SEMESTER-I

CC I - PROGRAMMING IN C++

Internal Marks : 25 **Subject Code : PK1**

External Marks : 75 **Exam Hrs : 3**

Total Marks : 100

Objective :

To impart Object Oriented Programming skills using C++

UNIT I

What is Object Oriented Programming? – C++ Console I/O- C++ comments- Classes:Some difference between C and C++ - Introducing Function Overloading - Constructorand Destructor Functions- Constructors take parameters- Introducing Inheritance –Object Pointers – In line Functions – Automatic in lining.

UNIT II

Assigning Objects – Passing Object to Functions – Returning Object from Functions-An Introduction to friend functions- Arrays of objects – Using Pointers to Objects –Using new & delete – More about new & delete – references – Passing references toobjects - Returning references- Independent References and restrictions.

UNIT III

Overloading Constructor Functions- Creating and Using a Copy constructor- Using default arguments- Overloading and ambiguity – Finding the address of an overload function- the basics of operator overloading- overloading binary operators-overloading the relational and logical operators- overloading a Unary operator – using friend operator functions- a closer at the assignment operator- overloading the subscript()operator.

UNIT IV

Base class access control –using protected members- Constructors, destructors andinheritance - multiple inheritance- virtual bas classes- Some C++ I/O basicsformattedI/O using width(), precision () and fill() – using I/O manipulators- Creatingyour own inserters- creating extractors.

UNIT V

Creating your own manipulators- File I/O basics- unformatted, binary I/O- moreunformatted I/O functions- random access- checking the I/O status- customized I/Oand files- Pointers andderived classes- Introduction to virtual functions- more aboutvirtual functions- applying polymorphism- Exception handling.

TEXT BOOK

Herbert Schildt, “Teach Yourself C++”, III edition, Tata McGraw Hill 5th Reprint 2000.

REFERENCES

1. Bjarne Stroustrup, The C++ Programming Language, Addison wesley,2013
2. E. Balagurusamy “Object Oriented Programming with C++ “, TMH New Delhi,2013
3. Robert Lafore, “Object Oriented Programming in Turbo C++”, Galgotia 2001

SEMESTER-I

CC II - OPERATING SYSTEM

Internal Marks : 25
External Marks : 75 **Subject Code : PK2**
Total Marks : 100 **Exam Hrs : 3**

Objective :

To present fundamental aspects of various managements in an operating

UNIT I

Operating Systems Objectives and functions – Operating System and User Computer Interface, Operating System as a Resource Manager: Evaluation of Operating Systems– Serial Processing, Sample Batch Systems, Time Sharing Systems.

UNIT II

Process Description, Process Control – Processes and Threads. Concurrency – Principles of Concurrency, Mutual Exclusion – Software support, Dekker's Algorithm – Mutual Exclusion – Hardware support, Mutual Messages – Deadlock – Deadlock prevention, Deadlock Detection, Deadlock Avoidance – An Integrated deadlock Strategy.

UNIT III

Memory Management – Memory Management Requirements – Fixed Partitioning, Placement Algorithm, Relocation in a Paging System – Sample Segmentation. Virtual Memory – Paging – Address Translation in a Paging System. Segmentation – Organization, Address Translation in a Segmentation System – Combined Paging and Segmentation – Virtual Memory – Operating System Software – Fetch Policy, Placement Policy and replacement Policy, Page buffering resident set Management.

UNIT IV

Scheduling – Types of Scheduling, scheduling Algorithms, scheduling criteria, FIFO, Round Robin, Shortest Process next, Shortest Remaining Time, Highest response ratio and Feedback scheduling Performance comparison – Fair – Share Scheduling. I/O Management and disk scheduling – Organization of the I/O function – the Evaluation of the I/O function, Logical structure of the I/O function, I/O Buffering, Disk Cache.

UNIT V

File Management – Files, File Management Systems, File System Architecture, Functions of File Management File Directories – File Sharing – Secondary Storage Management – File allocation.

TEXT BOOKS

1. William Stallings, “Operating Systems”, Second edition, Maxwell McMillan, International Editions, 1997.

2. Charles Crowley, “Operating Systems-A Design Oriented Approach”, IRWIN Publications Chicago, 1997.

REFERENCES

1. Ann McIver McHoes and Ida M. Flynn, Understanding Operating Systems, Sixth Edition, Course Technology, Cengage Learningm2011

2**.** Ann McHoes, Ida M. Flynn**,** Understanding Operating Systems, Seventh Edition, Cengage Learning, 2013.

3. Deital H.M. “An Introduction to Operating Systems”, Addison Wesley Publishing

4. Silberchatz A., Peterson J.L., Galvan P. “Operating System Concepts”, Third Edition, Addison Wesley Publishing Co., 1992.

SEMESTER-I

CC III - COMPUTER ORGANIZATION AND ARCHITECTURE

Internal Marks : 25

External Marks : 75 **Subject Code : PK3**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To understand the principles of digital computer logic circuits and their design. To understand the working of a central processing unit architecture of a computer.

UNIT I

Number Systems – Decimal, Binary, Octal and Hexadecimal Systems – Conversion from one system to another – Binary Addition, Subtraction, Multiplication and Division – Binary Codes– 8421, 2421, Excess-3, Gray, BCD – Alphanumeric Codes – Error Detection Codes

.**UNIT II**

Basic Logic Gates – Universal Logic – Boolean Laws and Theorems – Boolean Expressions – Sum of Products – Product of Sums – Simplification of Boolean Expressions –Karnaugh Map Method (up to 4 Variables) – Implementation of Boolean Expressions using Gate Networks.

UNIT III

Combinational Circuits – Multiplexers – Demultiplexers – Decoders – Encoders – Arithmetic Building Blocks – Half and Full Adders – Half and Full Subtractors –Parallel adder –2's Complement Adder – Subtractor – BCD Adder.

UNIT IV

Sequential Circuits – Flip Flops – RS, Clocked RS, D, JK, T and Master-Slave Flip Flops –Shift Register – Counters – Asynchronous, MOD-n and Synchronous Counters– BCD Counter –Ring Counter.

UNIT V

Central Processing Unit: General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data Transfer and Manipulation – Program Control – Reduced Instruction Set Computer – CISC characteristics – RISC Characteristics.

TEXT BOOKS

1. Donald P. Leach, Albert Paul Malvino and Goutam Saha, Digital Principles and Applications, Tata Mc Graw Hill, Sixth Edition, Third Reprint, 2007.

   Unit: I: Chapter-5 Section (5.1-5.8)

   Unit: I: Chapter-2 Section (2.1-2.2), Chapter-3 Section (3.1, 3.2, 3.5, 3.7)

   Unit: III: Chapter-4 Section (4.1-4.3, 4.6), Chapter-6 Section (6.7, 6.8)

2. Thomas C. Bartee, Digital Computer Fundamentals, Tata McGraw-Hill, Sixth Edition, Twenty Fifth Reprint, 2006.

   Unit: III: Chapter-5 Section (5.1, 5.3, 5.10, 5.11)

   Unit: IV: Chapter-4 Section (4.1-4.9)

3. Morris Mano M, Computer System Architecture, Prentice Hall of India, Third Edition, 2008.

   Unit: I: Chapter-3 Section (3.5-3.6)

   Unit: V: Chapter-8 Section (8.2-8.8)

REFERENCES

1. Morris Mano. M, Digital Logic and Computer Design, Prentice Hall of India, 2008.

2. Linda Null, Julia Lobur, The Essentials of Computer Organization and Architecture, Fourth Edition2014.

SEMESTER-I

CC IV - DATA STRUCTURES AND ALGORITHMS

Internal Marks : 25

External Marks : 75 **Subject Code : PK4**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To give a detailed knowledge on Data structures and to give an exposure in the development of algorithms related to data structures.

