting documents: Selecting text, Copying &moving data, Formatting characters, changing cases, Paragraph formatting, Indents, Drop Caps, Using format painter, Page formatting, Header &footer, Bullets & numbering, Tabs, Forming tables. Finding & replacing text, go to(F5) command, proofingtext (Spellcheck, Auto correct),

Case Study:
1. Create a document to write a letter to the DM&HO of the district complaining about Hygienic conditions in your area.
2. Create a document to share your experience of your recent vacation with family.

UNIT–II :Ms-Word Advanced Features

Difference between Wizard and Template - Customize the Quick Access Tool Bar – Macros: Purpose – Creating Macro – Using Macro – Storing Macro - Inserting pictures: From Computer, Online Pictures – Insert 3d Models - Insert Shapes – Insert Text Box – Insert Equation, Hyperlinks- Tables : Insert tables - Mail merge ,Printing documents, Tables : Insert tables, Mathematical calculations on tables data. Insert Text Box etc.

Case Study:
1. Create a document to send a holiday intimation to all the parents at time about Dasara Vacation.
2. Create a document to create Time Table of you class using tables.

UNIT–III: Introduction to Ms-Excel & Its Features

MS-Excel: Excel Features, Spread sheets, workbooks, creating, saving &editing a workbook, Renaming sheet, cell entries(numbers, labels, and formulas),spell check, find and replace, Adding and deleting rows and columns Filling series, fill with drag, data sort, Formatting worksheet, Functions and its types, Some useful Functions in excel(SUM,AVERAGE,COUNT, MAX,MIN, IF),

Case Study:
1. Create a worksheet with you class marks displaying total, average, top marks in the class and least marks in the class.
2. Create a Worksheet with employee no, name, job, salaries of 10 employees, calculate DA,TA,HRA ,Gross Salary and Net Salary.
 i. Find the sum of HRA's of Total employees.
 ii. Find the average DA
 iii. Display the Maximum salary of the employee.

UNIT-IV: Ms-Excel Advanced Features

Cell referencing (Relative, Absolute, Mixed), What-if analysis, Introduction to charts: types of charts, creation of charts, printing a chart, printing worksheet – Sort – Filters – View Menu- Goal Seek –Scenarios.

Case Study:
1. Prepare a chart with height and weights of you class mates in at least 3 types of charts.
2. Demonstrate the use of Filter with the attendance data of your class.

UNIT-V: Ms-PowerPoint and its Applications

MS-PowerPoint: Features of Power Point, Uses, components of slide, templates and wizards, using template, choosing an auto layout, using outlines, adding subheadings, editing text, formatting text, using master slide, adding slides, changing color scheme, changing background and shading, adding header and footer, adding clip arts and auto shapes. Various presentation, Working with slide sorter view(deleting, duplicating, rearranging slides),adding transition and animations to slide show, inserting music or sound on a slide, viewing slideshow, Printing slides.

Case Study:
1. Prepare a presentation with your achievements and experiences in College.
2. Create a Presentation of your organization with pictures, clip arts and animations

Text Books:
1. Computer Fundamentals–Pradeep .K.Sinha: BPB Publications.
2. Fundamentals of Computers –Reema Thareja, Oxford University Press India

COURSE 1: OFFICE AUTOMATION TOOLS

Practical   Credits: 1   2 hrs/week

List of Experiments

1. Design a visiting card for managing director of a company as per the following specification.
   o Sizeofvisitingcardis3½×2
   o Name of the company with big font
   o Phone number, Fax number and E-mail address with appropriate symbols.
   o Office and Residence addresses separated by new line
2. Create a table with following columns and display the result in separate cells for the following
   o Emp Name, Basic pay, DA, HRA, Total salary.
   o Sort all the employees in ascending order with the name as the key
   o Calculate the total salary of the employee
   o Calculate the Grand total salary of the employee
   o Find highest salary and
   o Find lowest salary

3)Prepare an advertisement to company requiring software professional with the following
   o Attractive page border
   o Design the name of the company using WordArt
   o Use at least one clipart.
   o Give details of the company(use bullets etc.)
   o Give details of the Vacancies in each category of employee's(Business manager, Software engineers, System administrators, Programmers, Data entry operators) qualification required.

4)Create a letter head of a company with the following specifications
   o Name of the company on the top of the page 2 with big font and good style
   o Phone no, Faxno and E-mail address with symbols.
   o Main products manufactured by the company
   o Slogans if any should be specified in bold at the bottom

5)Create two pages of curriculum vitae of a graduate with the following specifications
   o Table to show qualifications with proper headings
   o Appropriate left and right margins
   o Format ½pageusingtwo-columnapproachabout yourself
   o Name on each page at the top right side
   o Page no. in the footer on the right side.

