**5.** **Image, Internal and External 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 Alognment, Image as Htpertext 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.

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

## FIRST SEMESTER

PGDCA : Introduction to software organization.
PGDCA : Programming in "C" & C++
PGDCA : DBMS ( SQL / Oracle).

### INTRODUCTION TO SOFTWARE ORGANISATION

**1.** Introduction to Cumputers
Computers - Introduction, Computer System Characteristics, Strength and Limitations of Computer, Development of Computers, Types of Computers, Generations of Computers.
Introduction to Personnel Computers - Uses of PC's
Components of PC's, Evolution of PC's Developments of Processors,
Architecture of Pentium IV, Configuration of PC's Input Device; Output Devices.

2. Computer Organization
Central Processing Unit - Arithmetic Logic Unit, Control Unit, Registers, Instruction Set, Processor speed.
Storage Devices - Storage and its need, Storage Evaluation Units, Primary Storage, Secondary Storage, Data Storage and Retrieval Systems, SIMM, DIMM, Types of Storage Devices.

3. Computer Software
Basics of Software - needs of Software,Types of Software; Free Domain Software; Open Source Software; Compiler, Interpreter and Assembler;Linker and Loader; Debugger; Integrated Development Environment;

Operating System - Introduction, Uses of OS, Functions of OS, Booting process, Types of Reboot, Booting from different OS, Types of OS, DOS, Windows, Linux.

Programming Languages - Introduction, Comparison between Human and Computer Language; Program; Data; Information and Knowledge; Characteristics of Information; Types of Programming Languages; Generations of Languages; Program Develonment Steps; Programming Paradigms; Object- Oriented Programming; Structured Programming. Functional Programming, Process Oriented Programming.

4. Communication, Networks and Internet

Communication - Introduction, Communication process, Communication Types, Communication Protocols, commuication Channels / Media.

Networks - Introduction; Types of Network; Topology; Media - NIC, NOS, Bridges, HUB Routers, Gateways.

Internet - Introduction, Growth of Internet, Owner of Internet, Internet Service Provider, Anatomy of Internet, ARPANET and Internet History of World Wide Web, Services Available on Internet - File Transfer Protocol, Gopher, E-mail, Telnet, Newsgroups, WWW,

Archie, Whols, WAIS, Veronica, Internet Relay Chat, Basic Internet Terminologies,

Net Etiquette, Applications of Internet. Application of Computers and Information Technology.

5. Linux

Open source Software concept and evolution of Linux; Features of Multi-User Operating System; Structure of Linux 4OS; Security Features of Linux, File System, Directory Structure and related Commands. Linux Editors & editor commands,

Linux commands cd, md, rm, mv, cp, Is, cat, find, grep.

## PROGRAMMING IN 'C' & 'C++'

1. Introduction :

Introduction Character set, Identifiers and Key words, Variables, Displaying variables, Reading Variables, Character and Character String, Qualifiers,Type define Statements, Value initialized variables, Constants, Constant Qualifier, Operators and Expressions, Operator Precedence and Associativity, Basic input output; Single Character I/O. General Outputs, Types of Characters in format string, Scanf with spcifier, Searchset Arrangtements and Supressing Character, Format Specifier for scanf.

2. Control Structures & Functions -

Control Structure : If - Statement, If- else statement,Multiway decision, Compound Statement, Loops : For - loop, While- loop, Do- While loop, Brak statement, Switch statement, Continue statement, Go to statement.

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 Iteration and recursion variable length argument list.

3. Arrays & Pointes -

Scope and Extent, Arrays, Strings, Multidimensional Arrays, Strings, Array of Strings, Function in String, Pointers : Definition and use of pointer, address operator, pointer variable, referencing pointer, void pointers, pointer arithmetic, pointer to pointer, pointer and arrays, passing arrays to functions, pointer and functions, accessing array inside functions, pointers and two dimensional arrays, array of pointers, pointers constants, pointer and strings.

4. Structure and Union -

Declaring and using Structure, Structure initialization, Structure within Structure,Operation on Structures, Array of Structure, Array within Structure, Creating user defined data type, pointer to Structure and function. Union, difference between Union and Structure, Operations on Union, Scope of Union, Dynamic memory allocation -Library function for Dynamic memory

allocation, Dynamic Multi-Dimensional arrays; File : Introduction, Structure, File handling, Functions file types Unbuffered and buffered file Error handling; Low level file Input-Output.

5. Inroduction to C++ :
Concept of Object Oriented Programming System; Characteristics of OOP Language, object class, advantages of OOPS over procedural oriented program, online function,function overloading, creating class and object, constructor, destructor, operator overloading, friend function, Inheritance.

# DBMS (SQL/Oracle)

1. Introduction to DBMS : Purpose of database systems, views of data, Data Modeling, Database Languages, Transaction Management, Storage Management, Database Administrator and User, Database System Structure.

