

# POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS

## PGDCA – 101: INFORMATION TECHNOLOGY TRENDS

**Max. Marks: 100**

### **Course Objective:**

The objective of the course is to help the students to acquire knowledge regarding the current trends in Information Technology.

### **Examination Scheme:**

The faculty member will award marks out of a maximum of 40 marks for the internal performance of the student. The semester examination carrying 60 marks will have eight questions out of which students will be required to attempt any five questions.

### **Unit - I**

**Distributed Systems:** Introduction, Distributed Processing and Storage Function, Advantage and Disadvantage of Distributed System.

**Wireless Computing:** Mobile and Wireless Computing Fundamentals. Virtual Factory and other Applications of Wireless Computing.

### **Unit-II**

**Cloud Computing:** Introduction, Components, Model and Working of Cloud Computing.

**GPS:** Components of a GPS - Hardware, Software, Data, People, Methods and Working of GPS, GPS and Related Technologies.

### **Unit – III**

**Web Services:** Web Portals and Vortals Concepts, E-Commerce, E-Business, Internet Advertising, Online Marketing.

**Search Engine Optimization:** Introduction, Architecture, Working, Techniques, Content Writing, Paging, Posting, Page Ranking System, Availability of Internet Tools for Search Engine Optimization.

### **Unit - IV**

**Artificial Intelligence** - Introduction to AI, AI and its Related Field, AI Techniques.

**Expert System:** Introduction, Representing using domain specific knowledge, Expert System Shells.

**Virtual Reality:** Introduction, Brief History of Virtual Reality, Present Uses of Virtual Reality.

### **Unit – V**

**Enterprise Resource Planning:** Introduction to ERP, ERP Modules, Planning for an ERP Deployment, Steps in ERP Implementation, Constraints in ERP Implementation, Issues in Customizing ERP Systems, E-SCM, E-CRM.

**Green Computing:** Introduction to Green Computing, Saving Energy on a Machine, Networking Components, Clusters and Data Centers, Major Green Initiatives: Sustainable IT, Computing Technology for Energy Efficiency of other Physical Systems, Open Challenges, Major Players.

### **Text Readings**

- Jason Harris, Green Computing and Green IT Best Practices on Regulations and Industry Initiatives, Virtualization, Power Management, Materials Recycling and Telecommuting, 2008
- Deepak Bansal, A Complete Guide To Search Engine Optimization, B.R. Publications, 2009
- Pankaj Arora, Raj Biyani, Salil Dave , To the Cloud , McGraw-Hill, 2012
- Jim Blascovich And Jeremy Bailenson, Infinite Reality: The Hidden Blueprint of Our Virtual Lives , Harper Collins Publications, 2011
- Howard Rheingold , Virtual Reality: The Revolutionary Technology of Computer-Generated Artificial Worlds - and How It Promises to Transform, Touchstone, 2008
- E-Commerce An Indian Perspective (Second Edition) – by P.T. Joseph, S.J. Prentice-Hall of India, 2006.
- Simha R. Magal and Jeffrey Word , Integrated Business Processes with ERP Systems, 2011.
- Bret Wagner and Ellen Monk , Enterprise Resource Planning, 2008
- Jawadekar, Waman, S., Management Information System-A Digital-Firm Perspective, New Delhi, Tata McGraw-Hill, 2009.

### **Suggested Readings**

- Nils J Nilsson, "Artificial Intelligence -A new Synthesis" 2nd Edition, 2000
- Turban, Rainer and Potter, Introduction to Information Technology, 2006
- M.Sasikumar, S. Ramani etc. “Rule based Expert System”, Narosa Publishing House. 2007

## **PGDCA-102 Computerized Financial Accounting**

**Max. Marks : 100**

**Course Objective** : Students will have an orientation to computerized financial accounting. Practical exposure of these packages will help them to perform and manage financial accounting in a better manner.