UNIT I

Introduction to data structures, Records, Arrays, Stacks, Queues, Recursion, Linked list, Binary tree and traversing.

UNIT II

Sorting and Searching Techniques: Introduction, Internal and External Sorting, Insertion, Selection, Merging, Radix, Quick sort, Heap sort and Bubble sort. Searching: Introduction, Sequential search, Binary search, Binary Tree search.

UNIT III

Graphs and Their applications: Introduction, Graph Theory, Terminology, Representation of graphs, Tree & Binary tree, operations on graphs, shortest path Algorithms, Topological sorting.

UNIT IV

Algorithms, Development of Algorithms, basic concepts, Structured Program Concepts, Top down development of algorithms, Principle of analyzing Algorithms, Algorithms design methods, Sub goals, Hill climbing.

UNIT V

Algorithms Design Techniques: Divide and Conquer algorithms, Dynamic Programming, Greedy algorithms, Backtracking and Branch & bound.

TEXT BOOKS

1. Seymour Lipschitz "Data Structures, Tata McGraw-Hill
2. Ellis Horowitz & S. Sahni, Fundamentals of Data Structures, Galgotia Pub.

REFERENCES

1. An Introduction to Data Structures and Algorithms, James A Store, Springer Science, 2012.
2. Data Structures and Algorithms made easy, Narasimha Karumanchi, CreateSpace Independent Publishing Platform, 2011.
3. Data Structures Using C - Langsam, Augenstien, Tenenbaum, PHI
4. Data structures and Algorithms, V.Aho, Hopcropft, Ullman , LPE
5. Introduction to design and Analysis of Algorithms - S.E. Goodman, ST Hedetniem-TMH

SEMESTER-I

CC V - OOAD & UML

Internal Marks : 25

External Marks : 75 **Subject Code : PK5**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To give a detailed knowledge on Structured approach to system construction, Various object oriented methodologies, Object oriented analysis, Object oriented design and UML examples.

UNIT I

Structured approach to system construction : SSADM/SADT - An overview of object oriented systems development & Life cycle.

UNIT II

Various object oriented methodologies – Introduction to UML.

UNIT III

Object oriented analysis – Use cases- Object classification, relationships, attributes, methods.

UNIT IV

Object oriented design – Design axioms – Designing classes – Layering the software design: - data access layer, User interface layer, Control/business logic layer.

UNIT V

UML - Examples on :Behavioral models – Structural models – Architectural models from real world problems.

TEXT BOOK

1. **D Jeya Mala, S Geetha,**Object Oriented Analysis and Design using UML, Mc Graw Hill Edition, 2013

2. **Bahrami Ali**, Object oriented systems development, Irwin McGrawHill, 2005 (First 4 units covered here).

3.. **Booch Grady, Rumbaugh James, Jacobson Ivar**, The Unified modeling language – User Guide, Pearson education, 2006 (ISBN 81-7758-372-7) (Unit: -5 covered here).

SEMESTER I

CC VI - C++ PROGRAMMING LAB

Internal Marks : 40

External Marks : 60 **Subject Code : PK6Y**

Total Marks : 100 **Exam Hrs : 3**

Objective

To get hands on experience in developing Programs using C++ for Data Structures applications.

Exercises

1. Implement Array Merging, sorting of array elements [Integer elements & character Elements].
2. Implement sorting of array of English words (in Dictionary order).
3. Implement Stack Data Structures and Operations on it (push, pop).
4. Implement Singly linked list Data structure and operations on it (insert, delete, print, navigate, search).
5. Implement sorting operation on a singly linked list data structure .
6. Implement doubly linked list data structure and operations on it (insert, delete, print, navigate, search).
7. Implement Sorting operation on a doubly linked Data Structure.
8. Implement Queue Data Structure and operations on it.
9. Implement table Data structure and operations on it (insert, delete, print, navigate, search).
10. Implement binary tree data structure and operations on it (node insertion, deletion).
11. Implement pre-order, in-order, post-order traversal of binary tree and print node contents.

SEMESTER I

CC VII - INTERNET PROGRAMMING LAB

Internal Marks : 40

External Marks : 60 **Subject Code : PK7Y**

Total Marks : 100 **Exam Hrs : 3**

List of Exercises

1. Text and Hyperlinks.
2. Image Mapping.
3. Style Sheets.
4. List with Hyperlinks.
5. Table Handling.
6. Canvas.
7. Video, Audio.
8. Input Types.
9. Semantic Elements.
10. Forms and Validation using Java Script.
11. Calculator using Java script.
12. Event Handling using Vbscript.
13. Application Form using Vbscript.
14. XML Validation.
15. Database Application using XML.

Semester-II

CC VIII - PROGRAMMING IN JAVA

Internal Marks : 25

External Marks : 75 **Subject Code : PK8**

Total Marks : 100 **Exam Hrs : 3**

Objective :

To Impart sound knowledge in Object Oriented Programming skills in JAVA

UNIT I

An overview of Java – Java Buzzwords- Data Types, Variables and Arrays - Operators –Control Statements- Introducing Classes: Class Fundamentals – Declaring Objects –Introducing Methods – Constructors – The this keyword – Garbage Collection – Overloading Methods – Call by value, Call by reference – Recursion– Understanding static – final – Nested and Inner classes.

UNIT II

Inheritance: Inheritance Basics – Using super – Method overriding –Dynamic Method Dispatch- Using Abstract Classes - Final with Inheritance- Object class. Packages and Interfaces: Declaring Packages – #Access Protection# – Importing Packages – Defining, Implementing, Applying Interfaces - Exception Handling: Exception Types – try, catch – throw – throws – finally –multiple catch and nested try statements- Creating User defined Exception classes.

UNIT III

Multithreaded Programming: The Java Thread Model – Creating a Thread – Creating Multiple Threads-Thread Priorities- Synchronization – #Inter-thread communication. String Handling# –The Collection Interfaces and Collection Classes: List, Set, Map, Enumeration and Iterator interfaces-Array List, Linked List, Vector, Stack, Properties, HashTable, String Tokenizer, and Date classes.

UNIT IV

Files and IO Streams: File – The Byte Streams: InputStream, Output Stream, FileInputStream, FileOutputStream, PipedInputStream and PrintStream – The Character Streams: Reader, Writer. FileReader and FileWriter – Serialization. Networking- Networking classes andinterfaces: InetAddress class -TCP/IP Client and Server sockets– Datagrams – URL and URLConnection classes.

UNIT V

Introduction to Applet class- Applet Architecture- The HTML APPLET tag – Passing parameters to Applets – Event handling: The Delegation Event Model, Event Classes, Event Listener Interfaces - Working with Graphics, Color and Font classes - Understanding Layout managers- Swing Component classes: JApplet, JFrame and JDialog - Text Fields, Buttons, Combo boxes, List , Tabbled and Scroll Panes.Understanding Layout managers.

TEXT BOOK

Herbert Schildt, The Complete Reference Java 2, Fifth Edition, TMH Education Pvt. Ltd., 2009.

UNIT I: Chapter 1 to 7

UNIT II: Chapter 8 to 10

UNIT III: Chapter 11,13, and 15, 16

UNIT IV: Chapter 17 and 18

UNIT V: Chapter 19 to 22, and 26

REFERENCE

Herbert Schildt with Joe O' Neil, Java – Programmer's Reference, TMH, 2000.

SEMESTER-II

CC IX - DATABASE SYSTEMS

Internal Marks : 25

External Marks : 75 **Subject code : PK9**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To impart knowledge about relational database and distributed database.

