Course Name: P.G.D.C.A

Rules and Regulations, Course Scheme and Scheme of Examinations
(For those who join From June 2015 Onwards)

1) Course Objectives :

The objective of this programme is to develop system programmers and analysts to meet the manpower requirement of fast developing software industry. The programme is designed to enrich the programming and analysis ability of students. Professional computer knowledge is offered through PGDCA.

2) Eligibility for admission :

The applicants for PGDCA must have completed their graduation.

3) Duration of the Course :

1 Year – Two Semesters

4) Course Scheme :

Semester	Part	Subject	Hour	Int+Ext = Total	Subject Code
I	Core 1	Fundamentals of Computer & Information Technology	40	25+75=100	G2CA11
	Core 2	Programming in C	40	25+75=100	G2CA12
	Core 3 Lab	LAB: C Programming	40	40+60=100	G2CA1P1
	Core 4 Lab	LAB: Visual Basic Programming	30	40+60=100	G2CA1P2
	Core 5 Lab	LAB: Office Automation	30	40+60=100	G2CA1P3

Semester	Part	Subject	Hour	Int+Ext = Total	Subject Code
II	Core 6	Web Programming	40	25+75=100	G2CA21
	Core 7	Relational Database Management System	40	25+75=100	G2CA22
	Core 8 Lab	LAB: Web Programming	30	40+60=100	G2CA2P1
	Core 9 Lab	LAB: RDBMS	40	40+60=100	G2CA2P2
	Core 10 Lab	LAB: Multimedia	30	40+60=100	G2CA2P3

Core 1 Fundamentals of Computer & Information Technology

Contact Hours per week : 2 Hrs
Contact Hours per Semester: 40 Hrs
Subject Code: G2CA11

Objectives:

- To know about the basics of computer.
- To learn about the computer memory.
- To get familiar with internet.
- To enrich the knowledge in basics of multimedia.

Unit I **8 Hrs**

Introduction to computer: Introduction – Characteristics of computer – History of computer – Generations of computer – Classification of computer – The computer system – Application of computers.

The Computer System Hardware: Introduction – Central Processing Unit – Memory Unit– Instruction cycle.

Unit II **8 Hrs**

Computer Memory: Introduction: Memory Representation – Memory Hierarchy – CPU Registers – Cache Memory – Primary Memory – Secondary Memory –Access types of storage devices.

Input and Output devices: Introduction – Input / Output Unit – Input Devices – Human Data Entry Devices – Optical Input Devices(MICR, OCR, OMR, Scanner, Barcode reader) – Hard Copy devices.

Unit III **8 Hrs**

Data Representation: Introduction – Number System – Conversion from Decimal to Binary, Octal, Hexadecimal – Conversion of Binary, Octal, Hexadecimal to Decimal– Conversion of Binary to Octal, Hexadecimal – Conversion of Octal, Hexadecimal to Binary – Binary Addition.

Interaction of User and Computer: Introduction – Types of Software – System Software (Programming Languages, Translator Software) – Application Software.

Unit IV **8 Hrs**

Data Communication and Computer Network: Introduction – Importance of Networking – Data Transmission Media – Transmission Modes, Modulation & Demodulation, Switching, Network types- LAN Topologies.

The Internet and Internet Services: Introduction – History of internet – Internetworking protocol – The Internet Architecture– Internet Connections- Internet address.

Unit V **8 Hrs**

The Internet and Internet Services: Internet Services - Uses of Internet - **Multimedia:** Definition – Characteristics of Multimedia System – Elements of Multimedia – Multimedia Applications.

