

# **SYLLABUS FOR THE BATCH FROM THE YEAR 2024 TO YEAR 2025**

**Programme Code: PDCA**

**Programme Name: P.G. DIPLOMA IN COMPUTER APPLICATIONS**

**(Semester I-II)**

**Examinations: 2024-2025**



**P.G. Department of Computer Science & Applications**

**Khalsa College, Amritsar**

<b>Programme name: P.G. DIPLOMA IN COMPUTER APPLICATIONS</b>
<b>Programme code: PDCA</b>
<b>Programme Duration :1 year</b>

**Programme Objectives:**

<b>1.</b>	Give students an in-depth understanding of why computers are essential components in business, education and society.
<b>2.</b>	An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
<b>3.</b>	An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
<b>4.</b>	An ability to function effectively on teams to accomplish a common goal.
<b>5.</b>	An understanding of professional, ethical, legal, security and social issues and responsibilities.

**Programme Specific Outcomes (PSOs):**

<b>PSO-1.</b>	To understand and comprehend advanced level of programming, databases, networks concept and management, Web Designing & Uses of Internet and data analysis.
<b>PSO-2.</b>	To demonstrate competence in using computer science concepts and computational tools for simulation and digital transformation.
<b>PSO-3.</b>	To develop ability to effectively apply the information technology concepts to analyze, design and develop cost effective solutions to the societal problems.
<b>PSO-4.</b>	To provide user friendly and need based mobile, web or cloud based solutions to the society.
<b>PSO-5.</b>	To understand and comprehend advanced level of programming, databases, networks concept and management, Web Designing & Uses of Internet and data analysis.

## P.G. DIPLOMA IN COMPUTER APPLICATIONS

### SEMESTER – I

Sr. No.	Course Code	Course Name	Distribution of The Marks				Lecture per week			Credit Distribution				Page No.
			Theory	Practical	Internal Assessment	Total	L	T	P	L	T	P	Total Credits	
1	PDCA-411	PC Computing-I (MS Office) 2010	75	-	25	100	5	1	0	3	1	0	4	4-5
2	PDCA-412	PC Computing-II (Professional DTP)	75	-	25	100	5	1	0	3	1	0	4	6-7
3	PDCA-413	Programming in C	75	-	25	100	5	1	0	3	1	0	4	8-9
4	PDCA-414	Database Management System through Oracle-10g & System Analysis & Design	75	-	25	100	5	1	0	3	1	0	4	10-11
5	PDCA-415P	Lab I: Based on PC Computing-I (MS Office) 2010	-	37	13	50	0	0	6	0	0	2	2	12
6	PDCA-416P	Lab II: Based on PC Computing-II (Professional DTP)	-	37	13	50	0	0	6	0	0	2	2	14
7	PDCA-417P	Lab III: Based on Programming in C	-	37	13	50	0	0	6	0	0	2	2	15
8	PDCA-418P	Lab I: Based on Database Management System through Oracle-10g & System Analysis & Design	-	37	13	50	0	0	6	0	0	2	2	16
<b>Total Credits=24</b>														

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER – I**  
**PDCA-411: PC COMPUTING-I (MS Office) 2010**  
**Discipline Specific Course (DSC)**

**Time: 3 Hrs.**

**Total Marks: 100**

Credits		
L	T	P
3	1	0

**Theory Marks: 75**

**Theory Internal Assessment Marks:25**

**Note for paper setter and students:**

1. **Medium of Examination is English Language.**
2. **There will be five sections.**
3. **Section A is compulsory and will be of 15 marks consisting of 8 short answer type questions carrying 2.5 marks each covering the whole syllabus. The answer should not exceed 50 words. The students will have to attempt any 6 questions in this section.**
4. **Sections B, C, D and E will be set from units I, II, III & IV respectively and will consist of two questions of 15 marks each from the respective unit. The students are required to attempt one question from each of these sections.**

**Course Objectives:**

Enable the student to

1.	To be proficient in office automation applications.
2.	Handle the word processing software.
3.	To create reports using MS Access.
4.	Understand that in In Today's commercial world, automation helps the users with a sophisticated set of commands to format, edit, and print text documents.
5.	Use it as valuable and important tools in the creation of applications such as newsletters, brochures, charts, presentation, documents, drawings and graphic images.

**UNIT I**

**MS-Word:** Introduction to MS-Office, MS-Access, MS Excel. Parts of window of word (Title bar, menu bar, status bar, ruler) , Creation of new documents, opening document ,insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header footer deleting ,moving, replace, editing text in document. Saving a document, spell checker, printing a document. Creating a table, entering and editing, Text in tables. Changing format of table, height width of row or column. Editing, deleting Rows, columns in table. Borders, shading, Templates, wizards, Drawing objects, mail merge

**UNIT-II**

**MS-Power Point:** Introduction to Ms power point. Power point elements (templates wizard Views, color schemes ,Exploring power point menu (opening & closing menus, working With dialogues boxes), adding text, adding title, moving text area, resizing text Boxes, adding pictures.