UNIT I

Introduction – purpose of database systems – Data Abstraction – Data models – Instances and schemes – Data independence – DDL – DML – Database users – ER model – Entity sets – Keys – ER diagram – relational model – Structure – Relations Algebra – Relational Calculus – Views.

UNIT II

SQL – QBE – QUEL – Basic structure – various Operations – Relational database design problems in the relational data base design – Normalisation – normalization using functional, Multi value and join dependencies**.**

UNIT III

File and system structure – overall system structure – file Organization – data dictionary – Indexing and hashing – basic concept B and B+ tree indices – Static and Dynamic hash functions.

UNIT IV

Recovery and atomicity – failures classification and types – Transaction model and Log based recovery, schedules – serial and non-serial types – Serialization of schedules and views – testing for seriability – lock based protocols – time based protocols – validation techniques – multiple Granularity – multiversion schemes – insert and delete Operations.

UNIT V

Distributed data bases – structure of distributed databases – Trade offs in Distributing the database – Transparency and autonomy – distributed query processing – recovery in distributed systems – commit protocols – security and integrity violations – authorization and views – security specification – encryption – Statistical databases.

TEXT BOOK

Henry F.Korth, and Abraham Silberschatz, Sudarshan “Database system Concepts”, McGraw Hill, 4th Edition, 2002

REFERENCES

1. Hector Garcia Molina, Jeffrey D Ullman, Jennifer Wisdom, Database Systems: The Complete Book, Pearson Education 2013.

2. Pipin C. Desai, “An Introduction to data base systems”, Galgotia Publications Private Limited, 1991.

3. C.J. Date, “An Introduction to Database Systems”, 3rd Edition, Addison Wesley1983.

SEMESTER-II

CC X - SOFTWARE ENGINEERING

Internal Marks : 25

External Marks : 75 **Subject Code : PK10**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To provide knowledge of the various phases of software engineering process.

UNIT I

SOFTWARE PROCESS: Introduction –S/W Engineering Paradigm – life cycle models (water fall, incremental, spiral, WINWIN spiral, evolutionary, prototyping, object oriented) – system engineering – computer based system – verification – validation – life cycle process – development process –system engineering hierarchy.

UNIT II

SOFTWARE REQUIREMENTS: Functional and non-functional – user – system – requirement engineering process – feasibility studies – requirements – elicitation – validation and management – software prototyping – prototyping in the software process – rapid prototyping techniques – user interface prototyping –S/W document. Analysis and modeling – data, functional and behavioral models – structured analysis and data dictionary.

UNIT III

DESIGN CONCEPTS AND PRINCIPLES**:** Design process and concepts – modular design – design heuristic – design model and document. Architectural design – software architecture – data design – architectural design – transform and transaction mapping – user interface design – user interface design principles. Real time systems – Real time software design – system design – real time executives – data acquisition system – monitoring and control system. SCM – Need for SCM–Version control – Introduction to SCM process – Software configuration items.

UNIT IV

TESTING: Taxonomy of software testing – levels – test activities – types of s/w test – black box testing – testing boundary conditions – structural testing – test coverage criteria based on data flow mechanisms – regression testing – testing in the large. S/W testing strategies – strategic approach and issues – unit testing – integration testing – validation testing – system testing and debugging.

UNIT V

SOFTWARE PROJECT MANAGEMENT**:** Measures and measurements – S/W complexity and science measure – size measure – data and logic structure measure – information flow measure. Software cost estimation – function point models – COCOMO model- Delphi method.- Defining a Task Network – Scheduling – Earned Value Analysis – Error Tracking – Software changes – program evolution dynamics – software maintenance – Architectural evolution. Taxonomy of CASE tools.

TEXT BOOKS

1. “Software engineering- A practitioner’s Approach”, Roger S. Pressman, McGraw-Hill International Edition, 5th edition, 2001.
2. “Software engineering”, Ian Sommerville, Pearson education Asia, 6th edition, 2000.
3. “Software Engineering Concepts “, Richard E. Fairley, McGraw-Hill edition, 2002.

REFERENCE BOOK

“Software Engineering –,Jibithesh Mishra, Ashok Mohanty Pearson Education,2011

SEMESTER-II

CC XI - COMPUTER GRAPHICS

Internal Marks : 25

External Marks : 75 **Subject Code : PK11**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To present concepts on basic graphical techniques, raster graphics, two dimensional and three dimensional graphics.

UNIT I

A survey of computer graphics – Overview of Graphic systems- output primitive (Mathematical functions for creating graphic output) – setting attribute of Output primitives

UNIT II

Two dimensional geometric transformations – Two dimensional viewing.

UNIT III

Graphic structures – Hierarchical modeling – Graphical user interfaces and interactive input methods.

UNIT IV

3D Concepts – 3D- object Representation – 3D Geometric and Modeling Transformations.

UNIT V

Visible surface detection methods – Illumination models – Computer Animation.

TEXT BOOK

Hearn Donald, Baker Paulin M., Computer graphics – C version**,** Second edition, Pearson education, 2006. (ISBN 81-7758-765-X).

REFERENCE BOOKS

1.Rajiv Chopra, Computer Graphics: A Practical Approach, Concepts, Principles, Case Studies, S Chand 2011.

2. Newman William M., &Sproull Robert F., Principles of interactive computer graphics, Second edition, Tata –McGraw Hill, 1 (ISBN 0-07- 463293-0).

3. Fundamentals of Computer Graphics, Peter Shirley, Michael Ashikhmin, Steve Marschner, 2009.

Semester-II

CC XII - JAVA PROGRAMMING LAB

Internal Marks : 40

External Marks : 60 **Subject Code :PK12Y**

Total Marks : 100 **Exam Hrs : 3**

Objective : To get hands on experience in developing Programs using Java applications.

1. Assume that a bank maintains 2 kinds of account for its customers' one called savings account and the other current account' The savings account provides compound interest and withdraw facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account falls below this level a service charge is imposed. Create a class Account that stores customers name' account number and type of account. From this derive the classescurr-acct and sav-acct to make them more specific to their requirements. Introduce the necessary methods in order to achieve the following tasks:

    a. Accept deposit form a customer and update the balance.

    b. Display any deposit interest

    c. Compute and deposit interest.

    d. Permit withdrawal and update the balance.

    e. Check for the minimum balance' impose penalty' if necessary and update the balance.

2. Use constructors and methods to initialize the class members.

Write a program that accepts a shopping list of five items from the command line and stores them in a vector and accomplish the following:

    a. To delete an item in the list.

    b. To add an item at a specified location in the list.

    c. To add an item at the end of the list.

    d. To print the contents of the vector.

3. Implementation of the concept of multiple inheritance using interfaces and design a package to contain the class students and another package to contain the interfaces sports.

4. Develop a simple real-life application program to illustrate the use of multithreads.

5. Create a try block that is likely to generate three types of exception and then incorporate necessary catch blocks to catch and handle them appropriately.

6. Write a Java applet' which will create the layout below:

FORMAT

Enter your Name:

Enter your Age:

Select City: *Delhi *Madras

Select SIW: *Oracle *Visual Basic *Java

OK CANCEL

Handle the following simple validations.

The name entered should be less than 25 characters wide.

Age entered should be done as the user exits the fields as well as when OK button is pressed. Hint use the Boolean action (Event evt' object arg).

7. Write an Applet which will play two sound notes in a sequence continuously use the play ( ) methods available in the applet class and the methods in the Audio clip interface.

SEMESTER-II

CC XIII - DATABASE SYSTEMS LAB

Internal Marks : 40

External Marks : 60 **Subject Code : PK13Y**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To get hands on experience in developing queries and designing forms using RDBMS software.

