OPJS UNIVERSITY, CHURU
SCHEME OF
POST GRADUATION DIPLOMA IN COMPUTER APPLICATION
(PGDCA) - 2013-14

PGDCA is one year Post graduation diploma program giving due emphasis on classroom teaching as well as IT sector Computer / Service industry training and projects so that it results in a Job-oriented under-graduate degree program. Each student will be required to undergo on IT sector / Service industrial trainings, at after appearing in the first semester examination as a part of program. The list of Semester-wise papers to be covered is as given below:

PGDCA FIRST YEAR

1st Semester

Course Code	Course Title
PDCA-101	Computer Fundamentals
PDCA-102	Programing in C++
PDCA-103	Computer Operating System
PDCA-104	Relational Database Management System
PDCA-105	Communication and Soft Skills
PDCA-101P	Computer Fundamental Lab
PDCA-102P	Programmming in C++ Lab
PDCA-104P	RDBMS Lab

2nd Semester

Course Code	Course Title
PDCA-109	Programming in JAVA 4
PDCA-110	Web Technologies
PDCA-111	Software Engineering
PDCA-112	Data Communication and Networks
PDCA-109P	JAVA LAB
PDCA-110P	Web Technology

Each student will be required to undergo 8 week's Project Training after completing first semester of the program. The report submitted by the student on this Project Training will be evaluated within 2 months after the starting of second semester along with a viva voce examination on the report by a panel of one internal and one external examiner appointed by the University and the awards will be included in the University Examination result of PGDCA programme.

PROGRAM ADMINISTRATION:

(i) The candidate seeking admission for the PGDCA shall be required to pass Gradation examination of any recognized University in any discipline with a minimum of 48% marks in aggregate (Relaxation of 5% to reserve category candidates). Candidates who have appeared or are appearing in the final year of qualifying examination may apply for admission at their own risk subject to passing the qualifying examination with minimum percentage marks prescribed by the date and time to be notified by the university, failing which their candidature shall be cancelled without notice.

The admission to the PGDCA programme shall be made through Merit/Common Entrance Test conducted by the University or through other mode as may be declared by the University from time to time.

(ii) Each paper will carry 100 marks, of which 30 marks shall be for internal assessment and the remaining 70 marks will be for the written examination and/or viva-voce examination conducted by the University. The duration of written examination for each paper shall be of three hours. The examination scheme for each paper is given in the detailed syllabus of the paper. In some specific cases, the ratio of internal assessment and external examination may vary from 30:70, as specified in the detailed syllabus.

(iii) The internal assessment marks shall be based on factors such as:

a) Class test, cumulative test, quizzes, individual and/or group presentation.
b) Class room participation, attendance, participation in seminars, case discussions and group activities.
c) Submission of written assignments, term papers, projects etc.

The weightage given to each of these factors shall be decided and announced at the beginning of the year by individual faculty member responsible for the teaching of the paper.

(iv) The institute shall keep in custody all the records on the basis of which internal assessment marks are

a. Awarded at least for one year and these records shall be made available to any inspection team constituted by the University for the purpose.
b. The span period of the program shall be seven years from the date of registration in the program. Students will be allowed to undertake a maximum of four attempts including the main examination to pass any particular paper.
c. A student will be declared pass in any individual paper if he/she secures 40% or more marks in internal assessment and external examination both individually. If the student gets less than 40% marks in either internal assessment and/or external examination, he/she will be declared fail in the subject. But to pass any particular semester, the student will be required to get a minimum of 50% marks in the aggregate of all the papers of that semester.
d. To be eligible for promotion to the second semester of the program, a student must pass successfully all papers offered in the first semester of the program. If a student fails in more than 03 papers in the first semester examination, he will not be promoted to the second semester and will be first required to bring down the number of failing papers to three or less than three for promotion to second semester. With failure in three or less number of papers, the aggregate of 4 papers should not be less than 50% of the total marks allotted to these papers for promotion to second semester.

