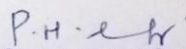# POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS
(For students admitted from 2019-20 & onwards)

The curriculum of all programme courses are highlighted with Employability – Pink Color, Entrepreneurship – Yellow Color and Skill-Development – Red Color

P.K.R ARTS COLLEGE FOR WOMEN
(Accredited with 'A' Grade by NAAC)
An Autonomous Institution – Affiliated to Bharathiar University
Gobichettipalayam – 638 476.

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS
Course Scheme and Scheme of Examinations (Regular Stream)
(For students admitted from 2019-20 & onwards)

Part	Category	Course Code	Title of the Course	Contact Hrs/ week	Exam Duration hrs.	Max. Marks CIA	ESE	Total marks	Credits
I –SEMESTER									
III	Paper I	19PGDCA01	Introduction to Information Technology	4	3	25	75	100	3
III	Paper II	19PGDCA02	Operating System	4	3	25	75	100	3
III	Paper III	19PGDCA03	Programming in C	4	3	25	75	100	4
III	Paper IV	19PGDCA04	Office Automation- Lab	4	3	25	75	100	3
III	Paper V	19PGDCA05	Programming in C - lab	4	3	25	75	100	4
			TOTAL	30				700	25
II –SEMESTER									
III	Paper VI	19PGDCA06	Networking Fundamentals	4	3	25	75	100	3
III	Paper VII	19PGDCA07	Web Technology	4	3	25	75	100	4
III	Paper VIII	19PGDCA08	RDBMS & ORACLE	4	3	25	75	100	3
III	Paper XI	19PGDCA09	Hardware & Networking – Lab	4	3	25	75	100	4
III	Paper X	19PGDCA10	RDBMS & Oracle - Lab	4	3	25	75	100	3
			TOTAL	30				700	25

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CATEGORY	COURSE CODE	TITLE	C	P	CREDIT
Paper I	19PGDC A01	**INTRODUCTION TO INFORMATION TECHNOLOGY**	72	-	-

Preamble

To learn about basic computers, Ms-Word, Ms-Excel, Ms-Powerpoint.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand Operating System	K1,K2,K4
CO2	Learn process handling	K2,K3,K4
CO3	Analyze how memory is managed	K2,K3,K4
CO4	Obtain knowledge in I/O devices and files	K2,K3
CO5	Learn distributed systems	K2,K3,K4.K5

Introduction to Computers   (15 Hours)

UNIT-1 : Introduction to Computers – characteristics – history – generations - classifications application of computer - hardware and software - operation systems - computer language - Windows - windows basics – introduction - starting windows - using mouse - using menus in windows.

Introduction to Ms - Word   (15 Hours)

UNIT-II : Word, introduction to word - editing a document - move and copy text and help system, formatting text & paragraph - finding and replacing text and spell checking - tables & other features - templates and wizards using mail merge - miscellaneous features of word.

Introduction of Ms - Excel   (15 Hours)

UNIT III : Introduction of worksheet & excel - Getting started with excel - editing cells and using commands and functions - moving and copying - inserting and deleting rows and columns, getting help and formatting a worksheet - printing the worksheet - creating charts - using date and time and addressing modes - naming ranges and using statistical - math and financial functions.

Introduction of Ms-Power point   (14 Hours)

Unit IV : Power point basics editing text adding subordinate points - deleting slides - working in outline view - using design templates - adding graphs - adding organization charts - running an electronic slide show - adding special effects.

Overview of WWW   **(13 Hours)**

Unit V: Definition- Advantages of browsers – Brief overview of servers - URL definition – Introduction to World Wide Web (WWW) – Brief study of HTML tags – client/server Architecture in internet – Domain name – Extension types internet services – addressing scheme – feature of internet.

TEXT BOOKS:

1. Fundamentals of computers 2nd edition, V.Rajaraman, Pai.
2. Easy Office 2000, SISO Books
3. MS Office, C.Nellikannan, Nels Publication
4. Internet Complete Reference, Healey Halin, Tata MaCra

CATEGORY	COURSE CODE	TITLE	C	P	CREDIT
Paper II	19PGDCA02	**OPERATING SYSTEM**	72	-	4

Preamble

To learn about basic operating system abstractions, mechanisms and their implementations.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand Operating System	K1,K2,K4
CO2	Learn process handling	K2,K3,K4
CO3	Analyze how memory is managed	K2,K3,K4
CO4	Obtain knowledge in I/O devices and files	K2,K3
CO5	Learn distributed systems	K2,K3,K4.K5

Overview of Operating System   (13 Hours)

Unit I : Background – Basic Elements – Operating System overview – operating system objectives and functions – Evolution of operating System – Microsoft windows overview – Linux

Process Management   (14 Hours)

Unit II: Processes – What is a process? – Process States – Process Description – Process Control – Scheduling – Uniprocess Scheduling - Types of process scheduling – Scheduling algorithms - Multiprocess Scheduling – Principles of Deadlock.

