DIPLOMA IN COMPUTER APPLICATION, 2010 - 2011
[DURATION - ONE YEAR - PART TIME]

The duration of the course shall be one year consisting of two semester. There shall be three theory and one practical course in the each semester. There shall be grading system of awards.

FIRST SEMESTER

DCA	:	Essential of Information Technology and OS
DCA	:	Essential of Office Automation.
DCA	:	Programming in 'C' Language
DCA	:	Practical based

Essential of Information Technology and OS

1. **Introduction to Computers**

   Computer System Characteristics and Capabilities: Speed, Accuracy, Reliability, Memory capability, Repeatability, Computer Hardware and Software, Block Diagram of a Computer, Types of Computers: Analog, Digital, hybrid General and Special Purpose Computers, Computer Generations: Characteristics of Computer Generation Computer Systems Micros, Minis & Main - frames. Introduction to a PC: The IBM Personal Computer Types of PC Systems PC, XT & AT Pentium PC's.

2. **Computer Organization**

   Introduction to Input Devices: Keyboard, Direct Entry- Card Readers, Scanning Devices - O.M.R., Character Readers, MICR, Voice Input Devices, Pointing Devices - Mouse, Light pen. Storage Devices: Storage Fundamentals- Bits, Bytes, Primary Storage - RAM, ROM Secondary Storage - Floppy Disks, Hard Disks, Optical Disks, CD/DVD Computer Output: Output Plotters, Computer output, Softcopy Output Devices, Cathode Ray Tube, Flat Screen Technologies.

3. **Operating System**

   MS-DOS - Introduction, History and Versions of DOS. Booting Process, System Files and Command .com, Internal DOS Commands - DIR, MD, CD, COPY, DEL, REN, VOL, DATE, TIME, CLS, PATH, TYPE, Files & Directories, Elementary External DOS Commands - CHKDSK, MEM, XCOPY, PRINT, DISKCOPY, DISKCOMP, DOSKEY, HELP, TREE, SYS, LABEL, ATTRIB, Creating a Batch Files, Additional Commands - ECHO, PROMPT, MODE, EDIT, FORMAT, FDISK, BACKUP, RSSTORE, MORE, SORT.

4. **Windows**

   Windows Concepts. Features, Structures, Desktop, Taskbar, Start menu, My Computer, Recycle Bin. Accessories: Calculator, Notepad, Paint WordPad, Character Map. Explorer Creating folders and other Explorer facilities, Internet Explorer Basics, navigating the web, control panel.

5. **Linux**

   Open-Source Software concept and evolution of Linux, Features of Linux OS, Structure of Linux OS, File System, Directory Structure, Linux editor commands, Linux Commands cd, md, rm, mv, ls, cat, find, grep.

ESSENTIALS OF OFFICE AUTOMATION

1. **MS-WORD -** Creating and editing word documents, formatting documents - aligning documents, indenting paragraphs, changing margin, formatting pages, formatting paragraph, printing labels, working with tables, formatting text in tables, inserting and deleting cells, rows and columns, use bulleted and numbering, checking spelling and grammar, finding synonyms, working with long documents, working with header and footer, adding page number and foot note, working with graphics, inserting clip art, working with pictures, Word art, creating chart & Graphs, creating flow charts, working with mail merge. writing the form letter, merging form documents, merging to label, working with Milling lists and Data Sources, selecting merge records, creating macros, running macro.

2. **Working with MS-Excel** - Introducing Excel, use of excel sheet, saving, opening and printing work book, apply formats in cell & text, divide worksheet into pages, setting page layout, adding Header & Footer. Using multiple documents. arranging windows i.e. (Cascade, Tiled, Split), Protecting your work, password protection. Working with Functions & Formulas, using absolute reference. referencing cell by name, using cell label, giving name to cell and ranges, working with formulas (mathematical & trigonometric statistical, date time, most recently used), Working with Excel graphics, creating chart & graphs. Working with lists & database, sorting a database, filtering a database, using auto filter, criteria range, calculating total and subtotal, creating pivot table, goal seek, recording & playing macros, deleting and selecting macro location.