Text Book:

Computer Fundamentals by Anita Goel, Pearson Publications 2010

Unit I: Chapter 1 (1.1, 1.3 to 1.8) and 2 (2.1 to 2.3, 2.6)
Unit II: Chapter 3 (3.1 to 3.8) and 4 (4.1 to 4.4, 4.5.3, 4.6.1)
Unit III: Chapter 5 (5.1, 5.2, 5.3.1, 5.4.1, 5.5, 5.6, 5.7.1) and 6 (6.1, 6.2, 6.3.4, 6.3.5, 6.4)
Unit IV: Chapter 9 (9.1 to 9.3, 9.4.1, 9.4.3.2, 9.5.1, 9.6.1, 9.6.2) and 10 (10.1 to 10.4, 10.7, 10.8)
Unit V: Chapter 10 (10.9, 10.10) and 13 (13.1 to 13.4, 13.6)

Reference Books:

1. Fundamentals of computer, V.Rajaraman, Prentice Hall, 4th Edition Apr2006
2. Data Communications and Networks by Achyut S. Godbole, Tata McGraw Hill, 2007.

Core 2 Programming in C

Contact Hours per week : 2 Hrs
Contact Hours per Semester: 40 Hrs
Subject Code: G2CA12

Objective:

- To know the concepts of "C" Programming.
- To understand how to use programming in day to day Applications.
- To learn good programming practices.

Unit I **7 Hrs**

Overview of C: History of C - Importance of C - Basic Structure of C - Programming style – Constants, Variables, and Data Types: Constants - Variables - Data types – Declaration of Variables– Defining Symbolic Constants – Declaring a variable as Constant, Volatile – Overflow and Underflow of data.

Operators: Arithmetic Operators– Relational Operators – Logical Operators, Assignment Operators – Increment and Decrement Operators - Conditional Operators - Bitwise Operators – Special Operators.

Unit II **7 Hrs**

Expressions: Arithmetic Expression – Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expression – Operator Precedence and Associativity - Mathematical Functions.

Managing I/O Operations: Reading and Writing a Character – Formatted Input and Output.

Unit III **8 Hrs**

Decision Making and Branching: Simple If statement - If … Else statement – Nesting of If … Else statement – Else If Ladder – Switch statement – The ? : Operator – Goto statement.

Decision Making and Looping: Introduction - The While statement – The Do statement – The For statement - Jumps in loops.

Unit IV **8 Hrs**

Arrays: One Dimensional Arrays – Declaration, Initialization of One-Dimensional arrays – Two Dimensional Arrays – Initializing Two Dimensional Arrays.

Character Arrays and Strings: Declaring and Initialization of String Variables – Reading and Writing String – Arithmetic Operations on Characters - Putting Strings Together – Comparison of Two Strings – String Handling Functions

UNIT V **10 Hrs**

User defined functions : Need for User-defined Functions – A Multi function program – Elements of User Defined Function – Definition of Functions – Return Values and their Types – Function Calls - Function Declaration - Category of Functions – No Arguments and no Return Values – Arguments but no Return Values – Arguments with Return Values – No Arguments but Returns a Value – Function that Return Multiple – Nesting of Functions – Recursion.

Text Book:

1. Programming in ANSI C, E. Balagurusamy, Edition 5, Tata McGraw Hill, Publishing Company, 2011.

Unit I: Chapter: 1, 2 (2.5 to 2.8, 2.10 to 2.14), 3 (3.2 to 3.9)
Unit II: Chapter: 3 (3.10 to 3.16), 4
Unit III: Chapter: 5 (5.3 to 5.9), 6
Unit IV: Chapter 7 (7.2 to 7.6), 8 (8.2 to 8.8)
Unit V: Chapter 9 (9.2 to 9.16)

Reference Books:

1. Programming with ANSI and Turbo C by Ashok N.Kamthane, Seventh Impression, Pearson Education 2009.
2. Programming with C (Schaum's outline series), Gottfried, Tata McGraw Hill, 2006.

Core 3 LAB: C Programming

Contact Hours per week : 2 Hrs
Contact Hours per Semester: 40 Hrs
SUBJECT CODE: G2CA1P1

Objectives:

- To develop the logic for the given problem.
- To recognize and understand the syntax and construction of C code.
- To know the steps involved in compiling, linking and debugging C code.
- To access and use library functions.
- To declare and define the user defined functions.