(i) A candidate who has secured minimum marks to pass in each paper but has not secured the minimum marks required to pass in aggregate for the semester concerned may take re-examination up to a maximum of four papers to obtain the aggregate required to pass that particular semester.

(ii) As regard the ex-students, they will be allowed to re-appear in paper in the yearly examination subject to total number of attempts for a paper not exceeding four during the span period of the program.

(iii) Any time a student appears in the University examination of any paper, his/her internal assessment marks secured by the candidate first time should be considered in case of reappearance. He/she should not be required to appear in internal assessment again.
(iv) The degree shall be awarded to successful students on the basis of the combined results of both semester examinations, provided he/she has cleared all the papers with the required aggregate marks of 50% or more in each of the semester separately. The division will be awarded on the basis of the percentage of marks obtained in all the semester taken together as follows:

- Securing 60% and above : First Division.
- All others : Second Division.

(i) A student to be eligible for award of degree has to pass all the papers offered during three- year program within the span period of Three years.
(ii) No candidate shall be considered to have pursued a regular course of study unless he/she is certified by the head of the institution to have attended the 75% of the total number of classes conducted for each paper during his/her course of study. Any student not complying with this requirement will not be allowed to appear in the ensuing university examination. Shortage of attendance may however be condoned by the competent authority as provided in the university rules to the extent as provided in these rules.
(iii) A candidate may be allowed grace marks in up to a maximum of three papers up to the extent of 1% of the total marks prescribed for that examination.

Examination

The examination shall consist of internal assessment and the annual examination conducted by the university. The faculty member will award marks out of a maximum of 30 marks for the internal performance of the student. The written examination, conducted by the university, will be worth 70 marks. It will have three Sections; A, B and C. Section A, worth 10 marks, will consist of ten objective/multiple choice or short answer questions, two from each unit. Section B will consist of 5 questions of 15 marks each, one from each unit; out of which student will be required to attempt any three questions. Section C, worth 15 marks will have explanatory and will be compulsory have choice out of two one.

The marks scheme shall be separated for particular if required and that shall be mentioned in particular paper scheme.

PDCA-101 Computer Fundamentals

Unit 1

Computer Fundamentals: Block structure of a computer, characteristics of computers, problem solving with computers, generations of computers, and classification of computers on the basis of capacity, purpose, and generation. Number System: binary, decimal, hexadecimal, and octal systems, conversion from one system to the other, representation of characters, integers and fractions. Binary Arithmetic: Addition, subtraction and multiplication.

Unit 2

Output Units: Keyboard, Mo use, Monitor (CRT and LCD): Light pen, joystick, Mouse, Touch screen, OCR, OMR, MICR Memory Types: Magnetic core, RAM, ROM, Secondary, Cache, Bubble Memory, Floppy disk, hard disk, compact disk, tapes. Memory Input and Printers: Impact, nonimpact, working mechanism of Drum printer, Dot Matrix printer, Inkjet printer and Laser printer.

Computer languages: Machine language, assembly language, higher level language, 4GL. Introduction to Compiler, Interpreter, Assembler, Assembling, System Software, Application Software.

Unit 3

Operating system: Batch, multi-programming, time sharing, network operating system, on-line and real time operating system, Distributed operating system, multi-processor, Multi-tasking. Personal Productivity Software: Word processing: Editing features, formatting features, saving, printing, table handling, page settings, spell-checking, macros, mail-merge, and equation editors.

Unit 4

Spreadsheet : Workbook, worksheets, data types, operators, cell formats, freeze panes, editing features, formatting features, creating formulas, using formulas, cell references. Presentation Graphics Software: Templates, views, formatting slide, slides with graphs, animation, using special features, presenting slide shows.

Unit 5

Computer Network and Communication: Network types, network topologies, network communication devices, physical communication media. Internet and its Applications: E-mail, TELNET, FTP, World Wide Web, Internet chatting, Intranet, Extranet, Gopher, Mosaic, WAIS. Security management tools: PC tools, Norton Utilities, Virus, worms, threats, virus detection, prevention and cure utilities, Firewalls, Proxy servers.

