FACULTY OF ENGINEERING & TECHNOLOGY

SYLLABUS

FOR

POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS
(P.G.D.C.A.)

Examination: 2013

GURU NANAK DEV UNIVERSITY
AMRITSAR

ELIGIBILITY:

Any graduate under 10+2+3 system with atleast 45% marks in aggregate may be admitted to this course.

Scheme for PGDCA Course

Paper	*Paper Name*	*Theory*	*Practical*
Paper-I	PC Computing-I (MS Office) 2003	50	50
Paper-II	PC Computing-II (Professional DTP)	50	50
Paper-III	Introduction to Scripting Languages, Web Designing & Uses of Internet	50	50
Paper-IV	Database Management System through Oracle-10g & System Analysis & Design	50	50
Paper-V	Network Concepts and Management (Hardware, Software, setting in LINUX/UNIX/NT environment	50	50
Paper-VI	Programming in C	50	50
Paper-VII	Fundamentals of Computer & Operating Systems	50	50

Paper-VIII **Optional**

List of Optional Papers:

Option (i) : **Programming in Visual Basic with Active X**
Option (ii) : **e-Commerce / Business**
Option (iii) : **Multimedia System**
Option (iv) : **Installation and Maintenance of Computer System**

P.G. DIPLOMA IN COMPUTER APPLICATIONS

PAPER-I   **PC COMPUTING-I (MS Office) 2003**

Time : 3 Hrs.   **Max. Marks : 100**
                                                                   Theory : 50
                                                                   Practical :50

Instructions for Examiners
Eight questions are to be set. Candidates must be asked to attempt any
five. Each question carries equal marks.

The Students can use only Non Programmable & Non Storage type
calculator in the subject/Papers .

MS-Word: Introduction to Ms-Office, Ms-Access, Ms Excel. Parts of window of word (Title bar, menu bar, status bar, ruler) , Creation of new documents, opening document ,insert a document into another document. Page setup, margins, gutters, font properties, A!ignment, page breaks, header footer deleting ,moving, replace, editing text in document. Saving a document, spell checker, printing a document. Creating a table, entering and editing, Text in tables. Changing format of table, height width of row or column. Editing, deleting Rows, columns in table. Borders, shading, Templates, wizards, Drawing objects, mail merge

MS-Power Point: Introduction to Ms power point. Power point elements (templates wizard Views, color schemes ,Exploring power point menu (opening & closing menus, working With dialogues boxes), adding text, adding title, moving text area, resizing text Boxes, adding pictures. Starting a new slide, saving presentation, printing slides .Views (slide View slide sorter, notes view, outline view) .Formatting & enhancing text formatting, Choosing transitions. Creating a graph, displaying slide show, adding multimedia .Slide transitions. Timing slide display, adding movies & sounds. Using a pick look Wizards to change format.

MS-Excel: Introduction to Worksheet/Spreads, Features of excel. Describe the excel Window, different functions on different data in excel, creation of graphs, editing it and formatting, changing chart type to 2d chart or 3d chart, creation of worksheet, adding, deleting, moving the text in worksheet, linking different sheets, sorting the data, querying the data, filtering the data (auto and advance filters), What-if analysis, printing a worksheet.

MS-Access: Introduction, Understanding Databases. Creating the tables. entering records in table, deleting table, modifying table fields, linking tables, Queries. Forms, formatting forms, relating a form to tables, Reports(building reports, formatting report. displaying the information of table using reports Adding Graphs to your reports. .

References:
1. Pc computing By R.K .Taxali
2. Pc software By Rachpal Singh & Gurinder Singh

P.G. DIPLOMA IN COMPUTER APPLICATIONS

PAPER-II   **PC COMPUTING-II (Professional DTP)**

Time : 3 Hrs.   **Max. Marks : 100**
                                                     Theory : 50
                                                     Practical :50

Instructions for Examiners:

Eight questions are to be set. Candidates must be asked to attempt any five. Each question carries equal marks.

The Students can use only Non Programmable & Non Storage type calculator in the subject/Papers .

PhotoShop 5.5

1. Introduction to Graphics, Vector Graphics & Bitmaps
2. Understanding Image Size & resolution
3; Relation between resolution, File sizes & output
4. Using menu & Palettes.
5. Concept of Path (Segment, Anchor, Curved, Closed, Open, Subpath)
6. PhotoShop Tools (Pen, Pencil, Brush, History, Air, Eraser, Rubber stamp,Smudge, Dodge, Burn, Sponge), Masks & Histogram.
7. Acquiring &. Importing Images,
8.Concept of Lyres Channels & Path, Filters, Rendering Effects, Transformation, Strokes, Image Modes, Canvas & Images.
9. Using navigator & PhotoShop plugins.