Starting a new slide, saving presentation, printing slides .Views (slide View slide sorter, notes view, outline view) .Formatting & enhancing text formatting, Choosing transitions. Creating a graph, displaying slide show, adding multimedia .Slide transitions. Timing slide display, adding movies & sounds. Using a pick look Wizards to change format.

### UNIT III

**MS-Excel:** Introduction to Worksheet/Spreads, Features of excel. Describe the excel Window, different functions on different data in excel, creation of graphs, editing it and formatting, changing chart type to 2d chart or 3d chart, creation of worksheet, adding, deleting, moving the text in worksheet, linking different sheets, sorting the data, querying the data, filtering the data (auto and advance filters), What-if analysis, printing a worksheet.

### UNIT-IV

**MS-Access:** Introduction, Understanding Databases. Creating the tables. entering records in table, deleting table, modifying table fields, linking tables, Queries. Forms, formatting forms, relating a form to tables, Reports(building reports, formatting report. displaying the information of table using reports Adding Graphs to your reports. .

#### References:

1. PC Computing by R.K. Taxali.
2. PC Software by Rachpal Singh & Gurinder Singh.

#### Course Outcomes:

**On Completing the course, the students will be able to:**

<b>CO-1.</b>	Use word processors, spreadsheets and presentation software.
<b>CO-2.</b>	Understand and create a database using MS Access.
<b>CO-3.</b>	Describe the features and functions of the categories of application software.
<b>CO-4.</b>	Understand the dynamics of an office environment.
<b>CO-5.</b>	Demonstrate the ability to apply application software in an office environment.

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER – I**  
**PDCA-412: PC COMPUTING–II (Professional DTP)**  
**Discipline Specific Course (DSC)**

**Time: 3 Hrs.**

**Total Marks: 100**

Credits		
L	T	P
3	1	0

**Theory Marks: 75**

**Theory Internal Assessment Marks:25**

**Note for paper setter and students:**

1. **Medium of Examination is English Language.**
2. **There will be five sections.**
3. **Section A is compulsory and will be of 15 marks consisting of 8 short answer type questions carrying 2.5 mark each covering the whole syllabus. The answer should not exceed 50 words. The students will have to attempt any 6 questions in this section.**
4. **Sections B, C, D and E will be set from units I, II, III & IV respectively and will consist of two questions of 15 marks each from the respective unit. The students are required to attempt one question from each of these sections.**

**Course Objectives:**

- |   |
|---|
| 1. Corel Draw and Photoshop are graphics-based applications widely used for logo designing, brochures, pamphlets, product box packs, designing a visiting card, and for various advertisements and editing jpeg and other image formats related to graphic designing. |
| 2. They are much admired owing to their usability.  |
| 3. The course is in high demand for those who wish to make their career as Graphics designers.  |
| 4. As the Demand for Graphics is increasing day by day in media, print, web etc., there are more prospects for jobs and self-employment. There is a constant demand for creative designers in the domestic industry as well as an industry abroad.                    |

**UNIT I**

**Photoshop 5.5**

1. Introduction to Graphics, Vector Graphics & Bitmaps
2. Understanding Image Size & resolution
3. Relation between resolution, File sizes & output
4. Using menu & Palettes.
5. Concept of Path ( Segment, Anchor, Curved, Closed, Open, Sub path)

## UNIT-II

### Photoshop 5.5

1. Photoshop Tools (Pen, Pencil, Brush, History, Air, Eraser, Rubber stamp, Smudge, Dodge, Burn, Sponge), Masks & Histogram.
2. Acquiring & Importing Images,
3. Concept of Layer Channels & Path, Filters, Rendering Effects, Transformation, Strokes, Image Modes, Canvas & Images.
4. Using navigator & Photoshop plugins.

## UNIT-III

### Corel Draw-9

1. Concepts of vector graphics.
2. Color palate, Pasteboard, & Print Page
3. Using ruler unit's etc...

## UNIT-IV

### Corel Draw-9

1. Corel Tools (Pick, Shape, Knife, Eraser, Zoom, Freehand, Natural Pen, Dimensions, Ellipse, Polygon etc.).
2. Transformations, Trimming, Welding, Intersection of Objects, Snapping, Using Object Manager.
3. Giving effects, (Envelope, Adding Perspective, Contours, Blending Image.)

### References:

1. CorelDraw 10 for Windows by Phyllis Davis and Steve Schwartz.
2. Adobe Photoshop for Beginners 2021: Learn The Amazing Features Of Photoshop By Hector Grant.

### Course Outcomes:

#### On Completing the course, the students will be able to:

<b>CO-1.</b>	Get essential information on CorelDraw Graphics Suite.
<b>CO-2.</b>	Become comfortable with the CorelDraw work area, tools, boards, and fundamental methods and understand the strategies of making and controlling vector (plan) articles, shapes and variety fill.
<b>CO-3.</b>	Work with imaginative text for the making logos, marks and any other one-page print plan material.
<b>CO-4.</b>	Work on Corel Draw, Vector Graphics, Colour Palette and Pasteboard.
<b>CO-5.</b>	Get essential information on CorelDraw Graphics Suite.

