# FATIMA COLLEGE (AUTONOMOUS)



***Re-Accredited with "A" Grade by NAAC (3rd Cycle)***

***74th Rank in India Ranking 2020 (NIRF) by MHRD***

***Maryland, Madurai- 625 018, Tamil Nadu, India***


NAME OF THE DEPARTMENT  : PG DIPLOMA IN COMPUTER
APPLICATION

NAME OF THE PROGRAMME  : PGDCA

PROGRAMME CODE  : OSCA

ACADEMIC YEAR  : 2020 - 2021

# FATIMA COLLEGE (AUTONOMOUS)
## MARY LAND, MADURAI – 625018, TAMIL NADU, INDIA
(College with Potential for Excellence, Re-accredited with Grade 'A' by NAAC)
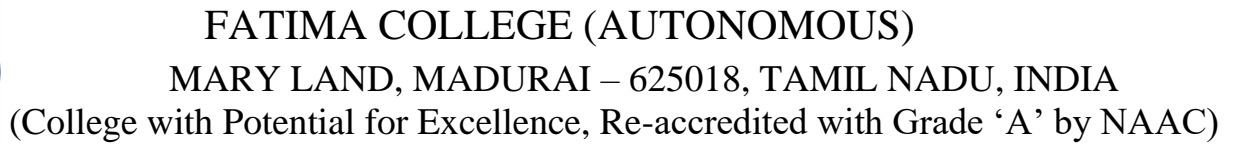
## DEPARTMENT OF PGDCA

| | SUB.CODE | SUBJECT TITLE | HRS | CREDIT | INTERNAL | | | | | | | FE | MAX. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | T | M | W | S | A | N | CA | | |
| **SEM I** | **19PDB101** | Computer Fundamentals and OS | 3 | 3 | 15 | 5 | 5 | 5 | 5 | 5 | 40 | 60 | 100 |
| | **19PDB102** | Problem Solving using C | 3 | 3 | 15 | 5 | 5 | 5 | 5 | 5 | 40 | 75 | 100 |
| | **19PDB103** | WebDesigning | 3 | 3 | 15 | 5 | 5 | 5 | 5 | 5 | 40 | 75 | 100 |
| | **19PDB104** | Lab I– Programming  in C | 3 | 2 | | | | 40 | | | | 60 | 100 |
| | **19PDB105** | Lab II- Web Programmingand Photoshop Editing Techniques | 3 | 2 | | | | 40 | | | | 60 | 100 |
| | **19PDB106** | Lab III – Excel and Weka | 3 | 2 | | | | 40 | | | | 60 | 100 |
| | | **TOTAL** | 18 | 15 | | | | | | | | | |

| | SUB.CODE | SUBJECT TITLE | HRS | CREDIT | INTERNAL | | | | | | | FE | MAX. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | T | M | W | S | A | N | CA | | |
| **SEM II** | **19PDB201** | Relational Database Management System | 3 | 3 | 15 | 5 | 5 | 5 | 5 | 5 | 40 | 60 | 100 |
| | **19PDB202** | Visual Basic | 3 | 3 | 15 | 5 | 5 | 5 | 5 | 5 | 40 | 60 | 100 |
| | **19PDB203** | Lab IV – RDBMS | 2 | 2 | | | | 40 | | | | 60 | 100 |
| | **19PDB204** | Lab V – Visual Basic | 2 | 2 | | | | 40 | | | | 60 | 100 |
| | | TOTAL | 10 | 10 | | | | | | | | | |

# SEMESTER I
## COMPUTER FUNDAMENTALS AND OS - PDB101

**3  HRS/WEEK**                                                        **3 CREDITS**

**COURSE DESCRIPTION:**
Basics of Computer Fundamentals course begins with basic concepts and builds quickly to intermediate skills and techniques.

**COURSE OBJECTIVE:**
* To impart knowledge about the latest developments in the rapidly changing world of Information Technology.

**COURSE OUTCOMES: The learner will be able..**
**CO 1:** Bridge the fundamental concepts of computers with the present level of knowledge of the students.
**CO 2:**Understand binary, hexadecimal and octal number systems and their arithmetic
**CO 3:**Familiarise operating systems, programming languages, peripheral devices, networking, multimedia and internet.
**CO 4:** Learner will be able to appreciate the role of operating system as System software.
**CO 5:** To control the behavior of OS by writing Shell scripts.

