PROGRAMME GUIDE

DEPARTMENT OF INFORMATION TECHNOLOGY& COMPUTER SCIENCE

POST GRADUATE DIPLOMA IN COMPUTER APPLICATION (PGDCA)

* **Scheme of Examination (CBCS/ELECTIVE)**
* **Detailed Structure of Syllabus**

SESSION 2024-25

DR. C. V. RAMAN UNIVERSITY

KARGI ROAD (KOTA), BILASPUR (C.G.)

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DEPARTMENT OF INFORMATION TECHNOLOGY & COMPUTER SCIENCE

INTRODUCTION -

PGDCA programme is a UGC approved 1 year full time Post Graduation Diploma programme of 40 credits divided in 2 semesters (20 credits and 20 credits in 1st and 2nd semester respectively).The main aim of this program is to provide enough knowledge of computer to the UG passed students so that they can be the part of information technology. Using this programme they can improve their skills with the use of smart features of computer.

VISION -

To Outshine in the emerging areas of IT & Computer Science by conveying skill-based education with relevant practices and inculcating human values to transform the students as potential resources to contribute innovatively to the society through advanced computing in real time situations.

MISSION -

- To provide skill-based knowledge for building world class professionals and entrepreneurs with human and spiritual values.
- To adopt and apply innovative teaching skills to develop fundamentals and technical skills for Computer Science applications.
- To produce healthy research environment by providing state-of-the-art training and hands on experience for researchers.
- To team up with industry and academia around the world for achieving quality technical education and excellence in education/research.

PROGRAMME EDUCATIONAL OBJECTIVE

- **PEO1: -**The objective of the programme is to develop computer skills to the students.
- **PEO2: -**This programme aimed towards building prospective career in the field of computer application.
- **PEO3: -**The programme is designed with the objective to provide knowledge and skills in the various aspects of computer application and core programming.

PROGRAMME OUTCOME -

- **PO1: -**This program opens the opportunity for learners that come from any stream to learn a skill based subject. Learners can get initial knowledge of computer and can improve their skills.
- **PO2: -**They can also work as computer operator or program developer in government or private sectors.
- **PO3: -**This program provides competitive environment for the learners which enable to stand and complete themselves.
- **PO4: -**The learners can also be able to prepare applications using computer language.

PROGRAMME SPECIFIC OUTCOME -

- **PSO1: -**The specific outcome of the programme is to achieve the well computer literates' and educated learners who will be able to become a member of the growth of information technology industries.
- **PSO2: -**Any learner can do so many things with the respect of their career in the field of computer science.
- **PSO3: -**The knowledge of computer also helps to qualify competitive exams to make their career in post like computer operator

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KARGI ROAD, KOTA, BILASPUR (C.G.)

SEMESTER- 1st **Course Code: 4TPDC-101**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: INFORMATION TECHNOLOGY TOOLS AND NETWORK BASICS **Theory Min. Marks 17**

COURSE OBJECTIVE: Student will be able

- To acquire a foundational understanding of computer hardware, input/output devices, and storage systems.
- To learn about various types of computers, number systems, and basic data representation techniques.
- To familiarize with software types, operating systems, and basic programming languages.
- To explore networking concepts, the internet, digital financial tools, and cyber security fundamentals.

Syllabus:

Unit	Unit wise course contents	Methodology Adopted
Unit – I	**Introduction to Computer:** Computer and Latest IT gadgets, Evolution of Computers & its applications, IT gadgets and their applications, Basics of Hardware **Input Devices -** Introduction, Input Device, Typing Input Devices, Pointing Input Devices, Scanning Input Devices, Audio Visual Input Devices **Output Devices -** Introduction, Output Devices, Soft Copy Vs Hard Copy Output, Monitor, Printers, Plotter, Electrostatic Technique, Special Purpose Output Equipments **Central Processing Unit -** Introduction, What is Central Processing Unit, Arithmetic and Logic Unit, Control Unit, Registers, Instruction set, Processor Speed **Storage Devices** - Introduction, Storage and its needs, Brain Vs Memory, Storage Evaluation Units, Data Access Methods, Primary Storage, Secondary Storage, Hard Disk Operations, Floppy Disk Drives, Winchester Disk, Optical Disk, VCD, CD-R, CD-RW, DVD, Zip Drive, Flash Drives, Blue Ray Disk, Memory Card, Driving Naming Conventions In a PC	ICT based class room teaching, Group Discussion, Case Analysis, Individual Presentations
Unit – II	**Types of Computers and Generations of Computers** **Personal Computer -** Introduction, Personal computer, Uses of personal computers, Components of personal computers, Evolution of PCs **Number System -** Introduction, Digital and Analog Operations, Binary Data, Binary Number System, Decimal Number System, Octal Number System, Hexadecimal Number System **Data Representation and Binary Arithmetic -** Introduction, Bits, Nibbles, Bytes and Words, Data Representation, Coding system, Binary Arithmetic, Binary Addition, Binary Subtraction	ICT based class room teaching, Case Analysis, Individual Presentation,
Unit – III	**Basics of Software-** Introduction, What Does Software Stand For? Needs of software, Types of software, Application Software, Systems Software, Utility Software, Open source and Proprietary Software, Mobile Apps, Integrated Development Environment (IDE) **Introduction to Operating System:** Operating System, Basics of Operating System, Functions of Operating System, The Booting Process, Types of Reboot, Booting From Different Operating System, Types of Operating System, Some Prominent Operating Systems for Desktop and Laptop, Operating Systems for Mobile Phone and Tablets, User Interface for Desktop and Laptop, Task Bar, Icons & shortcuts, running an application, Operating	ICT based class room teaching, Case Analysis, Individual Presentation

	System simple setting, using mouse and changing its properties, changing system date and time, changing display properties, to add or remove Program and its features, adding, removing & sharing Printers, File and Folder management, types of file extensions.	
Unit – IV	**Programming Languages -** Introduction, Data, information And Knowledge, Characteristics of Information, Comparison between human language and , Computer Language, What is a program?, What is a Programming language?, Programming development cycle, Algorithm, Program Flowcharts, Pseudo code, Programming approaches, Programming Paradigms, Types of Programming Language, Third Generation Language, Fourth Generation Language **Computer Virus -** Introduction, Virus, History, Mechanism of virus, How A Virus Spreads , How is virus named, A few Prominent Viruses, Types of Computer Virus, Related Concepts :, Anti Virus Programs, Norton Anti - Virus (NAV), Execution of Norton Anti-Virus **Communication and IT -** Introduction, Computer Network, Communication Process, Communication Types, Transmission Media, Wireless Media, Communication Channels/Media, Modem, Characteristics of a Modem, Types of Modem	ICT based class room teaching, Case Analysis, Individual Presentation
Unit - V	**Introduction to Internet and WWW, E-mail, Social Networking and e-Governance Services** - Basic of Computer Networks, Local Area Network (LAN), Wide Area Network (WAN), Network Topology , Internet, Concept of Internet & WWW, Applications of Internet, Website Address and URL, Introduction to IP Address, ISP and Role of ISP, Internet Protocol, Modes of Connecting Internet (HotSpot, Wifi, LAN Cable, BroadBand, USB Tethering), Identifying and uses of IP/MAC/IMEI of various devices, Popular Web Browsers (Internet Explorer/Edge, Chrome, Mozilla Firefox, Opera etc.), Exploring the Internet , Surfing the web, Popular Search Engines, Searching on Internet, Downloading Web Pages, Printing Web Pages. **Digital Financial Tools and Applications, Overview of Future Skills & Cyber Security -** Digital Financial Tools, Understanding OTP [One Time Password]and QR [Quick Response] Code, UPI [Unified Payment Interface], AEPS [Aadhaar Enabled Payment System], USSD[Unstructured Supplementary Service Data], Card [Credit / Debit], eWallet, PoS [Point of Sale], Internet Banking, National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS), Immediate Payment Service (IMPS), Online Bill Payment	ICT based class room teaching, Case Analysis, Individual Presentation