Suggested Readings/ Books:

1. Rajaraman, Fundamentals of Computers, Fourth edition, Prentice Hall India Pvt. Limited,
   2006.
2. Computer Fundamental, P.K Sinha, 4th Edition, BPB PUBLICATION 2007.
3. Fundamentals of Information Technology, Chetan Srivastva, Third edition, Kalayani Publishers, 2008.
4. Computers, Larry long & Nancy long, 12th edition, Prentice Hall, 2005.

PDCA-102 Programming in C++

Unit 1

Fundamentals of C: I/O statements, Assignment Statements, Constants, Variables, Operators and Expressions, Standards and Formatted statements, Keywords, Data Types and Identifiers. Control Structures: Introduction, Decision making with if – statement, if-else and Nested if, while and do-while, for loop. Jump statements: break, continue, goto, switch Statement

Unit 2

Structure and Union: Declaration of structure, Accessing structure members, Structure Initialization Overview of OOP: Classes & Functions, Scope Resolution Operator, Private and Public Member Functions, Nesting of Member Functions. Creating Objects, Accessing class data members,

Unit 3

Accessing member functions Arrays: Introduction to Arrays, Array Declaration, Single and Multidimensional Array, Memory Representation, Matrices, Strings, String handling functions.

Unit 4

Inheritance - Extending Classes Concept of inheritance, Base class, Derived class, Defining derived classes. Types of Inheritance Polymorphism: Definition, early Binding, Polymorphism with pointers, Virtual Functions, late binding, pure virtual functions.

Unit 5

Pointers: Introduction to Pointers, Address operator and pointers, Declaring and Initializing pointers, Assignment through pointers. File Management in C++: Defining & opening a file, closing a file, I/O operations on file, error handling during I/O operations, Random Access Files.

Suggested Readings/ Books:

1. Balagurusamy, "Programming in C", 5th Edition, Tata McGraw-Hill Education, 2007
2. Yashavant Kanetkar, "Let us C", 10th Edition, BPB publication, 2010
3. Balagurusamy, "Object Oriented Programming with C++", 3rd Edition, Tata McGraw-Hill Education, 2006
4. R. S. Salaria, Mastering Object-Oriented Programming with C++, Salaria Publishing House, 2011.
5. Lafore R, "Object Oriented Programming in C++", 4th Edition Waite Group, 2002.

PDCA-103 Operating System

Unit 1

Introduction: - Machine Hardware (Traps and Interrupts, Multimode Execution), Operating System Structure (Operating System Types, Operating System Kernel, the Boot Process). Process Management: - Process Scheduling, Process State, Scheduling Criteria, Scheduling Algorithms (First-Come First-Served, Shortest Job First, Shortest Remaining Time, Round Robin, Priority, Multilevel feedback Queues)

Unit 2

Interprocess Communication and Synchronization: - Interposes Communication, Process Synchronization (Critical Section, Interrupt Disabling, Test and Set Instruction, Write a Program Instruction, Wait and Signal, Semaphores) Deadlock (Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock).

Unit 3

Memory Management: - Single Absolute Partition, Single Relocatable Partition, Multiprogramming, and Multiple Partitions (Multiple Fixed Partitions, Multiple Variable Partitions (Partition Selection Algorithms), Paging, Segmentation, Segmentation with Paging, Page and Segment Tables (Associative Memory, Inverted Page Table. (12)

Unit 4

Virtual memory: - Demand Paging (Locality of Reference, Page Locking, Page Size, Page Replacement Algorithms, Algorithm Performance, Allocation Policies, Working Set),

File System Management: - Directories and Names (Partitions, Per-Process Root Directory, Directory Structure, Directory Entries), Types of File System Objects, File System Functions, Information Types, File System Architecture (Access Methods, Access Control, File Locking, Blocking, Allocation, Free Space). (12)

Unit 5

Device Management: - Hardware I/O Organization (I/O Control, Port and Memory-Mapped I/O,

Module Registers, Busy Wait I/O, Polled I/O, Interrupt I/O, Direct Memory Access (DMA)), Software Organization (Network I/O, Logical I/O, Buffering, Caching, Device Drivers), Devices (Graphics, Text-Based Displays, Storage Disks, Hard-Disk Performance, Hard-Disk Scheduling, Formatting, Raid, RAM Disks). SECURITY: - Authentication (Passwords, Physical Authentication), Prevention, Detection, Correction, Identification, Threat Categories, Program Threats.