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER-I**  
**PDCA-413: Programming in C**  
**Discipline Specific Course (DSC)**

**Time: 3 Hrs.**

**Total Marks: 100**

Credits		
L	T	P
3	1	0

**Theory Marks: 75**

**Theory Internal Assessment Marks:25**

**Note for paper setter and students:**

- 1. Medium of Examination is English Language.**
- 2. There will be five sections.**
- 3. Section A is compulsory and will be of 15 marks consisting of 8 short answer type questions carrying 2.5 mark each covering the whole syllabus. The answer should not exceed 50 words. The students will have to attempt any 6 questions in this section.**
- 4. Sections B, C, D and E will be set from units I, II, III & IV respectively and will consist of two questions of 15 marks each from the respective unit. The students are required to attempt one question from each of these sections.**

**Course Objectives:**

<b>1.</b>	To comprehend how C works. To become familiar with the grammar and semantics of the C programming language.
<b>2.</b>	To figure out how to plan C classes for code reuse.
<b>3.</b>	To figure out how to carry out duplicate constructors and class part works. To give complete information on C language. Understudies will figure out how to configure programs essentially.

**UNIT I**

**Fundamentals of C:** Introduction of C, Data Types, Operators, their precedence, expressions and their evaluation.

**Input / Output Functions:** Formatted I/O, Character I/O & String I/O Functions.



## UNIT II

**Control Structures:** Taking decisions using if, if-else, switch constructs and Conditional Operator, Description of break and continue Statements. Performing loops using for, while, do-while Constructs.

**Functions:** Library Functions v/s User-Defined Functions, Declaring (Prototyping) and defining User-Defined functions, ways of passing parameters to functions, Recursive functions, Storage Classes.

## UNIT III

**Arrays & String:** What are Arrays, Declaring arrays, initializing arrays, processing of arrays, passing arrays arguments to functions. What are Strings? How strings are handled in C? String functions, arrays of string.

**Pointers:** What is a pointer variable? Declaring pointers, accessing values via pointers, pointer arithmetic, pointer to strings, passing arguments using pointers.

## UNIT IV

**Structure and Unions.** Defining a structure type, declaring variables of structure type, initializing structures. Accessing Structure Elements, Use of assignment Statement for structures, array of structures, nested structures, Unions; Declaring a Union, Accessing elements of a type union.

**Managing Data Files:** Processing a file, Standard Input/Output, System Level I/O, File updating

### References:

1. Yashwant Kanetkar: Let us C, BPB Publications, New Delhi.
2. R.S.Salaria : Application Programming in C, Khanna Book Publishing Co.(P) Ltd., Delhi.

### Course Outcomes:

<b>CO-1.</b>	Figure out the basics of C programming.
<b>CO-2.</b>	Understand the secure information and abilities in programming. In addition, this programming will assist them with making programs and applications in C.
<b>CO-3.</b>	Additionally, by learning the essential programming builds, they can undoubtedly switch over to any another language in future.
<b>CO-4.</b>	Develops a basic understanding of computers, the concept of algorithms and algorithmic thinking.
<b>CO-5.</b>	Develops the ability to analyse a problem and develop an algorithm to solve it.

**P.G. DIPLOMA IN COMPUTER APPLICATIONS  
SEMESTER – I**

**PDCA-414: DATABASE MANAGEMENT SYSTEM THROUGH ORACLE-10g  
& SYSTEM ANALYSIS & DESIGN**

**Discipline Specific Course (DSC)**

**Time: 3 Hrs.**

**Total Marks: 100**

Credits		
L	T	P
3	1	0

**Theory Marks: 75**

**Theory Internal Assessment Marks:25**

**Note for paper setter and students:**

- 1. Medium of Examination is English Language.**
- 2. There will be five sections.**
- 3. Section A is compulsory and will be of 15 marks consisting of 8 short answer type questions carrying 2.5 mark each covering the whole syllabus. The answer should not exceed 50 words. The students will have to attempt any 6 questions in this section.**
- 4. Sections B, C, D and E will be set from units I, II, III & IV respectively and will consist of two questions of 15 marks each from the respective unit. The students are required to attempt one question from each of these sections.**

**Course Objectives:**

<b>1.</b>	To evolve an understanding of vital DBMS concepts such as database security, integrity.
<b>2.</b>	To learn the physical and logical database designs, database modeling, relational, hierarchical, and network models
<b>3.</b>	To describe DBMS Architecture & Data Independence.
<b>4.</b>	To learn the different cases involved in the design and implementation of a database system.

**UNIT I**

**Basic Concepts:**

An overview of Database Management, (database, database system, why database, data independence). An architecture for a database system (levels of the architecture, mapping, DBA), Introduction to Relational database systems.