COURSE OUTCOMES:-

- **CO1:-** Students learn the structure and functioning of computers, including hardware, input/output devices, and storage systems.
- **CO2:**- Students can apply basic software and operating system concepts, including installation, file management, and user interface.
- **CO3:**- Students able to use the internet, communication tools, and digital financial systems securely and effectively.

TEXT BOOKS:

- Introduction to Computers and Information Technology Anurag Seetha (Ram Prasad & Sons, Bhopal.)
- Fundamentals of Information technology, Alexis Leon & Mathews Leon (Vikas Publishing House, NewDelhi.)
- Computer System Architecture MORRIS MANO (PHI Publication)
- Computer fundamental , V .Rajaraman; (PHI Publication)
- Basics of Computer & Information Technolog, Naik Nitin K. , (Kamal Prakashan)

REFERENCE BOOKS:

1. Anurag Seetha, "Introduction to Computers and Information Technology", Ram Prasad & Sons, Bhopal.
2. Galgotia Publications, "Computers Today ", Galgotia Publications.
3. Alexis Leon & Mathews Leon, "Fundamentals of Information technology ", Vikas Publishing House, NewDelhi.
4. Rajeev Mathur, " DOS Quick reference", Galgotia Publications

5. MORRIS MANO, “Computer System Architecture” PHI Publication
6. Computer fundamental: by V .Rajaraman; PHI

Job Opportunities	Employability Skill Developed	Local/National/UNDP Goal Achieved	Entrepreneurship Opportunity
Computer Operator, Office Assistant, Training and Support in Institutions/universities,Research and Academics,System Analyst in State and Central Research organization,Consultant in Software firms,Quality Assurance and Testing in Public and Private sectors, Application Customization and Development, Start own venture	**Digital transformation skill**	1. No Poverty 4. Quality Education, 9. Industry Innovation and Infrastructure.	Can start own Computer Assistance services.

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KARGI ROAD, KOTA, BILASPUR (C.G.)

SEMESTER- 1st **Course Code: 4TPDC-102**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: WINDOWS & MS OFFICE **Theory Min. Marks17**

COURSE OBJECTIVE: Student will be able

- To familiarize with the Windows 10 interface, features, and essential functions.
- To know the applications within Microsoft Office.
- To equip with the skills to create, edit, and format documents in Microsoft Word.
- To utilize Microsoft Excel for data analysis and PowerPoint for effective presentation creation.

Syllabus:

Unit	Unit wise course contents	Methodology Adopted
Unit – I	**Introduction to Windows 10 -** Introduction, Overview, Installation, Getting Started, GUI Basics, Navigation, Start Menu, Taskbar, Tablet Mode, File Explorer, Cortana, Notifications, Quick Actions, Cloud, Universal Apps **Working with Windows 10 -** Multiple Desktops, Users Management, Security, Parental Control, Applications, Web Browsing, Networking, Virtualization, Remote Access, Backup & Recovery, Project Spartan, Apps Management, Email Management, Keyboard Shortcuts, System Tray, Media Management, Favourite Settings, Shortcuts, Phones.	Usage of ICT :-Power Points, PDF, Video lectures, Black board,
Unit – II	**Microsoft Office Introduction -** Introduction to MS Office Suite, Understanding the different applications in the suite, Versions of Microsoft Office, Understanding the Interface, Customizing the Quick Access toolbar, Adding and removing commands, moving the toolbar, creating custom commands, using the Ribbon Interface, tabs and groups, customizing the ribbon, keyboard shortcuts	Usage of ICT :-Power Points, PDF, Video lectures, Black board,
Unit – III	**Getting Started Word Basic (2019) -** Introduction of word, understanding OneDrive, creating and opening documents, saving and sharing documents, text basics, formatting text, using find and replace, indents and tabs, line and paragraph spacing, lists, links, page layout, printing documents, breaks, columns, headers and footers, page numbers **Working with Object Word (2019) -** Pictures and text wrapping, formatting pictures, shapes, text boxes, aligning, ordering, and grouping objects, list and tables, creating lists, creating tables, formatting tables, charts, checking spelling and grammar, track changes and comments, inspecting and protecting documents, SmartArt graphics, inserting and formatting images, wrapping text around images, applying and modifying styles, mail merge, new features in office 2019.	Usage of ICT :-Power Points, PDF, Video lectures, Black board,
Unit – IV	**Getting Started with Excel (2019) -** Introduction, Understanding One Drive, understanding spreadsheets, the Excel interface, the Excel ribbon, Creating and Opening Workbooks, Saving and opening files, Working with Cells and Sheets, Cell Basics, Modifying Columns, Formatting Cells, Understanding Number Formats, Working with Multiple Worksheets, Grouping and ungrouping worksheets, Using Find & Replace, Checking Spelling, Page Layout and Printing, Formulas and Functions: Intro to Formulas, Creating More Complex Formulas, Relative and Absolute Cell References, Functions, **Working with Data with Excel (2019) -** Basic Tips for Working with Data,	Usage of ICT :-Power Points, PDF, Video lectures, Black board,

	Freezing Panes and View Options, Sorting Data, Filtering Data, Advanced filter option, Groups and Subtotals, Tables, Charts and graphs, Conditional Formatting, Doing More with Excel: Comments and Co-authoring, Inspecting and Protecting Workbooks, Intro to PivotTables, Doing More with PivotTables, Pivot charts, What-if Analysis, Extras: New Features in Office 2019, What are Reference Styles?, Office Intelligent Services.	
Unit - V	**Getting Started with Power Point (2019) -** PowerPoint Basics: Understanding OneDrive, Creating and Opening Presentations, Saving Presentations, Working with Slides: Slide Basics, Text Basics, Applying Themes, slide layout, slide background, Applying Transitions, Managing Slides, Using Find & Replace, Printing, Presenting Your Slide Show. **Text and Objects with Power Point (2019) -** Lists, Indents and Line Spacing, Inserting Pictures, Formatting Pictures, Shapes, Aligning, Ordering, and Grouping Objects, Animating Text and Objects, More Objects: Inserting Videos, Inserting Audio, formatting multimedia, animating objects, Tables, Charts, SmartArt Graphics, Review and Collaborating: Checking Spelling and Grammar, Reviewing Presentations, Inspecting and Protecting Presentations, Customizing Your Presentation: Modifying Themes, Slide Master View, Links, Action Buttons, Rehearsing and Recording Your Presentation, Sharing Your Presentation Online, What is Office 365?, New features in office 2019, Office Intelligence Services.	Usage of ICT :-Power Points, PDF, Video lectures, Black board,

COURSE OUTCOMES: –

- **CO1: -** Students will demonstrate proficiency in using Windows 10, including navigation, file management, and system settings.
- **CO2:** - Students will effectively create and format documents in Word and utilize spreadsheets in Excel for data management and analysis.
- **CO3:**- Students will develop engaging PowerPoint presentations, incorporating multimedia elements and advanced formatting techniques.