1. SQL – Data Definition Language

Table Creation with Constraints

Table Alteration (Add Column, Modify size and data type, Drop Column)

Drop Table

2. SQL – Data Manipulation Language

Data Insertion

Data Updation

Data Deletion

Ordering Tuples

Tuple Variable

Pattern Matching

Build-in Function

Set Operations

Join Operations

Nested Subqueries

Views

3. PL/SQL Procedure

3.1 Reverse the string.

3.2 Delete any record and count it.

3.3 Student Mark Sheet Preparation

3.4 Pay Roll preparation.

3.5 Excess record stored in separate files.

3.5 Split a table in to two tables.

3.6 Joining two tables in to one table.

3.7 Find factorial number using recursive function.

3.8 Find Fibonacci series using recursive function.

4. SQL Forms

Student Mark System

Pay Roll Preparation

Income Tax Calculation

Train Reservation System.

SEMESTER II

EC I – E-COMMERCE

Internal Marks : 25

External Marks : 75 **Subject Code : PKE1**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To acquire the knowledge in Electronic Commerce, Electronic Payment systems, Security systems, online Advertising and Marketing.

UNIT I

Electronic Commerce Framework – Electronic Commerce and Media Convergence The Anatomy of E-Commerce Applications – Electronic Commerce Consumer Applications Electronic Commerce Organization Applications. The Network Infrastructure for Electronic Commerce: Components of the High way – Network Access Equipment – Global information Distribution Networks.

UNIT II

The Internet as a Network Infrastructure: The Internet Terminology – NSFNET Architecture and components – National Research and Education Network – Internet Governance – An overview of Internet Applications. The Business of Internet Commercialization: Telco/Cable/On-Line Companies - National Independent ISPs – Regional Level ISPs – Local –level ISPs – Internet Connectivity options.

UNIT III

Electronic Commerce and the World Wide Web: Architectural Framework for Electronic Commerce – World Wide Web as the Architecture – Technology behind the Web – Security and the Web, Consumer-Oriented Electronic Commerce: Consumer-Oriented Applications – mercantile process model – mercantile models from the consumers perspective.

UNIT IV

Electronic Payment Systems: Types of Electronic Payment Systems – Digital Token based Electronic Payment Systems – Credit Card – Based Electronic Payment Systems – Risk and Electronic Payment Systems – Designing Electronic Payment Systems. Inter Organizational Commerce and EDI: Electronic Data Interchange – EDI Applications in Business – EDI: Legal, Security and Privacy issues.

UNIT V

Advertising and the Marketing on the Internet: The New Age of Information Search and Retrieval – Electronic Commerce Catalogs – Information filtering – Consumer – Data Interface – Emerging Tools. On Demand Education and Digital Copyrights: Computer based Education and Training – Technological Components of Education on demand. Software Agents: Characteristics and Properties of Agents – The Technology behind Software Agents – Applets, Browsers and Software Agents.

TEXT BOOK

"Frontiers of Electronic Commerce", Ravikalakota & Andrew Whinston, Adison Wesley, 2000.

REFERENCE BOOKS

1. E-Commerce: An Introduction, Manzoor, Lambert Publications, 2010

2. "Electronic Commerce", Pete Loshin& Paul A.Murphy, Second edition, Jaico Publishing House, 2000.

SEMESTER-III

CC XIV - DISTRIBUTED TECHNOLOGIES

Internal Marks : 25

External Marks : 75 **Subject Code : PK14**

Total Marks : 100 **Exam Hrs : 3**

Objectives

To know the architectures of Distributed systems, to understand and compare the technologies associated with J2EE and DOTNET.

UNIT I

Client server architecture: 2-tier model - 3-tier model - n-tier model - J2EEarchitecture - DOTNET architecture - MVC architecture.

UNIT II

Presentation services: Servlet - JSP - Javamail - Interaction services: RMI - CORBA - XML.

UNIT III

Component model: EJB : Session Beans: Stateless and Stateful - Entity Beans- CMP and BMP - Message Driven Beans.

UNIT IV

ASP.NET: Introduction - architecture - ASP.NET Runtime - ASP.NET Parser-- Assembly - Page class. Web Server Controls - HTML Controls –AdRotatorand Calendar controls - Validation Controls - Security Management.

UNIT V

ADO.NET: System.Data, SqlClient and Xml namespaces - Provider objects and Consumer objects - Disconnected data access – GridView & FormView.

TEXT BOOKS

Unit I,II

1. Justin Couch, Daniel H.Steinberg, “J2EE Bible”, Wiley India(P) Ltd, NewDelhi, 2002.

Unit III

2. Paul Tremblett, “Instant Enterprise Java y - Beans”, Tata McGraw Hill Publishing company, New Delhi, 2001.

Unit IV,V

3. Platt S David, “Introducing Micorsoft .Net”, Prentice Hall of India, NewDelhi, 2003.

REFERENCE BOOKS

1. Stephanie Bodoff, Dale Green, Eric Jendrock, “The J2EE tutorial”,Addison-Wesley, 2002.

2. Hitesh Seth, “Microsoft .NET: kick start”, Sams Publishing, 2004.

SEMESTER-III

CC XV- ACCOUNTING PRACTICES

Internal Marks : 25

External Marks : 75 **Subject Code : PK15**

Total Marks : 100 **Exam Hrs : 3**

Objectives

To present the whole range of book keeping & accountancy and to give comprehensive coverage to management accounts.

UNIT – I

Accounting principles and concepts – Double entry system of book keeping – Assets and Liabilities - Journal – Ledger – Trial Balance

UNIT –II

Trading, Manufacturing and profit and Loss account – Balance sheet - Depreciation-Straight Line and Written Down Value method.

UNIT – III

Ratio analysis – Introduction – Classification of ratios – Current Ratio – Liquidity Ratio- Debt Equity Ratio – Gross Profit Ratio – Net Profit Ratio – Return on Investment (ROI) Ratio – EPS – Assets Utilization Ratios – Advantages & Limitations Of Ratio Analysis.

UNIT – IV

Cost Accounting – methods and Techniques of cost Accounting – Classification of cost –Material Cost – Labour cost – overhead – Fixed and variable cost (Only Theory) Marginal costing and decision making - Cost –Volume –Profit Analysis.

UNIT – V

Budgeting and budgetary control – Types of budgets – preparation of various functional budgets – preparations of cash budgets – flexible budgets – Advantages of Budgeting and Budgetary control.

TEXT BOOK:

1. T.S. Grewal, “Double entry book keeping”, All India, sultan chand (Recent Edition)
2. S.N. maheswari, “Principles of Management Accounting”. Sulthan chand, New delhi,(recent Edition)

REFERENCE BOOKS:

1. S.K. Gupta & R.K. Sharma – “ Practical problems in Management Accounting” (Recent Edition)
2. Khan and Jain “Financial Management “, Tata Mcgraw hill (recent Edition)
3. Ramachandran and Srinivasan – Management Accounting, Sri Ram Publications, Trichy.

SEMESTER – III

CC XVI - DISCRETE MATHEMATICS

Internal Marks : 25

External Marks : 75 **Subject Code : PK16**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To impart knowledge on Sets, Relations & Functions, Mathematical logic, Groups & Subgroups, Lattices & Boolean Algebra and Graph Theory.

UNIT I

Sets, Relations & Functions: Basic Concepts of Set Theory, Relations and ordering, Functions, Natural Numbers, Recursion.

(Chapter – II : Sec2.1, 2.3, 2.4, 2.5,2.6)

UNIT II

Mathematical logic: Statements and Notation, Connectives, Normal Forms, The Predicate Calculus, Inference Theory of the Predicate Calculus.

(Chapter –I : Sec 1.1,1.2(except 1-2.15),1.3,1.4,1.5,1.6)

UNIT III

Algebraic Structures: Algebraic Systems: Examples and General Properties, Semigroups and Monoids, Grammars and Languages, Groups ,Group Codes.