## UNIT II

### **Relational Model:**

Domain and relations, Relational data integrity

### **System Analysis and Design:**

System development life cycle, System development tools.

## UNIT III

### **ORACLE 10g:**

#### **SQL. \*PLUS**

Introduction to Oracle 10g SQL- DOL, DML, DCL

Join methods & Sub query, Union, Intersection, Minus, Tree Walking

Built in Functions, Views, Security amongst users, Sequences, Indexing, Object Oriented

#### **Features of Oracle 10g**

## UNIT IV

### **PL/SQL:**

Introduction to PL/SQL Cursors- Implicit & Explicit Procedures, Functions & Packages

Database Triggers

### **References:**

1. Database Systems Concepts by Silberschatz, Korth & Sudarshan
2. An Introduction of Database System by C.J. Date (Addison-Wesley Publishing co.)
3. SQL/PL/SQL. The Programming Language of Oracle by Ivan Bayross (BPB Publications)

### **Course Outcomes:**

The students, after the completion of the course, are expected to:

<b>CO-1.</b>	Illustrate the basic elements of a relational database management system
<b>CO-2.</b>	Develop skill to solve the data models for applicable problems
<b>CO-3.</b>	Develop ability to convert ER diagrams into RDBMS data.
<b>CO-4.</b>	Make database connectivity in programming language

**P.G. DIPLOMA IN COMPUTER APPLICATIONS  
SEMESTER – I**

**PDCA-415P: Lab I: Based on PC COMPUTING-I (MS Office) 2010**

**Time: 3 Hrs.**

**Total Marks: 50**

Credits		
L	T	P
0	0	2

**Practical Marks: 37**

**Internal Assessment Marks:13**

**Course Objectives:**

Enable the student to

1.	To be proficient in office automation applications.
2.	Handle the word processing software.
3.	To create reports using MS Access.
4.	Understand that in In Today's commercial world, automation helps the users with a sophisticated set of commands to format, edit, and print text documents.
5.	Use it as valuable and important tools in the creation of applications such as newsletters, brochures, charts, presentation, documents, drawings and graphic images.

**Practical Based on PC COMPUTING-I (MS Office) 2010**

**Course Outcomes:**

**On Completing the course, the students will be able to:**

<b>CO-1.</b>	Use word processors, spreadsheets and presentation software.
<b>CO-2.</b>	Understand and create a database using MS Access.
<b>CO-3.</b>	Describe the features and functions of the categories of application software.
<b>CO-4.</b>	Understand the dynamics of an office environment.
<b>CO-5.</b>	Demonstrate the ability to apply application software in an office environment.

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER – I**  
**PDCA-416P: Lab II: Based on PC COMPUTING–II (Professional DTP)**

**Time: 3 Hrs.**

**Total Marks: 50**

Credits		
L	T	P
0	0	2

**Practical Marks: 37**

**Internal Assessment Marks:13**

**Course Objectives:**

<b>1.</b>	Corel Draw and Photoshop are graphics-based applications widely used for logo designing, brochures, pamphlets, product box packs, designing a visiting card, and for various advertisements and editing jpeg and other image formats related to graphic designing.
<b>2.</b>	They are much admired owing to their usability.
<b>3.</b>	The course is in high demand for those who wish to make their career as Graphics designers.
<b>4.</b>	As the Demand for Graphics is increasing day by day in media, print, web etc., there are more prospects for jobs and self-employment. There is a constant demand for creative designers in the domestic industry as well as an industry abroad.

**Practical Based on Based on PC COMPUTING–II  
(Professional DTP)**

**Course Outcomes:**

**On Completing the course, the students will be able to:**

<b>CO-1.</b>	Get essential information on CorelDraw Graphics Suite.
<b>CO-2.</b>	Become comfortable with the CorelDraw work area, tools, boards, and fundamental methods and understand the strategies of making and controlling vector (plan) articles, shapes and variety fill.
<b>CO-3.</b>	Work with imaginative text for the making logos, marks and any other one-page print plan material.
<b>CO-4.</b>	Work on Corel Draw, Vector Graphics, Color Palette and Pasteboard.
<b>CO-5.</b>	Get essential information on CorelDraw Graphics Suite.

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER-I**  
**PDCA-417P: Lab III: Based on Programming in C**

**Time: 3 Hrs.**

**Total Marks: 50**

Credits		
L	T	P
0	0	2

**Practical Marks:37**

**Theory Internal Assessment Marks:13**

**Course Objectives:**

1	To comprehend how C works. To become familiar with the grammar and semantics of the C programming language.
2	To figure out how to plan C classes for code reuse.
3	To figure out how to carry out duplicate constructors and class part works. To give complete information on C language. Understudies will figure out how to configure programs essentially.