Corel Draw-9
I. Concepts of vector graphics.
2. Color palate, Pasteboard, &. Print Page
3. Using ruler unit's etc...
4. Corel Tools (Pick, Shape, Knife, Eraser, Zoom, Freehand, Natural Pen, Dimensions, Ellipse, Polygon etc.).
5. Transformations, Trimming, Wielding, Intersection of Objects, Snapping, Using Object Manager.
6. Giving effects, (Envelope, Adding Perspective, Contours, Blending Image.)

PAPER-III   **INTRODUCTION TO SCRIPTING LANGUAGES**
WEB DESIGNING AND USE OF INTERNET

Time : 3 Hrs.   Max. Marks : 100
Theory : 50
Practical :50

Note : The paper setter is required to set eight questions in all and the candidates will be required to attempt any five questions out of these eight questions. All questions will carry equal marks.

The students can use non-programmable and non-storage type calculators.

HTML

Structure of HTML, Tags, Character Entities, Hyperlinks, Frames, Tables, Lists, Forms, Limitations of HTML.

30%

Front Page 2000

Features, Creating a Web Site using Wizard, One / Two / Three Column Body, Front Page Window, Various Toolbars of Front Page, Adding Clip Art, Thumbnails, resampling an Image, Beveling & Cropping an Image, Creating Bookmarks, Adding an E-mail Hyperlink, Tables, Marquee, Counter, banner, Hover Buttons, Creating a Web Page Using a Template, Themes, Forms.

30%

Internet & its Use

Types of Internet Connectivity, World Wide Web, E-mail, Telnet, Filer Transfer Protocol Archie, Discussion Groups, Gopher, Wide Area Information Services, IRC, Virtual Reality, Web Publishing, Web Hosting, Cyber Crime, Types of Cyber Crimes, Cookies, Virus, Trojan Horse, Worm, Danger of Virus.

40%

References :

1. Internet Applications and Web Designing by A.P.Publishers.

2. HTML, DHTML, JavaScript, Perl, CGI by BPB Publications.

3. Learning to Use Internet by BPB Publications.

**PAPER-IV   DATABASE MANAGEMENT SYSTEM THROUGH
                  ORACLE-10g & SYSTEM ANALYSIS & DESIGN**

Time : 3 Hrs.   **Max. Marks : 100**
                                                         Theory : 50
                                                      Practical : 50

Instructions for Examiners:

**Eight questions are to be set. Candidates must be asked to attempt any
five. Each question carries equal marks.**

**The Students can use only Non-Programmable & Non-Storage type
calculator in the Subject/Papers .**

Basic Concepts:

An overview of Database Management, (database, database system, why database, data
independence). An architecture for a database system (levels of the architecture, mapping, DBA),
Introduction to Relational database systems.

Relational Model:

Domain and relations, Relational data integrity, Relational algebra, Relational calculus and SQL
languages.

System Analysis and Design:

System development life cycle, System development tools.

ORACLE 10g:
SQI. *PLUS
        Introduction to Oracle 10g
        SQL- DOL, DML, DCL
        Join methods & Sub query, Union, Intersection, Minus, Tree Walking
        Built in Functions, Views, Security amongst users, Sequences, Indexing, Object
        Oriented Features of Oracle 10g
PL/SQL
        Introduction to PL/SQL
        Cursors- Implicit & Explicit
        Procedures, Functions & Packages
        Database Triggers

References :
Database Systems Concepts by Silberschatz, Korth & Sudarshan,
International Editions, Computer Science series-1997.
An Introduction of Database System by C.J. Date (Addison-Wesley Publishing co.)
SQL/PL/SQL. The Programming Language of Oracle by Ivan Bayross
(BPB Publications)

P.G. DIPLOMA IN COMPUTER APPLICATIONS

PAPER-V   NETWORK CONCEPTS AND MANAGEMENT
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Time : 3 Hrs.   **Max. Marks : 100**
Theory : 50
Practical :50

Instructions for Examiners:

Eight questions are to be set. Candidates must be asked to attempt any five. Each question carries equal marks.

The Students can use only Non-Programmable & Non-Storage type calculator in the Subject/Papers .

Introduction:

Network H/W and Software requirement~ Network topologies, OSI reference model, TCP/IP model.

Design Issues: ISDN, ATM, Routers,hub, switches.

Network security:

Data compression techniques, cryptography, IP addressing schemes.

NT administration:

Account policies, creating a user account, group membership, administration of share through server manager. Primary Domain controller, backup, domain controller.

Unix:

Unix features, unix system architecture, permission mode, pipes & filters, Commands: Cat, Is, In, chmod, mail, write, who, cal, pwd, date, Ps, mkdir, cd, mdir, rm, clear

Introduction to Linux:

Comparative study of NT server, Unix and Linux.