(Chapter – III: Sec 3.1, 3.2 ,3.3, 3.4, 3.5, 3.7)

UNIT IV

Lattices & Boolean Algebra: Lattices as Partially Ordered Sets,Boolean Algebra, Boolean Functions, Representations and Minimization of Boolean Functions, Finite state Machines

(Chapter –IV:Sec 4.1,4.2,4.3,4.4,4.6)

UNIT V

Graph Theroy: Basic Concepts of Graph Theory, Basic Definitions, Paths, Reachability, and Connectedness, Matrix Representation of Graphs, Trees,Storage Representation and Manipulation of Graphs

(Chapter –V: Sec 5.1,5.2,)

Text Book

1. Trembly. J.P &Manohar. P., “Discrete Mathematical Structures with Applications to Computer Science” McGraw Hill.

References

1. Kolman, Busy & Ross “Discrete Mathematical Structures”, PHI
2. K.D Joshi, “Foundations of Discrete Mathematics”, Wiley Eastern Limited.
3. Seymour Lipschutz& March Lipson Tata McGraw Hill.
4. C.L. Liu “ Elements of screte mathematics “ Tata McGraw Hill.

SEMESTER-III

CC XVII - DISTRIBUTED TECHNOLOGIES LAB

Internal Marks : 40

External Marks : 60 **Subject Code : PK17Y**

Total Marks : 100 **Exam Hrs : 3**

Objective

To get hands on experience in developing applications for distributed environment.

1. RMI - Invocation of server side methods.
2. Servlets - Returning Information received from the client.
3. Servlets and JDBC - Constructing a response by accessing a database.
4. JSP - use of scriptlet.
5. JSP - use of java beans.
6. EJB - Session Bean.
7. EJB - Entity Bean.
8. ASP.NET - Server & Client side controls.
9. ASP.NET and ADO.NET - use of disconnected data object.
10. ASP.NET: Databind Controls.
11. DOM usage on the server side.
12. AJAX: Dynamic client - server interaction example.

SEMESTER-III

CC XVIII - OPEN SOURCE TECHNOLOGY LAB

Internal Marks : 40

External Marks : 60 **Subject Code : PK18Y**

Total Marks : 100 **Exam Hrs : 3**

Objectives:

1. To have a practical knowledge in Linux.
2. To Understand and work with PHP and MySql.

List of Exercises:

1. Simple shell commands
2. Directories commands
3. Navigating file system
4. Simple filters
5. Regular expressions
6. System Processes Commands.
    a. Write a menu driven program to create, sort and display a file
    b. Write a menu driven program to copy, edit, rename and delete a file
    c. Prepare Mark list for a student
    d. Write a shell program to sort the names and numbers in ascending and descending order
7. Write a server side PHP program that displays marks, total, grade of a student in tabular format by accepting user inputs for name, number and marks from a HTML form.
8. Write a PHP program that adds products that are selected from a web page to a shopping cart.
9. Write a PHP program interface to create a database and to insert a table into it.
10. Write a PHP program using classes to create a table.
11. Write a PHP program to upload a file to the server.
    a. Write a shell program to find the details of an user session.
    b. Create a mysql table and execute queries to read, add, remove and modify a record from that table.

SEMESTER-III

CC XIX - ACCOUNTING AND FINANCIAL MANAGEMENT LAB

Internal Marks : 40

External Marks : 60 **Subject Code : PK19Y**

Total Marks : 100 **Exam Hrs : 3**

Objective

To get hands on experience in developing accounting and financial management applications using accounting software.

1. Creation of company, Groups – Single & Multiple
2. Posting of Journal to ledger – Single & Multiple.
3. Preparation of Accounting vouchers.
4. Preparation of Trail balance.
5. Financial Statement: Trading account, profit and loss account and Balance sheet.
6. Preparation of Bank Reconciliation Statement
7. Preparation of Inventory: Stock Item, Stock Group, Stock category,
8. Preparation of VAT (Value Added Tax)
9. Inventory Voucher.
10. Preparation of TDS (Tax Deducted at Source) & Service Tax.

SEMESTER-III

EC II - OPEN SOURCE TECHNOLOGY

Internal Marks : 25

External Marks : 75 **Subject Code : PKE2**

Total Marks : 100 **Exam Hrs : 3**

Objectives

1. To understand open source movement worldwide
2. To use the fastest growing open source operating system, “Linux”, today
3. To develop application using LAMP

UNIT I

Open source software: Introduction-Open source software Vs Commercial software – The Web. Linux: Introduction – Architecture – Kernel – Features – Distributions – Download and Install – Partition sizes – Basic commands.

UNIT II

Linux files and Directories: Structure – Listing, displaying files-Managing directories – File and directory operations – Vi Editor - Achieving and compressing files – Pipes**.** Jobs :Background, kills and interruptions –Ending processes.

UNIT III

The Shell**:** Types –Variables - File name expansion **-** Shell Scripts: User defined commands-Control structure – conditional control structure- Loop control structure – Aliasing commands and arguments

UNIT IV

Apache: Introduction –Operations – Configurations – Securing – Log files. MySQL: Introduction – Commands –Database independent Interface –Table joins – Loading and Dumping a database

UNIT V

PHP: Introduction – Embedding PHP into HTML –Language Syntax –Built in PHP Functions – PHP and MySQL –User Authentication and Tracking: Database-Driven user authentication – Using cookies – Session Basics

TEXT BOOKS

1. James Lee and Brent Ware, "Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP", Dorling Kindersley (India) Pvt. Ltd and Pearson Education, 2009.

2. Richard Petersen, “The complete Reference Linux”, Sixth Edition 2008, Tata McGraw-Hill Edition.

3. Julie Meloni, Matt Telles “PHP 6” Cengage Learning India Private Limited, 2009.

REFERENCE BOOK

1. Eric Rosebrock, Eric Filson, "Setting Up LAMP: Getting Linux, Apache, MySQL, and PHP and working Together", John Wiley and Sons Publications, 2004.

SEMESTER-IV

CC XX - WEB TECHNOLOGIES

Internal Marks : 25

External Marks : 75 **Subject Code : PK20**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To enable the students to learn the basic concepts of web programming and web services

UNIT I

WEB PROGRAMMING

PHP introduction : variables – operators – control structures – Advanced concepts in PHP : Cookies – sessions – server variables

UNIT II

PHP Files :accessing files – reading – writing - MySQL database: insert – update –delete – join – group by – aggregate functions – formats – case studies .

UNIT III

WEB SERVICES

Introduction – What are web services? SOAP WSDL UDDI-Why Web Services are important? – The evolution of web applications Not just another distributed computing platform – Web services and enterprises. XML: XML Fundamentals XML: The Lingua Franca of web services - XML Documents XML namespaces Explicit and Default namespaces, Inheriting namespaces, And not inheriting namespaces, Attributes and namespaces –XML Schema XML schema and namespaces, A first schema, Implementing XML schema types, The any Element, Inheritance, Substitution groups, Global and local type declarations, Managing Schemas, Schemas and instance documents, XML schema best practices- Processing XML SAX: Simple API for XML, DOM: Document object Model, XSLT, XPATH

UNIT IV

SOAP and WSDL5 The SOAP Model- SOAP- SOAP Messages SOAP Envelope, SOAP Header, SOAP Body, SOAP Faults- SOAP encoding – SOAP RPC- Using alternative SOAP Encodings, Document, RPC, Literal, Encoded SOAP RPC and SOAP Document- Literal, SOAP web services and the REST Architecture-Looking back to SOAP 1.1