6)Write a macro format document as below
   o Line spacing"2"(double)
   • Paragraphindentof0.1
   • Justification formatting style
   • Arial font andBoldof14pt-size

7) Create a letter as the main document and create 10 records for the 10 persons Use mail merge to create letter for selected persons among 10.

8) Create an electronic spread sheet in which you enter the following decimal numbers and convert the number to octal, Hexadecimal and binary numbers and vice-versa.

DecimalNumbers:35,68,95,78,165,225,355,375,465
BinaryNumbers:101,1101,11101,11111,10001,11101111

9) Calculate the net pay of the employees following the conditions below.

	A	B	C	D	E	F	G	H	I
1	Employee Number	Employe e Name	Basic pay	DA	HRA	GPF	Gross Pay	Income tax	Net pay
2									

- ➢ DA:- 16% of the basic pay if Basic pay is greater than 20000 or else 44%.
- ➢ HRA:- 15 % of the Basic pay subject to maximum of Rs.4000.
- ➢ GPF: -10% of the basic pay.
- ➢ INCOMETAX:-10% of basic If Basic pay is greater than20000.
- ➢ Find who is getting highest salary & who is get lowest salary?

10) The ABC Company shows the sales of different product For5years.CreateBARGraph, 3D and Pie chart for the following.

A	B	C	D	E	F
S.No.	Year	Pro1	Pro2	Pro3	Pro4
1	1989	1000	800	900	1000
2	1990	800	80	500	900
3	1991	1200	190	400	800
4	1992	400	200	300	1000
5	1993	1800	400	400	1200

11) Create a suitable examination database and find the sum of the marks(total) of each student and respective, class secured by the student.
- ✓ Pass – if marks in each subject >= 35
- ✓ Distinction- if average >= 75
- ✓ First class – if average >=60 but <75
- ✓ Second class – if average >=50 but l<60
- ✓ Third class – if average >=35 but <50
- ✓ Fail: if marks in any subject <35

12) Enter the following data in to the sheet.

Name	Department	Salary
Anusha	Accounts	12000
Rani	Engineering	24000
Lakshmi	Accounts	9000
Purnima	Marketing	20000
Bindu	Accounts	4500
Tejaswi	Accounts	11000
Swetha	Engineering	15000
Saroja	Marketing	45000
Sunitha	Accounts	5600
Sandhya	Engineering	24000

Harika	Marketing	8000

- Extract records for department in Accounts and Salary>10000
- Sort the data by salary with the department using "sort commands".
- Calculate total salary for each department using Subtotals

13) Enter the following data into the sheet.

	Raju	Rani	Mark	Rosy	Ismail	Reshma
English	76	89	43	51	76	87
2ndLang	55	85	78	61	47	33
Maths	65	82	34	58	52	65
Computers	45	91	56	72	49	56
Human Values	51	84	54	64	32	64

Applytheconditionalformattingformarks

- 35 below   Red
- 35 to 50   Blue
- 51 to 70   Green
- 71 to 100   Yellow

14) Create a presentation using templates.
15) Create a Custom layout or Slide Master for professional presentation.
16) Create a presentation with slide transitions and animation effects.
17) Create a table in PPT and apply graphical representation

COURSE 2: DATABASE MANAGEMENT SYSTEM

Theory   Credits: 3   3 hrs/week

Course Objectives:

- Graduates will have the expertise in analyzing real time problems and providing appropriate solutions related to Computer Science & Engineering.
- Graduates will have the knowledge of fundamental principles and innovative technologies to succeed in higher studies and research.
- Graduates will continue to learn and to adapt technology developments combined with deep awareness of ethical responsibilities in profession.

Course Outcomes:

- An ability to apply Knowledge of computing and mathematics in Computer Science & Engineering.
- An ability to analyze a problem, identify and define the computing requirements appropriate to its solution.
- An ability to design, implement and evaluate a computer-based system to meet desired needs with appropriate societal considerations.
- An ability to conduct investigations, interpret data and provide conclusions in investigating complex problems related to Computer Science & Engineering.
- An ability to engage in continuing professional development and life-long learning.

UNIT- I

Overview of Database Systems: Introduction: Database system, Characteristics (Database Vs File System), Database Users, Advantages of Database systems, Database applications.

Data Models: Introduction; types of data models, Concepts of Schema, Instance and data independence; Three tier schema architecture for data independence; Database system structure, environment, Centralized and Client Server architecture for the database.

Case Study:
1. Describe the differences between Database systems and File based systems
2. Study about database models and their advantages and dis-advantages

UNIT- II

Relational Model: Introduction to relational model, Codd's rules, concepts of domain, attribute, tuple, relation, constraints (Domain, Key constraints, integrity constraints) and their importance , concept of keys (super key, candidate key, primary key, surrogate key, foreign key) , relational Algebra & relational calculus.