Suggested Readings/ Books:

1. William Stalling, "Operating System Internals and Design Principle", edition 6th, Pearson Education India, 2009.
2. Peter bears Galvin, "Operating System Principle", Edition 7th, Wiley India,2009
3. J.Harris,"Operating System SCHAUM'S OUTLINE", Special Indian edition, Tata McGraw Hill. 2008
4. Pramod Chandra," An Introduction to Operating System", Edition 3rd, PH, 2010.

PDCA-104-RDBMS

Unit 1

An Overview of DBMS and DB Systems Architecture : Introduction to Database Management systems, Data Models, Database System Architecture, Relational Database Management systems, Candidate Key and Primary Key in a Relation, Foreign Keys, Relational Operators, Set Operations on Relations, Attribute domains and their Implementation.

Unit 2

The Normalization Process : Introduction, first Normal Form, Partial Dependencies, Second Normal Form, data Anomalies in 2NF Relations, Transitive Dependencies, Third Normal Form.

The Entity Relationship Model: The Entity Relationship Model, Entities and Attributes, Relationships, One-One Relationships, Many-to-one Relationships, Normalizing the Model,

Unit 3

Table instance charts. Interactive SQL : SQL commands , Data Definition Language Commands, Data Manipulation Language Commands, insertion of data into the tables, Viewing of data into the tables, Deletion operations, updating the contents of the table, modifying the structure of the table, renaming table, destroying tables, Data Constraints, Type of Data Constraint, Column Level Constraint, Table Level Constraint.

Unit 3

Viewing the Data: Computations on Table Data, Arithmetic Operators, Logical Operators, Comparison Operators, Range Searching, Pattern Searching, ORACLE FUNCTIONS, Number Functions, Group Functions, Scalar Functions, Data Conversion Functions, Manipulating Dates in SQl , Character Functions, Sub queries and Joins : Joins, Equi Joins, Non Equi Joins, Self Joins, Outer Joins, Sub Queries, Correlated Queries, Using Set Operators:- Union , Intersect, Minus. (10)

Unit 4

Views and Indexes: Definition and Advantages Views, Creating and Altering Views, Using Views, Indexed Views, Partitioned views, Definition and Advantages of Indexes, Composite Index and Unique Indexes, Accessing Data With and without Indexes, Creating Indexes and Statistics.

Unit 5

Introduction to PL/SQL : Advantage of PL/SQL, The Generic PL/SQL Block, The Declaration Section, The Begin Section, The End Section, The Character set, Literals, PL/SQL Data types, Variables, Constants, Logical Comparison, Conditional Control in PL/SQL, Iterative Control.

Suggested Readings/ Books:

1. 1 .Ramez Elmasri, "Fundamentals of Database Systems", Edition 5th, Pearson Education India, 2009
2. JD Ullman,Garcia-Molina, "Database System: The Complete Book", Edition 4th, Pearson Education India,2009
3. S.K Singh, "Database Systems: Concepts, Design and Applications", Edition 2nd, Pearson Education India 2008
4. C.J Date, "An Introduction to Database System", Edition 8th, Pearson Education India. 2009
5. Ivan Bayross,"Database Concepts & Systems for Students", Edition 3rd, Shroff Publishers & Distributors Pvt Limited, 2009.

PDCA-105-Communication Skills

Unit 1

Basics of Technical Communication- Functions of Communication-Internal & External Functions, Models-Shannon & Weaver's model of communication, Flow, Networks and Importance, Barriers to Communication, Essential of effective communication (7 C's and Other principles), Non-verbal Communication.