PRACTICAL:-

1. Introduction of Microsoft windows.
2. Creation of file and folder in MS Windows.
3. Introduction of MS Word.
4. Inserting Number, Bullets, Footer and Header.
5. Creating text, document and table in MS Word.
6. Write steps for mail merge.
7. Introduction of Microsoft excel.
8. Write steps to inserting formula in MS Excel.
9. Creating text, row and Column in MS Excel.
10. Introduction of Microsoft Power Point.
11. Write steps how to using graphics in power point.
12. Create a presentation in PowerPoint to demonstrate use of transition and animation.

TEXT BOOKS:

- MS-Office 2010 Mr. Kalpesh Patel (Computer World (2014))
- PC Software MS Office Naik Nitin K (Kamal Prakashan)

REFERENCE BOOKS:

- Introducing Windows 10 for IT Professionals Ed Bott (Microsoft Press)
- GO! with Microsoft Windows 10 Introductory Gaskin & Vargas (Publisher: Pearson)
- Microsoft Office 2010 a Complete Guide Blokdyk Gerardus (5starcooks
- Windows 7 Complete Reference. BPB Publications
- MS Office 7 complete BPB publication
- MS Windows 7 Home edition complete, BPB Publications
- Microsoft Word, Excel, and PowerPoint: Just for Beginners by Dorothy House

Job Opportunities	Employability Skill Developed	Local/National/UNDP Goal Achieved	Entrepreneurship Opportunity
Computer Operator, Office Assistant, Training and Support in Institutions/universities,Research and Academics, System Analyst in State and Central Research organization,Consultant in Software firms,Quality Assurance and Testing in Public and Private sectors, Application Customization and Development, Start own venture	**Report writing and presentation**	1.No Poverty, 4. Quality Education, 9. Industry Innovation and Infrastructure.	Can start own Computer Assistance services.

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KARGI ROAD, KOTA, BILASPUR (C.G.)

SEMESTER- 1st **Course Code: 4TPDC-103**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: OBJECTS ORIENTED PROGRAMMING WITH C++ **Theory Min. Marks17**

COURSE OBJECTIVE: Student will be able

- To know the basic concepts and benefits of Object-Oriented Programming (OOP) in C++.
- To familiarize with C++ programming environment and compilation process.
- To explore C++ features like arrays, functions, classes, objects, and pointers.
- To understand advanced concepts like polymorphism, operator overloading, and inheritance.

Syllabus:

Unit	Unit wise course contents	Methodology Adopted
Unit – I	**Overview of C++ -** Overview of C++, Software crisis, Object oriented programming paradigm, Basic concepts of OOP, Advantages/Benefits of OOP, Usage/applications of OOP **C++ Environment -** Program development environment, The language and the C++ language standards, Introduction to various C++ compilers, The C++ standard library, Prototype of main () function, i/o operator, manipulator, comments, data types **Creating and Compiling C++ Programs -** TURBO C++ IDE, Creating, compiling and running a C++ program using idea and through command line, Elements of C++ Language, Structure of a C++ program, C++ tokens, Type conversion in expressions. **Decision Making and Branching -** Introduction, Sequential statements, Mathematical Functions, Branching statements, looping Statements, Nested loops, Programming examples.	Usage of ICT :-Power Points, PDF, Video lectures, Black board,
Unit – II	**Arrays and Functions-** Arrays, The meaning of an array, Single-dimensional arrays, Two-dimensional arrays (Multi-dimensional arrays), User Defined Functions, Elements of user-defined functions, Return values and their types, Function calls, Categories of functions, Passing parameters to functions, Recursion, Command Line Arguments, Storage Class Specifiers. **Classes and Objects -** Classes, Structures and classes, Unions and classes, Friend function, Friend classes, Inline function, Scope resolution operator, Static class members, Static data members, Static member functions, Passing object to functions, Returning objects, Object assignment **Array, Pointers, References and the Dynamic Allocation Operators -** Array of objects, Pointer to object, Type checking in C++, The 'this' pointer, Pointer to Derived Types, Pointer to class members, References, C++'s Dynamic Allocation Operators. **Constructors and Destructors -** Introduction, Constructors, Default Constructor, Parameterized constructors, Copy Constructors, Multiple Constructors in a class, Constructors with default arguments, Default Arguments, Special Characteristics of Constructor functions, Destructors.	Usage of ICT :-Power Points, PDF, Video lectures, Black board,
Unit – III	**Polymorphism-** Introduction to polymorphism, Types of polymorphism, Function overloading, Overloading Constructor Function, Finding the address of an overloaded function, Operator Overloading, Creating a Member Operator Function, Creating Prefix and Postfix forms of the increment (++) and decrement (– –) operators (Overloading Unary Operator), Overloading the Shorthand Operators (i.e.	Usage of ICT :-Power Points, PDF, Video lectures, Black board,

	+=, == etc), Operator Overloading Restriction (Rules), Operator Overloading using friend function, Overloading new and delete operator, Overloading some special operators, Overloading [ ] (Subscripting) operator, Overloading() (Function Call) operator, Overloading Binary Arithmetic operators, Concatenating String, Overloading Comma (,) operator, Overloading the I/O operators.	
Unit – IV	Base class Access control, Inheritance & protected members, Protected base class inheritance, Inheriting multiple base classes, Constructors, destructors & Inheritance, When constructor & destructor function are executed, Passing parameters to base class constructors, Granting access, Virtual base classes. Virtual function, Pure Virtual functions, early Vs. late binding.	Usage of ICT :-Power Points, PDF, Video lectures, Black board,
Unit - V	**The C++ I/O System Basics** - The C++ I/O System basics, C++ predefined streams, Formatting using the ios members, Clearing Format Flags, An Overloaded form of setf( ), Examining the Formatted Flags, Using width( ), Using precision( ), Using fill( ), Using Manipulators to format I/O, Creating your own Manipulators	Usage of ICT :-Power Points, PDF, Video lectures, Black board,

COURSE OUTCOME:-

- **CO1: -**After study this student will be able to write, compile, and run C++ programs using different environments.
- **CO2: -** Student will be able to develop efficient C++ applications using OOP principles.
- **CO3: -**Students have an idea to implement inheritance, polymorphism, and operator overloading in C++.

