DIBRUGARH UNIVERSITY

SYLLABUS OF

POST GRADUATE DIPLOMA IN COMPUTER APPLICATION

(PGDCA)

PGDCA – 01: BASIC INFORMATION TECHNOLOGY

Max Marks: 100
(Theory - 60 Practical - 40)

Information: Concepts and Processing

Data concepts, Elements of electronic data processing, Special applications, Number system in computers, Elements of a computer system, Classification computer systems, Concepts of hardware, Concepts of software and types, Concepts of storage devices and data communication equipment.

Operation Systems (OS) Concepts, Overview of MS DOS, Windows, UNIX

Programming Languages classification, Generation

Information Technology applications

System Definition and Concepts: System Planning and Analysis, SDLC, DFD, DSS.

Data and fact gathering techniques, Feasibility study.

Use of PC Software:

1. Word Processing using MS Word
2. Spreadsheet using MS Excel
3. Power Point

Practical:

DOS, Windows, Linux, Office tools.

MAIN BOOKS:

1. V. Rajaraman , Fundamentals of Computers , Prentice Hall of India -4th Edition 2006
2. Thareja, Computer fundamentals and Programming in C, Oxford Publications 2012

SUPLEMENTARY BOOKS:

1. TAXALI, PC Software made simple, TATA McGraw Hill
2. Elias M. Awad, System Analysis and Design, Golgotia Publications Pvt. Ltd

PGDCA-02 : PROGRAMMING WITH C

Max Marks: 100
(Theory – 60 , Practical - 40)

Fundamentals of C Language: Representation of integers, reals, characters, constants and variables, arithmetic expressions and their evaluation using rules of hierarchy. Assignment statements, Logical constants, variables and expressions, Simple I/O statements, Documentation.

Control Statements and Loop Control Structures: if-else statement, Nested if-else statement, switch statement, Loop Control Statements, for loop, while loop, do-while loop, goto statement, break statement, continue statement, exit() function.

Array, Subscripted Variables and String Manipulation: Arrays –Definition, Initialization, characteristics, One, Two, Three and Multidimensional Arrays, Working with Strings and Standard String Functions.

Functions: Declaration, Prototype, Calling a Function, Actual and Formal Arguments, Rules to Call a Function, Recursive Function, Scope of Variables, Storage Classes.

Practical:

Implementation In C Language.

MAIN BOOKS:

1. Brian W. Kernighan, Dennis M. Ritchie: The C Programming Language , PHI, 2nd edition (1990).

2. Dr. E Balagurusamy, Programming in ANSI C, McGraw Hill Education (India), 6th Edition, 2012

SUPPLEMENTRY BOOKS:

1. T Jeyapoovan: Programming with C, Vikas Publication,Reprint-2006.

2. David Griffiths :Head First C , Shroff/O'Reilly; First edition- 2012.

PGDCA – 03: INTERNET TECHNOLOGY

Max Marks: 100

(Theory - 60 Practical - 40)

Internet Basics: Evolution, protocols-TCP/IP suite, Internet vs Intranet, ISP, connectivity types – dial-up, DSL, leased line, VSAT. IP Address, domain names, client/server architecture and its characteristics.

Internet Applications: Email- Email protocols, Structure of an Email – Email Address, Email Header, To, CC & BCC fileds, Body and Attachments, Email Clients such as Outlook Express, File Transfer Protocol-Usage,FTP Client and FTP Server, Anonymous FTP, Common FTP Commands, TELNET-Usage, Telnet Clients, Telnet commands, Limitations of Telnet, Internet Chat: Types- IRC, Instant Messaging. Various Chatting Applications

World Wide Web: Definition, History of WWW, Difference between Internet and WWW, HTTP, Concepts of Webpage, Website, Web Server ,Web browser and URL, Common features of Web Browser, Example of Web Browsers and Web Servers, Search Engines, Social Networking Sites

Web Designing and programming : HTML, Various HTML Tags, Hyperlink, Tables, Lists, Forms, Web Designing tools - Client-Side vs Server-Side scripts, Introduction to Javascript, Uses of Javascript.Basic Syntax, Basic Programming Constructs- Operators, Branches and loops, functions, Event-handlers,Writing Javascript inside HTML page, Form validation using javascript

PHP: Uses of PHP, Basic Syntax-variables, operators, branches and loops, arrays. Connecting to MySQL database, Selecting database and inserting data into tables.