Normalization: Purpose of Normalization or schema refinement, concept of functional dependency, normal forms based on functional dependency(1NF, 2NF and 3 NF), Boyce-codd normal form(BCNF)

Case Study:
Describe Relational model and normalization for database design

UNIT - III:

Entity Relationship Model: Introduction, Representation of entities, attributes, entity set, relationship, relationship set, constraints, sub classes, super class, inheritance, specialization, generalization using ER Diagrams,

BASIC SQL: Database schema, data types, DDL operations (create, alter, drop, rename), DML operations (insert, delete, update), basic SQL querying (select and project) using where clause, arithmetic & logical operations, aggregation, grouping, ordering.

Case Study:
1. Examine issues in data storage and query processing using SQL.
2. Create, maintain and manipulate a relational database using SQL

UNIT - IV

SQL: Nested queries/ sub queries, implementation of different types of joins, SQL functions(Date, Numeric, String, Conversion functions), Creating tables with relationship, implementation of key and integrity constraints, views, relational set operations , Transaction Control Language: commit, Rollback, Savepoint , DCL :Grant, Revoke

Case Study:
1. Try to convert some sample data to information and show how it can you be used in decision making.

UNIT –V

PL/SQL: Introduction , Structure , Control Structures , Cursors , Procedure , Function , Packages , Exception Handling ,Triggers.

Transaction processing Concepts : Transaction State, Implementation of Atomicity and Durability, Concurrent Executions, Serializability, Recoverability, Implementation of Isolation, Testing for Serializability, Failure Classification, Storage, Recovery and Atomicity, Recovery algorithm.

Case Study:
Outline the role and issues in Transaction management of data such as efficiency, privacy, security.
Database management systems Text Books

- Database Management Systems, 3rd Edition , Raghurama Krishnan, Johannes Gehrke, TMH
- Database System Concepts,5th Edition , Silberschatz, Korth, TMH

Practical   Credits: 1   2 hrs/week

List of Experiments

SQL :

Cycle-I: Aim: Marketing company wishes to computerize their operations by using following tables.

Table Name: Client- Master
Description: Used to store client information

Column Name	Data Type	Size	Attribute
CLIENT_NO	Varchar2	6	Primarykey
NAME	Varchar2	20	Not null
ADDRESS1	Varchar2	30	
ADDRESSS	Varchar2	30	
CITY	Varchar2	15	
PINCODE	Varchar2	8	
STATE	Varchar2	15	
BAL_DUE	Number	10,2	

Table Name: Product_Master
Description: Used to store product information

ColumnName	Data Type	Size	Attribute
PRODUCT_NO	Varchar2	6	Primarykey
DESCRIPTION	Varchar2	15	Not null
PROFIT _PERCENT	Number	4,2	Not null
UNIT_MEASUE	Varchar2	10	
QTY_ON_ HAND	Number	8	
REORDER_LVL	Number	8	
SELL_PRICE	Number	8,2	Not null, cannot be 0
COST _PRICE	Number	8,2	Not null,cannot be 0

Table Name: Salesman_master
Description: Used to store salesman information working for the company.

ColumnName	Data Type	Size	Attribute
SALESMAN_NO	Varchar2	6	Primary key
SALESMAN_NAME	Varchar2	20	Not null
ADDRESS1	Varchar2	30	
ADDRESS2	Varchar2	30	
CITY	Varchar2	20	
PINCODE	Number	8	
STATE	Vachar2	20	
SAL_AMT	Number	8,2	Not null, cannotbe0
TGT_TO_GET	Number	6,2	Not null, cannotbe0
YTD_SALES	Number	6,2	Not null
REMARKS	Varchar2	20	

Table Name: SALES-
ORDER Description:Used to
store client's orders

ColumnName	Data Type	Size	Attribute
ORDER_NO	Varchar2	6	Primarykey
CLIENT_NO	Varchar2	6	ForeignKey
ORDER _DATE	Date		
DELY_ADDRESS	Varchar2	25	
SALESMAN_NO	Varchar2	6	ForeignKey
DELY_TYPE	Char	1	Delivery:part(p)/full(f)anddefault'F'
BILL_YN	Char	1	
DELY_DATE	Date		Can'tbe lessthanorderdate
ORDER _STATUS	Varchar2	10	Values("InProcess","Fulfilled", "Back Order", "Cancelled.

Table Name: SALES_ORDER_DETAILS
Description:Used to store client's order with details of each product ordered.