Practicals:

1. WAP to add, subtracts, multiply and divides two numbers using concepts of C++.
2. WAP to show swapping of two numbers using C++.
3. WAP to calculate volume of cube, cylinder, rectangular box using three times function overloading in C++.
4. WAP using virtual function.
5. WAP using copy constructor.
6. WAP to show multiple inheritances.
7. WAP to find mean value of two numbers using friend function.
8. WAP using inline function.
9. WAP to demonstrate the use of Local Object, Static Object & Global Object using C ++.
10. WAP in C++ to demonstrate the creation and the use of dynamic object.
11. Derive the two classes son and daughter and, demonstrate polymorphism in action.

Text Books:

• Object Oriented Programming With C++ R. Subburaj (Vikas Publishing House)
• Programming In C++ M Kumar (TMH Publications)

Reference Books:

• C++ E. Balguruswamy (TMH Publication)
• Object Oriented Programming C++ R. Lafore (Galgotia Publishing)
• C++ The Complete Reference Herbert Schildt (TMH Publication)

Job Opportunities	Employability Skill Developed	Local/National/UNDP Goal Achieved	Entrepreneurship Opportunity
Assistant programmer, software developer, Training and Support in Institutions/universities, Research and Academics, System Analyst in State and Central Research organization, Consultant in Software firms, Quality Assurance and Testing in Public and Private sectors, Application Customization and Development, Start own venture	**Programming and software development**	1.No poverty, 4.Quality Education, 8. Decent Work and Economic Growth, 9. industry innovation and infrastructure	Can teach and learn other computer languages.

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SEMESTER- 1st **Course Code: 4TPDC-104**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: DATABASE CONCEPTS AND INTRODUCTION TO SQL **Theory Min. Marks 17**

COURSE OBJECTIVE: Student will be able

- To learn fundamental concepts of database systems and DBMS architecture.
- To understand the relational data model and its components like tables, keys, and ER diagrams.
- To understand the normalization techniques and database design principles.
- To develop SQL skills for database creation, manipulation, and querying.

Syllabus:

Unit	Unit wise course contents	Methodology Adopted
Unit – I	**Introduction to DBMS :-**What is database**,** Types of database systems**,** Advantages of using a DBMS**,** Different types of database models	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – II	**An Architecture of the Database system: -**Three level of Architecture, Physical, Logical, and View Level, Physical & Logical data independence	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – III	**Relational Data Model: -** What is the relational data model?, Concepts of tables, attributes, tuples and keys, Primary and foreign keys, Constraints, Entity-Relationship Diagrams (ERDs)	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – IV	**Normalization and Database Design:-** What is normalization?, Advantages of normalization, First Normal Form (1NF), Second Normal Form (2NF), Third Normal Form (3NF), De-normalization, Database design process.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit - V	**SQL Basics :-** Introduction to SQL, Data types, Basic SQL syntax and commands, Creating tables, Inserting data into tables, Retrieving data from tables using SELECT statement, Filtering data using WHERE clause, Sorting data using ORDER By clause **Advanced SQL: -**Join (Inner Join, Right Join, Full Outer Join), Aggregating data using GROUP By clause, Filtering grouped data using HAVING clause, Subqueries, Views, Indexes **Database Administration: -** Introduction to database administration, Backup and recovery, Performance tuning, Security and access control, Database maintenance, selecting the right database.	Usage of ICT :-Power Points, PDF, Video lectures, Black board

COURSE OUTCOMES:-

After study this student will be able to know about

- **CO1: -** Understand the structure, advantages, and types of database systems.
- **CO2: -** Apply relational data model concepts to design databases with appropriate constraints.
- **CO3: -** Normalize database structures for efficient data organization and retrieval.
- **CO4: -** Use SQL to create, manage, and query databases effectively, including advanced operations.

Practical:

1. Write a query to implement Different types of DDL statements in SQL.
2. Write a query to implement Different types of DML statements in SQL.
3. Write a query to implement Different types of DQL statements in SQL.

4. Write a query to implement Different types of DCL statements in SQL.
5. Write a query to explore 'select' clause using where, order by, between, like, group-by,
6. Write a query to implement the concept of Joins in SQL.
7. Write a query to implement the concept of Indexes and views.
8. Write a query to implement the restrictions on the table.
9. Write a query to implement the concept of SubQuestionries.
10. Write a query to implement the structure of the table.

Text Books:

• Database Management System (H) Laad Ameet (Kamal Prakashan)
• Introduction to Database Management Systems Kahate Atul (Pearson)
• An introduction to database system Bipin C.Desai (New Delhi Galgotia)

Reference Books:

• Database Management System Leon & Leon (Vikas Publications)
• Database System Concepts Henry F.Korth & Abraham Silberschatz. (New york. MCGraw)
• An Introduction To Database System C.J.Date (New Delhi Pearson

Job Opportunities	Employability Skill Developed	Local/National/UNDP Goal Achieved	Entrepreneurship Opportunity
Data administrator, database developer, database trainer, oracle engineer, Training and Support in Institutions/universities, Research and Academics, System Analyst in State and Central Research organization,Consultant in Software firms, Quality Assurance and Testing in Public and Private sectors, Application Customization and Development, Start own venture	**Database management and transaction skill**	1.No poverty, 4. Quality Education, 8. Decent Work and Economic Growth, 9. industry innovation and infrastructure	Can start own Data handling company.

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SEMESTER- 1st **Course Code: 4TPDC-105**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: COMMUNICATION SKILLS & PERSONALITY DEVELOPMENT **Theory Min. Marks 17**

COURSE OBJECTIVE: Student will be able

- To understand how to communicate effectively and appropriately in real-life situation.
- To use English effectively for study purpose across the curriculum.
- To develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing.

Syllabus:

Unit	Unit wise course contents	Methodology Adopted
Unit-I	English Language- Listening, Speech, Pronunciation, Reading, Spelling, Writing Right nouns : countable and uncountable, pronouns: Personal, Relative and Others, Articles, the parts of speech, the prepositions, clauses: Coordinate, Subordinate, Relative Adverbs, Adjectives and Adjective Phrases, Verb	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit-II	The Model Auxiliaries, Adverb, Adverb Phrases Comparisons and Intensification, Linking Devices, Subject Verb Agreement, Tenses, Common Errors, Word Building, Vocabulary developing ability of question and answer, Body Language and Its Use in Speaking, Group Discussions, Interview Skills	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit-III	Composition - Making a Technical Report, E-Mails and Text Messages Composing, Letter Writing, Paragraph Writing, E-mail Writing, Writing Resume, Writing a Cover Letter Personality development: Soft Skills Development, Body Language, Behavioral and Symptomatic Soft Skills, Etiquette and Manners, Positive Thinking, Motivation, Goal setting, Team building, Self Confidence, Leadership Skills, Time Management introduction to personality) Basic of Personality b) Human growth and Behavior c) Theories in Personality d) Motivation	Usage of ICT :-Power Points, PDF, Video lectures, Black board,
Unit-IV	Communication skills and Personality Development a) Intra personal communication and Body Language b) Inter personal Communication and Relationships c) Leadership Skills d) Team Building and public speaking	Usage of ICT :-Power Points, PDF, Video lectures, Black board, Performed GD for student skill development
Unit-V	Techniques in Personality development I a) Self confidence b) Mnemonics c) Goal setting d) Time Management and effective planning techniques in personality development II a) Stress Management b) Meditation and concentration techniques c) Self hypnotism d) Self acceptance and self growth.	Usage of ICT :-Power Points, PDF, Video lectures, Black board

COURSE OUTCOMES:-

- **CO1: -**After study this student will be able to know about how to become active readers, what are the writing skills and process. What are the oral communication skills.
- **CO2:** - After study this student will be able to know about to use of English effectively for study purpose across the curriculum.
- **CO3:** - After study this student will be able to know about to develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking, Writing.