1) Program to check whether a person is eligible for Vote or Not.
2) Program to check whether a given number is odd or even.
3) Program to check whether a given year is leap year or not.
4) Program to display days of the according to its integer value and also display working day or holiday using Switch Case.
5) Program to find the sum of digits.
6) Program to print the prime numbers within the range.
7) Program to print the palindrome numbers within the range.
8) Program to count number of occurrences of a number in a set of numbers.
9) Program to perform matrix addition.
10) Program to arrange names in alphabetical order.

11) Program to swap two numbers using function.
12) Program to generate Fibonacci series using Function.
13) Program to find factorial value using Recursive function.
14) Program to display the Length of given string
15) Program for Comparison of two given string

Core 4 LAB: Visual Basic Programming

Contact Hours per week : 2 Hrs
Contact Hours per Semester: 30 Hrs
Subject Code: G2CA1P2

Objectives:

- To design simple GUI application using Visual Basic.
- To implement file concepts.
- Able to make connection with database.

1. Program to find sum of digits in a number.
2. Program to design digital clock.
3. Program to check whether a number is Armstrong or not.
4. Program to find roots of quadratic equation.
5. Program to calculate simple and compound interest.
6. Program for color mixer using scroll bars.
7. Program for Designing simple calculator.
8. Program to perform List box operation.
9. Program to perform Ball animation.
10. Program to draw different shapes using menu editor.
11. Program to conduct online Quiz.
12. Program to Create a Font Dialog box.
13. Program to perform String Operations.
14. Program to create Files and Folders.
15. Program to display student details using data control.

Core 5 LAB: Office Automation

Contact Hours per week : 2 Hrs
Contact Hours per Semester: 30 Hrs
Subject Code: G2CA1P3

Objectives:

- To use MS Word to create various types of documents.
- Able to create and format spreadsheets, including the use of mathematical formula.
- To create a presentation containing both text and graphics.
- To manipulate data with MS-access.

1. Working with Explore [Files / Folders : Create , Copy , Paste , Delete, Rename]
2. Create and edit a document
3. Table Manipulation
4. Mail Merge
5. Creation of worksheet and Editing.
6. Manipulating Excel Functions.
7. Create and Process Student Mark sheet.

8. Create & Edit Database Table
9. Manipulating query commands from the Database Table
10. Report Generation
11. Slide Layout generation
12. Slide animation
13. Slide Transition Effects

Core 6 - Web Programming

Contact Hours per week : 2 Hrs
Contact Hours per Semester: 40 Hrs
Subject Code: G2CA21
Objectives:

- To design and maintain a web site.
- To improve their website using list, tables and graphics.
- To edit HTML code to allow the inclusion of JavaScript.
- To produce a Web Page that utilizes JavaScript.

Unit I **8 Hrs**

Internet Basics: Basic concepts – Communicating on the internet – Internet domains – Internet Server Identities – Establishing connectivity on the internet – A brief overview of TCP/IP and its Services – Transmission Control Protocol.

Introduction to HTML: Information Files Creation – Web server – Web client/ Browser – Hyper Text Markup Language – Commonly used HTML commands – Titles and Footers – Text Formatting – Emphasizing material in a web page – Text styles – Other Text effects.

Unit II **8 Hrs**

Lists: Types of Lists. **Adding Graphics to HTML documents:** Using the BORDER attribute – Using the WIDTH and HEIGHT attribute – Using the ALIGN attribute – Using the ALT attribute. **Tables**: Introduction – Using the WIDTH and BORDER attribute – using the CELLSPACING attribute – using the CELLPADDING attribute – Using the BACKGROUND- COLOR property – Using the COLSPAN and ROWSPAN attributes.

Unit III **8 Hrs**

Linking Documents: Links – External Document References – Internal Document References – Hyper Linking to a HTML file- Linking to a particular location in a separate document. Images as hyperlinks – Image maps.

Frames: Introduction to frames – The <FRAMESET> tag – The <FRAME > tag – Targeting Named frames.