**UNIT-I:**                                                           **(6 Hrs)**
**INTRODUCTION TO COMPUTER** –Types of computers-Characteristics of Computers-Classification of Digital Computer Systems-Anatomy of a Digital Computer-Application of IT( Computers Entertainment, Science and Medicine)

**UNIT II:**                                                          **(6 Hrs)**
**NUMBER  SYSTEM  &  NETWORK** -Number Conversion-Binary,  Decimal  & Complement-Operating System- Programming Languages. **Computer Networks:-overview of a n/w- Types of networks- N/W topologies-Network protocols**

**UNIT  III:** .                                                      **(6 Hrs)**
**COMPUTER LANGUAGES**i. Machine language ii. Assembly language iii. High level language Program Language Translators i. Assembler ii. Compiler iii. Interpreter.

**UNIT  IV:**                                                         **(6 Hrs)**
**INTRODUCTION TO OPERATING SYSTEM**: Introduction, What Is An Operating Systems, Operating System Components And Goals, Operating System Architecture. Process Concepts: Introduction, Process States, Process Management, Interrupts, Interprocess Communication

**UNIT V:**                                                           **(6 Hrs)**
**MEMORY MANAGEMENT:**Memory organisation and management, storage allocation. Disk Components-Disk scheduling- Files- File concepts –File attributes –File Operations – File Types- Directories.
**Text Books:**
1. Alexis Leon, Mathews Leon, "Fundamentals of Information Technology", Leon Press, 1999.
Chapters : 1-5

2 Andrew S. Tanenbaum, ―Modern Operating Systems‖, Second Edition, Pearson Education, 2004.

      Chapters : 4-7

**Reference Books**:

**1**Computer Fundamentals by Anita Goel Publisher: Pearson India Release Date: April 2010
2. An Introduction to Operating Systems Concepts and Pratice By Pramod Chandra P.BhattPHI 2nd Edition-2008.

# SEMESTER I
# PROBLEM SOLVING USING C- PDB102

**3 HRS/WEEK**                                                                          **3 CREDITS**

## COURSE DESCRIPTION:

To develop programs using **C programming** language, in order to solve simple to moderate problems.

## COURSE OBJECTIVE:

- To introduce and form a firm foundation in programming.
- To stress the importance of clarity, simplicity the efficiency in writing

## COURSE OUTCOMES: The learner will be able..

**CO 1:**Understand the fundamentals of C programming
**CO 2:** Choose the loops and decision making statements to solve the problem.
**CO 3:** Implement different Operations on arrays
**CO 4:** Use functions to solve the given problem.
**CO 5:** Program with pointers and arrays, perform pointer arithmetic, and use the preprocessor. the students will be able to develop applications

**UNIT I:**                                                                                        **(6 Hrs)**
**INTRODUCTION TO 'C' -** Overview of C-Constants, Variables and Datatypes – Operators and Expression – Managing Input and output Operators.

**UNIT II:**                                                                                       **(6 Hrs)**
**DECISION MAKING, BRANCHING AND LOOPING -** Simple If Statement - The if else Statement - Nesting of if…else statement - The Else if Ladder - The Switch Statement - The Conditional Operator – The GOTO Statements – The while Statements – The DO Statements – The For Statements – Jump in Loops.

**UNIT III:**                                                                                     **(6 Hrs)**
**ARRAYS, STRINGS & FUNCTIONS** - One Dimensional Arrays - Two Dimensional Arrays - Initializing Two Dimensional Arrays - Multi - Dimensional Arrays. Declaring and Initializing and String Variables – Reading and Writing of Strings – Comparison of Two Strings.

**UNIT IV:**                                                                                      **(6 Hrs)**
**FUNCTION DEFINITION** - Elements of User-defined Functions – Definition of Functions – Function Calls – Function Declaration – Category of Function – Recursion

**UNIT V: STRUCTURES AND POINTERS**                                    **(6 Hrs)**
**Structures** Definition - Giving Values to Members – Structure Initialization -Comparison of Structure Variables - Array of Structures - Declaring and Initializing Pointers - Accessing a Variable through Pointers – Pointer Expression.

**TEXT BOOK:** Programming in ANSI C - E.Balagurusamy, Tata McGraw-Hill Publications. Edition:- 5th Edition.

**Chapters:**1-12. (Except – 10.9, 10.10, 10.11)
**REFERENCE BOOK:** Programming with C - Byron S.Gottfried, Tata McGraw - Hill
Publications.

# SEMESTER I

# WEB DESIGNING - PDB103

**3 HRS/WEEK**                                                    **3 CREDITS**

**COURSE DESCRIPTION:**

To provide the student with foundationalprogramming knowledge and skills for application development on the Internet.

**COURSE OBJECTIVE:**

- To teach the basic concept of designing a webpage.