Reference Books:

1. “English Language and Indian Culture” - M.P. Universities' 1st year Foundation Course published by M.P. Hindi Granth

Academy, Bhopal [Complete]
2. “Written Communication in English” by Sarah Freeman published by Orient Longman [Units I and II only]

Job Opportunities	Employability Skill Developed	Local/National/UNDP Goal Achieved	Entrepreneurship Opportunity
Training and Support in Institutions/universities, Research and Academics, System Analyst in State and Central Research organization, Consultant in Software firms, Quality Assurance and Testing in Public and Private sectors, Application Customization and Development, Start own venture	**Communication Skills**	1.NoPoverty, 4. Quality Education, 8. Decent Work and Economic Growth	Can start their own PD training classes

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KARGI ROAD, KOTA, BILASPUR (C.G.)

SEMESTER- 2nd **Course Code: 4TPDC-201**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: INTRODUCTION TO INTERNET AND WEB TECHNOLOGY **Theory Min. Marks 17**

COURSE OBJECTIVE: Student will be able

- To understand the evolution of the Internet, its protocols, and key concepts like URLs, ISPs, and domain names.
- To learn the fundamentals of the World Wide Web, search engines, and web protocols.
- To gain practical knowledge of HTML for web page creation, including text formatting, tables, and forms.
- To explore JavaScript basics and its application in creating dynamic, interactive web pages.

Syllabus:

Unit	Unit wise course contents	Methodology Adopted
Unit-I	**Internet -** Evolution, Protocols, Interface Concepts, Internet Vs Intranet, Growth of Internet, ISP, Connectivity, URLs, Domain names, Portals, Application. E- MAIL - Basics of Sending & Receiving.	Usage of ICT:-Power Points, PDF, Video lectures, Black board
Unit-II	**World Wide Web (www)** - History, Working, Web Browsers, Its functions, Concept of Search Engines, Searching the Web, HTTP, URLs, Web Servers, Web Protocols. Space on Host Server for Website, HTML, Design tools, HTML editors, Image editors.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit-III	**HTML:-**Concepts Of Hypertext, Versions of HTML, Elements of HTML, Syntax, Head & Body Sections, Building HTML Documents. Inserting Texts, Images, Hyperlinks, Backgrounds And Color Controls, Different HTML Tags, Table Layout and Presentation, Use of Font Size & Attributes, List Types and Its Tags, Use of Frames and Forms in Web Pages.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit-IV	**JavaScript Overview, syntax & conventions:-** Variables, Expressions, Branching & Looping statements, Functions, Arrays Objects, Events & Document Object Model - onClick, onMouseOver, on Submit, on Focus, on Change.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit -V	**E-Commerce**:- an Introductions, Concepts, Advantages and Disadvantages, Internet & E-Business, Applications, Electronic Payment Systems: Introduction, Types of Electronic Payment Systems, , Smart Cards and Credit Card-Based Payment Systems, Introduction E-Governance and its applications , Various Sites .	Usage of ICT :-Power Points, PDF, Video lectures, Black board

COURSE OUTCOMES:–

- **CO1: -** Student will be able to apply HTML and JavaScript to design and develop basic web pages.
- **CO2: -** Student will be able to analyze the working principles of the Internet, WWW, and e-commerce systems.
- **CO3: -** Student will be able to demonstrate an understanding of electronic payment systems and e-governance applications.

Practical:

1. WAP which shows headings five time in ascending order. Align the heading also.
2. Write a program which show four paragraph under four headings.
3. Write a program for formatting the text &marked highlighted text.
4. Write a program for some text using CSS technique.
5. Write a program to insert an image in a page.

6. Write a program to make a table for any company employee's data record.
7. Write a program to make forms for different uses.
8. Write a java script to print the heading and paragraph & also create a button
9. Write a program to upload video on web page.
10. Write a program to change the back ground of any page.
11. Write a program to create a link between page.

Text Books:-

• Internet & Web Design A. Mansoor Pragya Publications.

Reference Books:-

• Learn HTML in a weekend, Steven E. Callihan, HI
• Using HTML, Lee Anne Phillips, PHI
• SAMS Teach Yourself Javascript in 24 Hrs. Michael Moncur, TechMedia
• Programming In Java, 2nd Edition, E. Balaguruswamy, TMH Publications ISBN 0-07-463542-5
• Peter Norton Guide To Java Programming, Peter Norton, Techmedia Publications ISBN 81-87105-61-5
• JAVA, How to Program, Deitel&Deitel, PHI, Pearson

Job Opportunities	Employability Skill Developed	Local/National/UNDP Goal Achieved	Entrepreneurship Opportunity
Web developer, web service provider, Training and Support in Institutions/universities, Research and Academics, System Analyst in State and Central Research organization,Consultant in Software firms, Quality Assurance and Testing in Public and Private sectors, Application Customization and Development, Start own venture	**Digital communication and Technical skill**	1.No poverty, 4.Quality Education, 8. Decent Work and Economic Growth	Can start own Web designing company or network assistant and management organization

DR. C.V.RAMAN UNIVERSITY

KARGI ROAD, KOTA, BILASPUR (C.G.)

SEMESTER- 2nd **Course Code: 4TPDC-202**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: PROGRAMMING AND PROBLEM SOLVING THROUGH PYTHON **Theory Min. Marks 17**

COURSE OBJECTIVE: Student will be able

- To understand Python and its basic programming structure.
- To know core Python programming concepts, including control flow, loops, and functions.
- To explore Python data structures like lists, tuples, and dictionaries.
- To learn file handling, object-oriented programming, and exception handling in Python.

Syllabus:

Unit	Unit wise course contents	Methodology Adopted
Unit-I	**Introduction to Python-** What is Python?, Advantages of using python, Installing python and PyCharm, Writing and running your first Python program **Basic Concepts of Python-**Variables and Data Types, Operators, Control Flow, Loops, Functions	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit- II	**Data Structure in Python-** Lists, Tuples, and Dictionaries: Working with Lists and Tuples, Working with Dictionaries, List Comprehensions	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit- III	**File Handling in Python-** Reading and Writing Text Files, Working with CSV Files, Working with JSON Files	Usage of ICT : :-Power Points, PDF, Video lectures, Black board
Unit-IV	**Object-Oriented Programming in Python-** Classes and Objects, Inheritance, Polymorphism, Encapsulation	Usage of ICT : :-Power Points, PDF, Video lectures, Black board
Unit-V	**Modules and Packages in Python-**What are Modules and Packages, Creating Modules and Packages, Importing Modules and Packages, Working with Standard Libraries **Exception Handling in Python-**What are Exceptions?, Handling Exceptions, Raising Exceptions, Using Try and Except Blocks	Usage of ICT : :-Power Points, PDF, Video lectures, Black board

COURSE OUTCOMES: –

- **CO1: -**The student will develop Python programs using variables, loops, and functions.
- **CO2: -**The student will be able to manipulate data structures like lists, dictionaries, and tuples efficiently.
- **CO3: -**The student will be able to implement file handling and work with different file formats (CSV, JSON).
- **CO4: -** Apply object-oriented programming and handle exceptions in Python applications.