E Commerce: Introduction, Categories of E-Commerce(B2B, B2C etc), Benefits of E-Commerce, Limitations of E-Commerce, Common applications- Shopping Cart, Online Banking, e-ticketing, Supply Chain etc.

Practical:

HTML, JavaScript, PHP.

MAIN BOOKS:

1. V.K. Jain, O Level Module - M 1.2 - Internet & Web Page Designing, BPB Publication
2. Alexix Leon and Mathews Leon, Internet for Everyone, Vikas Publishing House Pvt. Ltd. New Delhi

SUPLEMENTARY BOOKS:

1. Ivan Bayross, Using Linux Apache MySQL PHP PERL on Linux, BPB Publications

PGDCA – 04: RELATIONAL DATABASE MANAGEMENT SYSTEM

Max Marks: 100
(Theory – 60, Practical - 40)

Data-Base concept: Database, DBMS, Concept of Schema, View, RDBMS, Concept of Keys(Super, Candidate, Primary, Foreign), Normalization (1NF, 2-NF, 3-NF), Operators of Relational Algebra (Select , Project , Union , Intersection , Set Difference, Cartesian Product, Join operations).

Introduction & features: SQL plus, manipulation in DBMS, Oracle data types , Table

Data Constraints: Computation in Expression list used to select data: Logical operators, range searching, pattern matching, Oracle functions, grouping data frame tables in SQL, manipulating data in SQL.

Joins: Index views: creation, updation, destroying, selections of data, renaming column of a view, granting permission, permission on the objects created by user, GRANT statements, Object privileges, referencing a tables belonging to another user, revoking permission given.

PL/SQL: Basics of PL/SQL

Introductory Concept of Visual Basic.

Practical:

SQL, Implementation in ORACLE with Visual Basic

MAIN BOOKS:

1. Elmasri/ Navathe: Fundamentals of Database Systems, 4th edition, Addision Wesley(2008)
2. G K Gupta: Database Management System, 2nd edition , McGraw Hill(2012)

SUPLEMENTARY BOOKS:

1. Ivan Byross: Oracle developer 2000, BPB Publication

PGDCA-05: COMPUTER GRAPHICS AND MULTIMEDIA

Max Marks: 100
(Theory - 60 Practical - 40)

Graphics Overview: Applications of Computer Graphics, Graphic Devices: Basics of 2-D and 3-D graphics.

Introduction to Multimedia :What is multimedia, Components of multimedia, Web and Internet multimedia applications, Transition from conventional media to digital media.

Computer Fonts and Hypertext:Usage of text in Multimedia, Families and faces of fonts, outline fonts, bitmap fonts International character sets and hypertext, Digital fonts techniques.

Audio fundamentals and representations :Digitalization of sound, frequency and bandwidth, decibel system, data rate, audio file format, Sound synthesis, MIDI, wavetable, Compression and transmission of audio on Internet, Adding sound to your multimedia project, Audio S/W and H/W.

Image Fundamentals and representations :Colour Science, Colour, Colour Models, Colour Patterns, Dithering, 2D Graphics, Image Compression and File Formats: GIF, JPEG, JPEG 2000, PNG, TIFT, EXIF, PS, PDF, Basic Image Processing [Can use Photoshop], use of image editing software, White balance correction, Dynamic rnge correction, Gamma correction, Photo Retouching.

Video and Animation: Video Basics, How Video Works, Broadcast Video Standards, Analog Video, Digital Video, Video recording and Tape Formats, Shooting and Editing Video (Use Adobe Premier for editing), Video Compression and File Formats, Video Compression Based on motion compensation, MPEG-1, MPEG-2, MPEG-4, MPEG-7, MPEG-21, Animation: Cell Animation, Computer Animation, Morphing.

Practical:

Photoshop, Audio and Video Editing software , Flash

MAIN BOOKS:

1. Newman W. Sproule, R.F. ,Principles of Interactive Computer Graphics : Mcgraw Hill
2. Ranjan Parekh, Principles of Multimedia (English) 1st Edition. Tata McGraw-Hill

SUPLEMENTARY BOOKS:

1. Tay Vaughan, "Multimedia making it work", Tata McGraw-Hill, 2008.
2. Rajneesh Aggarwal & B. B Tiwari, " Multimedia Systems", Excel Publication, New Delhi, 2007.