ColumnName	Data Type	Size	Attribut e
ORDER_NO	Varchar2	6	Primary key references SALES_ORDER table
PRODUCT_NO	Varchar2	6	Foreign Key references SALES_ORDER_table
QTY_ ORDERED	Number	8	
QTY_ DISP	Number	8	
PRODUCT_RATE	Number	10,2	Foreign Key

Solve the following queries by using above tables.
1. Retrieve the list of names, city and the state of all the clients.
2. List all the clients who are located in 'Mumbai' or 'Bangalore'.
3. List the various products available from the product_master table.
4. Find the names of salesman who have a salary equal to Rs.3000.
5. List the names o fall clients having 'a' as the second letter in their names.
6. List all clients whose Baldue is greater than value 1000.
7. List the clients who stay in a city whose first letter is 'M'.
8. List all information from sales-order table for orders placed in the month of July.
9. List the products whose selling price is greater than 1000 and less than or equal to 3000.
10. Find the products whose selling price is greater than 1000 and also find the new selling price as original selling price 0.50.

Cycle-II Supplier

Aim: A manufacturing company deals with various parts and various suppliers supply these parts. It consists of three tables to record its entire information. Those are as follows.

Supplier (Supplier_No, Sname, City, status) Part(Part_no, pname, color, weight, city, cost)
Shipment (supplier_No, Part_no, city) JX(project_no, project_name, city)
SPJX(Supplier_no, part_no, project_no,city)

1. Get supplier numbers and status for suppliers in Chennai with status>20.
2. Get project names for projects supplied by supplier 'S'.
3. Get colors of parts supplied by supplier S'.
4. Get part numbers for parts supplied to any project in Mumbai.
5. Find the id's of suppliers who supply a red or pink parts.

Cycle–III EmployeeDatabase

Aim: An enterprise wishes to maintain a database to automate its operations. Enterprise divided into a certain departments and each department consists of employees. The following two tables describes the automation schemas.

Emp(Empno, Ename, Job, Mgr, Hiredate, Sal, Comm, Deptno)
Dept(Deptno, Dname, Loc)

1. List the details of employees who have joined before the end of September '81.
2. List the name of the employee and designation of the employee, who does not report to anybody.
3. List the name,salary and PF amount of all the employees(PF is calculated as10%of salary)
4. List the names of employees who are more than 2 years old in the organization.
5. Determine the number of employees, who are taking commission.
6. Update the employee salary by 20%,whose experience is greater than 12 years.
7. Determine the department does not contain any employees.
8. Create a view, which contains employee name and their manager names working in sales department.
9. Determine the employees, whose total salary is like the minimum salary of any department.
10. List the department numbers and number of employees in each department.

PL/SQL PROGRAMS

1. Writea PL/SQL program to check the given string is palindrome o rnot.
2. The HRD manager has decide to raise the employee salary by 15% write a PL/SQL block to accept the employee number and update the salary of that employee. Display appropriate message based on the existence of the record in Emp table.
3. Write a PL/SQL program to display top 10rows in Emp table based on their job and salary.
4. Write a PL/SQL program to raise the employee salary by 10% for department number 30 people and also maintain the raised details in the raise table.
5. Create a procedure to update the salaries of Employees by 20%, for those who are not getting commission
6. Write a PL/SQL procedure to prepare an electricity bill by using following table. Table used: Elect

Name	Null?	Type
MNNO	NOT NULL	NUMBER(3)
CNAME		VARCHAR2(20)
CUR_READ		NUMBER(5)
PREV_READ		NUMBER(5)
NO_ UNITS		NUMBER(5)
AMOUNT		NUMBER(8,2)
SER_TAX		NUMBER(8,2)
NET_AMT		NUMBER(9,2)

7. Create a trigger to avoid any transactions(insert, update, delete) on EMP table on Saturday & Sunday.

Theory	Credits: 3	3 hrs/week

Unit-I

Getting Started with Python: Introduction to Python , Python Keywords , Identifiers , Variables , Comments, Data Types , Operators, Input and Output , Type Conversion , Debugging . Flow of Control, Selection , Indentation , Repetition , Break and Continue Statement , Nested Loops .

Strings- String Operations , Traversing a String , String handling Functions.

Case Study:
1. Study the features that make Python different from Procedural Languages.

Unit-II

Functions: Functions, Built-in Functions, User Defined Functions, recursive functions, Scope of a Variable

Python and OOP: Defining Classes, Defining and calling functions passing arguments, Inheritance, polymorphism, Modules – date time, math, Packages.

Exception Handling- Exception in python, Types of Exception, User-defined Exceptions.

Case Study:
1. Present a report of how Exception handling is different from JAVA Exceptional Handling.

Unit-III

List: Introduction to List, List Operations, Traversing a List, List Methods and Built-in Functions.