Unit 2

Basic Technical Writing: Paragraph writing (descriptive, Imaginative etc.), precise writing, Reading and comprehension, Letters – Format & various types

Unit 3

Verbal Communication- Presentation Techniques, Interviews, Group Discussions, Extempore, Meetings and Conferences

Unit 4

Technical Communication-Dissertation and Thesis, Technical Reports, Instruction Manuals and

Technical Descriptions, Creating Indexes.

Suggested Readings/ Books:

1. Loveleen Kaur, "Communication Skills", Satya Pratashan Publication, Edition 2008.
2. M Aihraj Rizvi," Effective Technical Communication", Tata McGraw hill, Edition 2005.
3. Varinder Kumar Bodhraj, "Business Communication", Kalyani Publishers", Edition 2011.
4. S.P. Dhanavel, "English and Communication Skills for Students of Science and Engineering" (with audio CD.) Orient BlackSwan Publication, 2009

(PDCA-101P) Computer Fundamentals Lab

1) [MS-WORD] Creating, opening, closing, saving and editing a word Document.
2) [MS-WORD] Insert header and footer in the document.
3) [MS-WORD] Create a link between two files using Hyperlink.
4) [MS-WORD] Create a mail-merge and add data of 5 recipients.
5) [MS-WORD] Protect a document.
6) [MS-WORD] Implement macro.
7) [MS-POWERPOINT] Create duplicate slides in PowerPoint. Give an example.
8) [MS-POWERPOINT] Make a master slide.
9) [MS-POWERPOINT] Design a chart of population.
10) [MS-POWERPOINT] Insert Animation.
11) [MS-POWERPOINT] Insert a background in PowerPoint.
12) [MS-EXCEL] How you can filter your data.
13) [MS-EXCEL] Sort data in ascending and descending order.
14) [MS-EXCEL] To show the use of goal seek
15) [MS-EXCEL] To show the use of scenarios.
16) [MS-EXCEL] Perform any 5 Date and Time functions.
17) [MS-EXCEL] Perform any 5 Math & Trig functions.
18) [MS-ACESS] With the help of Wizard create table having 5 elements.
19) [MS- ACESS] Create a query in design view.
20) [MS- ACESS] Make an admission form using design view in MS-Access.
21) [MS- ACESS] Create a relationship b/w two tables.

(PDCA-102P) C++ LAB

[CONTROL STRUTURES]

1) Write a Program to show days of week by using Switch statement.
2) Write a Program to print a table using for loop.
3) Write a Program to count even and odd numbers
4) Write a Program to find number is Palindrome.
5) Write a Program to find division of students by using nested-if.

[ARRAY]

6) Write a Program to print marks, total and average of students using array.
7) Write a Program to print a matrix in 2D array.
8) Write a Program to sort the elements in ascending order.

[FUNCTIONS]

9) Write a Program to show the use of friend function.
10) Write a Program to show the use of copy constructor.
11) Write a Program to show the use of function overloading.
12) Write a Program to show the use of virtual function.
13) Write a Program of Recursive function.

[INHERITANCE]

14) Write a Program to implement the concept of Single inheritance.
15) Write a Program to implement the concept of multilevel inheritance.
16) Write a Program to implement the concept of multiple inheritances by ambiguity problem.

[POLYMORPHISM]

17) Write a Program of unary operator overloading.
18) Write a Program of Binary operator overloading.
19) Write a Program to access global variables in C++.

[FILE HANDLING]

20) Write a Program to open, write and close a file.

(PDCA-104P) RDBMS LAB

[SQL COMMANDS]

1) Introduction to DBMS.
2) To create a table, alter and drop table.
3) To perform select, update, insert and delete operation in a table.
4) To make use of different clauses viz where, group by, having, order by, union, intersection,
set difference.
5) To study different constraints.

