HEMCHAND YADAV VISHWAVIDYALAYA, DURG (C.G.)

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SCHEME OF EXAMINATION
&
SYLLABUS
of
P.G.D.C.A. Semester Exam

UNDER

FACULTY OF COMPUTER SCIENCE

Session 2023-24

(Approved by Board of Studies)
Effective from June 2023

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P.G.D.C.A. (Post Graduate Diploma in Computer Applications)

FIRST SEMESTER

Subject Code	SUBJECTS	Teaching LoadPer Week			Credit L+ (T+P)/2	Examination Marks					
						Max. Marks			Min. Marks		
		L	T	P		Th	Pr	Total	Th	Pr	Total
PGDCA101	Introduction to software organization	3	2	-	4	100	-	100	20	-	20
PGDCA102	Programming in"C"	3	2	-	4	100	-	100	20	-	20
PGDCA103	Office Automation & Tally	3	2	-	4	100	-	100	20	-	20
PGDCA104	Practical based on PGDCA-103			3 x 2	3	-	100	100	-	20	20
PGDCA105	Practical based on PGDCA-102			3 x 2	3	-	100	100	-	20	20
	TOTAL	**9**	**6**	**12**	**18**	**300**	**200**	**500**	**60**	**40**	**100**

SECOND SEMESTER

Subject Code	SUBJECTS	Teaching LoadPer Week			Credit L+(T+P)/2	Examination Marks					
						Max. Marks			Min. Marks		
		L	T	P		Th	Pr	Total	Th	Pr	Total
PGDCA106	Programming in Python	3	2	-	4	100	-	100	20	-	20
PGDCA107	Database ManagementSystem	3	2	-	4	100	-	100	20	-	20
PGDCA108	Essentials of E-Commerce & HTML	3	2	-	4	100	-	100	20	-	20
PGDCA109	Practical based on PGDCA106, PGDCA107 & PGDCA108			3 x 2	3	-	100	100	-	20	20
PGDCA110	*Project/Dissertation		2	2 x 2	3	-	100	100	-	20	20
	TOTAL	**9**	**8**	**10**	**18**	**300**	**200**	**500**	**60**	**40**	**100**

- Project/ Dissertation can be made using any software tools or programming languages as per latest computer science trends.

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POST GRADUATE DIPLOMA IN COMPUTER APPLICATION
[DURATION - ONE YEAR - FULL TIME]

The duration of the course shall be one year consisting of two semesters. There shall be three theories and two practical courses in the each semester.

FIRST SEMESTER

PGDCA-101 : Introduction to software organization
PGDCA-102 : Programming in "C"
PGDCA-103 : Office Automation & Tally
PGDCA-104 : Practical based on PGDCA-103.
PGDCA-105 : Practical based on PGDCA-102.

PGDCA-101
INTRODUCTION TO SOFTWARE ORGANISATION

UNIT – I: Introduction to Computers

Computers – Introduction, Computer System Characteristics, Strength and Limitations of Computer, Development of Computers, Types of Computers, Generations of Computers.
Introduction to Personnel Computers – Uses of PC's, Components of PC's, Evolution of PC's, Developments of Processors, Architecture of Pentium IV, Configuration of PC's; Input Device; Output Devices.

UNIT – II : Computer Organization

Central Processing Unit – Arithmetic Logic Unit, Control Unit, Registers, Instruction Set, Processor speed. Storage Devices – Storage and its need, Storage Evaluation Units, Primary Storage, Secondary Storage, Data Storage and Retrieval Systems, SIMM, DIMM, Types of Storage Devices.

UNIT – III : Computer Software

Basics of Software – needs of Software, Types of Software; Free Domain Software; Open Source Software; Compiler, Interpreter and Assembler; Linker and Loader; Debugger; Integrated Development Environment; Operating System – Introduction, Uses of OS, Functions of OS, Booting process, Types of Reboot, Booting from different OS, Types of OS, DOS, Windows, Linux.

UNIT – IV: Programming Languages – Introduction, Comparison between Human and Computer Language; Program; Data, Information and Knowledge; Characteristics of Information; Types of Programming Languages; Generations of Languages; Program Development Steps; Programming Paradigms; Object-Oriented Programming; Structured Programming, Functional Programming, Process Oriented Programming.

UNIT – V : Communication, Networks and Internet

Communication – Introduction, Communication process, Communication Types, Communication Protocols, Communication Channels/Media. Networks – Introduction; Types of Network; Topology; Media - NIC, NOS, Bridges, HUB, Routers, Gateways. Internet – Introduction, Growth of Internet, Owner of Internet, Internet Service Provider, Anatomy of Internet, ARPANET and Internet History of World Wide Web, Services Available on Internet - File Transfer Protocol, Gopher, E-mail, Telnet, Newsgroups, WWW, Applications of Internet.

Books Recommended

1. Using IT : Williams T MHill
2. Essentials of Information Technology : A. Mansoor, Prgya Publications
3. IT : Curtin T MHill
4. Fundamental of Information Technology : Chetan Shrivastava_Kalyani Publishers
5. Computer Fundamentals : P.K Sinha BPB Pubications
6. Fundamental of Computer : V. Rajaraman
7. Computer today : Sanders D.H

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PGDCA-102

PROGRAMMING IN 'C'

UNIT – I: Introduction:

Introduction Character set, Identifiers and Keywords, Variables, Displaying variables, Reading Variables, Character and Character String, Qualifiers, Type define Statements, Value initialized variables, Constants, Constant Qualifier, Operators and Expressions, Operator Precedence and Associativity, Basic input output: Single Character I/O, Types of Characters in format string, Scanf with specifier.