**COURSE OUTCOMES: The learner will be able..**

**CO 1:** Student will discover how does web works really, what makes web sites work.

**CO 2:** Writing valid and concise code for web pages.

**CO 3:** To create web elements like buttons, banners.

**CO 4:** Forms and validations for your website.

**CO 5:** How to and where to start research, planning for website & actually build excellent web sites.

**UNIT I:**

**INTRODUCTION TO HTML:** Information Files Creation-Web Server-Web Client/Browser-Internet & Intranet-HTML-Commonly Used HTML Commands-Structure of an HTML Program, Titles and Footers, Text Formatting, Emphasizing Material in a Webpage, Text Styles and Other Text Effects.

**UNIT II:**

**GRAPHICS AND FRAMES:** Types of Lists, Adding Graphics to HTML Documents, Tables, Linking Documents, Frames.

**UNIT III:**

**INTRODUCING TO JAVASCRIPT:** Advantages – Writing JavaScript – Basic Programming Techniques – Type Casting, Creating Variables, Operators and Expressions, Conditional Checking, Super Controlled – Functions – **User-defined Functions** – Dialogue Boxes.

**UNIT IV:**

**JAVASCRIPT DOCUMENT OBJECT MODEL**:Introduction-Assisted Style Sheets DOM[JSSS DOM]- Understanding Objects in HTML- Browser Objects-Object Hierarchy-Handling Events. Forms used by a Website: **Form Object-Other Built-in Objects in JavaScript-User Defined Objects.**

**UNIT V:**

**DYNAMIC HTML:** Cascading Style Sheets: Font, Color & Background, Text, Border, Margin Related and Text Attributes – Use of Class-User-defined Functions – Dialogue Boxes.Browser Objects-Object Hierarchy-Handling Events.

**Text Books :**

1. **"**Web enabled commercial Application development using HTML, JAVA Script, DHTML and PHP" Ivan Bayross, 4$^{th}$ Edition, BPB Publications.
2. Alexis Leon, Mathews Leon, "Fundamentals of Information Technology", Leon Press, 1999

**Chapters:**

      Book 1 : 2– 10 & 12.
      Book 2 : 21(21.1-21.17) , 23(23.1-23.4)

**Reference Book**:

"Web Designing with HTML, JAVA Script, VB Script & Int-to Ecommerce Networking Internet", Lokesh Vats, Cyber Tech Publication New Delhi 2003.

# SEMESTER I

# LAB I - PROGRAMMING IN C - PDB104

**3 HRS/WEEK.** **2 CREDITS**

## COURSE DESCRIPTION:

To develop programs using **C programming** language, in order to solve simple to moderate problems.

## COURSE OBJECTIVE:

To develop programming skills in C.

## COURSE OUTCOMES: The learner will be able..

**CO 1:**Illustrate flowchart and algorithm to the given problem

**CO 2:**Understand basic Structure of the C-PROGRAMMING, declaration and usage of variables

**CO 3:**Write C programs using operators

**CO 4:**Write C programs using Pointers to access arrays, strings and functions.

**CO 5:**Exercise user defined data types

To develop simple C programs using the following concepts

- **Conditional Statements**

- **Looping Statements**

- Arrays

- Strings

- Functions

- **Structures**

- **Pointers**

- **Command line Arguments**

## SEMESTER I

## LAB II – WEB PROGRAMMING AND PHOTO EDITING TECHNIQUES –PDB105

**3 Hrs/Week.**                                                            **2 Credits**

**COURSE DESCRIPTION:**
- To provide the student with foundationalprogramming knowledge and skills for application development on the Internet.
- To create and design digital images and illustrations for print and Web publication.

**COURSE OBJECTIVE:**
- To teach the basic concept of designing a webpage.
- To develop their skills in editing and altering photographs for through a basic understanding of the tool bar, layers, and the adjustments panel.

**COURSE OUTCOMES: The learner will be able..**
**CO 1:** Writing valid and concise code for web pages.
**CO 2:** To create web elements like buttons, banners.
**CO 3:** Forms and validations for your website.
**CO 4:** Students will gain a working knowledge of Photoshop.
**CO 5:** How to prepare and process photos for the Web?

**HTML & CSS**

- Write a simple HTML document with the title as HOME PAGE with all basic tags.
- Write a program to have a text and an image as links to another document.
- Create a table with different formats for each column.
- Create a simple Application form.
- Create a Frameset with two frames. In the frames, links should be displayed and in the right the target file of the link should be displayed.
- Create an External Style Sheet, Table Style.
- Built –in Objects.
- User Defined Functions.
- Dialog Boxes.
- Login Form
- **PHOTO SHOP**
  - Open an image and modify it using smudge tool.
  - Change a Black and White photograph into Color.
  - Create an image using gradient fills.