Memory Management   (15 Hours)

Unit III: Memory Management – Memory Management Requirements – Memory partitioning – Paging – Segmentation.

I/O and File Management   (15 Hours)

Unit IV : I/O Devices – Organization of the I/O function – File Management – Overview – File organization and access – File Directories – File Sharing – Record Blocking – File System Security.

Distributed Systems   (15 Hours)

Unit V: Distributed Processing – Client/ Server Computing – Service - Oriented Architecture – Distributed Message Passing – Remote Procedure Calls.

TEXT BOOK

William Stallings, Operating System: Internals and Design Principals, 7TH Edition, Pearson Publication.

REFERENCE BOOKS:

1. H.M.Deitel,Operating System,2nd Edition, Addison Wesley Publishing Company.
2. Flynn, McHoes, Operating System, India Edition

CATEGORY	COURSE CODE	TITLE	C	P	CREDIT
Paper III	19PGDCA 03	**PROGRAMMING IN C**	72	-	4

PROGRAMMING IN C

Preamble

To learn about the Computer fundamentals and the C programming language concepts.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Obtain basic fundamentals of computers	K1,K2
CO2	Learn basics of C language	K1,K2
CO3	Understand the control structure	K2,K5
CO4	Familiarize in arrays concept	K3,K4
CO5	Analyze the functions	K4,K5

Overview of C   (13 Hours)

Unit I : History of C – Overview of C – Importance of C – Basic Structure of C Programme – Programming Style – Executing C Programme – Constants, Variables and Data types – Introduction – character Set – C Tokens – Keywords and Identifiers – Constants – Variables – Data types – Declaration of Variables – Assigning values to the variables – Defining Symbolic constant.

Operators and Expressions   (14 Hours)

Unit II : Introduction - Arithmetic, Relational, Logical, Assignment, Conditional, Bitwise, Special, Increment and Decrement operators - Arithmetic Expressions - Evaluation of Expression -Precedence of Arithmetic Operators - Type Conversion in Expression - Mathematical Functions.

Decision Making and Branching   (15 Hours)

Unit III : Introduction – Decision making with If – Simple IF - The If….Else - Nesting of If …Else Statements - Else If ladder – The Switch Statement - The ?: Operator – The Goto Statement. Decision Making and Looping: Introduction- The while Statement- The Do Statement – The For Statement-Jumps in Loops.

Arrays   (15 Hours)

Unit IV : Introduction – One dimensional Array – Declaration of One Dimensional Array – Initialization of One Dimensional Array – Two Dimensional Array – Initializing Two Dimensional Array.

Functions, Structures & Unions (15 Hours)

Unit V : User-Defined Functions: Introduction – Need and Elements of User-Defined Functions- Definition-Return Values and their Types - Function Calls – Declarations – Category of Functions- Nesting of Functions – Recursion - Structures and Unions.

TEXT BOOK:
1. E Balagurusamy, Computing Fundamentals & C Programming , Tata McGraw-Hill, Second Reprint 2008.

REFERENCE BOOKS:
1. Ashok N Kamthane, Programming with ANSI and Turbo C, Pearson, 2002.
2. Henry Mullish & Hubert L.Cooper, The Sprit of C, Jaico, 1996.

CATEGORY	COURSE CODE	TITLE	C	P	CREDIT
Paper IV	19PGDCA04	**OFFICE AUTOMATION – LAB**	-	-	

Subject Description: This course provides hands on experience on Office Automation
Goal: To enable the students to develop the skill in Ms- Office
Objectives: On successful completion of the course the students will understand the concepts of Ms-Office and expertise in using Internet Applications

1. Type a paragraph and use Editing options —Inserting —Deleting —Cut, Copy, paste —Undo, Redo —Find, Search, Replace
2. Design an invitation using page borders and images.
3. Create a Table use the following options (Borders, Alignments, Insertion, deletion, Merging, Splitting, Sorting)
4. Using Mail Merge - create a letter format and send to the students the exam timetable.
5. Computing data using Ms-Excel
    1. Finding total in a column or row
    2. Mathematical operations (Addition, Subtraction, Multiplication, Division, Exponentiation)
6. Create a Chart to display the student performance in academics.
7. Create a table using table design in Ms-Access
8. Design a presentation for a new product launch in the market.
9. Design a presentation using animations and transitions effects.
10. Create a company in Tally
11. Create ledgers using tally
12. Create vouchers for the ledgers.