Tuples and Dictionaries, Introduction to Tuples, Tuple Operations, Tuple Methods and Built-in Functions, Nested Tuples. Introduction to Dictionaries, Dictionaries are Mutable, Dictionary Operations, Traversing a Dictionary, Dictionary Methods and Built-in functions.

Case Study:
1. What are the special features of dictionaries and try to analyze about the same features in any other language.

Unit-IV

Introduction to NumPy, Array , NumPy Array , Indexing and Slicing , Operations on Arrays , Concatenating Arrays , Reshaping Arrays , Splitting Arrays , Statistical Operations on Arrays.

Data Handling using Pandas , Introduction to Python Libraries, Series, DataFrame, Importing and Exporting Data between CSV Files and DataFrames, Pandas Series Vs NumPy ndarray.

Case Study:
1. Present a paper on advanced features of NumPy and Pandas.

Unit-V

Plotting Data using Matplotlib: Introduction, Plotting using Matplotlib –Line chart, Bar chart, Histogram, Scatter Chart, Pie Chart.

GUI Programming and Database Connectivity Using Python. Graphical User Interfaces. Using the Tkinter Module, Creating Label, Text, Buttons, info Dialog Boxes, Radiobutton, Checkbutton, Getting Input, Importing MySQL for Python , Connecting with a database, Forming a query in MySQL, Passing a query to MySQL.

Case Study:
  1. Present a paper on the features and advantages of MySQL compared to other commercial Databases.

References:
  1. Mark Lutz, Learning Python,5th Ed. O‟REILLY
  2. Core Python Programming by Dr. R. Nageswara Rao
  3. Problem Solving and Python Programming by E. Balaguru Swamy
  4. Python programming: using problem solving approach by Reema Thareja.
  5. Albert Lukaszewski ,MySQL for Python,Packet Publishing

COURSE 3: PYTHON PROGRAMMING

Practical   Credits: 1   2 hrs/week

Lab Programs

1. Write a Program to check whether given number is Armstrong or not.
2. Write a Program to check whether given number is perfect or not.
3. Write a program to find factorial of given number using recursive function
4. Write a program to implement inheritance and polymorphism
5. Demonstrate a python code to print try, except and finally block statements
6. Write a program to demonstrate String handling functions
7. Write a program to input n numbers from the user. Store these numbers in a tuple. Print the maximum and minimum number from this tuple.
8. Write a program to enter names of employees and their salaries as input and store them in a dictionary
9. Write a program to implement statistical operations on arrays using numPy
10. Write a program to import and export CSV file to DataFrame.
11. Create the DataFrame Sales containing year wise sales and perform basic operation on it.
12. Visualize the plots using matplot lib.
13. Create GUI interface with different types button and labels
14. Create GUI interface and connect with MySQL database and perform CRUD(Create, Read, Update and Delete) operations.

COURSE 4: OPERATING SYSTEMS

Theory   Credits: 3   3 hrs/week

Course Objectives:

1. To know the basic Structure, Components and Organization of Operating System.
2. To learn the notation of a Process- a Program in Execution, Management, Scheduling and Classic Problems of Synchronization.
3. To gain knowledge in various Memory Management Techniques.
4. To understand Unix Operating System and Various File operations.

Course Outcomes:

The students will be able to:
1. Understand the main components and Structure of Operating System & their functions.
2. Analyze various ways of Process Management & CPU Scheduling Algorithms.
3. Evaluate various device and resources like Memory, Time and CPU Management techniques in distributed systems.
4. Apply different methods for Preventing Deadlocks in a Computer System.
5. Create and build an Application/Service over the UNIX operating system.

Syllabus

Unit I

Introduction: What is Operating System? ,History and Evolution of OS, Basic OS Functions, Computer System Architecture, Operating System Structure.

System Structures: Operating System Services, User Operating System Interface, System Calls, Types of System Calls, Overview of UNIX Operating System, Basic Features of Unix Operating System.

Case Study :
1. Understanding and listing the basic differences between UNIX OS and Windows OS in usage, user interface, features etc.

Unit II

Process Management: Process Concept, Operation on Processes, Communication in Client-Server Systems.

Process Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms, CPU Scheduling in UNIX.

Case Study:

1. Present your understanding on how CPU Scheduling is different in WINDOWS compared to UNIX/LINUX.

Unit III
Synchronization: Process Synchronization, Semaphores: Usage, Implementation, The Critical Section Problem., Classic problems of synchronization.

Deadlocks: Introduction, Deadlock Characterization, Necessary and Sufficient conditions for Deadlock, Deadlock Handling Approaches : Deadlock prevention, Deadlock Avoidance and Deadlock detection and Recovery .

Case Study:
1. Present your understanding of Deadlocks and new methodologies available in new Operating Systems released in the market.