**Practical Based on Based on Programming in C**

**Course Outcomes:**

<b>CO-1.</b>	Figure out the basics of C programming.
<b>CO-2.</b>	Understudies will secure information and abilities in programming. In addition, this programming will assist them with making programs and applications in C.
<b>CO-3.</b>	Additionally, by learning the essential programming builds, they can undoubtedly switch over to any another language in future.
<b>CO-4.</b>	Develops a basic understanding of computers, the concept of algorithms and algorithmic thinking.
<b>CO-5.</b>	Develops the ability to analyse a problem and develop an algorithm to solve it.

**P.G. DIPLOMA IN COMPUTER APPLICATIONS  
SEMESTER – I  
PDCA-418P:Lab IV Based on DATABASE MANAGEMENT SYSTEM  
THROUGH ORACLE-10g & SYSTEM ANALYSIS & DESIGN**

**Time: 3 Hrs.**

**Total Marks: 50**

Credits		
L	T	P
0	0	2

**Practical Marks: 37**

**Internal Assessment Marks:13**

**Course Objectives:**

<b>1.</b>	To evolve an understanding of vital DBMS concepts such as database security, integrity.
<b>2.</b>	To learn the physical and logical database designs, database modeling, relational, hierarchical, and network models
<b>3.</b>	To describe DBMS Architecture & Data Independence.
<b>4.</b>	To learn the different cases involved in the design and implementation of a database system.

**Practical Based on DATABASE MANAGEMENT SYSTEM THROUGH  
ORACLE-10g & SYSTEM ANALYSIS & DESIGN**

**Course Outcomes:**

The students, after the completion of the course, are expected to:

<b>CO-1.</b>	Illustrate the basic elements of a relational database management system
<b>CO-2.</b>	Develop skill to solve the data models for applicable problems
<b>CO-3.</b>	Develop ability to convert ER diagrams into RDBMS data.
<b>CO-4.</b>	Make database connectivity in programming language

## P.G. DIPLOMA IN COMPUTER APPLICATIONS

### Semester- II

Sr. No.	Course Code	Course Name	Distribution of The Marks				Lecture per week Tutorial Per Week			Credit Distribution of The Course				Page No.
			Theory	Practical	Internal Assessment	Total	L	T	P	L	T	P	Total Credits	
1	PDCA-421	Network Concepts and Management (Hardware, Software, setting in LINUX/UNIX/NT environment)	75	-	25	100	5	1	0	3	1	0	4	18-19
2	PDCA-422	Programming in C++	75	-	25	100	5	1	0	3	1	0	4	20-21
3	PDCA-423	Introduction to Scripting Languages, Web Designing & Uses of Internet	75	-	25	100	5	1	0	3	1	0	4	22-23
4	PDCA-424	e-COMMERCE / BUSINESS	75	-	25	100	5	1	0	3	1	0	4	24-25
5	PDCA-425P	Lab I: Based on Network Concepts and Management (Hardware, Software, setting in LINUX/UNIX/NT environment)	-	37	13	50	0	0	6	0	0	2	2	26
6	PDCA-426P	Lab II: Based on Programming in C++	-	37	13	50	0	0	6	0	0	2	2	27
7	PDCA-427P	Lab III: Based on Introduction to Scripting Languages, Web Designing & Uses of Internet	-	37	13	50	0	0	6	0	0	2	2	28
8	PDCA-428P	Lab IV: Based on e-COMMERCE / BUSINESS	-	37	13	50	0	0	6	0	0	2	2	29
<b>Total Credits=24</b>														
<b>Grand Total(I+II)=48</b>														



**P.G. DIPLOMA IN COMPUTER APPLICATIONS  
SEMESTER – II  
PDCA-421: NETWORK CONCEPTS AND MANAGEMENT  
(HARDWARE, SOFTWARE, SETTING IN LINUX/UNIX/NT ENVIRONMENT)  
Discipline Specific Course (DSC)**

**Time: 3 Hrs.**

**Total Marks: 100**

Credits		
L	T	P
3	1	0

**Theory Marks: 75**

**Theory Internal Assessment Marks:25**

**Note for paper setter and students:**

1. **Medium of Examination is English Language.**
2. **There will be five sections.**
3. **Section A is compulsory and will be of 15 marks consisting of 8 short answer type questions carrying 2.5 mark each covering the whole syllabus. The answer should not exceed 50 words. The students will have to attempt any 6 questions in this section.**
4. **Sections B, C, D and E will be set from units I, II, III & IV respectively and will consist of two questions of 15 marks each from the respective unit. The students are required to attempt one question from each of these sections.**

**Course Objectives:**

<b>1.</b>	Understand that global connectivity can be achieved through computer networks.
<b>2.</b>	Understand the function of networks and get exposure to different existing and upcoming communication technologies.
<b>3.</b>	Make them aware that knowledge about hardware and software requirements of networks is essential.

## UNIT I

**Introduction:**

Network H/W and Software requirement~ Network topologies, OSI reference model, TCP/IP model.