- **Import an image and remove the portion from the plain background and fix it in another background.**
- **Type a text and create plastic effect.**
- **Create a Web photo gallery.**

# SEMESTER I
# LAB III – EXCEL AND WEKA – 19PDB106

**3 Hrs/WEEK**                                              **2 Credits**

**COURSE DESCRIPTION:**

To give an opportunity to the undergraduate student to get acquainted with Tally Accounting Software.

**COURSE OBJECTIVE:**

- To Create Financial Statements & to identify spreadsheet terminology and concepts;

**COURSE OUTCOMES: The learner will be able.**

**CO 1:** Demonstrate use of Weka for key data mining tasks.

**CO 2:** Apply many different learning methods to a dataset of learner choice.

**CO 3:** To Preview and print worksheets.

**CO 4:** Indicate the names and functions of the interface components.

**CO 5:** Construct formulas, including the use of built-in functions, and relative and absolute references.

**EXCEL**

- How to create a basic spreadsheet by entering text, numbers, and formulas?
- Introduces formatting of cells and columns.
- Demonstrates the ease of creating charts.
- How to sort data and print portions of a worksheet?
- How to consolidate several worksheets into one and to link several worksheets to a master worksheet.

**WEKA**

- Prepare Data
- Training and Testing
- Association Rule

- Analysis with Association
- Advanced DataMining
- Weka GUI user

## EXCEL

- How to create a basic spreadsheet by entering text, numbers, and formulas?
- Introduces formatting of cells and columns.
- Demonstrates the ease of creating charts.
- How to consolidate several worksheets into one and to link several worksheets to a master worksheet.

# SEMESTER II

# DATABASE MANAGEMENT SYSTEM – PDB201

**3 HRS/WEEK**                                                **3 CREDITS**

**COURSE DESCRIPTION:**

To inculcate knowledge on RDBMS concepts and Programming with SQL.

**COURSE OBJECTIVE:**
- To encapsulate the implementation of Database System Concepts in SQL.

**COURSE OUTCOMES: The learner will be able..**
**CO 1:** To describe data models and schemas in DBMS
**CO 2:** To understand the features of database management systems and Relational database.
**CO 3:** To use SQL- the standard language of relational databases
**CO 4:** To understand the functional dependencies and design of the database.
**CO 5:** To understand the concept of Transaction and Query processing.

**UNIT I:        (6Hrs)**
**INTRODUCTION TO DATABASE MANAGEMENT SYSTEM** – Characteristics of Data Base –Services Provided by DBMS-Types of DBMS- Database System architecture.

**UNIT II :                                                        (6Hrs)**
**INTRODUCTION TO RDBMS-**The Relational Data Structure - Data Integrity-Domain Constraints-Entity integrity - Referential Integrity - Operational Constraints-Relational Data Manipulation- Entities and Attributes - ER model- Relationship- ER Diagram.

**UNIT III:                                                        (6Hrs)**
**DATA NORMALIZATION-**Three Normal form analyses: FIRST NORMAL FORM, SECOND NORMAL FORM, THIRD NORMAL FORM – BCNF-Denormalization.

**UNIT IV:                                                        (6Hrs)**
**INTRODUCTION TO SQL AND DDL, DML -** SQL data types and literals – Types of SQL commands- SQL Operators-Logical Operators-Set Operators-Operators Precedence-**Creating, Dropping and Altering tables and views: Creating a table – Dropping tables – Altering tables – Creating a view** – Creating a table from a table. Changing Date: insert-rollback, commit and auto commit-delete-update.

**UNIT V:                                                        (6Hrs)**
**QUERIES AND SUB QUERIES-**Selecting columns- AND, OR, NOT-Aggregate Function-General rules-COUNT, SUM, AVG –Insert, Update, Delete Statements.

**Text Book:**

Alexis Leon, Mathews Leon, "DATABASE MANAGEMENT SYSTEM", Leon Press.

**Chapters:**

5, 7,9,11, 14, 15,17,18,19.

**Reference Book:**

DataBase System Concepts – Henry F. Korth, Abraham Silberchatz – Tata McGraw – Hill Publications.

# SEMESTER II
# VISUAL BASIC – PDB202

**3HRS/WEEK**                                                              **3CREDITS**

**COURSE DESCRIPTION:**

Analyze program requirements. Design/develop programs with GUI interfaces.