UNIT – II : Control Structures -

Control Structure: If - statement, If -else statement, Multi decision, Compound Statement, Loops: For - loop, While -loop, Do-While loop, Break statement, Switch statement, Continue statement, Go to statement.

UNIT – III: Functions & Arrays-

Functions: Function main, Functions accepting more than one parameter, User defined and library functions, Concept associatively with functions, function parameter, Return value, recursion comparisons of Iteration and recursion variable length argument list.

Arrays: Scope and Extent, Multidimensional Arrays, Array of Strings, Function in String, passing arrays to functions, accessing array inside functions.

UNIT – IV Pointes

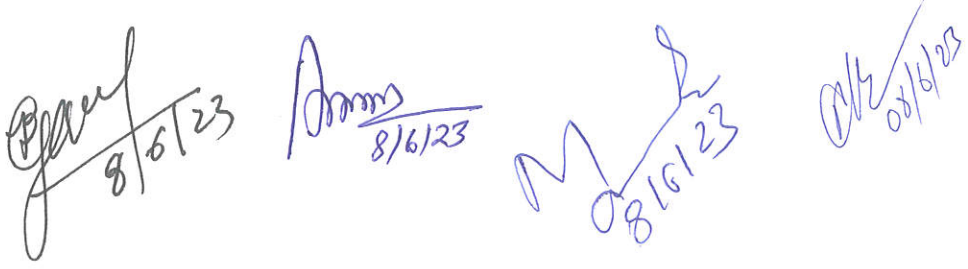
Pointers: Definition and use of pointer, address operator, pointer variable, referencing pointer, void pointers, pointer arithmetic, pointer to pointer, pointer and arrays, pointer and functions, pointers and two dimensional arrays, array of pointers, pointers constants, pointer and strings.

UNIT – V: Structure and Union -

Declaring and using Structure, Structure initialization, Structure within Structure, Operations on Structures, Array of Structure, Array within Structure, Creating user defined data type, pointer to Structure and function. Union, difference between Union and Structure, Operations on Union, Scope of Union.

Suggested Books:-

1. Letus C - Yashwant Kanetkar.
2. Programming in C - E. Balaguruswamy



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PGDCA-103

OFFICE AUTOMATION & TALLY

UNIT – I: Windows Concept

Windows Concepts, Features, Structure, Desktop, Icons, Taskbar, Start Menu, My Computer, Recycle Bin, My document, creating shortcut. Accessories: Calculator, Notepad, Paint, Word Pad, Character Map. Windows Explorer: Creating files & folders and other Explorer facilities, Object Linking & Embedding. Communication: Dialup Networking, Phone Dialer. Difference among windows versions.

UNIT – II : Word Processing & Spreadsheet

Word **:** Creating, Editing, & Previewing Documents, Formatting, Advanced Features, Using Thesaurus, Mail Merge, Table & Charts, Handling Graphics, Converting Word Documents into other Formats.
Excel: Worksheet Basics, Creating, Opening, & Moving in Worksheet, Working with Formula & Cell referencing, Absolute & Relative addressing, Working with Ranges, Formatting of Worksheet, Graphs & Charts, Database, Function, and Macros.

UNIT – III: Power Point

Power Point: Creating a presentation, Modifying visual Elements, Adding objects, Applying Transitions, animations and linking, preparing handouts, presenting a slide show. Creating presentation, working with slides, different types of slides, setting page layout, selecting background and applying design, adding graphics to slide, adding sound and movie, working with table, creating chart and ginih, playing a slide show, slide transition, advancing slides, setting time, rehearsing timing, animating slide, animating objects, running the show from windows.

UNIT – VI: Access

Introduction to MS Access, The Tables of a Database, Introduction to the Record of a Table, Introduction to Controls Design, Details on Controls Design, The Characteristics of a Table, The Characteristics of a Form, The Characteristics of a Window Control, Data Controls, Introduction to Data Expressions, Getting Assistance With Data Entry, Database Strings, Database Numeric Values, Database Conditional Values, Database Date and Time Values, Creating Reports, Characteristics of Reports. Multiple queries and switch boards manager.

UNIT – V:Tally

Setting up Ledger &Groups. Study of recording of transactions in the 'Voucher'. (According to Golden rules). Study of 'Final A/C preparation & displaying in different mode/format'. Study of alteration & Deletion of ledger/Groups. Study of cash & fund flow, day book, sales register, purchase register, bills receivable/Payable etc. Study of data security & backing up data. Outline of entry for Income Tax, ED, VAT, ST/CST, PF, Gratuity, Bonus, Loans & Depreciation etc.

TEXT BOOKS:

1. Microsoft Office 2007 fundamentals, L Story, D Walls.
2. MS Office, S. S. Shrivastava, Firewall Media.
3. Office 2000 made easy ,Alan Neibauer, Tata McGraw Hill.