Syntactic differences between SOAP 1.2 and SOAP1.1- Changes to SOAP-RPC- SOAP Encoding- WSDL structure, The stock quote WSDL interface, definitions, The type element, bindings, services, managing WSDL descriptions, Extending WSDL – Using SOAP and WSDL

UNIT V

UDDI: UDDI at a glance- The UDDI Business registry- UDDI under the covers – Accessing UDDI- How UDDI is playing out Conversations Overview – Web Services – Web services Conversation Language – WSCL Interface components – The Bar scenario conversations – Relationship between WSCL and WSDL Workflow Business Process Management – Workflow and Workflow management systems – Business process execution language for web services

Text Book(s)

1. K. Meena , R. Sivakumar , A.B. KarthickAnandBabu “Web programming using PHP and MySQL” - Himalaya Publishing House – 2011. (**for Unit 1 and Unit 2)**

2. SandeepChatterjee, James Webber, “Developing Enterprise Web Services – An Architect’s Guide” - Pearson Education– Second Indian Reprint 2005. (**for Unit 3, Unit 4 and Unit 5)**

SEMESTER-IV

CC XXI - DATA MINING AND DATA WAREHOUSING

Internal Marks : 25

External Marks : 75 **Subject Code : PK21**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To understand the practical methods and techniques for building a data warehouse. To understand data mining concepts, tasks and their techniques.

UNIT - I

Introduction - What is Data mining, Data mining - important Data mining - various kind of data mining Functionalities – Various kinds of Patterns Pattern Interesting Classification of Data mining Systems Data mining Task Primitives Integration of Data Mining System Major issues in Data Mining

UNIT - II

Data Processing - Process the Data Descriptive Data Summarization – Measuring Central Tendency Dispersion of Data Graphic Displays of –Basic Descriptive Data Summaries Data Cleaning Data Integration and Transformation data Reduction Data Discrimination - Concept Hierarchy Generation

UNIT - III Data

Warehouse OLAP Technology An overview - Data Warehouse Multidimensional Data Model Data Warehouse Architecture Data Warehouse Implementation from Data Warehouse to Data mining

UNIT – IV

Mining – Frequent Patterns Associations Correlations - Basic Concepts Road Map Efficient Scalable Frequent Item set Mining methods Mining – Various Kinds of Association rules Analysis - Association mining to Correlation Constrain Based Association mining

UNIT - V

Classification – Prediction – Cluster analysis - Applications and trends in data mining

TEXT BOOK

1. Data Mining (Concepts and Techniques) Second Ed , Author : Jiawei Han and Micheline Kamber Publishers : Morgan Kaufmann Publishers (An imprint of Elsevier)

REFERENCE BOOKS

1. Data Mining (Next Generation Challenges and Future Directions) Author : Karguta, Joshi, Sivakumar & Yesha Publishers : Printice Hall of India (2007)
2. Data Mining (Practical Machine Learning Tools and Techniques (Second Edition) Author: Ian H. Witten & Eibe Frank Publishers: Morgan Kaufmann Publishers (An imprint of Elsevier)
3. Data Warehousing, Data mining & OLAP (Edition 2004) Author: Alex Benson, Stephen V. Smith Publishers: Tata McGraw – Hill

SEMESTER-IV

CC XXII - ORGANIZATIONAL BEHAVIOUR

Internal Marks : 25

External Marks : 75 **Subject Code : PK22**

Total Marks : 100 **Exam Hrs : 3**

Objectives:

1. To develop the knowledge in personality, perception, attitudes and motivation.

2. To learn about stress management, communication, leadership, organization structure and organization culture.

UNIT I

Introduction: Elements of OB – Nature and Scope of OB - Contributing Disciplines to OB. **Organisational Behaviour in Historical Perspective - Foundations of Individual Behaviour:** Introduction – The Individual and Individual Differences – Human Behaviour and its Causation.

UNIT II

Personality – Perception - Attitudes: Concept of Attitudes – Formation of Attitudes– Types of Attitudes – Measurement of Attitude – Change of Attitude. **Values:** Concept of Value – Types of Values – Formation of Values – Values and Behaviour. **Job Satisfaction.**

UNIT III

Learning: Meaning and Definition – Determinants of Learning – Learning Theories –Learning Principles – Reinforcement – Punishment – Learning and Behaviour. **Motivation:**Concepts – Meaning of Motivation – Nature of Motivation – Motivation Cycle or Process –Need for Motivation – Theories of Motivation – Motivation and morale. **Group Behaviour.**

UNIT IV

Organisational Conflicts: Definition of Conflict – Sources of Conflict – Types of Conflicts – Aspects of Conflicts – Functional Conflict – Dysfunctional Conflict – Conflict Process – Conflict Management. **Job Frustration - Stress Management.**

UNIT V

Communication: Nature and Need for Communication – Communication Process –Communication Channel – Communication Networks –Communication Barriers – Effective Communication. **Leadership - Organisational Structure - Organisational Culture**.

TEXT BOOK

1. S.S Khanka, *"**Organizational Behaviour**",* S.Chand & Company Ltd, 2002.

REFERENCE BOOKS

1. John W Newstorm and Keith Davis – *"Organizational Behaviour"* – TMH, 2001.

2. Hugh J Arnold and Daniel C Fieldman – *"Organizational Behaviour"* – MC Graw Hill, 1996

SEMESTER – IV

CC XVI - PROBABILITY AND STATISTICS

Internal Marks : 25

External Marks : 75 **Subject Code : PK23**

Total Marks : 100 **Exam Hrs : 3**

UNIT I

Probability: Definitions of probability, Addition theorem, Conditional probability, Multiplication theorem, Baye's theorem of probability and Geometric probability. Random variables and their properties, Discrete Random variable, Continuous Random variable, Probability Distribution joint probability distributions their properties, Transformation variables, Mathematical expectations, probability
generating functions

UNIT II

Probability Distributions / Discrete distributions: Binomial, Poisson Negative binominal distributions and their properties. (Definition, mean, variance, moment generating function, Additive properties, fitting of the distribution.) Continuous distributions: Uniform, Normal, exponential distributions and their
properties. Curve fitting using Principle of Least Squares.

UNIT III

Multivariate Analysis: Correlation, correlation coefficient, Rank correlation, Regression Analysis, Multiple Regression, Attributes, coefficient of Association, X2 – test for goodness of fit, test for independence.

UNIT IV

Sample, populations, statistic, parameter, Sampling distribution, standard error, unbiasedness, efficiency, Maximum likelihood estimator, notion & interval estimation. Testing of Hypothesis: Formulation of Null hypothesis, critical region, level of significance, power of the test.

UNIT V

Queuing theory: Queue description, characteristics of a queuing model, study state solutions of M/M/1: α Model, M/M/1 ; N Model.

TEXT BOOK

1. T.Veerarajan, “Probability, Statistics and Random Processes”, Tata McGraw Hill

REFERENCE BOOK

1. **Yuri Suhov, Mark Kelber,** Probability and Statistics by Example, Cambridge University Press,2014.

2. **Kishor S. Trivedi**, “Probability & Statistics with Reliability, Queuing and Computer Applications”, Prentice Hall of India, 1999

SEMESTER-IV

CC XXIV - WEB TECHNOLOGIES LAB

Internal Marks : 40

External Marks : 60 **Subject Code : PK24Y**

Total Marks : 100 **Exam Hrs : 3**

Objective : To get hands on experience in developing web based applications.

1. Create a simple Web Service that converts the temperature from Farenheit toCelsius and vice versa.
2. Use the above Web Service on a web page and execute to fetch the results
3. Create a Web Services provider and make it available on the Internet or intranet.
4. Create a web based Consumer of an existing web service.
5. Create a Windows application based consumer of an existing web service.
6. Write an application that simulates sending a SOAP message as a request and receiving another as a response.
7. Develop a Web Service that provides images as responses.
8. Develop a web service that access table contents of a database.
9. Develop a console based Web Service Client.
10. Develop a Web intranet/internet based Web Service Client.