3. **Presenting with PowerPoint -** Creating Presentation,   working with sliders, 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 graph, playing a slide show, slide transition, advancing slides, setting time, rehearsing timing, animating slide, animating objects, running the show from windows.

4. **Introduction of DBMS through MS - Access -**
Introduction to Database, DBMS, RDBMS., Features of Access, Designing Database, Relationship (One to One, One to Many, Many to Many), Create table (Design View, Wizard, Datasheet View), Query (Update Query, Delete Query, Selection Query, Cross table Query, Make table Query)

5. **Introduction to TALLY**
Accounting, Accounting Conventions (Single and Double Entry,), Transactions, Types of Accounts, Personal Accounts, Real, Nominal, Rules of Accounting. Introduction to Accounting Software [Ex. TALLY] - Creating of Company, Ledgers & Groups. Voucher Entry; Types of Vouchers, Capital and Revenue, Income, Expenditure, Receipts, Preparation of Trial Balance, Profit & Loss Account & Balance Sheet.

PROGRAMMING IN 'C'

1. **Programming Languages -** Introduction & History, Types of Programming Languages - Low Level, Middle Level & High-Level Language, Generations of Languages; Language Translator - Assembler, Compiler, Interpreter, Concept of Flow Chart & Algorithms.

2. **Introduction to C programming structure and C** compiler, Data representation: Simple data types like real integer, character etc. Program, statements and Header Files, Simple Input Output statements in C, Running simple c programs. Primitive data types in C, Char, integer, float, Double Long, Double Void etc.

3. **Operators and Expressions -** Arithmetic Operators, Assignment Operators, increment and decrement operator, relational and Boolean operators, Mixing of Different data types and operators for forming expressions. Control Structures using if, if---else, nested if ----else, switch statement, Using Loops For Loop Situations, while loop situation, Neste loops.

4. **User define functions**

UNIT-2 Control Structure: If - Statement. if - else statement, Multiway decision, compound Statement, Loops: For - loop. While- loop, Do-While loop, Break statement, Switch statement, Continue statement, Goto statement.

2.1 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 alteration and recursion variable length argument list.

UNIT-3 - Scope and Extent, Arrays, Strings, Multidimensional Arrays, Strings, Array of Strings, Function in   String, Pointer: Definition and use of pointer, address operator, pointer variable, referencing pointer, void pointers, pointer arithmetic, pointer, pointers constants, pointer and strings.

UNIT-4 - Structure and Union, Declaring and using Structure, Structure initialization, Structure within Structure, Operations on Structures, Array of Structure, Array within Structure, Creation user defined data type, Pointer to Structure and function. Union, difference between Union and Structure, Operations on Union, Scope of Union.

UNIT-5 - Dynamic memory allocation, Library function for dynamic memory allocation dynamic Multi - Dimensional arrays, Self - referential structure. File: Introduction, Structure, File handling, Functions file types, Unbuffered and buffered file, Error handling. Low level file Input-Output.

5.1 Introduction to C++: Concept of Object-Oriented Programming System. Characteristics of OOP Language, object, classed, advantages of OOPS over Procedural oriented program, C++ Programming Basics, C++ Programs.

SECOND SEMESTER

DCA	: GUI - Programming in Visual Basic.
DCA	: Data Base Management System [DBMS]
DCA	: Essential of E - Commerce.
DCA	: Practical based

GUI - PROGRAMMING IN VISUAL BASIC

1. **Designing and Creating Programs:**
Program Design: the launch program: the form and the controls: writing the code; save your work; running and testing; making an EXE file; printouts.

1.1 **Program FLOW:**
Logical testing: branching with if; Select case; GoTo; For-Next; Do loops; While-Wend.

2. **INTERACTING WITH USER :**
Msg boxes, the input box function, scroll bars, frames, options, check boxes, menus,

2.1 **GRAPHICS :**
Objects and properties for drawing, the drawing methods, working with imported graphics, animation.

3. **PROCEDURES, FUNCTIONS AND FORMS :**
Procedures and Functions, creating a procedure, creating a function, recursive functions, multiple forms, startup forms, starting from sub main., transferring between forms, procedures and modules.