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PGDCA-104: Practical based on PGDCA-103

1. **Scheme of Examination: -**

Practical examination will be of 3 hours duration. The distribution of practical marks is as follows:

Question1(Word)	-	15
Question 2 (Excel/ Power point)	-	15
Question3(Access)	-	15
Question4(Tally)	-	15
Viva-Voice	-	20
[Practical Copy +Internal Record]	-	20
Total	-	**100**

2 In every program there should be comment for each coded line or block of code.

3 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared.

List of Practical

1. At least 10 practical Questions in Word
2. At least 10 practical Questions in Excel
3. At least 5 practical Questions in Power point
4. At least 10 practical Questions in Access
5. At least 5 practical Questions in Tally
6.

PGDCA-105 : Practical based on PGDCA-102

1 **Scheme of Practical Examination:-**

Practical examination will be of 3 hours duration. All programe with flowchart & algorithms. The distribution of practical marks is as follows and

Question 1 (with flowchart & algorithms)	-	20
Question 2 (with flowchart & algorithms)	-	20
Question 3 (with flowchart & algorithms)	-	20
Viva-Voice	-	25
[Practical Copy + Internal Record]	-	15
Total	-	**100**

2 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

3 In every program there should be comment for each coded line or block of code.

4 Alltheprogramsorasimilartypeofprogramsshouldbepreparedasperthepracticallist.

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List of Practical

Input and Output, formatting

1. Write a program in which you declare variable of all data types supported by C language. Get input from user and print the value of each variable with alignment left, right and column width 10. For real numbers print their values with two digits right to the decimal.

Loops, Decisions

2. Write program to print all combination of 1 23.
3. Write program to generate following pattern)

```
* * * * *
  * * * *
   * * *
    * *
     *
```

c)

```
    *
   * *
  * * *
 * * * *
* * * * *
```

b)

```
1
2 3
4 5 6
7 8 910
```

d)

```
      1
    2 1 2
  3 2 1 23
4 32 1 2 34
```

4. Write main function using switch…case, if.. else and loops which when called asks pattern type; if user enters 11 then first pattern is generated using for loop. If user enters 12 then first pattern is generated using while loop. If user enters 13 then first pattern is generated using do-while loop. If user enters 21 then a second pattern is generated using for loop and so on.
5. Write program to display number 1 to 10 in octal, decimal and hexa decimal system.
6. Write program to display number from one number system to another number system. The program must ask for the number system in which you will input integer value then the program must ask the number system in which you will want output of the input number after that you have to input the number in specified number system and program will give the output according to number system for output you mentioned.
7. Write a program to perform following tasks using switch…case, loops and conditional operator (a sand when necessary).
   a) Find factorial of a number
   b) Print fibonacci series up to n terms and its sum.
   c) Print sin series up to n terms and its sum.
   d) Print prime numbers up n terms.
   e) Print whether a given year is leap or not.
8. Write program no. 6 but use library function to perform above tasks.

Array

9. Create a single program to perform following tasks using switch, if. Else, loop and single dimension character array without using library function:
   a) To reverse the string.
   b) To count the number of characters in string.
   c) To copy the one string to other string;
   d) To find whether a given string is palindrome or not.
   e) To count no. of vowels, consonants in each word of a sentence and no. of punctuation in sentence.
   f) To arrange the alphabets of a string in ascending order.
10. Create a single program to perform following tasks using switch, if. Else, loop and single dimension integer array:

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a) Sort the elements.

11. Write a program that read the afternoon day temperature for each day of the month and then report them on the average temperature as well as the days on which hottest and coolest days occurred.
12. Create a single program to perform following tasks using switch, if. Else, loop and double dimension integer array of size 3x3:

    a) Addition of two matrix.

    b) Subtraction of two matrix.

    c) Multiplication of two matrix.
13. Create a single program to perform following tasks using switch, if. Else, loop and double dimension character array of size 5x40:

    a) Sorting of string.

FUNCTIONS

14. Write program using the function power (a, b) to calculate the value of a raised to b.
15. Write program to demonstrate difference between static and auto variable.
16. Write program to demonstrate difference between local and global variable.
17. Write a program to perform following tasks using switch…case, loops and function.

    a) Find factorial of a number

    b) Print Fibonacci series up to n terms and its sum.
18. Write a program to perform following tasks using switch…case, loops and **recursive** function.

    a) Find factorial of a number

    b) Print Fibonacci series up to n terms and its sum.
19. Write a function to accept 10 characters and display whether each input character is digit, uppercase letter or lower case letter.

STRUCTURE & UNION

20. Create a structure Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare a structure variable of student. Provide facilities to input data in data members and display result of student.
21. Create a structure Date with data member's dd, mm, yy (to store date). Create another structure Employee with data members to hold name of employee, employee id and date of joining (date of joining will be hold by variable of structure Date which appears as data member in Employee Structure). Store data of an employee and print the same.
22. Create a structure Student having data members to store roll number, name of student, name of three subjects, max marks, min marks, obtained marks. Declare array of structure to hold data of 3 students. Provide facilities to display result of all students. Provide facility to display result of specific student whose roll number is given.
23. Write program to create structure complex having data members to store real and imaginary part. Provide following facilities:

    a) Add two complex nos. using structure variables.

    b) Subtract two complex nos. using structure variables.

Use structure as argument to function and function returning structure.