References:

1. Tannanbrum: Computer network, prentice Hall, 1992, 3rd

2. Robert Reinstein, et al: Windows NT trouble shooting and configuration, Techmedia

PAPER-VI   **PROGRAMMING IN C**

Time : 3 Hrs.   **Max. Marks : 100**
Theory : 50
Practical :50

Instructions for Examiners :

Eight questions are to be set. Candidates must be asked to attempt any five. Each question carries equal marks.

The Students can use only Non Programmable & Non Storage type calculator in the subject/Papers .

Fundamentals of C :

Introduction of C, Data Types, Operators, their precedence, expressions and their evaluation.

Input/Output Functions :
Formatted I/O, Character I/O & String I/O Functions.

Control Structures :
Taking decisions using if, if-else, switch constructs and Conditional Operator, Description of break and continue Statements. Performing loops using for, while, do-while Constructs.

Functions:
Library Functions vs User-Defined Functions, Declaring (Prototyping) and defining User-Defined functions, ways of passing parameters to functions, Recursive functions, Storage Classes.

Arrays & String:
What are Arrays?, Declaring arrays, initializing arrays, processing of arrays, passing arrays arguments to functions. What are Strings? How strings are handled in C? String functions, arrays of string.

Pointers:
What is a pointer variable? Declaring pointers, accessing values via pointers, pointer arithmetic, pointer to strings, passing arguments using pointers.

Structure and Unions.
Defining a structure type, declaring variables of structure type, initializing structures. Accessing Structure Elements, Use of assignment Statement for structures, array of structures, nested structures, Unions; Declaring a Union, Accessing elements of a type union.

Managing Data Files:
Processing a file, Standard Input/Output, System Level I/O, File updating

References:
1. Yashwant Kanetkar: Let us C, BPB Publications, New Delhi.
2. R.S.Salaria : Application Programming in C, Khanna Book Publishing Co.(P) Ltd., Delhi.

PAPER- VII   FUNDAMENTAL OF COMPUTER & OPERATING SYSTEMS

Time : 3 Hrs.   **Max. Marks : 100**
                                                                                                    Theory : 50
                                                                                                    Practical : 50

Instructions for Examiners:

**Eight questions are to be set. Candidates must be asked to attempt any
five. Each question carries equal marks.**

**The Students can use only Non-Programmable & Non-Storage type
calculator in the Subject/Papers .**

Fundamentals of Computer:

Introduction to computer, Applications of computer, Components of computers, Input-output devices (key boards, mouse, track ball, light pen, cards, printers, plotters, scanners), Secondary storage devices (floppy disk, magnetic disk, Winches er disk, optical disk) Types of software, Translators (compiler, interpreter, assembler), Introduction to data communication and network.

Introduction to Windows Vista :

Parts of window screen (Desktop, window, icons), start menu, Taskbar settings, application & document window, anatomy of a window (Title bar, minimize, maximize button, control box, scroll bars, scroll buttons, scroll boxes), Window explorer (expansion, collapsing of directory tree, copying, moving, deleting files, folder, creating folders), About desktop icons (recycle bin, my computer, network neighborhood, briefcase), folder, shortcut creation, setting of screen saver, color settings, wallpaper, changing window appearance.

Disk Operating System:

Meaning of operating system, its functions, batch systems, real systems, multi programming, multitasking, single, multi user systems. Define dos, Structure of Ms-Dos (description of booting files, steps to boot the system), hot & cold booting internal command (cls, dir, date, time, vol, ver, copy con, type, ren, del, md, rd, d, path, prompt), external commands edit, attrib, backup, restore, chkdsk, diskcopy, dskcomp, deltree, edit, format, fdisk, find, label, more, xcopy, move, print, scandisk, sort, sys, doskey, tree).

Introduction to Unix:

Explain the features of Unix system. Structure of Unix (Kernel, shell), Unix file system (data blocks, list, superblock, bootblock), Types of files (ordinary files, directory, special files), types of users (0-2), simple commands (cat, Is, In, chmod, mail, who, who am I, cal pwd, date, ps, mkdir, cd , rmdir, rm , tput, clear). Piping, filters, batch processing, shell programming
(Echo, read, case constructs). VI editor (opening it, inserting, modifying, deleting, saving files). Types of shells (bourne, c, r shell. Login & logout of unix session).

References:
  1. Pc software : By Rachpal Singh & Gurinder Singh
  2. Computer Fundamental : By Peter Norton

PAPER-VIII (Option-i) PROGRAMMING IN VISUAL BASIC & ACTIVE-X

Time : 3 Hrs.   **Max. Marks : 100**
                                                        Theory : 50
                                                        Practical :50

Instructions for Examiners:

Eight questions will be set and the candidate will have to attempt any five.