3.1 **ARRAYS :**
Dimensions, elements and subscripts, arrays and loops, control arrays, crating a control arrays.

4. **SEQUENTIAL FILES :**
Saving data to files, basic filing, data analysis and file, the extended text editor.

4.1 **RECORDS AND RANDOM ACCESS FILES :**
Record structures, random access files, the staff database, design and coding, MDI Forms - parent and child.

5. ACCESSING DATA - DATA MANAGER AND DATA CONTROL Creating database, what is database, planning your database, using the data manager adding an index, using the data manager to enter data, Creating a form with data aware controls, what is data control, what are data aware controls, creating a menu bar.

1. **DATA BASE SYSTEM :**
Operational data, why database, data Independence, an Architecture for a Data base system, DDL & DML, Data Dictionary, Data structures and Corresponding Operators, Data models, The Relational Approach, The Network approach, DBMS storage structure and access method.

2. **ENTITY - RELATIONSHIP MODEL :**
Entity - Relationship model as a tool for conceptual design - entities attributes and relationships. ER diagrams; Strong and weak entities, Generalization; specialization and aggregation. Converting and ER model into relational Schema.

3. **RELATIONAL DATA STRUCTURE :**
Relations, domains and attributes, keys, extensions and Intentions, base tables, indexes. system R data Manipulation, built-in-functions, the system R dictionary.

4. **QUERY LANGUAGE :**
Embedded SQL, Introduction, Operations not involving cursors, Operations involving cursors, dynamic statements, security & integrity, security specification in SQL.

5. **RELATIONAL DATABASE DESIGN :**
Relational Algebra, Traditional Set Operations, Attributes Names for Derived Relations, special relational operations, further normalization, functional dependence. First, second and third normal forms, relations with more than one candidate key, Good and bad decompositions, fourth normal form, fifth normal form.

6. **INTRODUCTION TO ORACLE :**
Introduction to Commercial data base query language, SQL & its environment. SQL as a data definition language. creating tables, altering tables, inserting, deleting, updating, Retrieving data in a table, Join concepts (inner, outer, self, equi, non-equi), Nested Queries, Constraints concept, null, not null concept, Primary key, Foreign key, Unique key concept and Authorization concepts. Introduction to front end tool (ex. Developer 2000 and Visual Basic), Introduction to ODBC Concept, features of higher versions of ORACLE.

Essentials of E - Commerce

1. **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, 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.

2. **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 key encryption, digital signature, Case studies,. E - Commerce Payment Systems - E- Commerce Payment Models : Pure and Hybrid E-Commerce Payment Models; Credit Card; Debit Cards; Prepaid Card; Online debit to the accounts; and Alternative Payment Systems employing Electronic Clearing System of Reserve Bank of India. Case studies.

3. **Business - to - Business (B2B), Business-to-Consumer (B2C); Business-to-Business-to-Consumer (B2B2C) and Consumer- to - Consumer (C2C)**

E- Commerce- How e-Commerce business practices differ from traditional business practices; Inter organizational transaction; Business transaction cycle, different type of transactions in E-commerce environment; Electronic markets, advantages and disadvantages of E - Market, Future of E - Markets; Inter - Organizational E - Commerce. Business - to - Consumer E − Commerce Transactions; advantages and disadvantages of B2C E - Commerce transactions. Application of E - Commerce in India : Internet banking; Online Trading; E - Governance and E-Government etc. Case studies.

4.   **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 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 (Paragraphs) Lists ; ADDRESS; BLOCKQUOTE TABLE; DIV (HTML 3.2 & up); PRE (Preformatted); FORM; Text Emphasis Elements; Special Elements- Hypertext Anchors Character label 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.

5.   **Image, Internal and Extremal Linking Between Webpages** : 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, Practical IT Application Designing Web pages links with each other, Designing Frames in HTML, Practical examples.

6.   **Creating Business Websites With Dynamic Web Pages -**
        Concept of static web pages and dynamic web pages, Introduction to scripting, Types of Scripting languages, Scripting Files, Client Side Scripting with VB/ Jscript/ JavaScript, Practical examples of Client side scripting. Identifying Objects & Events, and Creating & Implementing Common Methods,. 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.