Unit IV

Memory Management: Overview, Swapping, Contiguous Memory Allocation, Paging, Paging Examples, Segmentation, Page Replacement Algorithms, Memory management in UNIX.

Case Study:
1. Present a paper on new methods used in Memory management in the present day Operating Systems .

Unit V
Files and Directories in UNIX: Files, Directory Structure, File Operations, File System Implementation: File Allocation Methods, Comparison of UNIX and Windows.

Case Study:

1. Present a Paper on how UNIX treats regular files and directories differently from other operating systems.

TEXTBOOKS
1. Operating System Concepts: Abraham Silberschatz, Peter B. Galvin, GregGagne, 8th Edition,Wiley.
2. Unix and shell Programming by B.MH Arwani, OXFORD University Press.

REFERENCEBOOKS:
1. Operating System Principles, Abraham Silberchatz, PeterB.Galvin, GregGagne 8thEdition, WileyStudentEdition.
2. Principles of Operating Systems by Naresh Chauhan, OXFORD University Press.
3. Tanenbaum A S, Woodhull A S, Operating System Design and Implementation,3rd edition, PHI 2006.
4. Unix Shell Programming-YashwantKanetkar

COURSE 4: OPERATING SYSTEMS

Practical   Credits: 1   2 hrs/week

List of Experiments

1. Introducing the LINUX Native editor vi: Working on basics of creating and editing a text file using standard commands of vi.
2. Introduction to UNIX Operating System, Compare with Windows OS. Writing and executing simple Hello World C Program in UNIX Environment.
3. Getting hands-on on basic UNIX Commands.
4. Write a program using the following system calls of UNIX OS fork, exec, getpid, exit, wait, close, opendir, readdir ?
5. Write a Simple shell script for basic arithmetic and logical calculations?
6. Write Shell script to check the given number is even or odd?
7. Write a shell script to swap the two integers?
8. Write Shell script to perform various operations on given strings.
9. Write Shell scripts to explore system variables such as PATH, HOME etc.
10. Write a shell script to display list of users currently logged in.
11. Write a shell script to delete all the temporary files.
12. Write a shell script to find the Factorial of a Number ?
13. Write C programs to implement the following Scheduling Algorithms:
    a) First Come First Serve.
    b) Shortest Job First.
    c) Round Robin.

Reference Text Books:
1. Brian W. Kernighanand Rob Pike,"The UNIX Programming Environment" Prentice Hall India (Edition available in LRCandin the form of E Book on student resource).
2. Yashwant Kanetkar,"UNIXShellProgramming"BPBPublications(FirstEdition).

COURSE 5: WEB PROGRAMMING

Theory   Credits: 3   3 hrs/week

Course Objectives:

1. Learn the basics of creating a website.
2. Understand HTML5 coding conventions
3. Understand the philosophy of how HTML and CSS should fit together
4. Learn how JavaScript came to be.

Course Outcomes: Upon Completion of the course, the students will be able to

1. Understand the Web Design Process.
2. Apply the HTML tags, elements and attributes
3. Apply different types of HTML elements
4. Use of organizational elements, tables and images
5. Use of audio, video files
6. Apply JavaScript concepts

Unit-I:

Introduction to Web Programming: Introduction, creating a website, HTML tags, HTML Elements, HTML attributes, CSS Preview, History of HTML, Differences between old HTML and HTML5, how to check your HTML code

Case Study: Create a web page of your department using standard HTML tags, HTML elements and HTML attributes

Unit-II:

Coding Standards, Block Elements:

HTML coding conventions, Comments, HTML Elements, Should Describe Web Page Content Accurately, Content Model Categories, Block Elements, blockquote Element, Whitespace Collapsing, pre Element, Phrasing Elements, Editing Elements, q and cite Elements, dfn, abbr, and time Elements, Code-Related Elements, br and wbr Elements.

Text Elements, and Character References: sup, sub, s, mark, and small Elements, strong, em, b, u, and i Elements, span Element, Character References, Web Page with Character References, and Phrasing Elements.

Case Study: Create a web page related to famous water reservoir/ famous tourist spots near by your location using block elements, text elements and character references

Unit-III:

Cascading Style Sheet(CSS) : CSS Overview, CSS Rules, Example with Type Selectors and the Universal Selector, CSS Syntax and Style, Class Selectors, ID Selectors, span and div Elements, Cascading, style Attribute, style Container, External CSS Files, CSS Properties, Color Properties, RGB Values for Color, Opacity Values for Color, HSL and HSLA Values for Color, Font Properties,

line-height Property, Text Properties, Border Properties, Element Box, padding Property, margin Property,

Case Study: Description of your City or place with the use of CSS and compare it with previous two case studies

Unit-IV:

Organizing a Page's, Content with Lists, Figures, and Various, Organizational Elements: List, Descendant selector, Figure with picture and caption, Organizational elements, Navigation bar, Header and Footer, User agent stylesheet, Child selector, CSS inheritance

Tables and CSS Layout: Data tables vs Layout tables, Table elements, Format table

Links and Images: Implement a link with the a element, different types of href attribute Values, relative URLs, Implement a link that jumps to a particular location within a web page, element's target attribute, Understand the concepts behind GIF, JPEG, and PNG bitmap image formats, implement bitmap image elements within a web page, implement SVG image elements within a web page

Case Study: Create a web page related to your department time table and images of any activity

Unit-V:

Image Manipulations, Audio and Video: Position an image, how to display a shortcut icon in a browser's tab area, iframe, Create an image sprite file, Implement an audio player using the audio element, Handle different audio file formats, Cover a web page's background with an image, web fonts, Implement a video player using the video element, Center a web page's content, Cover a web page's background with a color gradient

Introduction to JavaScript: Button control with an event Handler, Syntax rules for functions, variables, identifiers, and assignments, Document Object Model(DOM), form with a text control and a button, event-handler attributes, rollover using mouse events

Case Study: Create a webpage involving audio and video of your college day activities

Prescribed Text Books:

1. **Web Programming with HTML5,CSS and JavaScript, John Dean, Jones & Bartlett Learning**

Reference Text Books:

1. **HTML & CSS: The Complete Reference, 5th Edition, Thomas. A. Powell**

COURSE 5: WEB PROGRAMMING

Practical   Credits: 1   2 hrs/week

Course Outcomes: On successful completion of this practical course, student shall be able to:
1. Create web pages using HTML.
2. Apply different styles to HTML page.
3. Work with different scripting elements .

WEEK-1

1. Write an HTML code to display your education details in a tabular format.
2. Write an HTML code to display your CV on a web page.

WEEK-2

1. Create a webpage with HTML describing your department. Use paragraph and list tags.
2. Apply various colors to suitably distinguish key words. Also apply font styling like italics, underline and two other fonts to words you find appropriate. Also use header tags.
3. Create links on the words e.g. "Wi-Fi" and "LAN" to link them to Wikipedia pages.
4. Insert an image and create a link such that clicking on image takes user to other page.
5. Change the background color of the page. At the bottom create a link to take user to the top of the page.

WEEK-3

1. Create a table to show your class time-table.
2. Use tables to provide layout to your HTML page describing your university infrastructure.
3. Use and tags to provide a layout to the above page instead of a table layout.
4. Use frames such that page is divided into 3 frames 20% on left to show contents of pages, 60% in center to show body of page, remaining on right to show remarks.
5. Embed Audio and Video into your HTML web page.

WEEK-4

1. Write an HTML code to illustrate the usage of the following:
   • Ordered List
   • Unordered List
   • Definition List

WEEK-5

1. Write an HTML code to create a frameset having header, footer, navigation and content sections.

WEEK-6

1. Write an HTML code to demonstrate the usage of inline CSS.
2. Write an HTML code to demonstrate the usage of internal CSS.
3. Write an HTML code to demonstrate the usage of external CSS.

WEEK-7

1. Create a form similar to the one in previous experiment. Put validation checks on values entered by the user using JavaScript (such as age should be a value between 1 and 150).
2. Write a JavaScript program to display information box as soon as page loads.
3. Write a JavaScript program to change background color after 5 seconds of page load.
4. Write a JavaScript program to dynamically bold, italic and underline words and phrases based on user actions.
5. Write a JavaScript program to display a hidden div (e.g. showing stats of a player when user clicks on his name
6. Write a Java script to prompt for users name and display it on the screen.
7. Design HTML form for keeping student record and validate it using Java script.
8. Write programs using Java script for Web Page to display browsers information.

COURSE 6: WEB DEVELOPMENT USING PHP & MYSQL

Theory   Credits: 3   3 hrs/week

Course Objectives:

Course Outcomes: Upon Completion of the course, the students will be able to

1. Write simple programs in PHP.
2. Understand how to use regular expressions, handle exceptions, and validate data.
3. Apply In-Built functions and Create User defined functions in PHP programming.
4. Write PHP scripts to handle HTML forms.
5. Write programs to create dynamic and interactive web-based applications using PHP and MYSQL.
6. Know how to use PHP with MySQL DB and can write database driven web pages.

Unit-I:

Using PHP: PHP Basics: Accessing PHP, Creating Sample Application, Embedding PHP in HTML, Adding Dynamic Content, Identifiers, Variables, Constants, Operators, Data types, Accessing Form Variables, Variable handling Functions, Making Decisions with Conditions, Repeating actions through Iterations, Breaking Out of a Control Structure
Storing and Retrieving Data: Processing Files, opening a File, writing to a File, closing a File, Reading from a File, Other File Functions, Locking Files.