[SQL FUNCTION]

6) To use oracle function viz aggregate, numeric, conversion, string function.
7) To understand use and working with joins.
8) To understand use and working of sub-queries.
9) To make use of transaction control statement viz rollback, commit and save point.
10) To make views of a table.
11) To make indexes of a table.
12) To inbuilt SQL function to create database.

[PL/SQL]

13) Introduction to SQL & PL/SQL
14) To implement Cursor on a table.
15) To implement trigger on a table
16) Creating Procedures and Function.
17) To implement control structure.
18) To implement Packages.

PDCA-109 Programming in Java

Unit 1

Fundamentals of Object-Oriented Programming: - Introduction, Object-Oriented Paradigm, Basic Concepts of Object-Oriented Programming Benefits of OOP, Applications of OOP. How Java Differs from C and C++ (Java character set, Keywords, Identifiers, Literals, Operators, Separators), Decision Making And Looping: - Introduction, The while Statement, The do Statement, The four Statement (Additional features of for loop, Nesting of for loops), Jumps in Loops (Jumping out of a loop, Skipping a part of a loop), Labeled Loops. CLASSES. (10)

Unit 2

OBJECTS AND METHODS: - Introduction, Defining a Class, Adding Variables, Adding Variables, Adding Methods, Creating Objects, Accessing Class Members, Constructors, Inheritance: Extending a Class (Defining a subclass, Subclass constructor, Multilevel inheritance, Hierarchical inheritance), Overriding Methods, Final Variables and Methods, Final Classes, Finalizer Methods.

Unit 3

ARRAYS, STRINGS AND VECTORS: - Arrays, One-Dimensional Arrays, Creating an Array

(Declaration of arrays, Creation of arrays, Initialization of arrays, Array length), Two-Dimensional Arrays (Variable size arrays), Strings (String arrays, String methods, String Buffer class), Vectors, Wrapper Classes. INTERFACES: Introduction, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables. (12)

Unit 4

PACKAGES: Introduction, System Packages, Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, Hiding

Classes. MANAGING ERRORS AND EXCEPTIONS :- Introduction, Types of Errors (Compile-time error, Run-time error), Exceptions, Syntax of Exception Handling Code, Multiple Catch Statements, Using finally Statement, Throwing Our Own Exceptions, Using Exceptions for Debugging. (10)

Unit 5

Applet Programming :- Introduction, How Applets Differ from Applications, Preparing to Write Applets, Building Applet Code, Applet Life Cycle (Initialization state, Running State, Idle or stopped state, Dead state, Display state), Creating an Executable Applet, Designing a Web Page(Comment Section, Head Section, Body Section), Applet Tag, Adding Applet to HTML File, Running the Applet, More About Applet Tag, Passing Parameters to Applets, Aligning the Display, More about HTML Tags, Displaying Numerical Values, Getting Input from the User. (10)

Suggested Readings/ Books:

1. E Balagurusamy, “Programming with Java”, 4th Edition 2010.
2. Hebert Schildt,” Java the Complete Reference”, 8th Edition 2011.
3. Bruce Eckel, “Thinking in Java”, Kalyani Publishers”, 4th Edition 2011.

PDCA-110 Web Technologies

Unit 1

Introduction to HTML : Information Files Creation; Web Server; Web Client/Browser (Understanding how a Browser communicates with a Web Server); Hyper Text Markup Language (HTML) (HTML Tags, Paired Tags); Commonly used HTML Commands (The structure of an HTML program, Document Head, Document Body); Titles and Footers;

Unit 2

Text Formatting (Paragraph Breaks, Line Breaks); Emphasizing Material in a Web Page (Heading Styles, Drawing Lines); Text Styles (Bold, Italics, Underline); Other Text Effects (Centering (Text, Images etc.); Spacing (Indenting Text).Lists: Types of Lists (Unordered List (Bullets), Ordered Lists (Numbering), Definition. Adding Graphics to HTML Documents: Using the Border attribute; using the Width and Height Attribute; Using the Align Attribute; Using the ALT Attribute. (12)