Practical:

1. Write a simple Python program that prints "Hello, World!" and explain how to run it.
2. Define a variable in Python and assign it a value. What are the different data types available in Python?
3. Write a Python expression to demonstrate the use of arithmetic operators.
4. Create a simple if-else statement that checks if a number is even or odd.
5. Write a for loop that prints the numbers from 1 to 10.
6. Define a function in Python that takes two numbers as arguments and returns their sum.
7. Create a list of five fruits and demonstrate how to access elements using indexing.
8. Explain the difference between a list and a tuple in Python, and provide an example of each.

9. Write a Python script to read data from a text file and print its contents.
10. Create a class in Python that represents a Car, including properties like make, model, and a method to display its details.

Text Books:

- Python Crash Course, Eric Matthes, No Starch Press
- Automate the Boring Stuff with Python, Al Sweigart, No Starch Press
- Learning Python, Mark Lutz, O'Reilly Media

Reference Books:

- Python for Data Analysis, Wes McKinney, O'Reilly Media
- Fluent Python, Luciano Ramalho, O'Reilly Media
- Head First Python, Paul Barry, O'Reilly Media
- Python Cookbook, David Beazley and Brian K. Jones, O'Reilly Media

Job Opportunities	Employability Skill Developed	Local/National/UNDP Goal Achieved	Entrepreneurship Opportunity
Data administrator, database developer, database trainer, oracle engineer, Training and Support in Institutions/universities, Research and Academics, System Analyst in State and Central Research organization,Consultant in Software firms, Quality Assurance and Testing in Public and Private sectors, Application Customization and Development, Start own venture	**Database management and transaction skill**	1.No poverty, 4. Quality Education, 8. Decent Work and Economic Growth, 9. industry innovation and infrastructure	Can start own Data handling company.

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SEMESTER- 2nd **Course Code: 4TPDC-203**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: COMPUTERIZED ACCOUNTING WITH TALLY **Theory Min. Marks 17**

COURSE OBJECTIVE: Student will be able

- To understand the concept of Financial Accounting
- To understand the knowledge about Tally.
- To develop and integrate the use of Accounting
- To understand Cheque Printing, Multi Account printing etc.

Syllabus:

Unit	Unit wise course contents	Methodology Adopted
Unit – I	Accounting, Meaning Of Accounting, Objectives Of Accounting, Important Terms, Accounting Equation, Rules Of Debit And Credit- Journal & Ledger, Journal, Ledger, Cash Book, Subsidiary Books, Financial Statement, Trading & P&L A/C, Balance-sheet, Inventory, Adjustment Entries, Bill Of Exchange Installing Tally 9, Introduction, Tally 9.0 (Release 1.0), Major Enhancements In Tally 9, Minor Enhancements In Tally 9, Multilingual Business Accounting And Inventory Management Features, Performance And Implementation Features, Accounting And Inventory Control Features, Installing Tally 9.0, Application Directory, Data Directory, Configuration Directory, Language Directory, Activating Tally, Activating Tally Gold For Multi User, Registering Tally, Validating Tally, Tally Data Migration Tool, Uninstalling Tally 9	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – II	ABC of Company, Creation Of New Company Selection Of New Company Deletion Of Company Alteration Of Company Shut A Company Company Features, Features Of Company Accounting Features Inventory Features, , Statutory Features Tally Screen Components, Title Bar, Button Bar, Calculator, Working Are, Quitting, Gateway Of Tally, Current Status Area Configuration, General, Numeric Symbols, Accts/Inventory Info, Printing, Connectivity, Licensing, Shop, Quit Budget, Introduction, Budget, Creating Budget, Alter A Budget, Delete Budget, Display Budget/ Budget Variance, Scenarios Job Costing, Introduction, Enabling Or Configure Job Costing In Tally, Master Creation For Job Costing, Voucher Type And Voucher Class, Job Cost Reports	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – III	Reports, Introduction Accounting Reports, Trial Balance, Balance Sheet, Profit & Loss, Cash Flow Statement, Fund Flow Statement, Ratio Analysis, Day Book, Cash/Bank Book Sales Register Purchase Register Outstanding Interest Cost Centers Job Work Analysis Statistics Inventory Reports Accounts Groups & Ledgers, Introduction Accounts Group Multiple Group Creation Display Group Alter Group Multiple Ledgers Display Ledger Alter Ledger Voucher Types Payroll Accounting, Introduction, To Activate Payroll In Tally 9, Payroll Menu, Display Pay Heads, Multiple Group Creation, Employee Creation, Salary Detail, Attendance, Attendance Type, Voucher Creation.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – IV	Export & Import, Introduction, Export, Import, ODBC Compliances. Cost Centre, Introduction Cost Centre, Creating Cost Centre, Display Cost Centre, Alter Cost Centre Cost Category, Create Cost Categories, , Display Cost Categories, Alter Cost Categories Voucher Entry Cost Centre Class, Creating Cost Centre, Invoice Entry Using Cost Centre Reports Related To Cost Centre. Foreign Currencies, Introduction Foreign Currency, Create Foreign Currency, Alter Foreign Currency, Display Foreign Currency, Exchange Rate Entry Voucher Entry Using Foreign Currency Voucher Entry through Forex Journal Voucher Class Reports Related To Foreign Currency. Interest, Introduction, Interest, Simple Mode, Interest On Outstanding Balances, Reports On Interest Calculated On Outstanding Balances, Advanced	Usage of ICT :-Power Points, PDF, Video lectures, Black board

	Parameter Mode, Interest Calculation Transaction By Transaction/Voucher Interest At Fixed Rate, Voucher Interest At Variable Rate, Statement Of Interest Due On Invoice, Interest Reports, Interest Voucher Class.	
Unit - V	Printing, Introduction Cheque Printing, Multi Account Printing, Printing Options General, Purchase Printing, Sales Transaction, Receipt Voucher, Journal/Contra, Debit/Credit Note, Reminder Letter, Confirmation Statement Reports Printing Button Related Bank Reconciliation, Introduction, Bank Reconciliation In Tally 9, Configuration Of BankReconciliation. Security Control, Introduction Security Levels Access Type Backup & Restore, introduction, Group Company, Create a Group Company, Alter a GroupCompany, Tally Audit, Splitting Company Data Inventory, Introduction Stock Group Stock Item Stock Categories Godowns Units Of Measures RateOf Duty Inventory Vouchers Reorder Level Inventory Reports Inventory Info Inventory BooksStatement Of Inventory Batch Wise Details Price List	Usage of ICT :-Power Points, PDF, Video lectures, Black board

COURSE OUTCOMES: -

- **CO1: -** After study, the student will be able to know about Accounting, Company, Company Features, Features of Company Accounting, Interest Calculation Transaction and Cheque Printing, Multi Account Printing.
- **CO2: -** Students are capable to work with large ledger.
- **CO3:** - Students are capable to fetch their accounting data at anywhere over the internet.