POINTER

24. Define union Emp having data members:-one integer, one float and one single dimension character array. Declare a union variable in main and test the union variable.
25. Define an enum Days_of_Week members of which will be days of week. Declare an enum variable in main and test it.

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26.Write a program of swapping two numbers and demonstrates call by value and call by reference.

27.Write program to sort strings using pointer exchange.

28.Write a program in c using pointer and function to receive a string and a character as argument and return the no. of occurrences of this character in the string.

29.Create a program having pointer to void to store address of integer variable then print value of integer variable using pointer to void. Perform the same operation for float variable.

30.Write program to find biggest number among three numbers using pointer and function.

31.Write program to Create a structure Employee having data members to store name of employee, employee id, salary. Use Pointer to structure to store data of employee and print the stored data-using pointer to structure.

32.Write program to Create a structure Employee having data members to store name of employee, employee id, salary. Use Pointer to structure to simulate dynamic array of structure store data of n employees and print the stored data of n employees using pointer to structure.

33.Write a program to sort a single dimension array of integers of n elements simulated by pointer to integer. Use function for sorting the dynamic array.

34.Write a program to sum elements of a double dimension array of integers of m rows and n columns simulated by pointer to pointer to integer. Use function for sum the elements of the dynamic array.

35.Write program to demonstrate difference between character array and pointer to character.

36.Write program to demonstrate difference between constant pointer and pointer to constant.

37.Write program to demonstrate pointer arithmetic.

38.write program to demonstrate function-returning pointer.

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POST GRADUATE DIPLOMA IN COMPUTER APPLICATION
[DURATION - ONE YEAR - FULL TIME]

The duration of the course shall be one year consisting of two semesters. There shall be three theories and two practical courses in the each semester.

Second Semester: **PGDCA-106 : Programming in Python.**
PGDCA-107 : Database Management System
PGDCA-108 : Essential of E –Commerce & HTML .
PGDCA-109 : Practical based on PGDCA106, PGDCA107 &PGDCA-108
PGDCA-110 : Project/Dissertation

PGDCA-106
PROGRAMMING IN PYTHON

Max Marks: 80 **Min Marks: 27**

Note: The question Paper setter is advised to prepare unit-wise question with the provision of internal choice.

Course Outcome: At the end of course, Student will able to

- Define the Structure and Components of a Python Program.
- Demonstrate proficiency in handling of loops and creation of functions. Identify the methods to create and manipulate lists, tuples and dictionaries.
- Discover the commonly used operations involving regular expressions and file systems.
- Determine the need of scrapping website and working with CSV, JSON and other file formats.
- Interpret the concepts of Object-Oriented Programming as used in Python.

Unit 1 : Introduction to Python :- Installing Python, basic syntax, interactive shell, editing saving and running a script; The concept of data types, variables, assignments; immutable variables; numerical types, operators(Arithmetic Operator, Relational Operator, Logical or Boolean Operator, Assignment Operator, Ternary Operator, Bitwise Operator, Increment or Decrement Operator) and expressions; comments in the program, understanding error messages.

Unit-2:- Creating Python Programs: - Input and Output Statements, Control Statements (Branching, Looping, Conditional Statement, Exit function, Difference between break, continue and pass).

Function: Defining a function, calling a function, types of function, Function Arguments, Anonymous Functions, global and local variables, Recursion

Unit-3:- Strings and Text Files: - Manipulating files and directories, os and sys modules, text files: reading/writing text and numbers from/to a file, creating and deleting a formatted file (csv or tab-separated).

String Manipulations: subscript operator, indexing, slicing a string; strings and number system: converting string to numbers and vice-versa, Binary, octal and hexadecimal numbers.

Unit-4 :- Lists, Tuples and Dictionaries :- Basic list operators, replacing, inserting and removing an element, searching and sorting lists, Accessing tuples, Operations, Working Functions and Methods, dictionary literals, Adding and Removing keys, accessing and replacing values, traversing dictionaries.

Data Structures using Lists: Elementary Data Representation- Linear List Array, Stacks, Queues, Linked Lists, and Trees.

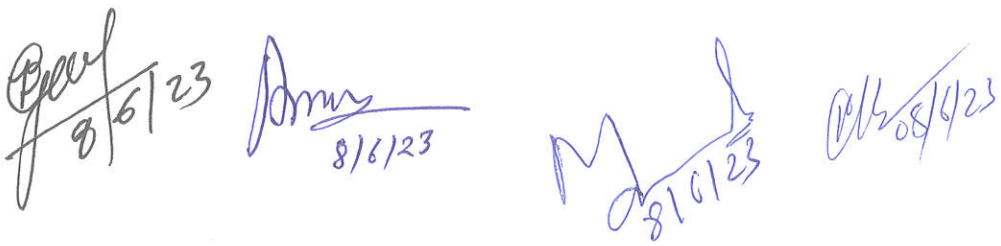
Unit-5:- Modules: - Importing module, Math module, Random Module, packages, Composition, **Exception Handling:** Exception, Exception Handling, except clause, try, finally clause, User-Defined Exceptions.