Unit 3

Tables : Introduction (Header, Data rows, The Caption Tag); Using the Width and Border Attribute; Using the Cell padding Attribute; Using the Cell spacing Attribute; Using the BGCOLOR Attribute; Using the COLSPAN and ROWSPAN Attributes. Linking Documents: Links (External Document References, Internal Document References); Images as Hyperlinks (Image Maps). Frames: Introduction to Frames (The <FRAMESET> tag, The <FRAME> tag, Targeting Named Frames.DHTML: Cascading style sheets, Style tag (12)

Unit 4

Introduction to JavaScript: JavaScript in Web Pages (Netscape and JavaScript, Database Connectivity, Client side JavaScript, Capturing User Input); The Advantages of JavaScript (An Interpreted Language, Embedded within HTML, Minimal Syntax - Easy to Learn, Quick Development, Designed for Simple, Small Programs, Performance, Procedural Capabilities, Designed for Programming User Events, Easy Debugging and Testing, Platform Independence/Architecture Neutral); Writing JavaScript into HTML; (12)

Unit 5

Forms Used by a Web Site: The Form Object; The Form Object's Methods (The Text Element, The Password Element, The Button Element, The Submit (Button) Element, The Reset (Button) Element, The Checkbox Element, The Radio Element, The Text Area Element, The Select and Option Element, The Multi Choice Select Lists Element); Other Built-In Objects in JavaScript (The String Object, The Math Object, The Date Object); User Defined Objects (Creating a User Defined Object, Instances, Objects within Objects). Cookies: What are Cookies; Setting a Cookie. (12)

Suggested Readings/ Books:

1. Internet for EveryOne: Alexis Leon, 1st Edition, Leon Techworld, Publication, 2009.
2. Greenlaw R; Hepp E,"Fundamentals of Internet and WWW"2nd Edition, Tata McGraw-Hill, 2007
3. Raj Kamal,"Internet & Web Technologies" edition Tata McGraw-Hill Education.2009
4 Bayross Ivan"HTML, DHTML, Javascript, PERL, CGI" 3rd Edition,BPB Publication,2009
5. Chris Payne,"Asp in 21 Days" 2nd Edition, Sams Publishing, 2003

PDCA-111 Software Engineering

Unit 1

Software: Characteristics, Components, Applications, And Software Process Models: Waterfall,

Spiral, Prototyping, Fourth Generation Techniques, Concepts of Project Management, Role of

Metrics &Measurements. (9)

Unit 2

S/W Project Planning: Objectives, Decomposition techniques: S/W Sizing, Problem-based estimation, Process based estimation,

Unit 3

Cost Estimation Models: COCOMO Model, The S/W Equation, System Analysis: Principles of Structured Analysis, Requirement analysis, DFD, Entity Relationship diagram, Data dictionary.

Unit 4

S/W Design: Objectives, Principles, Concepts, Design methodologies: Data design, Architectural

Design, procedural design, Object -oriented concepts (9)

Unit 5

Testing fundamentals: Objectives, principles, testability, Test cases: White box & Black box testing, Testing strategies: verification & validation, unit test, integration testing, validation testing, system testing. (9)

Suggested Readings/ Books:

1. Roger. S. Pressman, Software Engineering - A Practitioner's Approach, 7th Edition, McGraw Hill, 2010.

2. Rajib Mall, "Fundamental of Software Engineering ", 3rd edition, PHI, 2009.

3. Naseeb Singh Gill, "Software Engineering: Software reliability, testing and quality, Khanna Book Publishing, 2011.

PDCA-112 Data Communication and Networks

Unit 1

Introduction to data communication, analog Vs Digital Communication, Fourier Analysis, Band Width limitation, data rate of a channel, Error detection and correction; nature of errors, parity check, CRC, hamming code, Modulation; Multiplexing: SDM, FDM, TDM, STDM.