SEMESTER-IV

CC XXV - DATA MINING LAB

Internal Marks : 40

External Marks : 60 **Subject Code : PK25Y**

Total Marks : 100 **Exam Hrs : 3**

Objective

To get hands on experience in developing applications using data mining tool.

Exercise 1

Preprocessing

a. Datatype Conversion

b. Data Transformation

Exercise 2

Filters- Practical

a. Replace Missing Values

b.Add Expression

Exercise 3

Feature Selection

Select Attributes- Practical

a. Filter

b. Wrapper

c. Dimensionality Reduction

Exercise 4

Supervised Technique

Classifier - Function - Practical

a. Multilayer Perceptron Tree - Practical

Exercise 5

Classifier- Bayes –Practical

a.Naive Bayes Rule- Practical

b.ZeroR

Exercise 6

Unsupervised Techniques

Clustering- Theory

Partitioned – Algorithm – Practical

Hierarchical Algorithm – Practical

Semi Supervised Algorithm – Practical

Exercise 7

Association Rule Mining

A-Priori –Algorithm –Practical

Predictive A-Priori –Practical

Exercise 8

Experimenter

Dataset – Test – Practical

Algorithm based –Test –Practical

Exercise 9

Knowledge Flow

Feature Selection – Practical

Clustering –Practical

Exercise 10

Knowledge Flow

Classification – Practical

Semester-IV

EC III - SOFTWARE PROJECT MANAGEMENT

Internal Marks : 25

External Marks : 75 **Subject Code : PKE3**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To understand the fundamental principal of Software project management and will also have a good knowledge of responsibilities of project manager and how to handle these.

UNIT I

Introduction to Software Project Management: Introduction – Why is SPM important? – Project- Software projects Vs other types of project – Contract and technical project management – Activities – plan, methods and methodologies categorizing software projects- stakeholders- setting objectives- Business case – project success and failures- Management. Project Evaluation and Programme Management: Introduction – Business case – Project portfolio management – Evaluation of individual projects – cost benefit evaluation techniques – risk evaluation – Programme management – Managing the allocation of resources – Strategic programme management – Creating a programme and aids – benefits management.

UNIT II

Overview Of Project Planning: Introduction - Step wise Project Planning – steps. Selection Of An Appropriate Project Approach : Introduction – Build or buyChoosing methodologies and technologies – Software processes and models – choice of process models – structure Vs speed of delivery – waterfall model – spiral model – software prototyping – Rapid application development – Agile methods- Extreme programming.

UNIT III

Software Effort Estimation: Introduction- Where are estimates done? – Problems with over and under estimates – Basis for estimating and its techniques – Bottom up estimating – Top down approach and parametric models – Expert Judgment – Estimating by analogy - Function Point Analysis – FP mark II – COSMIC full FPCOCOMO II – Cost estimation and staffing patterns. Activity Planning: Introduction- objectives – When to plan? – Project schedules – Projects and Activities – Network Planning Models – Sequencing and Scheduling Activities – Formulating a Network Model – Adding the Time

Dimension – Forward and Backward Pass – Critical Path- Activity Float – Shortening the Project Duration – Critical Activities – Activity on Arrow Networks.

UNIT IV

Risk Management: Introduction – Risk – Categories of risk – A framework for dealing with risk – Risk Identification – Risk assessment – Risk Planning – Risk Management – Evaluating risks to schedule – Applying the PERT Technique – MonteCarlo Simulation – Critical Chain Concepts. Resource allocation : Introduction – Nature of resources – Identifying Resource Requirements- Scheduling – Creating Critical Path – Counting the cost – being the specific – publishing the resource schedule - Cost Schedules – Scheduling sequence.

UNIT V

Monitoring and Control: Introduction – Creating the framework – collecting the data – Review – Software Configuration Management. Managing Contracts: Introduction- Types of contracts – Contract Management - Managing people in software environments.

Text Book:

"Software project management" - Bob Hughes, Mike Cotterell and Rajib Mall - Fifth Edition.

Unit I: Chapter 1, 2

Unit II: Chapter 3, 4

Unit III: Chapter 5, 6

Unit IV: Chapter 7, 8

Unit V: Chapter 9, 10, 11

Reference Book:

"Software Project Management" - Walker Royce - Pearson Education

Semester-IV

CC XXVI - MANAGERIAL SKILLS

Internal Marks : 25

External Marks : 75 **Subject Code : PK26**

Total Marks : 100 **Exam Hrs : 3**

Objective

The learning objective of this course is to enable the students to learn the art of getting things done in the modern business world by learning topics like lateral thinking, decision making, balancing work and life, corporate social responsibility, and work ethics.

UNIT I

THINKING STRATEGIES

Strategic thinking – meaning – questions- things included in Strategic thinking – Process consideration in Strategic thinking – Strategic thinking competencies – importance of Strategic thinking – characteristics of Strategic Thinkers – Points to be kept in mind in Strategic thinking.Lateral Thinking – meaning – why Lateral Thinking – when to use Lateral Thinking – Benefits of Lateral Thinking – Techniques used in Lateral Thinking – Who needs Lateral Thinking – How to use Lateral Thinking? – Conventional Vs Lateral Leaders – Questions asked by Lateral Leaders – becoming a Lateral leader

UNIT II

INTERPERSONAL STRATEGIES

Conflict Resolution – meaning – points to be understood before studying conflict resolution – sources of conflict – common reactions to conflict – role of perception in conflict – steps for Conflict Resolution – Conflict handling matrix – Functional and Dysfunctional outcome of conflict. Negotiation skills – process – styles – outcome – principles involved – negotiation model – being a negotiator – qualities of a negotiator.

UNIT III

IMPLEMENTATION STRATEGIES

Facing changes – meaning – characteristics –why changes –pace of changes – impact of resistance –Reasons for resistance – types of people in facing changes – introducing change. Facing challenges – meaning – importance – path to facing challenges – benefits of facing challenges.

UNIT IV

ACTION BASED STRATEGIES

Risk taking - meaning – factors determining Risk Taking – Risk management – users of Risk Management – Steps in Risk Management. Effective decision making – meaning – approaches – methods – steps – Decision making at the work place.

UNIT V

BEHAVIOURAL STRATEGIES

Motivation and Staying motivated – meaning – finding reason for being motivated – staying motivated at work place – staying motivated in negative work environment – staying motivated during crisis. Balancing work and life – meaning – work satisfaction – gender differences – responsibility of the employers and employees – ways of balancing work and life – handling professional and personal demands – organizing your desk.

TEXT BOOK

Alex K. (2012) Soft Skills – Know Yourself & Know the World, S.Chand & Company LTD, Ram Nagar, New Delhi- 110 055. Mobile No :94425 14814 (Dr. K. Alex)

REFERENCE BOOKS

1. Meena.K and V.Ayothi (2013) A Book on Development of Soft Skills (Soft Skills : A Road Map to Success), P.R. Publishers & Distributors, No, B-20 & 21, V.M.M. Complex, Chatiram Bus Stand, Tiruchirappalli- 620 002.(Phone :0431-2702824: Mobile : 94433 70597, 98430 74472)

2. Emotional Quotient – Daniel Goleman

3. Power of the Plus factor – Norman Vincent Peale.

4. The Seven Habits of Highly Effective people – Stephen covey

Semester-V

CC XXVII - COMPUTER NETWORKS

Internal Marks : 25

External Marks : 75 **Subject Code : PK27**

Total Marks : 100 **Exam Hrs : 3**

Objectives:

1. To study the concepts of Network uses, Network Hardware, Software, Protocols, and their Performance
2. To Learn the different types of Network Layers and Network Security.