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TEXT REFERENCE BOOKS:

1. T. Budd, Exploring Python, TMH, 1st Ed, 2011
2. Allen Downey, Jeffrey Elkner, Chris Meyers, How to think like a computer scientist: Learning with Python, Freely available online, 2012
3. Luca Massaron John Paul Mueller, Python for Data science For Dummies, Wiley,2ed,2019
4. https://docs.python.org/3/tutorial/index.html
5. http://interactivepython.org/courselib/static/pythonds



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PGDCA-107
Database Management System

UNIT – I : Introduction To DBMS

Data, Information and knowledge, concept of DBMS, Advantages of DBMS, data independence, database administration roles, DBMS architecture, different kinds of DBMS users, importance of data dictionary, contents of data dictionary, types of database languages. Data models: network, hierarchical, relational, Introduction to ODBC concept.

UNIT – II : E-R Model

Entity - Relationship model as a tool for conceptual design-entities, attributes and relationships. ER diagrams; Concept of keys; Case studies of ER modeling Generalization; specialization and aggregation.

UNIT – III: Relational Model

Structure to Relational Database, Relational Algebra, Extended Relational- Algebra Operation, Simple and complex queries using relational algebra, The Domain Relational Calculus, Tuple relational calculus.

UNIT – IV : Relational Database Design

Pitfalls in Relational Database Design, Decomposition, Functional Dependencies, Normalization: 1NF, 2NF, BCNF, 3NF, 4NF, 5NF.

UNIT – V : Structured Query Language :

DDL and DML: Creating Table, Specify Integrity Constraint, Modifying Existing Table, Dropping Table, Inserting, Deleting and Updating Rows in as Table, Where Clause, Operators, ORDER BY, GROUP Function, SQL Function, JOIN, Set Operation, SQL Sub Queries. Views: What is Views, Create, Drop and Retrieving data from views. **Security**: - Management of Roles, Changing Password, Granting Roles & Privilege, with drawing privileges.

Suggested Books:

1. Data base system : Korth & Silberschatz.
2. Data Base Management System : Alexies & Mathews
3. An Introduction to Database System : C.J. Date
4. Data Base Management System : Raguramakrishnan.
5. Data Base Management System : Elmasri & Nawathe.

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PGDCA-108
ESSENTIALS OF E –COMMERCE & HTML

UNIT – I

Introduction to Electronic Commerce –The scope of E-commerce; Size, growth and future projection of E-commerce market Worldwide and in India; Internet and its impact on traditional businesses; Definition of E-commerce; Business models in E –Commerce environment; Case studies. *Emergence of E-commerce* - E-commerce on private networks, Electronic Data Interchange (EDI), What is EDI, EDI in action, EDI basics, EDI standards, financial EDI, FEDI for international trade transaction, FEDI payment system within the US, ACH credit transfer payment system FEDI, application of EDI, benefits of EDI, Electronics Payment system, E-commerce on the web, E-commerce in India,

UNIT – II

Internet, Security and E-Commerce: Security of Data/Information in Internet/web environment; Client security, Network security; Virus protection and Hacking; Security Measures: Authentication, Integrity, Privacy, Non-repudiation; Public information, Private information, firewall tunnels, encryption, secret key encryption, public key encryption, digital signature. Business–to-Business (B2B), Business-to-Consumer (B2C); Business-to-Business-to-Consumer (B2B2C) and Consumer-to-Consumer (C2C) E-Commerce

UNIT – III

HTML Basics & Web Site Design Principles –Concept of a Web Site, Web Standards, What is HTML? HTML Versions, Naming Scheme for HTML Documents , HTML document/file, HTML Editor , Explanation of the Structure of the homepage , Elements in HTML Documents ,HTML Tags, Basic HTML Tags, Comment tag in HTML, Viewing the Source of a web page, How to download the web page source? XHTML, CSS, Extensible Markup Language (XML), Extensible Style sheet language (XSL), Some tips for designing web pages, HTML Document Structure. HTML Document Structure-Head Section, Illustration of Document Structure,<BASE> Element,<ISINDEX> Element,<LINK> Element ,META ,<TITLE> Element,<SCRIPT> Element ,Practical Applications, *HTML Document Structure-Body Section:*-Body elements and its attributes: Background; Background Color; Text; Link; Active Link (ALINK); Visited Link (VLINK); Left margin; Top margin ,Organization of Elements in the BODY of the document: Text Block Elements; Text Emphasis Elements; Special Elements -- Hypertext Anchors; Character-Level Elements; Character References ,Text Block Elements: HR (Horizontal Line); Hn (Headings) ; P (Paragraph); Lists; ADDRESS ; BLOCKQUOTE; TABLE; DIV (HTML 3.2 and up) ; PRE (Preformatted); FORM ,Text Emphasis Elements, Special Elements -- Hypertext Anchors ,Character-Level Elements: line breaks (BR) and Images (IMG),Lists ,ADDRESS Element, BLOCKQUOTE Element, TABLE Element ,COMMENTS in HTML ,CHARACTER Emphasis Modes, Logical & Physical Styles, Netscape, Microsoft and Advanced Standard Elements List, FONT, BASEFONT and CENTER.

UNIT – IV

Image, Internal and External Linking between Web Pages - Netscape, Microsoft and Advanced Standard Elements List, FONT, BASEFONT and CENTER. Insertion of images using the element IMG (Attributes: SRC (Source), WIDTH, HEIGHT, ALT (Alternative), ALIGN), IMG (In-line Images) Element and Attributes; Illustrations of IMG Alignment, Image as Hypertext Anchor, Internal and External Linking between Web Pages. Hypertext Anchors, HREF in Anchors, Links to a Particular Place in a Document, NAME attribute in an Anchor, Targeting NAME Anchors ,TITLE attribute, Designing Frames in HTML.