**Network Systems and Connecting Devices:** ISDN, ATM, Routers, hub, switches, Repeater, Gateways.

## UNIT II

### **Network security and IP Addresses:**

Overview of threats, cryptography, authentication, and firewalls, Digital Signatures, IP addressing schemes, IPV4 Vs IPV6.

## UNIT III

### **Windows Administration:**

Identify the management tasks available in Windows Workstation, Identify Windows Operating Systems editions, identify the different roles of Windows Server, .Identify the available protocols for authentication in a Windows network.

## UNIT IV

### **UNIX:**

Network Operating System: Architecture, Shell, Kernel & File System, Unix Commands.

### **Introduction to Linux:**

Comparative study of Windows server, UNIX and Linux.

### **References:**

1. Tannenbaum: Computer Network, Prentice Hall, 1992, 3<sup>rd</sup>.
2. Robert Reinstein, et.al: Windows NT Trouble Shooting and Configuration, Techmedia.

### **Course Outcomes:**

#### **On Completing the course, the students will be able to:**

<b>CO-1.</b>	Become familiar with the concept of Network hardware and software requirements.
<b>CO-2.</b>	Understand the working of different protocols at different layers of OSI and TCP/IP models.
<b>CO-3.</b>	Learn the concepts of different networking devices like router, hub, and switch.
<b>CO-4.</b>	Understand the concept of IP address and its various classes.
<b>CO-5.</b>	Compare and understand the different networking operating systems like Windows NT, UNIX and Linux.

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER – II**  
**PDCA-422: PROGRAMMING IN C++**  
**Discipline Specific Course (DSC)**

**Time: 3 Hrs.**

**Total Marks: 100**

Credits		
L	T	P
3	1	0

**Theory Marks: 75**

**Theory Internal Assessment Marks:25**

**Note for paper setter and students:**

1. **Medium of Examination is English Language.**
2. **There will be five sections.**
3. **Section A is compulsory and will be of 15 marks consisting of 8 short answer type questions carrying 2.5 mark each covering the whole syllabus. The answer should not exceed 50 words. The students will have to attempt any 6 questions in this section.**
4. **Sections B, C, D and E will be set from units I, II, III & IV respectively and will consist of two questions of 15 marks each from the respective unit. The students are required to attempt one question from each of these sections.**

**Course Objectives:**

The learning objectives of this course are:

1.	To understand how C++ improves C with object-oriented features.
2.	To learn how to design C++ classes for code reuse.
3.	To Analyse how to implement copy constructors and class member functions.
4.	To understand the concept of data abstraction and encapsulation.
5.	To learn how to overload functions and operators in C++.
6.	To Know how containment and inheritance promote code reuse in C++.
7.	To learn how inheritance and virtual functions implement dynamic binding with polymorphism.

### UNIT I

**Programming Paradigms:** Introduction to the object-oriented approach towards programming by discussing Traditional, Structured Programming methodology.

**Object Oriented Programming using C++:** Elements of OOPS, Characteristics of OOP, Overview of C++, I/O using cout and cin.

### UNIT II

**Object and Classes:** Class Specification, class objects, Accessing class member.

**Constructor & Destructor:** Constructor: Definition , Overloading, Types of Constructors. Destructor.

### UNIT III

**Inheritance:** Concept of inheritance, Base & derived classes, Access Specifiers, Class Hierarchies, Types of Inheritance with examples.

**Operator Overloading:** Overloading unary and binary operators, Type Conversion using Operator Overloading.

### UNIT IV

**Virtual Functions and Polymorphism:** Virtual functions, friend functions, static function, this pointer, polymorphism, Types of Polymorphism with examples.

#### References:

1. Teach yourself C++, Herbert Schildt, Tata McGraw Hill, 1998.
2. Object Oriented Programming in Turbo C++, Robert Lafore, Galgotia Publication, 2011
3. The Complete Reference By Herbert Schildt , Fourth Edition, 2002

#### Course Outcomes:

**Upon completion of this course, the students will be able to:**

<b>CO-1.</b>	Understand the difference between the top-down and bottom-up approach.
<b>CO-2.</b>	Describe the object-oriented programming approach in connection with C.
<b>CO-3.</b>	Apply the concepts of object-oriented programming.

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER – II**  
**PDCA-423: INTRODUCTION TO SCRIPTING LANGUAGES**  
**WEB DESIGNING AND USES OF INTERNET**  
**Discipline Specific Course (DSC)**

**Time: 3 Hrs.**

**Total Marks: 100**

Credits		
L	T	P
3	1	0

**Theory Marks: 75**

**Theory Internal Assessment Marks:25**

**Note for paper setter and students:**

1. Medium of Examination is English Language.
2. There will be five sections.
3. Section A is compulsory and will be of 15 marks consisting of 8 short answer type questions carrying 2.5 mark each covering the whole syllabus. The answer should not exceed 50 words. The students will have to attempt any 6 questions in this section.
4. Sections B, C, D and E will be set from units I, II, III & IV respectively and will consist of two questions of 15 marks each from the respective unit. The students are required to attempt one question from each of these sections.