CATEGORY	COURSE CODE	TITLE	C	P	CREDIT
Paper V	19PGDCA05	**PROGRAMMING IN C – LAB**	-	-	4

Subject Description: This course provides hands on experience on C Programming
Goal: To enable the students to develop software in C language
Objectives: On successful completion of the course the students will understand the concepts of C language and expertise in using C

Practical List

1. Write a C program to find the sum and average for given numbers.

2. Write a C program to find the prime numbers.

3. Write a C program to find the factorial of a given number.

4. Write a C program to generate Fibonacci series.

5. Write a C program to sort the given set of numbers in ascending order.

6. Write a C program to find whether the given number is even or odd.

7. Write a C program to check whether the given string is palindrome or not.

8. Write a C program using the concept of switch case.

9. Write a C program using functions.

10. Write a C program using Structures.

CATERGORY	COURSE CODE	TITLE	C	P	CREDIT
Paper VI	19PGDCA06	**NETWORKING FUNDAMENTALS**	**72**	**-**	**4**

Preamble

To understand the concepts and design of Computer Networks

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the overview of networks OSI model and Physical Layer	K1,K2
CO2	Obtain the knowledge about error deduction and correction in Data Link Layer	K2,K3
CO3	Obtain the knowledge about packet switching network and addressing in Network Layer	K2,K3
CO4	Acquire the knowledge about TCP in Transport Layer	K2,K3
CO5	Ability to understand client/Server programming, WWW and Email using Application Layer	K3,K4,K5

Overview of Networks (13 Hours)

UNIT I : Introduction - Uses of computer networks - Local Area Networks - Metropolitan Area Networks - Wide Area Network - Reference models - The OSI Reference Model.

Physical & Data Link Layer (14 Hours)

Unit II : PHYSICAL LAYER - Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics - DATA-LINK LAYER: Framing – Error Control - Error Detection and correction

Network Layer (15 Hours)

Unit III : Store and Forward Packet Switching – Comparison of Virtual Circuit and Datagram Networks – Routing Algorithm – Shortest Path Algorithm – Broadcast Routing – Congestion control – Approaches of Congestion control

Transport and Session Layer (15 Hours)

Unit IV : Transport Service Primitives – Addressing – Introduction to TCP – TCP Service Model – TCP Protocol – Connection Establishment – Connection Release.

Presentation and Application Layer (15 Hours)

Unit V : DNS – Electronic Mail - Architecture and Services – World Wide Web – Architecutural Overview – Static Web Page – Dynamic Web page

TEXT BOOK

Andrew S Tanenbaum David J Wetherall, Computer Networks, 5th Edition, McGraw Hill
Education

REFERENCE BOOKS:

1. Data Communications and Networks, Achyut Godbole and Atul Kahate, McGraw Hill
   Education, 2011.

2. Behrouz A Forouzan, Data Communications and Networking, Tata McGraw Hill,
   Fifth Edison, 2013.

CATERGORY	COURSE CODE	TITLE	C	P	CREDIT
Paper VII	19PGDCA07	**WEB TECHNOLOGY**	**72**	**-**	**4**

Preamble

To enable the students to learn the concepts of web technologies

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Obtain the fundamentals of TCP/IP	K1,K2
CO2	Acquire the knowledge on the DNS	K2,K3
CO3	Understand about Web Pages	K3,K4
CO4	Provide the insight on dynamic web pages	K4
CO5	Learn about the basics of XML & WAP	K5

Overview of TCP/IP **(15 Hours)**

UNIT I: TCP/IP: TCP/IP Basics – Why IP address – Logical Address - TCP/IP Example-The concept of IP address – Basics of TCP – Features of TCP – Relationship between TCP and IP – Ports and Sockets – Active Open and Passive Open - TCP Connections – What makes TCP reliable? – TCP Packet format - Persistent TCP connections – UDP – Differences between TCP and UDP.

Domain Name Service **(14 Hours)**

UNIT II : DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing - Local information on the internet – HTML – Web Browser Architecture – Web Pages and Multimedia – Remote Login (TELNET).

Web Pages **(15 Hours)**

UNIT III: Introduction to Web Technology: Web pages – Tiers – Concept of a Tier – Comparison of Microsoft and Java Technologies – Web Pages – Static Web Pages – Plug-ins – Frames – Forms.

Dynamic Web Pages **(13 Hours)**

UNIT IV : Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface – ASP – ASP Technology – ASP Example – Modern Trends in ASP – Java and JVM – Java Servlets – Java Server Pages.

XML & WAP   **(15 Hours)**

UNIT V: XML: SGML – Basics of XML – XML Parsers – Need for a standard. WAP:

Limitations of Mobile devices – Emergence of WAP – WAP Architecture – WAP Stack –

Concerns about WAP and its future – Alternatives to WAP.

TEXT BOOKS:

1. Web Technologies: TCP/IP to Internet Applications Architectures – Achyut S Godbole &

Atul Kahate, 2007, TMH.

REFERENCE BOOKS:
1. Internet and Web Technologies, Rajkamal, TMH.
2. TCP/IP Protocol Suite, Behrouz A. Forouzan, 3rd edition, TMH.