**Examination** : The faculty member will award marks out of a maximum of 40 marks for the internal performance of the student. A panel of internal and external examiners will conduct the practical and viva-voce examination at the end of the trimester out of a maximum of 20 marks and 40 marks will be for external examination.

### **Unit 1**

**Introduction to Tally** : Installation procedure, Components of Tally .ERP 9 window, Creating a company.

### **Unit 2**

**Creating Masters (Inventory and Accounting)** : Creating Stock Groups, Stock Categories, Stock Items, Units of Measure, Godowns. Creating Groups, Ledgers, Voucher Types, Invoicing, Printing Invoice/ Vouchers.

### **Unit 3**

**Handling Transactions and Reports** : Transaction entry through Vouchers, Invoicing, Printing Invoice/ Vouchers. Generating Reports viz. Balance Sheet, Profit & Loss A/c, Stock Summary, Trial Balance, Day Book, Ratio Analysis, Multi Account Printing.

#### **Unit 4**

**Taxation** : Value Added Tax (VAT), Tax Deducted at Source (TDS), Tax Ledgers, Tax Vouchers, Tax Reports.

#### **Unit 5**

**Data Security, Data Import and Tally .NET** : Taking Data Backup, Restoring Data, Import of Data, Configuring Tally .NET feature, Assigning Security Controls.

## **PGDCA -103: WEBSITE DESIGN AND DEVELOPMENT USING ASP.Net and VISUAL BASIC**

**Max. Marks: 100**

### **Course Objective**

The objective is to familiarize the students with development of online applications. The students will be able to understand the use of database connectivity in web site designing using ASP.Net/VB.Net. Development of websites and their management will help them to form a better orientation of commercial applications.

### **Examination Scheme**

The faculty member will award marks out of a maximum of 40 marks for the internal performance of the student. A panel of internal and external examiners will conduct the viva-voce examination at the end of the semester and award marks to the student out of a maximum of 20 marks. The semester examination carrying 40 marks will have eight questions out of which students will be required to attempt any five questions.

#### **Unit 1**

**Introduction to Webpage Applications:** Basics of HTML, HTML elements and tags, formatting text and pages, marquee, including pictures, videos, tables and lists.

#### **Unit 2**

**Introduction:** DOT.NET Framework features & architecture, Introduction to visual studio, ASP.NET Introduction, Importance of ASP, IDE - Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window,

#### **Unit 3**

**ASP.NET Controls:** First ASP.NET Application, Event Handler Parameters. Dynamically initializing Controls, List Controls , Comparison between Html Controls and Web Controls , Control Properties and Methods . File Upload Control, Life Cycle of ASP.NET Page.

#### **Unit 4**

**Working with User Control:** Overview of User Controls, Creating a User Control , Adding Properties to User Control, Adding Events to User Control .Using User Control in Web Form, Rendering Clients Scripts Using Page.ClientScript methods .

**Validation Controls :** Base Validator , Required Field Validator , Compare Validator, Range Validator , Regular Expression Validator , Custom Validator , Causes Validation Property , Grouping - Validation Group Property , Page.Validators and Page.IsValid .

### **Unit 5**

**Data Bound Controls :** Databinding traditional way , SqlDataSource , GridView, DetailsView , FormView , DataList , Repeater , ListView, DataPager

### **Unit 6**

**Understanding & Publishing Web Application :** Advantages of IIS Applications , Creating web application in IIS , Converting File System application to IIS Application , Publishing ASP.NET Website.

### **Text Readings**

- Jesse Liberty, Dan Hurwitz, Programming ASP.NET, 2006
- Matthew MacDonald, Beginning ASP.NET 4 in VB 2010, 2010
- Alban Gabillon, Quan Z. Sheng, Wathiq Mansoor, Web-Based Information Technologies and Distributed Systems, Atlantis Press, 2010
- Dave Lawrence, Soheyla Tavakol, Balanced website design : optimising aesthetics, usability and purpose, Springer, 2007
- Leon Atkinson, Core PHP Programming, Prentice Hall, 2008.