The students can use only Non Programmable & Non Storage type calculator in the subject/papers.

Introduction to VB Environment

VB Applications

Controls Menus, Tool Bar and Dialogue Boxes

Testing and Debugging

Working with Files

Data Access Objects (DAO)

Remote Data Objects (RDO)

Active X Data Objects (ADO)

Data Reports

OLE -Control & Automation Server

Active X -CONTROLS,EXE,DLL, Document, Wizards

Minor Project

PAPER-VIII (Option-ii)   E-COMMERCE / BUSINESS

Time : 3 Hrs.   **Max. Marks : 100**
                                                                              Theory : 50
                                                                              Practical :50

Instructions for Examiners:

Eight questions are to be set. Candidates must be asked to attempt any five. Each question carries equal marks.

The students can use only Non Programmable & Non Storage type calculator in the subject/papers.

E-Commerce :

Its definition, aims, processes, tools and results, EDI, VANs and Internet as Promoters. Types of E-Commerce, Commerce-net

Steps to Start E-Commerce.

H/W & S/W Requirements, Steps involved in opening your own online business.

EDI

EDI vs Traditional Systems, EDI enabled procurement process, components of EDI system, EDI implementation issues.

Concerns for E-Commerce Growth :

Basic challenges to E-Commerce. Technological, Legal and regulators heads, Internet bandwidth & Technological issues.
NII : Technical issues Standards & services GIL. Issues that confront us in relation to securing electronic transactions. Implementation of digital signatures. Authentication
Mechanisms.Electronic cash, its elements, legal issues, risks, paper document versus Electronic document
Laws for E-Commerce legal issues for internet commerce

Re-Engineering for Changer :
Business process re-engineering BPR, methodology, Planning Methods for change to EC/EDI.

Case Studies : To demonstrate usefulness of E-Commerce in various business areas
Banks, Reservations, E-Governance, Supply-chain, management, manufacturing, retailing and online publishing

E-Commerce in India
EDI service providers in India, EDI projects in the government regulatory agencies. The Internet in India, laws for E-Commerce in India.

REFERENCES: E-Commerce -The Cutting Edge of Business
                    -Kamlesh K. Bajaj
                    -Debjani Nag

PAPER-VIII (Option-iii)   MULTIMEDIA SYSTEM

Time : 3 Hrs.   **Max. Marks : 100**
Theory : 50
Practical :50

Instructions for Examiners:

Eight questions are to be set. Candidates must be asked to attempt any five. Each question carries equal marks.

The students can use only Non Programmable & Non Storage type calculator in the subject/papers.

Introduction

Different Media : Audio , Video , Text , Data

Integration of Different media

Components of Multimedia system.

Hardware requirements of Multimedia system.

Creation of Multimedia system.

Multimedia Databases.

Multimedia over the Network(s).

PAPER-VIII (Option-iv) Installation and Maintenance of Computer Systems

Time 3: Hrs.   **M.M: 100**
                                                                                 Theory: 50
                                                                                 Practical:50

Instructions for Examiners:

Eight questions are to be set. Candidates must be asked to attempt any five. Each question carries equal marks.

The students can use only Non Programmable & Non Storage type calculator in the subject/papers.

Site Preparation

Design of computer room, specification for flooring materials, falls roofing, disk tape library room, air-conditioning requirements and its maintenance. Temperature and humidity factor, need for dust proofing, different types of air conditioners and their applications, Design of computer room, power requirement of computer room, Need of stabilizer, CVT, UPS, simple principle of UPS and its advantages over normal power supply, earthing and its advantages; distribution board, fire detection and prevention for computer room.

Installation

layout planning of computer system, knowledge of installation procedure and manuals, cracking of off-line equipment, act all testing of computer system, using manufacture specified procedure, training the operator for small systems like PC. Installation of various kinds of printers. Installation of hubs and switches. Installation of network cable, fiber optic and UTP cabling.

Maintenance

Types of maintenance, preventive and corrective maintenance, site audit, importance of preventive maintenance, Use of diagnostic software like PC tools, QA++. Norton Commander, Macacffe, Smartdog, Typical symptoms of common hardware and software fault and understand the error, messages, some aid to chip level fault detection and its rectification, failure of equipment, knowledge of local parts substitution, Maintenance of printers.

Practicals

Prepare a project report for installation of PC. It must include need analysis for selecting a computer, steps taken during site preparation, installation report and preparation of maintenance history for the PC installed. The report will be evaluated by an external examiner and internal examiner and viva-voce will be conducted accordingly.

Recommended Books :

1. Manuals for UPS
2. Manuals for Air-conditioners