DCA (w.e.f June 2010-11)

			Instructional System								
Course Code	**SLM Code**	**Name of the subject**	**PCP**	**AW**	**VGD**	**PDP**	**PEC**	**PPW**	**IIIL**	**Credits**	**Marks**
DCA- 1	C-101	Computer Fundamentals & Programming in C	√	√	√		√			4	100
DCA-2	C-102	Internet & Web Designing	√	√	√		√			4	100
DCA-3	C-103	Data Base Management System	√	√	√		√			4	100
DCA-4	C-104	Data Structure Through C	√	√	√		√			4	100
DCA-5	C-105	Object Oriented Programming & C + +	√	√	√		√			4	100
DCA-6	-	Practical covering DCA-1 to DCA-5					√			10	250
DCA-7	-	Project							√	6	200
Total										**36**	**950**

COMPUTER FUNDAMENTAL AND PROGRAMMING IN C
C-101

SECTION A

Number System: Decimal, Octal, Binary & Hexadecimal, Representation of Integer, fixed and floating points, character representation : ASCII, EBCDIC.

SECTION B

Functional Units of Computer : I/O devices, primary and secondary memories.

SECTION C

Programming Fundamental : Algorithm development, techniques of problem solving, flowcharting, stepwise refinement, algorithm for searching sorting exchange and insertion merging of order lists.

SECTION D

Representation of integers, character, reals, data types, constants and variables, arithmetic expression, assignment statement logical expression, sequencing, alteration and iteration, arrays, string processing, sub program, recursion, files and pointers testing and debugging of program.

INTERNET AND WEB DESIGINING
C-102

SECTION A : Internet and Networking Basics

Definition of Internet, Internet organization and committees, Internet, Growth of Internet, Anatomy of Internet ,Internet Application , Portals, Introduction about WWW, Definition of DNS (Domain Name System) , IP Address.

Definition of Networks, Types of Network , Topologies, PSTN , PSDN, VAN ISDN, PDNS, Wide Area Network

SECTION B : Networking Services and Protocols

Introduction about search engines (Mozilla, Netscape, Opra) Email, Introduction about mail protocol (SMTP, MME), X.25, Frame relay, PPP, NNTP, SMPT, etc.

OSI References method, TCP/IP model, FTP, HHTP, HTTPS, Addressing in Internet (Class A,B,C,D,E) Definition of Ethernet, Intranet , Telnet, Wireless communication , Virtual Circuits, ISDN model, CSMA/CD , Explanation of all layers of OSI and TCP/IP Model.

SECTION C : HTML
Introduction about HTML, Tag, Types of Tags, Forms, Tables, Images insertion , in web page.

DATABASE MANAGEMENT SYSTEM
C-103

SECTION-A

Database Concept : What is Database? Need of Database , Function of the Database; Types Database; Relational Database Management System, Relational Model – Key Concept; Domain Constraint , Integrity Constraints; Foreign Key.

SECTION-B

Database Development Process, Database Modeling & Database Design. E-R Model, Attributes, Relationship, Logical Database Design, Normalization , First Normal Form, Second Normal Form, Third Normal Form, Translating E-R Diagram to Relation, Physical Database design.

SECTION-C

Relational Algebra & SQL Relational Database Commands. Data-types Create Table , Drop Table , Alter Table , Insert Table, Insert into , Delete from, Update , General Query Syntax (Select), Create View, Drop View, Set Operators – Union , Intersect , Minus Function, Group Functions, Join Sub Queries.

SECTION-D

Data Administration, Client/Server and Distributed Database. Data Administration Functions, Data Administration tools – Repositories , CASE Tools, Concurrency Control, Database Security , Database Recovery. Database Applications : Financial Systems, Marketing System, Foreign Trade , Inventory Information Systems

DATA STRUCTURE THROUGH 'C'
C-104

SECTION A

1. Problem solving concepts, top down and bottom up design structured programming.
2. Concept of data type and data structure, differences between data type and data structures, view of data structures at logical level, implementation level and application level, built-in-data structures and user defined data structures.

SECTION B

3. Concepts of dynamic variables, difference between static and dynamic variables, concepts of pointer variables.
4. Study of the following user define data structures using static and variables.
    - Built-in data structures like arrays, records.
    - User defends data structures like stacks, queues, linked. User defend data structures like stacks, queues, linked lists, circular linked lists, doubly linked list.

SECTION C

5. Non-linear data structures: trees, terminology of trees, concepts and applications of binary trees, tree traversal techniques and algorithms.

SECTION D

6. Sorting and searching algorithms and their efficiency considerations.
7. Considerations for choice of proper data structure.

OBJECT ORIENTED PROGRAMMING AND C++
C-105

SECTION A

OOP paradigm, Advantages of OOP, Comparison between functional programming and OOP approach, characteristics of object oriented Language objects, class, Inheritance, Polymorphism, and abstraction, encapsulation, Dynamic Binding, Message passing.
Introduction to C++, Identifier and Keywords, constants, C++ Operators, Type conversion, Variable declaration, Statement, expression, User defined data types, conditional expression (For, While, Do-While, Do-While) loop statement, breaking control statements (Break, continue).

SECTION B

Defining a function, types of functions, Inline functions, Call by value and Call by reference, Preprocessor, Header files and standard functions, Structures, Pointers and structures, Unions, Enumeration.

SECTION C

Classes, Member function, Objects, Array of objects, Nested classes, Constructors, Copy constructors, Destructors, Inline member functions, static class member, friend functions, Dynamic memory allocation.
Inheritance: Single inheritance, Multi – level inheritance, Hierarchical, Virtual base class, Abstract classes, Constructors in Derived classes, Nesting of classes.

SECTION D

Function overloading, Operator overloading, Polymorphism, Early binding, Polymorphism with pointers, Virtual functions, Late binding, Pure virtual functions, Opening and closing of files, Stream member functions, Binary file operations, classes and file operations, Random access file processing.