# PGDCA-104 Web Enabled Business Applications

**Max Marks: 100**

**Course Objective:** Students will have an orientation to all web enabled business applications. Practical exposure of these packages will help them to use and perform online transactions in an accurate and an efficient manner.

**Examination:** The faculty member will award marks out of a maximum of 40 marks for the internal performance of the student. A panel of internal and external examiners will conduct the practical and viva-voce examination at the end of the trimester out of a maximum of 20 marks and external examination will be of 40 marks.

## **Unit 1**

**Basic On-line Applications** - Introduction to web enabled business applications, remote access services, multiprotocol instant messaging and email notification environment, screen capture tools with Zoom and Pan effects.

## **Unit 2**

**Online Banking** - Introduction to online banking, bank account browsing, Inter and Intra bank fund transfer, e-statements, e-requests (stop payments), e-requests for banking instrument issuance (Cheque, DD, Fixed Deposits), Debit and Credit card operations.

## **Unit 3**

**Online Trading** - Introduction to online trading (capital market segment). Introduction to fundamental and technical analysis. Synchronizing Demat and Bank accounts with Trading account. Operating watchlists, order books, trade books, open positions, history reports etc.

## **Unit 4**

**E- Commerce** - Introduction to e-commerce (B2B, B2C, C2C). Introduction to online shopping. Introduction to payment gateways. Real time experience to e-shopping, e-ticketing, e-booking, e-recharge, e-bill payments etc.

## **Unit 5**

**ERP** – Transaction Processing and report maintenance in different departments of an organization.

# PGDCA - 105: COMPUTER NETWORKS

**Max. Marks: 100**

## **Course Objective**

The objective is to introduce the concept of computer networking. Knowledge of networking will help students to manage networking requirements of any commercial applications.

## **Examination Scheme**

The faculty member will award marks out of maximum of 40 marks for the internal performance of the student. The semester examination carrying 60 marks will have eight questions out of which students will be required to attempt any five questions. The balance of the paper will be maintained by including appropriate (conceptual/analytical) combination of subsection in each question.

## **Unit-I**

**Networking** - Needs and Advantages, Network, Types- Client, Server and Peers, introduction to various types of servers.

**Transmission Technology** - Signal Transmission-Digital signaling, Analog Signaling, Asynchronous & synchronous Transmission, Wired & Wireless transmission, Base band and Broadband transmission.

**Transmission Media Types**- properties & specialty of various media – types, comparative study.

**Network Topology**- Bus, Star, Ring, Star bus, Star ring, Mesh – Features, its Advantages and disadvantages.

## **Unit-II**

**Network Adapters** – working principals, configuration and selection, Network Protocols-Hardware Protocols, software Protocols. The theoretical Network Model – OSI, Real World Networks – Ethernet, Fast Ethernet, Token Rings,

## **Unit-III**

**Network Scaling**- No. of nodes, distance, software, speed, special requirements

Connectivity Devices: Modem, Repeater, Hub – Active, Passive and Intelligent, Bridge-Local, Remote, Wireless, Routers-Static and Dynamic, Switches and its types . Brouters and Gateways.

**TCP/IP Reference Model:** Concept, TCP/IP Protocol suites – Comparision between OSI and TCP/IP Models.

## **Unit-IV**

**Network Building Blocks:** Requirement for setting up a small LAN using Windows in a office, Hardware & software requirements, Simple Installation and configuration of Network under Windows. Simple Network Administration. Setting up Internet Connection and Sharing in Windows.

## **Unit- V**

**Network Security** : Network security issues, common threats, security barriers in the network pathways, Official levels of computer security, types of security controls, approaches to network security, Ethical hacking.

**Firewalls**: Need and features of firewalls, types of firewall technology- network level and application level, IP packets filter screening routers, Advantages and limitations of firewalls.