Unit IV **8 Hrs**

Introduction to Java Script: Java Script in web pages – Java Script – Writing Java Script into HTML – Basic Programming techniques – Operators and Expressions in Java Script – Java Script programming constructs – Conditional checking – Super controlled – endless loops- Functions in Java Script – Placing text in browser – Dialog Boxes.

Unit V **8 Hrs**

Forms Used by a Website: The FORM object **–** The Form Object's Methods – Text Element – Password element – Button element – Submit Element – Reset Element – Checkbox Element – Radio Element – TextArea Element – Select and Option elements.

Text Book:

Web enabled commercial Application Development using HTML, DHTML, JavaScript, Perl CGI by Ivan Bayross, BPB Publications Third Revised Edition., 2009.

Unit I - Chapter 1, 2
Unit II - Chapter 3, 4, 5
Unit III - Chapter 6, 7
Unit IV - Chapter 8
Unit V - Chapter 10

Reference Book :

Core Web programming by Marty Hall, Larry Brown The SUN Microsystems Press 2nd edition 2001.

Web Reference

www.w3schools.com

Core 7 Relational Database Management System

Contact Hours per week : 2 Hrs
Contact Hours per Semester: 40 Hrs
Subject Code: G2CA22

Objectives:

- To learn relational concepts that is used in database systems, and how to use the language SQL.
- To use PL/SQL to retrieve and manipulate data from a relational database.

Unit I **8 hrs**

Introduction to DBMS: Database - Management System - Database Management System - DBMS Acts Like an Interface-Application of DBMS-Advantages of DBMS-Disadvantages of DBMS-DBMS Versus File System-Difference between File Management System and DBMS-Classification of DBMS Users-Data Abstraction-Application Architecture of DBMS-Data Models-Schemas and Instances-Mappings-Data Independence Database Languages.

Unit II **8 hrs Data Modeling Using The Entity Relationship Model:**E-R Model Concepts -Notation of E-R Diagram – Attributes – Entity - Mapping Constraints/Mapping Cardinality - Keys - Examples of E-R Diagram.

Relational Data Model: Relational Database Schema - Codd's Rule for RDBMS-Integrity Constraints - Domain Constraints.

Database Design and Normalization: Introduction-First Normal Form(1NF)-Functions Dependency-Second Normal Form(2NF)-Third Normal Form(3NF).

Unit III **8 hrs**

Interactive SQL Part-I: Table Fundamentals-Viewing Data in the tables-Eliminating Duplicate Rows When Using a Select Statement-Sorting Data in a Table-Delete Operations-Updating the Contents of the Table-Modifying the Structure of the Table-Renaming Tables-Truncating Tables-Destroying Tables-Creating Synonyms.

Unit V **8 hrs**

Interactive SQL Part-III: Computations Done on Table Data-Oracle Functions-Date Conversion Functions-Date Functions.

Interactive SQL Part-IV: Concept of Grouping-Group by Clause.

Unit V **8 hrs**

Introduction to PL/SQL: Advantages of PL/SQL-The Generic PL/SQL Block-The PL/SQL Execution Environment-PL/SQL-Control Structure-Error Handling in PL/SQL-Oracle's Named Exception Handlers.

Text Books:

1) Database Management System by Rakesh Saini, M.M.S.Rauthan, Abhay Saxena. Bindu Sharma,Vayu Education of India publishing, First Edition 2010.

Unit I - Chapter 1 (1.1 to 1.17)
Unit II - Chapter 2 (2.1 to 2.7)
Chapter 3 (3.8 to 3.11)
Chapter 9 (9.1 to 9.3, 9.7,9.8)

2) SQL, PL/SQL The Programming Language of Oracle by Ivan Bayross, BPB Publications, Fourth Revised Edition 2009.