2. E-R Model :- Basic concepts, Constraints, Keys, Mapping Constraint, E-R Diagram, Weak and Strong Entity sets, E-R Database Schema, Reduction of an E-R Schema to table.

3. Relational Model : Structure to Relational Database, Relational Algebra, The Domain Relational Calculus, Extended Relational - Algebra Operation, Modification of database, Views.

4. Relational Database Design :- Pitfalls in Relational Database Design, Decomposition, Functional Dependencies, Normalization : 1NF,2NF, BCNF, 3NF, 4NF, 5NF,

5. Introduction :- Introduction to personnel and Enterprises Oracle, Data Types, Commercial Query Language, SQL, SQL*Plus.

   5.1 Introduction :-Introduction to personnel and Enterprises Oracle, Data Types, Commercial Query Language, SQL, SQL*PLUS.

   5.2 DDL and DML : Creating Table Specify Integrity Constraint, Modifying Existing Table, Dropping Table, Inserting, Deleting and Updating Rows in as Table, Where Clause, Operations, ORDER BY, GROUP Function, SQL Function, JOIN, Set Operation, SQL Sub Queries. Views : What is Views, Create, Drop and Retrieving data from views.

5.3 Security :- Management of Roles, Changing Password, Granting Roles & Provilege, with drawing pribileges.

5.4 PL - SQL/TSQL : Block Structure in PL- SQL / TSQL, Variable and constants, Running PL - SQL / TSQL in the SQL PLUS, Data base Access with PL - SQL / TSQL, Exception Handling, Record Data type in PL - SQL / TSQL, in PL - SQL/TSQL.

# PRACTICAL

NOTE :- Syllabus of Practical Exam - **"Office Automation"** is as follows, also the contents of DBMS (SQL/ Oracle) hould be included for practicals.

1. Windows 98/XP/2000

Windows Concepts, Features, Structure, Desktop, Taskbar, Start Menu, My Computer, Recycle Bin.

Accessories : Calculator, Notepad, Paint, Wordpad, CharacterMap.

Explorer : Creating folders and other Explorer facilities. Object Linking & Embedded/Linked Object.

Communication : Dialup Networking, Phone Dialer.

Installation of various devices and Operating system like Windows/ Linux.

2. Office S/W : Word Processing, Spreadsheet, Power Point & Outlook Express Word : Creating, Editing, & Previewing Document, Formatting, Advanced Features,Using Thesaurus, Mail Merge, Table Charts, Handling Graphics, Converting Word Docments into other Formats.

Excel : Worksheet Basics, Creating,Opening, & Moving in Worksheet, Working with Formula & Cell referencing, Absolute & Relative addressing, Working with Ranges, Formatting of Worksheet, Graphs & Charts, Database, Function, and Macros.

Power Point : Creating a presintation, Modifying visual Elements, Adding objects, Applying Transitions, animations and linking, Preparing handouts, presenting a slide show.

Outlook Express : Configuring mail -inbox, Outbox, Drafts,(To,Cc,Bcc); Understanding & maintaining address book/Contacts, POP, IAMP, Calendar/scheduler.

3. Foxpro : Preparing Database files, access & retrieval of records in a database file, inserting & deleting of records. Programming preliminaries, Sorting & Indexing. Development of programs LOOPING. Branching. report making.

4. Tally

Setting up Ledger & Groups. Study of recording of transactions in the 'Voucher '(According to Golden rules). Study of 'Final A/C preparation & displaying in dif ferent mode/format. Study of alteration & Deletion of ledger/Gorups. Study of Cash & fundflow, day book, sales register, purchase register, bills receivable/Payable etc. Study of data security & backing up data. Outline of entry for Income tax, ED, VAT, ST/ CST, PF, Gratuity, Bonus, Loans & Depreciation etc.

[Practical Exams to be conducted to test the proficiency of the candidate in each of the above syllabus - modules including the practicals based on DBMS ( SQL / Oracle)]

**POST GRADUATE DIPLOMA IN COMPUTER APPLICATION, 2010-2011**     [ DURATION - ONE YEAR - FULL TIME ]

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

Second Semester :

PGDCA : GUI - Programming in Visual Basic.

PGDCA : Programming in Java.

PGDCA        :       Practicals Based
PGDCA        :       Project

# GUI - PROGRAMMING IN VISUAL BASIC

1. **Introduction to visual Basic**
   Editions of Visual Basic, Event Driven
   Programming, Terminology, Working environment,
   project and executable files, Under standing modules, Using the code editor window, Other code navigation features,
   Code documentation and formatting, environment options, code formatting option, Automatic code completion features.

2. **Creation Programs**
   Introduction to objects, Controlling objects,
   Properties, methods and events, Working with forms, Interacting with the user : Msg Box function, input Box function,
   Code statements Managing forms, Creating
   a program in Visual Basic, Printing.