**Encryption and Decryption**: Cryptography, Type of encryptions, encryption keys, single/ secrete/ private key encryption, Public/Private key encryption. Overview of Digital Signature and Digital Certificates technology,

### **Text Readings**

- Peterson Larry L ., Computer Networks: A System Approach, 2007
- James F. Kurose, Computer Networking: A Top-Down Approach, 5th Edition
- Andrew S. Tanenbaum , Computer Networks, 4th Edition
- Behrouz A.Forouzan, Data Communication and Networking, 3rd Ed. Tata MCGraw Hill, 2004.
- William Stallings, “Data and computer communications”, Pearson education Asia,Ed., 2002.

### **Suggested Readings**

- James Chellis Charles Perkins, Matthew Strebe, “Networking Essentials: Study Guide MCSE”, Second Edition, BPB Publications.
- S.K. Basandra & S. Jaiswal, “Local Area Networks”, Galgotia Publications
- MCSE Windows 2000 Network Infrastructure Disign

# SEMESTER II

## PGDCA- 201: DATABASE PROGRAMMING USING VB.NET

Max. Marks: 100

### Course Objective

This course will give an overview of .net environment and make students understand the tools and different properties associated with them. This course will give students a deep understanding of the event handling mechanism by using VB.NET software. The student will be able to develop commercial applications in the real world.

### Examination Scheme

The faculty member will award marks out of a maximum of 40 marks for the internal performance of the student. A panel of internal and external examiners will conduct the viva-voce examination at the end of the semester and award marks to the student out of a maximum of 20 marks. The semester examination carrying 40 marks will have eight questions out of which students will be required to attempt any five questions.

### Unit – I

**Introduction :** IDE of VB.NET- Menu bar, Toolbar, Solution Explorer, Toolbox, Properties Window, Form Designer, Output Window, Object Browser.

**The environment:** Editor tab, format tab, general tab, docking tab. visual development & event driven Programming -Methods and events.

### Unit–II

**The VB Language:** Variables, Declaring variables, Data Type of variables, Forcing variables, declarations, Scope & lifetime of a variable, Constants, Arrays, types of array, control array, Collections, Subroutines, Functions, Passing variable Number of Argument Optional Argument, Returning value from function. Control flow statements: conditional statement, loop statement.

### Unit – III

**Working with Forms:** Loading, showing and hiding forms, controlling One form within another.

**GUI Programming with Windows Form:** Textbox, Label, Button, Listbox, Combobox, Checkbox, PictureBox, RadioButton, Panel, scroll bar, Timer, ListView, TreeView, toolbar, StatusBar. There Properties, Methods and events. OpenFileDialog, SaveFileDialog, FontDialog, ColorDialog, PrintDialog. Link Label, Designing Menu, access & shortcut keys.

### Unit–IV

**Object oriented Programming:** Classes & objects, fields Properties, Access Specifiers: Public Private, Protected. OOPS Principles.

### Unit–V

**Database programming** – Overview of ADO, from ADO to ADO.NET, Accessing Data using Server Explorer. Creating Connection, Command, Data Adapter and Data Set



with OLEDB and SQLDB. Display Data on data bound controls, display data on data grid. Database Connectivity with Forms. Crystal Reports, Execution of Complete Project

### **List of practical**

- Exercises related to use of data types – integer, double, character set, Boolean, their ranges, defaults initial values,
- Exercises related to use of comments, identifiers and reserved words, local variables, operators and operator – precedence.
- Exercises related to use of statement simple and compound, Uses of control do, for, while, switch, break, case of continue, label.
- Exercise related to various controls and their properties.
- Exercises related to event handling mechanism.
- Exercises related to forms connectivity.
- Exercises related to database connectivity.
- Exercises related to generation of crystal reports.