UNIT – V

Creating Business Websites with Dynamic Web Pages – Concept of static web pages and dynamic web pages. Hosting & promotion of the web site, Domain Name Registration, Web Space allocation, Uploading / Downloading the website- FTP, cute FTP. Web Site Promotion Search Engines, Banner Advertisements.

Recommend Books –

1. Business on the net - by Kamlesh N. Agarawala , Amit Lal & Deeksha Agarawal (Macmillan India Ltd.).
2. Introduction to HTML by Kamlesh N. Agarwala, O.P.Vyas, Prateek A. Agarwala. (Kitab Mahal Publications).
3.. ASP Developer's Guide – by Greg Buczek (TATA McGraw Hill).
4. Information Technology Act 2000: www.mit.gov.in/it-bill.htm

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PGDCA-109: Practical based on PGDCA106, PGDCA107 & PGDCA108

1 Scheme of Examination:-
Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Question 1(Python)	-	15
Question 2(Python)	-	15
Question 3(SQL)	-	15
Question 4(HTML/Web Design)-		15
Viva	-	25
[Practical Copy + Internal Record] -		15
Total	-	**100**

2 In every program there should be comment for each coded line or block of code

3 Practical file should contain printed programs with name of author, date, path of program, unit no. and printed output.

4 All the following programs or a similar type of programs should be prepared

PYTHON PROGRAMMING LAB

Course Outcome: At the end of course, Students will be able to

- Learn the Numbers, Math functions, Strings, List in Python.
- Learn the tuples and dictionaries in Python.
- Demonstrate proficiency in handling of loops and creation of functions.
- Identify the methods to create and manipulate lists, tuples and dictionaries.
- Express different decision making statements and functions.

1 scheme of Examination: Practical Examination will be of 3 hours duration. The distribution of practical marks is as follows:

Program 1	-	**20**
Program 2	-	**20**
Program 3	-	**20**
Viva	-	**20**
(Practical Record + Internal Record)	-	**20**
	Total	**100**

List of Practical

1. Write a program that reads an integer value and prints —leap year or —not a leap year.
2. Write a program that takes a positive integer a and then produces n lines of output shown as follows.
3. Write a program to create the following Pattern

For example enter a size: 5 -

```
*
**
**
****
*****
```

4. Write a function that takes an integer n as input and calculates the value of 1 + 1/1! + 1/2! + 1/n!
5. Write a function that takes an integer input and calculates the factorial of that number,
6. Write a function that takes a string input and checks if it is a palindrome or not.

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7. Write a list function to convert a string into a list, as in list (-abc) gives [a, b, c].
8. Write a program to generate Fibonacci series.
9. Write a program to check whether the input number is even or odd.
10. Write a program to compare three numbers and print the largest one.
11. Write a program to print factors of a given number.
12. Write a method to calculate GCD of two numbers.
13. Write a program to create Stack Class and implement all its methods, (Use Lists).
14. Write a program to create Queue Class and implement all its methods, (Use Lists)
15. Write a program to implement linear and binary search on lists,
16. Write a program to sort a list using insertion sort and bubble sort and selection sort.

Note: List of experiments may be changed by the concerned teacher.

List of Practical of SQL

1. Using the following database,
   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   StaffJoins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, pape rname)

Write SQL statements for the following –

a. Create the above tables with the given specifications and constraints.
b. Insert about 10 rows as are appropriate to solve the following queries.
c. List the names of the teachers teaching computer subjects.
d. List the names and cities of all staff working in your college.
e. List the names and cities of all staff working in your college who earn more than15,000
f. Find the staffs whose names start with 'M' or 'R' and ends with 'A' and/or 7 characters long.
g. Find the staffs whose date of joining is2005.
h. Modify the database so that staff N1 now works in C2College.
i. List the names of subjects, which T1 teaches in this session or all sessions.
j. Find the classes that T1 do not teach at present session.
   a. Find the colleges who have most number of staffs.
   b. Find the staffs that earn a higher salary who earn greater than average salary of their college.
   c. Find the colleges whose average salary is more than average salary ofC2
   d. Find the college that has the smallest payroll.
   e. Find the colleges where the total salary is greater than the average salary of all colleges.
   f. List maximum, average, minimum salary of each college
   a. List the names of the teachers, departments teaching in more than one department.
   b. Acquire details of staffs by name in a college or each college.
   c. Find the names of staff that earn more than each staff of C2College.
   d. Give all principals a 10% rise in salary unless their salary becomes greater than 20,000 in such case give 5%rise.
   e. Find all staff that do not work in same cities as the colleges they work.
   f. List names of employees in ascending order according to salary who are working in your college or all colleges.
      a. Create a view having fields sname, cname, dept, DOJ, andpost
      b. Create a view consisting of cname, average salary and total salary of all staff in that college.
      c. Select the colleges having highest and lowest average salary using above views.
      d. List the staff names of a department using above views.