Unit 2

Introduction to computer networks and application; network hardware, network software, OSI reference model, TCP/IP model, network standardization, physical layer: circuit switching, packet switching, message switching, terminal handling, telephone system, modems, connections, transmission media.

Unit 3

Data link layer: design issues, elementary data link protocols-sliding window protocol, HDLC/SDLC, ALOHA, CSMA/CD, token passing, IEEE standard 802 for LAN and WAN.

Unit 4

Network layer: design issues, Routing algorithms: shortest path routing, flooding, distance vector routing, flow based routing, Congestion control algorithms: leaky bucket, token bucket, Internet working, the network layer in the Internet IP protocol, IP address. (10)

Unit 5

Transport layer: design issues, elements of transport protocol, addressing establishing & releasing a connection, flow control & buffering, TCP/IP service model, TCP connection management.

Suggested Readings/ Books:

1 Andrew S. Tanenbaum, "Computer Networks", 3rd Edition, Pearson Prentice Ltd. 2010.
2 Behruoz A Forouzan, "Data Communication and Networking"4th Edition, Tata McGraw Hill, 2009.
3 Larry L.Peterson, "Computer Networks: A System Approach", 4th Edition, Elsevier Publication, 2008.

PDCA-109P Java LAB

[CONTROL STRUCTURE]

1) Write a Program to check whether a number is even or odd.
2) Write a Program to demonstrate scope and lifetime of variables.
3) Write a Program to implement the concept of ternary operator.

[FUNCTIONS]

4) Write a Program to implement the concept of recursive function.
5) Write a Program to implement the concept of constructor.
6) Write a Program to demonstrate the concept of method overloading.
7) Write a Program to demonstrate the concept of method overriding.
8) Write a Program to implement nesting of methods.
9) Write a Program to implement the concept of destructor

[STRINGS]

10) Write a Program to implement the concept of abstract class.
11) Write a Program to implement the concept of string methods.

[INHERITANCE]

12) Write a Program to implement the concept of hierarchical inheritance.
13) Write a Program to implement the concept of multilevel inheritances.
14) Write a Program to define an interface.
15) Write a Program to define final class.
16) Write a Program to show the usage of import statement and package declaration in java.

[EXCEPTION HANDLING]

17) Write a Program to show the usage of exception handling.
18) Write a Program to show the usage of try and catch block.
19) Write a Program to demonstrate inner class.
20) [APPLETS]
21) Write a Program to implement applets.

PDCA-110P Web Technology LAB

[HTML]
1. Write a HTML code that displays various formatting tags.
2. Write a HTML code to create ordered list.
3. Write a HTML code to create unordered list.
4. Write a HTML code to create table having 5 rows and 5 columns.
5. Write a HTML code to create admission form.
6. Write a HTML code to create a frame.
7. Write a HTML code to create image map.
8. Write a HTML code to create hyperlink b/w multiple pages.
9. Write a HTML code to create hyperlink to an image.

[DHTML]
10. Write a DHTML code to create cascading style sheet.

[JAVA SCRIPT]
11. WRITE A PROGRAM in JavaScript to show a number is big or not.
12. WRITE A PROGRAM in JavaScript to implement for loop.
13. WRITE A PROGRAM in JavaScript to implement while loop.
14. WRITE A PROGRAM in JavaScript to show the usage of if statement.
15. WRITE A PROGRAM in JavaScript to show the usage of if-else statement.
16. WRITE A PROGRAM in JavaScript to show the usage of switch statement.
17. WRITE A PROGRAM in JavaScript to call a function.
18. WRITE A PROGRAM in JavaScript to show function with an arguments.
19. WRITE A PROGRAM in JavaScript to show number is even or odd.
20. WRITE A PROGRAM in JavaScript to show number is prime or not.

PDCA-113 Project

Project: 200 Marks.

Joint project will be allowed and joint project report will be also being accepted. Individual project will be recognized and the student should highlight their contribution in a joint project report. Project any of the following Technologies is acceptable.

1. Web Based: HTML/DHTML, Java Script, XML and NETBEANS etc.