## **PGDCA – 202: RDBMS APPLICATION TOOLS**

**Max Marks: 100**

### **Course Objective:**

Objective is to introduce the concept and working of Relational Database Management System. The students will be able to analyze the relational concepts and their utility in designing of databases. Given lab exercises will enhance database handling, data manipulation and data processing skills through SQL & PL/SQL, which will help them in developing data centric computer applications.

### **Examination Scheme:**

The faculty member will award marks out of a maximum of 40 marks for the internal performance of the student. A panel of internal and external examiners will conduct the viva-voce examination at the end of the semester and award marks to the student out of a maximum of 20 marks. The semester examination carrying 40 marks will have eight questions out of which students will be required to attempt any five questions.

### **Unit I**

**Introduction:** View of Data, Information And Database. Purpose Of DBMS and its Types. Various Keys Like Super Key, Candidate Key, Primary Key, Foreign Key. E-R Diagram. Normalization

### **Unit II**

**Structured Query Language-** Basic Structure, Set Operations, Aggregate Functions, SQL Database Object, SQL Data Types, Concepts of DDL, DML, DCL and TCL Commands, Creating And Altering Tables, Insertion Of Data, Updating Data, Deleting Data, Retrieving Data, Integrity Constraint, Keys, Null Values, Sub Queries, Group by and having clause, Joins – left outer, right outer, inner joins, Intersection, Union.

### **Unit III**

**PL/ SQL:** Introduction To PL/SQL, The PL/SQL Block Constructs, Using Variables And SQL Statement In The PL/SQL Block, PL/SQL Constructs Like If..Else..Endif, Loop..Endloop, While Loop Etc.

#### **Unit IV**

**Applications Of PL/SQL:** Cursor Management: Nested And Parameterized Cursors, Oracle Exception Handling Mechanism. User Defined And Stored Procedures, In, Out, In Out Type Parameters, Usage of Parameters In Procedures. User Defined And Stored Functions, Usage Of Parameters In Functions, Triggers.

#### **Unit V**

**Application Development:** Exposure For Small Application Development Using Concept of Backend And Frontend, Introduction of Mysql Environment With Its Advantages

#### **List of Practicals**

##### **Exercise1**

1. Create Table Salespeople with Fields Snum, Sname, City, Commission
2. Orders Table with Field's Onum, Odate, Snum, Amt

##### **Exercise 2**

1. Add At Least 10 Records
2. Display All The Records With All Sales Peoples Information.
3. Display The Details Of Fields Sname, Commission
4. Display The Odate, Snum, Onum, Amt From Orders Table.
5. Display Snum From Orders Table Without Duplications.
6. Display Name & City Of Salesman Where City Is "Pune
7. Display All Details Of Customer Where Rating Is 100.
8. Display All Details From Customer Table Where Salespersons Number Is 1001.
9. Display The Numbers Of Sales Persons, With Orders Currently In The Orders Table Without Any Repeats.
10. Display All Customers Where Rating Is More Than 200
11. Display All Customers Where City Is 'Mumbai' Rating Is More Than 100.
12. Display All Customers Where City Is Either 'Pune' Or 'Mumbai'
13. List All Customers Not Having City 'Pune' Or Rating More Than 100
14. List All Orders Between Order Dates 10/03/05 To 30/3/05
15. Display All Orders More That 1000 Amt.
16. Display Names & Cities of All Salespeople In 'Pune' With A Commission Above 10.
17. Display All Customers Excluding Those, With Rating Less Than Equal To 100, Unless They Are Located In 'Nagar'
18. Display All Sales Persons Name Starting With Character 'G'
19. Display All Sales Persons Name Starting With Character 'G', The 4th Character Is 'A' & The Rest Of Characters Will Be Any.
20. Find All Records From Customers Table Where City Is Not Known I.E. NULL.
21. Display All The Customer's Name Begins With A Letter A To G.
22. Assume Each Salesperson Has A 12% Commission On Order Amt. Display Orderno, Snum, Commission For That Order.