**COURSE OBJECTIVE:**

- To Learn to design and develop Windows-Based Business Application using VB program that meet commercial program standards

**COURSE OUTCOMES: The learner will be able..**

**CO 1:** Understand Visual Basic applications.

**CO 2:** Develop a Graphical User Interface (GUI) based on problem description

**CO 3:** Understand how to perform operations and store results

**CO 4:** Understand additional Visual Basic Controls.

**CO 5:** Understand loops to do repetition

**UNIT I:**                                               **(6Hrs)**

**INTRODUCTION TO VB-Starting and Exiting Visual Basic – Using Project Explorer – Working with forms – using properties window** – using toolbox – working with projects – – Building and running applications – Adding code and using events: Using code window – using name conventions – using variables – using scope – using subroutines and functions.

**UNIT II:**                                                                  **(6Hrs)**

**CONTROLS -**Using controls: Label – textbox – command button – Frame – Check box – option button – list box – Combo box – Drive list box **– Directory list box – file list box – using formatting controls – using control arrays – using tab order.**

**UNIT III:**                                                                 **(6Hrs)**

**STRINGS &NUMBERS-**Using strings – Converting strings – Concatenating strings – Formatting strings – Manipulating strings - Comparing strings. Numbers: Using numeric values – Numeric operators – Random numbers**. Control Statements**: If and Else If – Select Case – Do – For – Exit.

**UNIT IV:**                                                                  **(6Hrs)**

**DIALOG BOX AND CONTROL STATEMENTS-**Using Msgbox and Inputbox function – Using common dialog control: Open, Save as, Color, Font, Print, ShowHelp.

**UNIT V: MENUS, FILES AND ADO CONTROL**                                    **(6Hrs)**

Menus: Creating Menus – Adding code to Menus – Creating Shortcut menus.

Database: Opening, Closing and Deleting files – Reading and Writing files – Using ADO data control.

**TEXT BOOK: "**Teach yourself Visual Basic 6" – Scott warner – Tata McGraw Hill Publications.

**Chapters:** 1-10

**REFERENCE BOOK: "**Visual Basic 6 from the Ground Up" – Gary Cornell, Tata McGraw Hill Publications.

# SEMESTER II

# LAB IV -RDBMS – PDB203

**2 HRS/WEEK**                                                              **2 CREDITS**
**COURSE DESCRIPTION:**

To inculcate knowledge on RDBMS concepts and Programming with SQL.

**COURSE OBJECTIVE:**
- To encapsulate the implementation of Database System Concepts in SQL.

**COURSE OUTCOMES: The learner will be able..**
**CO 1:** To describe data models and schemas in DBMS
**CO 2:** To understand the features of database management systems and Relational database.
**CO 3:** To use SQL- the standard language of relational databases
**CO 4:** To understand the functional dependencies and design of the database.
**CO 5:** To understand the concept of Transaction and Query processing.

- DDL Commands.
  - Creating,altering ,dropping a table and creating view
- DML Commands.
- Simple Queries.
- Positive, Negative or Zero.
- Odd or Even.
- Factorial.
- Fibonacci Series.
- Multiplication Table
- Sum of First n numbers.
- Perfect or Not.
- Prime or Not
- EB Bill.
- Reverse a Number.

# SEMESTER II

# LAB V - VISUAL BASIC – PDB204

**2 HRS/WEEK**                                              **2 CREDITS**
**COURSE DESCRIPTION:**
   Analyze program requirements. Design/develop programs with GUI interfaces.

**COURSE OBJECTIVE:**
- To Learn to design and develop Windows-Based Business Application using VB program that meet commercial program standards

**COURSE OUTCOMES: The learner will be able..**
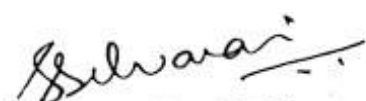**CO 1:** Understand Visual Basic applications.
**CO 2:** Develop a Graphical User Interface (GUI) based on problem description
**CO 3:** Understand how to perform operations and store results
**CO 4:** Understand additional Visual Basic Controls.
**CO 5:** Understand loops to do repetition

- **Design a form that acts as a Mortgage calculator.**

- **Design an objective type questionnaire.**

- **Design a form that dynamically adds a given text to a combo box.**

- Design traffic signals using radio buttons.

- Write a program that inserts a given value to a dynamic array until a specific condition is met.

- Design an Arithmetic calculator using control arrays.

- Write a function that eliminates the extra spaces available in a given string.

- Design a sketch pad.

- Design a form that converts one basic unit to another using menu.

- Create a file open dialogue box to load a picture.

- Write a program to read and write a sequential file.

- View record using data control.

- Write a program to add, edit and delete records in a database using data control.

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