Unit III - Chapter 7(Page No 114 to124,126 to 132)
Unit IV - Chapter 9(Page No 161 to 184)
Chapter 10(192)
Unit V - Chapter 15(338-349)
Chapter 17(393-401)

Reference Books:

1) Database System concepts by Peter Rob, Carlos Coronel, Publishing by Cengage Learning, First Edition 2008.

2) Database Systems using Oracle by Nilesh Shah, Published by PHI Learning, Second Edition 2010.

Core 8 LAB: Web Programming

Contact Hours per week : 2 Hrs **Subject Code: G2CA2P1**
Contact Hours per Semester: 30 Hrs

Objectives:

- To design web pages.
- Able to implement the concepts using JavaScript.

1. Creating a Web Page using Basic tags
2. Creating a Web Page by changing formatting effects
3. Creating a Web Page to demonstrate List Tags
4. Creating a Web Page to demonstrate use of Images
5. Creating a Web Page to demonstrate Linking
6. Creating a Web Page to demonstrate use of Tables
7. Demonstrating use of Operators (JavaScript)
8. Demonstrating use of Conditional Structures (JavaScript)
9. Demonstrating use of Loops (JavaScript)
10. Demonstrating use of Jumping Statements (JavaScript)
11. Demonstrating Methods and Properties of JavaScript Objects
12. Demonstrating use of Forms (JavaScript)
13. Demonstrating Text, Password, Button Element in forms.

14. Demonstrating Check Box, Radio, Text Area Element in forms.
15. Demonstrating Select and Option element in forms

Core 9 LAB: RDBMS

Contact Hours per week : 2 Hrs **Subject Code: G2CA2P2**
Contact Hours per Semester: 40 Hrs

Objectives:

- To learn how to create tables and perform operations on the table.
- To understand and execute different SQL queries and PL / SQL programs.

SQL:

1. DDL Commands (using Create, Alter, Drop, Truncate, Rename).
2. DML Commands (Using Insert, Delete, Update, Select)
3. Aggregate Functions.
4. String Functions.
5. Date Functions.

PL/SQL:

1. PL/SQL program for using simple if statement.
2. PL/SQL program for using if else statement.
3. PL/SQL program for using nested if else statement.
4. PL/SQL program with usage of FOR loop.
5. PL/SQL program with usage of loop ... end loop.
6. PL/SQL program with usage of while loop.
7. PL/SQL program with usage of exception handlers.

Core 10 LAB: Multimedia

Contact Hours per week : 2 Hrs
Contact Hours per Semester: 30 Hrs
SUBJECT CODE: G2CA2P3

Objectives:

- To increase the ability to edit and add special features to the images.
- To design various applications using Photoshop.
- To help them in creating in 2D animations

Photoshop:

1. Procedure to design a visiting card containing at least one graphic and text information.
2. Procedure to take a photographic image. Give a title for the image. Put the border. Write your names. Write the name of institution and place.
3. Procedure to prepare a cover page for the book in your subject area. Plan your own design.
4. Procedure to adjust the brightness and contrast of the picture so that it gives an elegant look.
5. Procedure to position the picture preferably on a plain Background of a colour of your choice - positioning includes rotation and scaling.
6. Procedure to type a word and apply the effects shadow Emboss.
7. Procedure to use appropriate tool(s) from the toolbox, cut the objects from 3 files (f1.jpg, f2.jpg & f3.jpg); organize them in A single file and apply feather effects.
8. Procedure to make anyone of one of the parrots black & White in a given picture.

9. Procedure to implement glass effect using Photoshop.
10. Procedure to implement out of bound effect using Photoshop.

Flash:

1. Procedure to bounce a ball on steps using Flash.
2. Procedure to display the background given through your name using Mask
3. Procedure to change a circle into a square using Flash.
4. Procedure to create a motion guide layer using Flash.
5. Procedure to display a greeting Card using Flash.
6. Procedure to animate a picture using Flash.
7. Procedure to animate a text using Flash.
8. Procedure to animate the growing moon.
9. Procedure to implement mouse rollover (Action Script).
10. Procedure to implement moving ball using mouse drag (Action Script).