##### **Exercise 3**

1. Display All The Customers' Records, Arranged On Name.

2. Display All Customers Records Arranged On Rating In Desc. Order.
3. Display All Sales Persons Records Arranged On Snum
4. Display The Count For Total Number Of Customers In Customers Table.
5. Display The Count Of Snum In Order Table Without Duplication Of Snum.
6. Display The Counts Of All Orders For Feb05
7. Display The Count Of Different Non-NULL City Values In The Customer's Table.
8. Display The Maximum Outstanding Amount As Blnc+Amt
9. Display The Minimum Rating Within Customers Table.
10. Display Average Of Amt.
11. Display Sales Persons Number Wise Maximum Amt From Order Table.
12. Display The Largest Order Taken By Each Salesperson On Each Date.
13. Display The Details Of Maximum Orders Above 3000.
14. Display Details Of Orders Order Number & Date Wise
15. Display Customer's Highest Ratings In Each City.
16. Write A Query That Totals The Orders For Each Day & Places The Results In Descending Order.

#### **Exercise 4**

1. Add A Column Curr\_Bal In Orders Table For Current Balance
2. Increase Commission Of All Sales Persons By 200.

#### **Exercise 5**

1. Display Names Of All Customers Matched With The Salespeople Serving Them.
2. Find All Orders By Customers Not Located In Same Cities As Their Salespersons.
3. Display Each Order Number Followed By The Name Of Customer Who Made It.
4. Calculate The Amount Of Salespersons Commissions On Each Order By A Customer With A Rating Above 100.
5. Display The Pairs Of Salespeople Who Are Living In The Same City. Exclude Combinations Of Sales People With Themselves As Well As Duplicate Rows With The Order Reversed.
6. Display The Names & Cities Of All Customers With Same Rating As Hoffman.

#### **Exercise 6**

1. Write A Query That Uses A Sub-Query To Obtain All Orders For The Customer Named 'Gopal'. Assume You Do Not Know The Customer Number.
2. Write A Query That Produces The Names & Ratings Of All Customers Who Have Above-Average Orders.
3. Write A Query That Selects The Total Amt In Orders For Each Salesperson For Whom This Total Is Greater Than The Amount Of The Largest Order In Table.

#### **Exercise 7**

1. Create A Union Of Two Queries That Shows The Names, Cities & Ratings Of All Customers. Those With A Rating Of 200 Or Greater Will Also Have Ratings "High Rating", While The Others Will Have The Words "Low Rating".
2. Write A Command That Produces The Name & Number Of Each Salesperson & Each Customer With More Than One Current Order. Put Results In Alphabetical Order.

#### **Exercise 8**

1. Write A PL/SQL Block Of Code That First Inserts A Record In An 'Emp' Table. Update The Salary By Rs. 2000. Then Check To See That The Total Salary Does Not Exceed 20000. If So, Undo The Updates Made To The Salaries.
2. HRD Manager Has Decided To Raise The Salary Of Employees By 0.15. Write A PL/SQL Block To Accept The Employee Number & Update The Salary Of That Emp. Display Message Based On The Existence Of Record In Employee Table.
3. When Any Such Raise In Salary, A Record For The Same Is Maintained In Emp\_Raise Table. It

- Includes The Employee No, The Date Of Raise & The Actual Raise.
4. Create A Stored Function To Perform Item\_Id Check Operation. Which Accepts A Item\_Id & Returns A Flag As Per The Id Exist Or Not.
  5. Application Using Database Triggers –

#### **Text Readings**

- Jason S. Couchman, Sudheer N. Mariseti, Oracle 9i Database Administration Fundamental-I, Volume I, Oracle Press, 2002
- Paneerselvam, "Database Management System", PHI Learning, 2003
- Ivan Bayross, SQL / PLSQL, New Delhi, BPB Publications, 1999.
- Fred R. Mc Fadden, Jeffrey A. Hoffer And Mary B. Prescott, Modern Database Management, Addison Wesley Longman Inc. ,2008
- Abramson, Oracle Database 10G: A Beginner S Guide, 2004
- Rick Greenwald, Beginning Oracle Application Express, 2011

#### **Suggested Readings**

- Alapati, Ocp Oracle Database 11G: New Features, Pearsons Education, 2003.
- Ravi Kothuri, Albert Godfrind, Euro Beinat, Pro Oracle Spatial For Oracle Database 11G, Apress, 2008.
- Michael Abbey, Michael J. Corey, "Oracle A Beginners Guide". TMH Publication.