2. Create the following database,
   Enrollment (enrollno, name, gender, DOB, address, phone)
   Admission (admno, enrollno, course, yearsem, date, cname)
   Colleges (cname, city, address, phone, afdate)
   FeeStructure (course, yearsem, fee)

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Payment (billno, admno, amount, pdate, purpose)

a. Create the above tables with the given specifications and constraints.
b. Insert about 10 rows as are appropriate to solve the following queries.
c. Get full detail of all students who took admission this year class wise
d. Get detail of students who took admission in Bhilai colleges.
e. Calculate the total amount of fees collected in this session
   i) By your college ii) by each college iii) by all colleges
   a. List the students who have not payed full fee
      i) in your college ii) in all colleges
   b. List the number of admissions in your class in every year.
   c. List the students in the session who are not in the colleges in the same city as they live in.
   d. List the students in colleges in your city and also live in your city.

3. Create the following database,
   Subjects (paperid, subject, paper, papername)
   Test (paperid, date, time, max, min)
   Score (rollno, paperid, marks, attendence)
   Students (admno, rollno, class, yearsem)
   a. Create the above tables with the given specifications and constraints.
   b. Insert about 10 rows as are appropriate to solve the following queries.
   c. List the students who were present in a paper of a subject.
   d. List all roll numbers who have passed in first division.
   e. List all students in BCA-II who have scored higher than average
      i) in your college ii) in every college
   f. List the highest score, average and minimum score in BCA-II i) in your college ii)in every college

4. Using the following database
   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   StaffJoins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)

   Write SQL statements for the following –
   a. Create the above tables with the given specifications and constraints.
   b. Insert about 10 rows as are appropriate to solve the following queries.
   c. List the names of the teachers teaching computer subjects.
   d. List the names and cities of all staff working in your college.
   e. List the names and cities of all staff working in your college who earn more than15,000

5. Using the following database
   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   StaffJoins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)

   a. Find the staffs whose names start with 'M' or 'R' and ends with 'A' and/or 7 characters long.
   b. Find the staffs whose date of joining is2005.
   c. Modify the database so that staff N1 now works in C2college.
   d. List the names of subjects which T1 teaches in this session or all sessions.

6. Using the following database
   Colleges (cname, city, address, phone, afdate)
   Staffs (sid, sname, saddress, contacts)
   StaffJoins (sid, cname, dept, DOJ, post, salary)
   Teachings (sid, class, paperid, fsession, tsession)
   Subjects (paperid, subject, paperno, papername)

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a. Find the classes that T1 do not teach at present session.
b. Find the college who have most number of staffs.
c. Find the staffs who earn a higher salary who earn greater than average salary of their college.
d. Find the colleges whose average salary is more than average salary ofC2
e. Find the college that has the smallest payroll.
f. Find the colleges where the total salary is greater than the average salary of all colleges.
g. List maximum, average, minimum salary of each college

7. Using the following database
Colleges (cname, city, address, phone, afdate)
Staffs (sid, sname, saddress, contacts) StaffJoins
(sid, cname, dept, DOJ, post, salary)
Teachings (sid, class, paperid, fsession, tsession)
Subjects (paperid, subject, paperno, papername)

a. Find the classes that T1 do not teach at present session.
b. List the names of the teachers, departments teaching in more than one departments.
c. Acquire details of staffs by name in a college or each college.
d. Find the names of staff who earn more than each staff of C2college.
e. Give all principals a 10% rise in salary unless their salary becomes greater than 20,000 in such case give 5%rise.
f. Find all staff who do not work in same cities as the colleges they work.
g. List names of employees in ascending order according to salary who are working in your college or all colleges.

8. Using the following database
Colleges (cname, city, address, phone, afdate)
Staffs (sid, sname, saddress, contacts) StaffJoins
(sid, cname, dept, DOJ, post, salary)
Teachings (sid, class, paperid, fsession, tsession)
Subjects (paperid, subject, paperno, papername)

a. Find the classes that T1 do not teach at present session.
b. Create a view having fields sname, cname, dept, DOJ, and post
c. Create a view consisting of cname, average salary and total salary of all staff in that college.
d. Select the colleges having highest and lowest average salary using above views.
e. List the staff names of a department using above views.

9. Enrollment (enrollno, name, gender, DOB, address, phone)
Admission (admno, enrollno, course, yearsem, date, cname)
Colleges (cname, city, address, phone,afdate)
FeeStructure (course, yearsem, fee)
Payment (billno, admno, amount, pdate, purpose)

a. Create the above tables with the given specifications and constraints.
b. Insert about 10 rows as are appropriate to solve the following queries.
c. Get full detail of all students who took admission this year classwise
d. Get detail of students who took admission in Bhilai colleges.
e. Calculate the total amount of fees collected in this session
i) by your college ii) by each college iii) by all colleges

10. Enrollment (enrollno, name, gender, DOB, address, phone)
Admission (admno, enrollno, course, yearsem, date, cname)
Colleges (cname, city, address, phone,afdate)
FeeStructure (course, yearsem, fee)
Payment (billno, admno, amount, pdate, purpose)

a. List the students who have not payed full fee
i) in your college ii) in all colleges
b. List the number of admissions in your class in every year.
c. List the students in the session who are not in the colleges in the same city as they live in.
d. List the students in colleges in your city and also live in your city.