CASE STUDY: Web Based Social Network Application Development

Unit-II:

Arrays: Arrays basics, Types, Operators, Array Manipulations.
String Manipulation and Regular Expressions: Strings Basics, Formatting Strings, Joining and Splitting Strings with String Functions, Comparing Strings, Matching and Replacing Substrings with String Function, Introducing Regular Expressions, Find, Replace, Splitting in regular Expressions

CASE STUDY: Retail E-commerce Application Development for Apparels & Garments

Unit-III:

Reusing Code and Writing Functions: The Advantages of Reusing, Using require () and include (), Using Functions in PHP, Scope, Passing by Reference Versus Passing by Value, keyword, Recursion.
Object-Oriented PHP: OOP Concepts, Creating Classes, Attributes, and Operations in PHP, Implementing Inheritance in PHP, Understanding Advanced Object-Oriented Functionality in PHP.
Error and Exception Handling: Error and Exception Handling, Exception Handling Concepts.

CASE STUDY: e-Commerce Application for Manufacturing Industry

Unit-IV:

Using MySQL: Relational Database Concepts, Web Database Architecture, Introducing MySQL's Privilege System, Creating Database Tables, Understanding MySQL, Identifiers, Database

Operations, querying a Database, Understanding the Privilege System, Making Your MySQL Database Secure, Optimization, Backup, Restore.

CASE STUDY: Custom CMS Website Development

Unit-V:

Introduction of Laravel PHP Framework: Why Lavarel, setting up Lavarel Development Environment, Routing and Controllers: introduction to MVC, the HTTP verbs, and REST, Route Definitions, Route Groups, Signed Routes, Views, Controllers, Route Model Binding, Redirects, Custom Responses

Case Study: E-commerce Business Solution delivered for Groceries Vendor

Prescribed Text Books:

1. Luke Welling, Laura Thomson, "PHP and MySQL Web Development", 5th Edition
2. Matt Stauffer, "Lavarel: Up & Running", 2nd Edition
3. Julie C. Meloni, SAMS Teach yourself PHP MySQL and Apache, Pearson Education (2007).
4. Steven Holzner , PHP: The Complete Reference, McGraw-Hill
5. Robin Nixon, Learning PHP, MySQL, JavaScript, CSS & HTML5, Third Edition O'reilly, 2014
6. Xue Bai Michael Ekedahl, The web warrior guide to Web Programming, Thomson (2006).
7. Web resources:
http://www.codecademy.com/tracks/ph
http://www.w3schools.com/PHP
http://www.tutorialpoint.com
8. Other web sources suggested by the teacher concerned and the college librarian including reading material.

COURSE 6: WEB DEVELOPMENT USING PHP & MYSQL

Practical   Credits: 1   2 hrs/week

Course Outcomes: On successful completion of this practical course, student shall be able to:
▪ Write, debug, and implement the Programs by applying concepts and error
handling techniques of PHP.
▪ Create an interactive and dynamic website.
▪ Create a website with reports generated from a database.
▪ Create an interactive website for e-commerce sites like online shopping, etc.

Practical (Laboratory) Syllabus: (30 hrs.)

1. Write a PHP program to Display "Hello", and today's date.
2. Write a PHP program to display Fibonacci series.
3. Write a PHP Program to read the employee details.
4. Write a PHP program to prepare the student marks list.
5. Write a PHP program to generate the multiplication of two matrices.
6. Create student registration form using text box, check box, radio button, select, submit button.
And display user inserted value in new PHP page.
7. Create Website Registration Form using text box, check box, radio button, select, submit button.
And display user inserted value in new PHP page.
8. Write PHP script to demonstrate passing variables with cookies.
9. Write a program to keep track of how many times a visitor has loaded the page.
10. Write a PHP application to add new Rows in a Table.
11. Write a PHP application to modify the Rows in a Table.
12. Write a PHP application to delete the Rows from a Table
13. Write a PHP application to fetch the Rows in a Table.
14. Develop an PHP application to implement the following Operations.
Registration of Users. Insert the details of the Users. Modify the Details.
Transaction Maintenance. No of times Logged in Time Spent on each login. Restrict the user for three trials only.
Delete the user if he spent more than 100 Hrs of transaction.
15. Write a PHP script to connect MySQL server from your website.
16. Write a program to read customer information like cust-no, cust-name, itempurchased, and mob-no, from customer table and display all these information in table format on output screen.
17. Write a program to edit name of customer to "Kiran" with cust-no =1, and to delete record with cust-no=3.
18. Write a program to read employee information like emp-no, emp-name, designation and salary from EMP table and display all this information using table format.
19. Create a dynamic web site using PHP and MySQL.