## **PGDCA–203: PROGRAMMING THROUGH 'C++'**

**Max Marks: 100**

#### **Course Objective**

The objective of this course is to make the student understand programming language, programming, concept of loops, reading a set of data, stepwise refinement, function, control structure and arrays. After completion of this course the student is expected to analyze the real life problem and write a program in 'C' language to solve problem. The main emphasis of the course will be on problem solving aspect, that is, developing proper algorithms.

#### **Examination Scheme**

The faculty member will award marks out of a maximum of 40 marks for the internal performance of the student. A panel of internal and external examiners will conduct the viva-voce examination at the end of the semester and award marks to the student out of a maximum of 20 marks. The semester examination carrying 40 marks will have eight questions out of which students will be required to attempt any five questions.

#### **Unit-I**

**Algorithm for Problem Solving:** An Introduction, Properties of an algorithm, classification, algorithm logic.

**Flowchart:** Introduction of the symbols of flowchart, Importance of Flowchart and algorithms. Solving and discussing problems with flow chart and algorithms.

**Program Design and Implementation Issues:** Programming, system design techniques, programming techniques, basic constructs of structured programming, modular designing of programs.

**Programming Environment:** Assembler, Compiler, interpreter, linkers, and loaders. Classification of programming languages High level, low level and middle level programming language

## **Unit-II**

**Overview of C++:** C character set, identifiers, literals and keywords. Data types (description of different types of data types along with examples.), Constants and Variables, Expressions Basic Input/ Output functions along with examples.

**C++ Instructions :** Type Declaration Instruction, Arithmetic Instruction, integer, long, short, signed, unsigned, storage classes, Integer and Float conversions, type conversion in assignment, hierarchy of operations.

## **Unit-III**

**Decision Control Structure :** Control instructions in C++, if, if-else of logical operators, hierarchy of logical operators, arithmetic operators, relational operators, assignment operators, increment and decrement operators, conditional operators.

**Loops Control Structure:** introduction of loops like: while loop, for loop, do-while loop, nested loop, break, continue, case control structure, go to, exit statement.

## **Unit – IV**

**Functions:** Introduction to Functions, User Defined Functions and Standard Function of C++, Function Declarations and Definitions.

## **Unit - V**

**Objects and Classes:** Define objects and classes in object oriented languages, Principles of OOPS

### **LIST OF PRACTICALS**

1. To sum n difference number using array.
2. To generate Fibonacci series.
3. To generate prime no's series
4. To find nth prime no.
5. To identify the given character is vowel or consonant.
6. To find the biggest value given three numbers.
7. To find total, average and percentage of student of marks of 5 subjects.
8. Program to reverse a given integer.
9. Program to check whether the given numbers is an Armstrong number.
10. Program to swap the values of two variables using third variable.
11. Program to print the multiplication table of given number.
12. Program for addition of two matrices.
13. Program to perform all arithmetic operations (+, -, \*, /) using switch case.
14. Matrix multiplication
15. Exchanging values of two numbers without using third variable
16. Program for functions
17. Program for classes
18. Program for inheritance
19. Program for classes and functions.

### **Text Readings**

- Lafore, Robert, Object Oriented Programming in Turbo C++. New Delhi ,Galgotia Publications,2003.
- Schild, Herbert, C++: The Complete Reference. New Delhi : Tata McGraw Hill Publishing,

2003.