3. **Variable and Procedures**
   Overview of variables, Declaring, Scope, arrays,
   User-difined data types, constants working with procedures, Working with dates and times, Using the Format function, Manipulating text Strings.

4. **Controlling Program Execution :**
   Comparison and logical operators, if--- Then statements, Select Case Statements looping structures, Using Do---Loop structures, For---Next statement, Exiting a loop.

5. **Working with Controls**
   Types of controls, Overview of standard controls, Combo Box and List Box, Option Button and Frame controls Menu, Status bars, Toolbars, Advanced standard controls, Activex controls, Insertable objects, Validation.

6. **Error Trapping & Debugging**
   Overview of run - time errors, error handling process, The Err object, Errors and calling chain, Errors in an error-handling routine, Inline error handling, Error-handling styles, General error-trapping options Type of errors, Break mode Debug toolbar, Watch window. Immediate window. Local window, Tracing program flow with the Call Stack.

7. **Sequential and Random Files :**
   Saving data to file, basic filling, data analysis and file, the
   extended text editor, Random access file, The design and codeing.

8. **Data Access Using the ADO Data Control**
   Overview of ActiveX data Objects, Visual Basic data access features, Relational database concepts Using the ADO Data control to access data., Overview DAO, RDO, Data Control, structured query language (SQL), Manipulating data Using Data form Wizard.

9. **Report Generation :**
   Overview of Report, Data Report, Add groups, Data
   Environment, Connection to database Introduction to Crystal Report Generator.

10. **Advances Tools :**
    Overview of drag and drop, Mouse events, Drag-and drop basics, Date Time Control, Calendar, Print Dialog, MDI
    (Multiple Document Interface).

# Programming in JAVA
## Max marks - 100

**UNIT- I    Introduction :**

Genesis of java, importance to the    Internet, overview of features.

OOP : OOP features, data types,    control structures,    arrays, methods and classes, nested & inner classes,    string    and    String    Buffer class, Wrapper Class,    vecrors.

**UNIT- II    Inheritance :**

Basics type, method Override, using abstract    and    final classes, using super.

Packages and Interfaces :

Defined CLASSPATH, inporting packages,    implementing interface.

**UNIT- III    Excepetion Handling   :**

Fundamental : exception types, using try and    catch, throwing exceptions, define exceptions.

Multithreaded Programming :

Java spread model, creating threads, thread priorities, synchronization. Suspending resuming and stopping    threads.

**UNIT- IV    Input/Output   :**

Basic Streams, Byte and Character Stream, predefined streams, reading and    writing from console and files, Using standard java Packages    (lang, util, io) JDBC

Setting the JDBC connectivity with backend database.


**UNIT- V    APPLETS :**

Fundamentals, life cycle, Overriding update, HTML    APPLET tag. passing parameters.Developing    single applets.

Introduction to AWT :

Window fundamentals,creating windowed, programs working with graphics,    using AWT controls, menus. Delegation    event    model, handling mouse and keyboard events.


# Essentials of E - Commerce

1.    Introduction to Electronic Commerce -    The scope of E - Commerce; Size, growth and future    projection of E -Commerce market World wide    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,  EDI standards, financial EDI,    FEDI for international trade transaction, FEDI  payment    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; Secutity Measures; Authenbtication, Integrity, Privacy,, Non - Repudiation; Public information, Private information, firewall tunnels, encryption, secret key encryption, public key encryption, digital signature. Case studies.

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 (B2N2C) and Consumer-to- Consumer (C2C) E-Commerce - How E-Commerce business practices differ from traditional business practices; Inter organizational transaction; Business transaction cycle, different types of transactions in e-Commerce environment; Electronic markets, advantages and disadvantages of E-Market, Future of E-Markets; Inter-Organiational E- Commerce transactions; Advantages and Disadvantages of Inter-Organizational E-Commerce. Business-to-Commerce transactions, Application of E-Commerce in India; Internet banking; Online Trading; E-Governance and E-Government etc. Case Studies.

4. HTML Basics & Web 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 a 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 Back ground Color; Text; Link; Active Link (ALInk); Visited Lind (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 (Paragraph); Lists; ADDRESS BLOCKQUOTE; TABLE; DIV (HTML 3.2 and up); PRE (Preformatted); FORM, Text Emphasis Elements, Special Elements, Special Elements - Hypertext Anchors, Character-Level 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 External 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 Scripting. Identifying Objects & Events, and Creating & Implementing Common Methods,. Uploading / Downloading the website- FTP, Cute FTP. Web Site Promotion Search Engines, Banner Advertisements.

RECOMMEND BOOKS:-
1.      Business on the net - by kamlesh N. Agarawala, Amit Lal & Deeksha Agarawal         (Macmilan India Ltd.)
2.      Introduction to HTML by Kamlesh N. Agarwala, O.P. Vyas, Prateek A. Agarwala.         (Kitab Mahal Publications).
3.      ASP Developer's Guide - by Greg Buczek         (TATA McGraw Hill).