CATERGORY	COURSE CODE	TITLE	C	P	CREDIT
Paper VIII	19PGDCA08	RDBMS & ORACLE	72	-	4

Preamble

To enable the students to learn about the concepts of database system and manipulation of data.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the basic concepts of database system	K1,K2
CO2	Ability to implement the relational database concepts	K3,K5
CO3	Acquire the deep knowledge on DML statements	K2,K3,K4
CO4	Understand the detailed knowledge on PL/SQL	K3,K4,K5
CO5	Ability to work with PL/SQL statements	K5

Overview of DBMS   (13 Hours)

UNIT I : Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Fundamentals of ER Diagrams.

Overview of Oracle   (14 Hours)

UNIT II : Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table.

Data Manipulation   (15 Hours)

UNIT III : Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause –Sorting – ORDER BY – GROUP BY

PL/SQL   (15 Hours)

UNIT IV : PL/SQL: A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. Control Structures : Control Structures – Nested Blocks

CURSORS   (15 Hours)

UNIT V : PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT...FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

TEXT BOOK:

1. Database Systems using Oracle, Nilesh Shah, 2nd edition, PHI.

REFERENCE BOOKS:

1. Database Management Systems, Majumdar & Bhattacharya, 2007, TMH.

2. Database Management Systems, Gerald V. Post, 3rd edition, TMH.

CATERGORY	COURSE CODE	TITLE	C	P	CREDIT
Paper XI	19PGDCA09	Hardware & Networking – Lab	-	-	

Subject Description: This course provides hands on experience on hardware and networking
Goal: To enable the students to work effectively with Hardware & Networking
Objectives: On successful completion of the course the students will be able to build system architecture and networking options.

1. Write the procedure to install any Application software
2. Write the procedure to install MS-OFFICE
3. Write the procedure to understand control panel settings
4. Write the procedure for working with antivirus program
5. Write the procedure for connecting the computers using LAN
6. Study of basic network command and Network configuration commands.
7. Write the procedure for connecting a hub
8. Write the procedure for sharing a printer in a network
9. Write the procedure to share a message in a network
10. Write a procedure to share a file in a network

CATERGORY	COURSE CODE	TITLE	C	P	CREDIT
Paper X	19PGDCA10	**RDBMS & Oracle – Lab**	-	-	

Subject Description: This course provides hands on experience on PL/SQL Programming and Oracle

Goal: To enable the students to work effectively with PL/SQL and Oracle

Objectives: On successful completion of the course the students will be able to build real world applications using PL/SQL and Oracle

1. Create a table "Company" with the following fields and insert the values for 10 employees.

Field Name	Field Type	Field size
Company Name	Character	15
Proprietor	Character	15
Address	Character	25
Supplier Name	Character	15
No of employees	Number	4
GP Percent	Number	6 with 2 decimal places

2. Using the above table display the Results:

a) Display all the records of the company which are in the ascending order of GP percent.

b) Display the name of the company whose supplier name starts with "T".

c) Display the details of the company whose GP percent is greater than 20 and order by GP Percent.

d) Display the detail of the company having the employee ranging from 300 to 1000.

e) Display the name of the company whose supplier is same as the Tata's.

3. Create a table named "Student" with the following fields and insert the values.

Field Name	Field Type	Field Size
Student Name	Character	15
Student Code	Number	6
Address	Character	25
Course Name	Character	15
Percentage	Number	4 with 2 decimal places

Insert the appropriate values in the table.

4. Using the above table display the Results:

a) Display the average percentage of students.

b) Display the names of the students whose percentage is greater than 80.

c) Display the details of the student who got the highest percentage.

d) Display the details of the students whose percentage is between 50 and 70.

e) Display the details of the students whose percentage is greater than the percentage of the roll no=17CA01

5. Create a Table Publisher and Book with the following fields:

Field Name	Field Type	Field Size
Publisher Code	VarChar	5
Publisher Name	VarChar	10

Publisher city	VarChar	12
Publisher State	VarChar	10
Title of book	VarChar	15
Book Code	VarChar	5
Book Price	VarChar	5

Use DML commands

6. Using the above table display the Results
   b) Insert the records into the table publisher and book.
   c) Describe the structure of the tables.
   d) Show the details of the book with the title "DBMS".
   e) Show the details of the book with price>300.
   f) Show the details of the book with publisher name "PHI".

7. Using the above table display the Results
   a) Select the book code, book title, publisher city is "Delhi".
   b) Select the book code, book title and sort by book price.
   c) Count the number of books of publisher starts with "Bala Gurusamy".
   d) Find the name of the publisher starting with "S".

8. Write a PL/SQL Program to add two numbers
9. Write a PL/SQL program to display ODD or EVEN numbers
10. Write a PL/SQL program to generate Fibonacci number.