- Ravichandranm, D, Programming with C++. New Delhi : Tata McGraw Hill Publishing, 2000.
- Balagurusamy,E., Object Oriented Programming With C++. New Delhi : Tata McGraw Hill Publishing, 2000.

#### **Suggested Readings**

- [Stormy Attaway, Matlab: A Practical Introduction to Programming and Problem Solving, Elsevier, 2011](#)
- Brian W Kernigham and Dennis M Ritchie, The C Programming Language, Prentice Hall.
- First Course in Programming with 'C', T. Jeyapooan ,VIKAS Publication, 2009.

## **PGDCA-204: SOFTWARE PROJECT**

**Max. Marks: 100**

#### **Course Objective**

The objective of Software Project is to enable the student to go into the detail of the given problem and design an effective software solution keeping the given constraints and organizational objectives in mind. This is to enhance the analytical and software development ability of the student.

#### **Examination Scheme**

Software Project is compulsory. Before the end of semester, the student will be required to submit the final Report in the soft and hard bound forms in the number specified by the faculty coordinator. The faculty member will award marks out of a maximum of 40 marks for the internal performance of the student. A panel of internal and external examiners will conduct the viva-voce examination at the end of the semester and award marks to the student out of a maximum of 60 marks.

# PGDCA -205 – IT TOOLS AND TECHNIQUES

**Max. Marks: 100**

## **Course Objective**

The objective of this course is to introduce the concepts of available IT Tools and Techniques in development and maintenance of software projects. This subject will develop a platform for analysis of live projects and real world applications.

## **Examination Scheme**

The faculty member will award marks out of a maximum of 40 marks for the internal performance of the student. The semester examination carrying 60 marks will have eight questions out of which students will be required to attempt any five questions.

## **Unit – I**

**Software Engineering:** System Concepts, Software Development Process Models– Waterfall Model, Prototyping, Iterative Development, Time Boxing Model, Investigation and Information Gathering. Designing.

## **Unit – II**

**Software Quality Assurance and Testing Strategies:** Software Testing Techniques, Software Testing Fundamentals, White Box and Black Box Testing. Integration Testing, Validation Testing, System Testing.

## **Unit–III**

**Internet :** Internet Services, Capabilities of Internet, TCP/IP, Domain Names, Obtaining space on Server for Web site, Internet Service Provider (ISP), Growth of Internet, Modems (External V/s Internal), Types of Connections - Dial-up, Leased line, DSL, Broadband, RF, VSAT etc.,

## **Unit–IV**

**Web Browsers and Protocols :** Transmission Control Protocol/Internet Protocol (TCP/IP), File Transfer Protocol (FTP), Hyper Text Transfer Protocol (HTTP), Web Browsers and Its functions, Search Engines, Viruses, Trojan horse, Worms, Network and Web Site risks, Security on the internet and use of firewalls.

## **Unit – V**

**Operating System :** Concept of Operating System, Simple Batch Systems, Multiprogrammed Batches systems, Time-Sharing Systems, Real-Time Systems, Memory Management , Device Management

## **Text Readings**

- R. S. Pressman, “Software Engineering-A Practitioner’s Approach”, McGraw Hill Int. Ed. 2010.
- Pankaj Jalote, “An integrated approach to Software Engineering”, Springer Science +Business Media,2005

- C. Xavier, “Web Technology & Design”, New Age International Publishers, 2007
- Silberschatz and Galvin, “Operating System Concepts”, Pearson, 5th Ed., 2001
- Madnick E., Donovan J., “Operating Systems”, Tata McGraw Hill, 2001

### **Suggested Readings**

- Martin L. Shooman, Software Engineering, New Delhi, McGraw Hill, 2005
- Richard E. Fairly, Software Engineering Concepts, New York, McGraw Hill, 2003.
- G. Meyers, The Art of Software Testing, Willey-Inter-Science, 2000.
- Tannenbaum, “Operating Systems”, PHI, 4th Edition, 2000