Practicals:

1. How do you create a new company in Tally?
2. How do you record a sales voucher in Tally?
3. How do you generate and print a GST invoice in Tally?
4. What is the use of "Cost Centres" and how do you create them in Tally?
5. How do you manage multiple godowns (warehouses) in Tally?
6. How can you reconcile bank statements with accounting records in Tally?
7. How do you generate financial reports (like Balance Sheet, Profit & Loss Account) in Tally?
8. What are ledgers and groups in Tally, and how do you create them?
9. How do you record an advance payment or receipt in Tally?
10. How do you close the books of accounts at the end of a financial year in Tally?

Text Books:

- Implementing Tally 6.3 by Nadhani; BPB Publications
- BPB Tally 6.3 by BPB Editorial Board (Hindi) BPB Publications
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Reference Books:

- Tally 9 (Level 2) Traders Accounting BY ASOK.K.NADHANI
- Official Guide to Financial Accounting Using Tally. ERP 9 with GST by Tally Education

Job opportunity	**Employability skill developed**	**Local/National/UNDP Goal Achieved**	**Entrepreneurship Opportunity**
Training and Support in Institutions/universities Research and Academics System Analyst in State and Central Research organization,Consultant in Software firms,Quality Assurance and Testing in Public and Private sectors, Application Customization and Development, Start own venture	**Numeracy and accounting skill**	4. Quality Education, 8. Decent Work and Economic Growth	Can start own Accountant consultancy

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KARGI ROAD, KOTA, BILASPUR (C.G.)

SEMESTER- 2nd **Course Code: 4TPDC-204**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: INFORMATION SECURITY MANAGEMENT **Theory Min. Marks 17**

COURSE OBJECTIVE: Student will be able

- To understand network fundamentals, protocols, and routing techniques for secure network management.
- To explore cyber security threats, vulnerabilities, and mitigation techniques.
- To learn cryptographic methods, encryption algorithms, and key management protocols.
- To gain knowledge of network security devices, countermeasures, and web application security.

Syllabus:

Unit	Unit wise course contents	Methodology Adopted
Unit – I	**Network Fundamentals** Introduction to Ethernet, OSI layers, TCP/IP models , Functions protocols & devices at each layer . Protocol headers for frame, TCP, UDP, IP, ICMP, applications layers like HTTP, SNMP etc. Network Topology Working of Hub, Bridge, Switch, Router, UTM, Remote Administration of and Managed Devices. Types of Networks, VLAN , Subnetting , NAT working with number systems , Fixed length subnet masking , Variable length subnet masking , Classless Inter Domain routing , Inter VLAN routing , Static routing , RIP , RIPv2 , OSPF , EIGRP , IGRP using IPv4 , Routing in IPv6.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – II	**Introduction to Cyber Security and Attacks** Fundamentals of information security- CIA Triad, Cyber Security controls, Logical controls, Physical controls, Tools & Techniques , Understanding threats , Attacks categories, Hacking process , Vulnerability , Threat & Risk (with examples) , Types of Attacks (DDOS, Phishing, Malware etc. with examples). Threats at clients systems (Malware, Social Engineering, Open ports etc.), Threats to Network, Web Storage & Devices, Understanding the network security, Mitigation Techniques, Fundamental of web/mobile application security, Web Application Attacks (SQL injection, XSS etc.), Mobile application attacks, Data center security, Cloud computing and Data security.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – III	**Cryptography** Data Transmission and Organization, Error detecting and correcting codes, need of Cryptography, Cryptology fundamentals, Symmetric-Asymmetric cryptography & Cryptographic Algorithms, Private key encryption, Public key encryption, Protocols, Key management including key generation, key storage, key exchange, Encryption folders (Graphical/using Cipher), Data recovery agent, Symmetric key encryption algorithms, DES/3DES, IDEA,RC5, AES, Public key algorithm, RSA & ECC, Diffie- Hellman key exchange, Hash functions, MD5-Message Digest algorithms, SHA-1 Secure Hash Algorithm, HMAC, Applications of cryptography- Secure Email PGP, SSL TLS S/MIME, File Encryption IPsec, IOT attacks against encryption, Public Key Infrastructure Understanding digital certificates and Signatures PKI Standards and Management, X-500, X-509, ETF, IRTF.	Usage of ICT :-Power Points, PDF, Video lectures, Black board

Unit – IV	**Network Security & Countermeasures and Web Server & Application Security** **Securing Networks, Network security devices-** Router, ACL, Firewalls, Types of Firewalls, Configuration and deployment, Overview of IDS, Network based IDS (NIDS), Host-based IDS, Overview of IPS, Host-Based IPS (HIPS), Network-based IPS(NIPS), UTMTMG-Unified Threat Management Threat Management Gateway, Network Security tools (Scanners and Sniffers etc.) and Countermeasures Wireless Security, Securing Wireless Networks: Wireless Overview, Bluetooth, 820.11. Client-Server Relationship, Vulnerabilities in web server and applications, Attack methods, Buffer Overflow, SQL Injection, XSS, Session hijacking etc., Secure Coding Practices, OWASP top 10 vulnerabilities and Mitigation Techniques, Web Application Vulnerability Scanning tools (Nessus), Web Application Security Challenges.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit - V	**Cyber Law and Cyber Forensics:-** Information Technology Act 2000 (as amended in 2008), Rules under Information Technology Act 2000, The Rule of Cyberspace, Cyber Law- Policy Issues and Emerging Trends Online Contract, Digital Signature Cyber Crime, Data Protection, Liability of Intermediary , Copyright and Internet , Domain Name Dispute , Harmful content in Internet, Case Studies. **Digital Evidence, Identification of Digital Evidence, Cyber Forensics Processes** - Identification, Preservation, Seizure and Acquisitions. Analysis, Authentication and Presentations, fundamental of Incident Response and Handling, Reporting, Mitigation, Volatile Evidence Collection and Analysis, Disk Imaging and Analysis, Investigating, Information-hiding, Analysis of Email, Tracing Internet Access, Understanding importance of report, Writing of reports, Generating report finding with forensics tools, Chain of Custody forms, Laboratory Documents and Procedures.	Usage of ICT :-Power Points, PDF, Video lectures, Black board

COURSE OUTCOME: -

- **CO1: -**After study this student will be able to analyze and apply secure network architecture and routing protocols.
- **CO2: -**Student will able be Identify and mitigate cyber security threats using appropriate techniques and tools.
- **CO3: -**After Study, student can utilize cryptographic algorithms for securing communications and managing encryption keys.