11. Subjects (paperid, subject, paper,papername)
Test (paperid, date, time, max,min)
Score (rollno, paperid, marks, attendence)

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Students (admno, rollno, class, yearsem)

a. Create the above tables with the given specifications and constraints.
b. Insert about 10 rows as are appropriate to solve the following queries.
c. List the students who were present in a paper of a subject.
d. List all roll numbers who have passed in first division.
e. List all students in MCA-II who have scored higher than average
   i) in your college ii) in every college
f. List the highest score, average and minimum score in MCA-II
   i) in your college ii) in every college

List of Practical of HTML

At least 10 practical of HTML & Web Designing

PGDCA-110: Project/Dissertation

1. **Scheme of Examination:- The Project should be done by individual student.**

Practical examination will be of 3 hours duration. The distribution of practical marks will be as follows

Software Demonstration	-	40
Project Report (Hard Copy + Soft Copy)	-	20
Project Demonstration/Presentation	-	20
Project Viva	-	20
Total	-	**100**

2. **Format of the student project report on completion of the project/Dissertation**

- Cover page as performat
- Certificate of Approval
- Certificate of project guide/Center Manager
- Certificate of the company/Organization
- Certificate of Evaluation
- Declaration / Self Certificate
- Acknowledgement

In the "Acknowledgement" page, the writer recognizes his /her indebtedness for guidance and assistance of the thesis/report adviser and other members of the faculty. Courtesy demands that he/she also recognize specific contributions by other persons or institutions such as libraries and research foundations. Acknowledgements should be expressed simply, tastefully, and tactfully.

- Synopsis of the project
- Main Report
  - ✓ Objectives & Scope of the project
  - ✓ Theoretical Background of Project
  - ✓ Definition of problem
  - ✓ System Analysis &Design
  - ✓ System Planning (PERTC hart)
  - ✓ Methodology adopted, system Implementation & Detail of Hardware & Software used
  - ✓ System maintenance &Evaluation
  - ✓ Cost and benefit Analysis
  - ✓ Detailed Life Cycle of the project
    - ERD,DFD
    - Input and Output Screen Design
    - Process involved
    - Methodology used for testing
    - Test Report, Printout of the code sheet
  - ✓ User/Operational Manual- including security aspects, access rights, back up, Controls etc.
  - ✓ Conclusion
  - ✓ References
  - ✓ Soft copy of the project on CD

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Formats of various certificates and formatting styles are as:

1. **Project report Cover Format:**

A
Project Report
On

Title of the Project Report

(Times New Roman. Italic, Font Size=24)
Submitted in partial fulfillment of the requirements for the award of degree
Post Graduate Diploma in Computer Application

2. Certificate of Approval by Head of the Department in letterhead

CERTIFICATE OF APPROVAL

This is to certify that the Project work entitled"_____"is carried out by Mr/Ms/Mrs_____ , a student of PGDCA at (**College Name)** is hereby approved as a credible work in the discipline of Computer Science & Information Technology for the award of degree of **Post Graduate Diploma in Computer Application** during the year _____**From Durg University, Durg(CG).**

(Head Name)

2. Certificate from the Guide in letterhead

CERTIFICATE

This is to certify that the Project worken titled"_____"Submitted to the **(College Name)** by Mr/Ms/Mrs_____RollNo_____,in partial fulfillment for the requirements relating to nature and standard of the award of **Post Graduate Diploma in Computer Application** degree by **, Durg University, Durg (CG)** for the academic year 20_ - 20 _.

This project work has been carried out under my guidance.

(Guide Name)

3. Certificate of the Company or Organization from where the Project is done from the Project Manager or Project guide.

4. Certificate of evaluation in the department letterhead

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CERTIFICATE OF EVALUATION

This is to certify that the Project work entitled"_____"is carried out by Mr/Ms/Mrs_____, a student of PGDCA at (**College Name),** after proper evaluation and examination, is hereby approved as a credible work in the discipline of Computer Science & Information Technology and is done in a satisfactory manner for its acceptance as a requisite for the award of degree of **Post Graduate Diploma in Computer Application** during the year_____ from **Durg University, Durg (CG).**

Internal Examiner **External Examiner**

5. Declaration of Student / Self Certificate

DECLARATION

This to certify that the project report entitled"_____",which is submitted by me in the partial fulfillment for the award of the degree of **Post Graduate Diploma in Computer Application, (College Name),** comprises the original work carried out by me.

I further declare that the work reported in this project has not been submitted and will not be submitted, either in part or in full for the award of any other degree or diploma in this Institute or any other Institute or University.

Place: (Name)
Date: (Roll No)

------0-----

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TITLE OF THE DISSERTATION
(Front Page)

Dissertation submitted to the

Hemchand Yadav Vishwavidyalaya, Durg (C.G.)
For the partial fulfilment for the award of the degree of

P.G.D.C.A

By

Name of the Student
(Roll No.: --------)
Under the Supervision of
Name of Supervisor (s)

Name of the Department
Name of the College

Year

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8/6/23

8/6/23

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Certificate

This is to certify that the dissertation entitled ----------, submitted to (Name of University), in partial fulfillment for the award of the P.G.D.C.A. is a record of bona fide work carried out by (Name of Student), Roll No. ----------, under my supervision and guidance.

All help received by his/her from various sources have been duly acknowledged.

No part of this dissertation has been submitted elsewhere for award of any other degree.

Signature of Supervisor(s) and
Designation:
Name(s):
Department(s):

Place: ------
Date: ------

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