**Course Objectives:**

1.	To create better understanding of the principles of creating an effective web page and learning of the web language: HTML
2.	Better acquaintance with graphic design principles and learn how to implement these theories into reality.
3.	Better learning of how to plan and conduct user research related to web designing.
4.	Students learn various techniques of Web design, Form Design, Table Design, Front page 2000 and learn how to embed social media content into web pages.
5.	Skills are developed to analyses social sites.

### UNIT I

#### HTML

Structure of HTML, Tags, Character Entities, Hyperlinks, Frames, Tables, Lists, Forms, Limitations of HTML.

### UNIT II

#### Front Page 2000

Features, Creating a Web Site using Wizard, One / Two / Three Column Body, Front Page Window, Various Toolbars of Front Page, Adding Clip Art, Thumbnails, resampling an Image,

Bevelling & Cropping an Image, Creating Bookmarks, Adding an E-mail Hyperlink, Tables, Marquee, Counter, banner, Hover Buttons, Creating a Web Page Using a Template, Themes, Forms.

### **UNIT III**

#### **Internet & its Use**

Types of Internet Connectivity, World Wide Web, E-mail, Telnet, Filer Transfer Protocol, IRC, Virtual Reality, Web Publishing,

### **UNIT IV**

Web Hosting, Cyber Crime, Types of Cyber Crimes, Cookies, Virus, Trojan Horse, Worm, Danger of Virus.

#### **References:**

1. Internet Applications and Web Designing by A.P. Publishers.
2. HTML, DHTML, Java Script, Perl, CGI by BPB Publications.
3. Learning to Use Internet by BPB Publications.

#### **Course Outcomes:**

**On Completing the course, the students will be able to:**

<b>CO-1.</b>	Understand the HTML tags.
<b>CO-2.</b>	Learn how to write, test and debug web pages using HTML
<b>CO-3.</b>	Become familiar with graphics.
<b>CO-4.</b>	Develop ability to create and edit web pages using Front Page.
<b>CO-5.</b>	Understand different types of internet connectivity and protocols related to internet

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER – II**  
**PDCA-424: e-COMMERCE / BUSINESS**  
**Discipline Specific Course (DSC)**

**Time: 3 Hrs.**

**Total Marks: 100**

Credits		
L	T	P
3	1	0

**Theory Marks: 75**

**Theory Internal Assessment Marks:25**

**Note for paper setter and students:**

1. **Medium of Examination is English Language.**
2. **There will be five sections.**
3. **Section A is compulsory and will be of 15 marks consisting of 8 short answer type questions carrying 2.5 mark each covering the whole syllabus. The answer should not exceed 50 words. The students will have to attempt any 6 questions in this section.**
4. **Sections B, C, D and E will be set from units I, II, III & IV respectively and will consist of two questions of 15 marks each from the respective unit. The students are required to attempt one question from each of these sections.**

**Course Objectives:**

1.	The key concepts related to the regulation of the internet and e-commerce.
2.	The technologies facilitating electronic business and commercial transactions.
3.	part the students with higher level knowledge and understanding of contemporary trends in e-commerce and business finance.

**UNIT I**

**E-Commerce:**

Its definition, aims, processes, tools and results, EDI, VANs and Internet as Promoters. Types of E-Commerce, Commerce-net

**Steps to Start E-Commerce.**

H/W & S/W Requirements, Steps involved in opening your own online business.

**EDI**

EDI vs Traditional Systems, EDI enabled procurement process, components of EDI system, EDI implementation issues.

## UNIT II

### Concerns for E-Commerce Growth:

Basic challenges to E-Commerce. Technological, Legal and regulators heads, **Internet bandwidth & Technological issues.**

NII : Technical issues Standards & services GIL. Issues that confront us in relation to securing electronic transactions. Implementation of digital signatures. Authentication Mechanisms. Electronic cash, its elements, legal issues, risks, paper document versus Electronic document

Laws for E-Commerce legal issues for internet commerce

## UNIT III

### Re-Engineering for Changer:

Business process re-engineering BPR, methodology, Planning Methods for change to EC/EDI.

**Case Studies:** To demonstrate usefulness of E-Commerce in various business areas

Banks, Reservations, E-Governance, Supply-chain, management, manufacturing, retailing and online publishing

## UNIT IV

E-Commerce in India EDI service providers in India, EDI projects in the government regulatory agencies. The Internet in India, laws for E-Commerce in India.

**References:** E-Commerce –The Cutting Edge of Business -Kamlesh K. Bajaj -Debjani Nag

### Course Outcomes:

#### On Completing the course, the students will be able to:

<b>CO-1.</b>	Analyse the impact of E-commerce on business models and strategy.
<b>CO-2.</b>	Explain the process that should be followed in building an E-commerce presence.
<b>CO-3.</b>	Identify the key security threats in the E-commerce environment and be aware of the ethical, social, and security issues of information systems.