Practicals:

1. Understanding of basic networking devices and tools Ethernet port, Ethernet cable, switch and router.
2. Set up a small local area network (LAN) using two computers and a switch. Connect those using Ethernet cables and configure their IP addresses.
3. Install and configure a simple web server (like XAMPP or WAMP) on one computer. Access the server from another computer on the same network.
4. Use the command prompt to ping different devices on the network. Record the response times and analyze the results.
5. Create a simple HTML page and host it on the local web server. Access it from other devices connected to the same network.
6. Set up a basic file-sharing network using shared folders between two or more computers. Transfer files and check permissions.
7. Demonstrate how to change the network configuration of a computer (IP address, subnet mask, gateway) using network settings.
8. Set up a wireless network using a Wi-Fi router. Connect multiple devices and test the connectivity between them.
9. Explore different network protocols (like HTTP, FTP, and TCP) using online tools or software. Discuss their functions and importance.
10. Create a simple network diagram illustrating the components of a network (like computers, switches, routers) and how they connect.

Text Books:

• Networking Essentials: Study Guide MCSE, James Chellis Charles Perkins, Matthew Strebe SecondEdition (BPB Publications)
• Local Area Networks, S.K.Basandra & S. Jaiswal, Galgotia Publications)

Reference Books:

• Computer Network, Andrew & Tanenbaum, (New Delhi Pearson)
• Data and Computer Communication, William Stallings,(New Delhi Pearson)
• Data Communication, Prakash C Gupta, (New Delhi PHI)

Job Opportunities	Employability Skill Developed	Local/National/UNDP Goal Achieved	Entrepreneurship Opportunity
Network administrator, network service provider, network engineer, Training and Support in Institutions/universities, Research and Academics, System Analyst in State and Central Research organization, Consultant in Software firms, Quality Assurance and Testing in Public and Private sectors, Application Customization and Development, Start own venture	**Digital communication and networking skill**	1.No poverty, 4. Quality Education, 8. Decent Work and Economic Growth	Can start own Computer Network assistance

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KARGI ROAD, KOTA, BILASPUR (C.G.)

SEMESTER- 2nd **Course Code: 4TPDC 205**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: INTRODUCTION TO GRAPHIC DESIGN USING PHOTOSHOP **Theory Min. Marks 17**

COURSE OBJECTIVE: Student will be able

- To learn about basic graphic design principles and Photoshop tools.
- To develop an understanding of layout, composition, and typography.
- To explore color theory and its application in digital design.
- To gain knowledge of advanced image manipulation and vector graphic creation.

Syllabus:

Unit	Unit wise course contents	Methodology Adopted
Unit – I	**Introduction to Graphic Design and Photoshop** Overview of graphic design principles and concepts, Introduction to the Photoshop interface and tools, Image file formats and resolution, Color modes and color correction, Basic photo editing techniques: cropping, resizing, and retouching.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – II	**Layout and Composition** Understanding the principles of visual hierarchy, balance, contrast, proportion, and scale, Typography principles and design, Text tools and effects, working with type layers, Creating graphic elements and shapes.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – III	**Color Theory and Application** Color theory and psychology, Color palettes and schemes, applying color to designs in Photoshop, Color properties: hue, saturation, and brightness, Color models: RGB, CMYK, and Pantone, Color theory history: the evolution and development of color theory over time, Color wheel: understanding the color wheel and how it can be used to create color harmony.	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit – IV	**Image Manipulation and Enhancement** Advanced photo retouching techniques, Filters and effects for creative image editing, Using blending modes and opacity, Creating composite images with layer masks and blending modes	Usage of ICT :-Power Points, PDF, Video lectures, Black board
Unit - V	**Vector Graphics and Logo Design** Vector Graphics, Vector Drawing Tools, Logo Design Principles, Logo Design Process, Brand Identity, Logo Design Trends, Logo Formats and shape tools in Photoshop, Creating logos and icons, The objective of studying typography, principles and techniques, Typography in logo design, Creating branding elements and guidelines	Usage of ICT :-Power Points, PDF, Video lectures, Black board

COURSE OUTCOMES: –

After the completion of the course, students are expected to:

- **CO1: -** Perform basic photo editing and color correction using Photoshop.
- **CO2: -** Understand and apply design principles for balanced layouts and typography.
- **CO3: -** Use color theory to create visually harmonious designs.
- **CO4: -** Create professional logos and branding elements using vector tools.

Practicals:

1. Create a simple poster using the text and image editing tools in Photoshop, incorporating basic principles of layout and composition.
2. Design a logo using vector drawing tools and apply typography principles to create a cohesive brand identity.
3. Use the cropping and resizing tools in Photoshop to edit a photo for social media, ensuring the dimensions meet platform specifications.
4. Create a color palette using the color wheel and apply it to a digital artwork in Photoshop, demonstrating an

understanding of color harmony.

5. Apply basic photo retouching techniques to enhance a portrait, including adjusting brightness, contrast, and removing blemishes.
6. Design a typographic poster using different font styles and sizes to establish visual hierarchy and contrast.
7. Create a composite image by combining multiple photos using layer masks and blending modes, focusing on achieving a seamless integration.
8. Develop a simple infographic that presents information visually, utilizing layout and composition principles alongside color theory.
9. Experiment with filters and effects in Photoshop to create a stylized version of an original photograph, showcasing creativity in image manipulation.
10. Design a business card that incorporates your logo and follows typography principles, ensuring it conveys the intended brand identity effectively.

Text Books:

- Adobe Photoshop Classroom in a Book, Conrad Chavez & Andrew Faulkner, Adobe Press
- Photoshop for Beginners: A Complete Guide to Learn Adobe Photoshop, A. A. Dhamal, Independently Published

Reference Books:

- Photoshop CC: The Missing Manual, Lesa Snider, O'Reilly Media
- The Adobe Photoshop CC Book for Digital Photographers, Scott Kelby, Peachpit Press
- Photoshop Essentials, Mark Galer & Philip Andrews, Cengage Learning

Job Opportunities	Employability Skill Developed	Local/National/UNDP Goal Achieved	Entrepreneurship Opportunity
Graphic Designer, Photoshop Specialist, Visual Designer, Creative Director, Art Director, User Interface (UI) Designer, User Experience (UX) Designer, Brand Identity Designer, Logo Designer, Digital Marketing Specialist, Content Creator, Social Media Designer, Motion Graphics Designer, Advertising Designer, Print Designer, Web Designer, Freelance Graphic Designer, Photo Editor, Color Correction Specialist, Layout Artist, Typography Specialist, Image Retoucher	**Photoshop Graphics designer and editor**	1.No poverty, 4. Quality Education, 8. Decent Work and Economic Growth, 9. industry innovation and infrastructure	Can start own graphics designing company, Can work in print, publishing and media industry

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KARGI ROAD, KOTA, BILASPUR (C.G.)

SEMESTER- 2nd **Course Code: 4TPDC 206**
PROGRAMME: PGDCA **Theory Max. Marks: 50**
COURSE: PROJECT REPORT **Theory Min. Marks 17**

PATTERN:

A two-three weeks project topic will be assigned to each of the student in a group on the related topics studied in the Semester on which student shall prepare a project report and submit to the University. Detailed Guidelines related to the Minor project can be obtained in the contact-class or can be downloaded from the website.

All the candidates of PGDCA are required to submit a project-report based on the work done by him/her during the project period. A detailed Viva shall be conducted by an external examiner based on the project report.