**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER – II**  
**PDCA-425P: Lab I: Based on NETWORK CONCEPTS AND MANAGEMENT**  
**(HARDWARE, SOFTWARE, SETTING IN LINUX/UNIX/NT ENVIRONMENT)**

**Time: 3 Hrs.**

**Total Marks: 50**

Credits		
L	T	P
0	0	2

**Practical Marks: 37**

**Internal Assessment Marks:13**

**Course Objectives:**

<b>1.</b>	Understand that global connectivity can be achieved through computer networks.
<b>2.</b>	Understand the function of networks and get exposure to different existing and upcoming communication technologies.
<b>3.</b>	Make them aware that knowledge about hardware and software requirements of networks is essential.

**Practical Based on NETWORK CONCEPTS AND MANAGEMENT**  
**(HARDWARE, SOFTWARE, SETTING IN LINUX/UNIX/NT ENVIRONMENT)**

**Course Outcomes:**

**On Completing the course, the students will be able to:**

<b>CO-1.</b>	Become familiar with the concept of Network hardware and software requirements.
<b>CO-2.</b>	Understand the working of different protocols at different layers of OSI and TCP/IP models.
<b>CO-3.</b>	Learn the concepts of different networking devices like router, hub, and switch.
<b>CO-4.</b>	Understand the concept of IP address and its various classes.
<b>CO-5.</b>	Compare and understand the different networking operating systems like Windows NT, UNIX and Linux.

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER – II**  
**PDCA-426P: Lab II: Based on PROGRAMMING IN C++**

**Time: 3 Hrs.**

**Total Marks: 50**

Credits		
L	T	P
0	0	2

**Practical Marks: 37**

**Internal Assessment Marks:13**

**Course Objectives:**

The learning objectives of this course are:

1.	To understand how C++ improves C with object-oriented features.
2.	To learn how to design C++ classes for code reuse.
3.	To Analyse how to implement copy constructors and class member functions.
4.	To understand the concept of data abstraction and encapsulation.
5.	To learn how to overload functions and operators in C++.
6.	To Know how containment and inheritance promote code reuse in C++.
7.	To learn how inheritance and virtual functions implement dynamic binding with polymorphism.

**Practical Based on PROGRAMMING IN C++**

**Course Outcomes:**

**Upon completion of this course, the students will be able to:**

<b>CO-1.</b>	Understand the difference between the top-down and bottom-up approach.
<b>CO-2.</b>	Describe the object-oriented programming approach in connection with C.
<b>CO-3.</b>	Apply the concepts of object-oriented programming.

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER – II**  
**PDCA-427P: Lab III: Based on INTRODUCTION TO SCRIPTING**  
**LANGUAGES WEB DESIGNING AND USES OF INTERNET**

**Time: 3 Hrs.**

**Total Marks: 50**

Credits		
L	T	P
0	0	2

**Practical Marks: 37**

**Internal Assessment Marks:13**

**Course Objectives:**

1.	To create better understanding of the principles of creating an effective web page and learning of the web language: HTML
2.	Better acquaintance with graphic design principles and learn how to implement these theories into reality.
3.	Better learning of how to plan and conduct user research related to web designing.
4.	Students learn various techniques of Web design, Form Design, Table Design, Front page 2000 and learn how to embed social media content into web pages.
5.	Skills are developed to analyses social sites.

**Practical Based on INTRODUCTION TO SCRIPTING LANGUAGES WEB DESIGNING AND USES OF INTERNET**

**Course Outcomes:**

**On Completing the course, the students will be able to:**

<b>CO-1.</b>	Understand the HTML tags.
<b>CO-2.</b>	Learn how to write, test and debug web pages using HTML
<b>CO-3.</b>	Become familiar with graphics.
<b>CO-4.</b>	Develop ability to create and edit web pages using Front Page.
<b>CO-5.</b>	Understand different types of internet connectivity and protocols related to internet

**P.G. DIPLOMA IN COMPUTER APPLICATIONS**  
**SEMESTER – II**  
**PDCA-428P: Lab IV: Based on e-COMMERCE / BUSINESS**

**Time: 3 Hrs.**

**Total Marks: 50**

Credits		
L	T	P
0	0	2

**Practical Marks: 37**

**Internal Assessment Marks:13**

**Course Objectives:**

<b>1.</b>	The key concepts related to the regulation of the internet and e-commerce.
<b>2.</b>	The technologies facilitating electronic business and commercial transactions.
<b>3.</b>	part the students with higher level knowledge and understanding of contemporary trends in e-commerce and business finance.

**Practical PDCA-428P: Lab IV: Based on e-COMMERCE / BUSINESS**

**Course Outcomes:**

**On Completing the course, the students will be able to:**

<b>CO-1.</b>	Analyse the impact of E-commerce on business models and strategy.
<b>CO-2.</b>	Explain the process that should be followed in building an E-commerce presence.
<b>CO-3.</b>	Identify the key security threats in the E-commerce environment and be aware of the ethical, social, and security issues of information systems.