UNIT I

Introduction – Uses of Computer Networks: Business Application – Home Application –Mobiles users – Social Issues. Network Hardware – Network Software – Reference Models:OSI Reference model – TCP\IP Reference model. The physical Layer: The Theoretical Basis for Data Communication – Guided Transmission Media – Wireless Transmission.

UNIT II

The Data Link Layer: Design Issues – Error Detection and correction – Elementary Data Link Protocols – Sliding Window Protocols - The medium access sub layer-Ethernet: Ethernet cabling – Manchester encoding – Ethernet MAC sub layer protocol. Bluetooth: Bluetooth Architecture – Bluetooth Applications – The Bluetooth Protocol Stack – Bluetooth Frame Structure.

UNIT III

The Network Layer: Design Issues – Routing algorithms – Congestion Control: General principles of congestion control – Congestion Control prevention policies – congestion control in virtual circuit subnets – Congestion Control in datagram subnets. Quality of Service – Internetworking – The Network Layer in the Internet: The IP Protocol – IP Address.

UNIT IV

The Transport Layer: The Transport Service - The Internet Transport Protocol (UDP) – The Internet Transport Protocol (TCP): Introduction to TCP – TCP Service Model – The TCP Protocol – The TCP segment Header – TCP Connection Establishment – TCP Connection Release – The Application Layer: Domain Name System – Electronic Mail.

UNIT V

Network Security: Cryptography: Introduction to cryptography – Substitution Ciphers –Transposition Ciphers – one Time pads - Two Fundamental Cryptographic Principles. Symmetric key algorithms: Data Encryption Standard. Public Key algorithms: RSA – other public key cryptography. Email Security – Web Security.

TEXT BOOK

1. Andrew S. Tannenbaum, “Computer Networks”, Fourth Edition, Prentice – Hall of India Pvt. Ltd., New Delhi. 2005.

REFERENCE BOOK

1. Behrouz A Forouzan, “Data Communications and Networking”, Fourth Edition, Tata McGraw Hill, 2006.

2. William Stallings, ” Data and Computer Communications”, Sixth Edition, Prentice-Hall, 2000.

Semester-V

CC XXVIII - ANDROID PROGRAMMING

Internal Marks : 25

External Marks : 75 **Subject Code : PK28**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To provide concepts to enable the students for creating applications for Android

UNIT I

Introduction to Android: History of Android – Versions of Android – Android Architecture – App Architecture – Components – Intents – Mainfest – App Package - Activities - Services –Broadcast Receivers – Content Providers – Installing the Android SDK – Installing an Android Platform – Creating an Android Virtual Device – Starting the AVD – Introducing UC – Creating UC – Installing and Running UC – Preparing UC for Publishing – Migrating to Eclipse –Developing UC with Eclipse.

UNIT II

User Interface: Customizing the Window – Creating and Displaying Views – Monitoring Click Actions – Resolution Independent Assets – Locking Activity Orientation –DynamicOrientation Locking – Manually Handling Rotation – Creating Pop-up Menu Actions –Customizing Options Menu – Customizing Back Button – #Emulating the Home Button –Monitoring TextView Changes – Scrolling TextView Ticker – Animating a View – Creating –Drawables as Backgrounds – Creating Custom State Drawables – Applying – Masks to Image –Creating Dialogs that Persist – Implementing Situation – Specific Layouts – Customizing Keyboard Actions – Dismissing Soft Keyboard – Customizing AdapterView Empty View –Customizing ListView Rows – Making ListView Section Headers – Creating Compound Controls.

UNIT III

Interacting with Device Hardware and Media – Interacting Device Location – MappingLocations – Annotating Maps – Capturing Images and Videos – Making a Custom Camera Overlay – Recording Audio – Adding Speech Recognition – Playing Back Audio/Video – Creating a Tit Monitor – Monitoring Compass Orientation.

UNIT IV

Persisting Data : Marking a Preference Screen – Persisting Simple Data – Reading and Writing Files – Using Files as Resources - Managing a Database – Querying a Database –Backing Up Data – Sharing your Database – Sharing your other Data.

UNIT V

Interacting with the Systems: Notifying from the Background – Creating Timed andPeriodic Tasks – Scheduling a Periodic Task – Creating Sticky Operations – Running Persistent Background Operations – Launching Other Applications – Launching System Application – other Applications – Interacting with Contacts – Picking Device Media – Saving to the MediaStore Working with Libraries : Creating Java Library JARs – Using Java Library JARs – Creating Android Library Projects - Using Android Library Projects – Charting – Practical Push Messaging.

TEXT BOOK

1. Dave Smith and Jeff Friesen, “Android Recipes: A Problem – Solution Approach”, Rakmo Press Pvt., Ltd, New Delhi, 2011.

Web Reference: http://developer.android.com/Android Developer’s Guides

SEMESTER – V

CC XXIX- OPTIMIZATION TECHNIQUES

Internal Marks : 25

External Marks : 75 **Subject Code : PK29**

Total Marks : 100 **Exam Hrs : 3**

Objective:

To understand the basic concepts of operations research and to impart the knowledge on various operations research techniques and their applications.

UNIT I

Linear Programming : Introduction – History of OR – Meaning of OR – Principles of Modelling – Linear equation – Gaussian Elimination – Formulation of LP models – Graphical Solution – Algebraic Solutions – Simplex Method – Feasibility – Optimality – Artificial Variables – M – Technique – Duality – Dual simplex Algorithm – Transportation Problem – Assignment Problem – Least Time Transportation Problems.

UNIT II

Queuing Models : Introduction – Deterministic Model – Queue Parameters – M/M/I Queue – Limited queue Capacity – Multiple Servers – Finite Sources – Waiting Times – Queue discipline – Non – Markovian Queues – Probabilistic models.

UNIT III

Inventory Models: Determine Models – EOQ – Finite and Infinite Delivery Rates without Back- Ordering – Finite and Infinite delivery rates with Backordering –
Quantity Discounts – EOQ with constraints – Probabilistic model – Single Period Model– Reorder Point Model – Variable Lead Times

UNIT IV

PERT / CPM: Arrow (Network) Diagram Representation – Time estimates – Critical Path – Floats – Construction of Time chart and Resource Leveling – Probability and Cost Consideration in Project Scheduling – Project Control.

UNIT V

Replacement Theory : Introduction – Various replacement situations – Replacement Policy – Variables Maintenance costs and fixed money value – Variable Maintenance Costs and Variable Money Value – Individual Replacement Policy – Group Replacement Policy – Reliability.

TEXT BOOK:

KantiSwarup P.K. Gupta and Man Mohan, “Operation Research”, Sultan & Chand Publishers New Delhi, 1992.

REFERENCE BOOK:

1. By Jagdish S. Rustag, Optimization Techniques in Statistics, Academic Press, 2014

2. Hamdy A Taha, Operations Research – An Introduction Macmillan Publishing Company, 1982.

3. Don.T. Philps, A.Ravindran, James. J. Solberg, “Operations Research – Principles and Practice John Wiley & Sons, 1976.

Semester-V

CC XXX - ANDROID PROGRAMMING LAB

Internal Marks : 40

External Marks : 60 **Subject Code : PK30Y**

Total Marks : 100 **Exam Hrs : 3**

Objective :

To get hands on experience in developing applications for Android devices.

XML

1. XML document creation
2. Style sheets: CSS
3. Style sheets: XSL
4. XSL templates
5. Validation using DTD
6. SAX and DOM

Android

1. Different Layout design including nested layout for a single biodata.
2. Arithmetic Operation for two numbers
3. Business Calculator
4. Animation: Bouncing of a ball
5. Intent
6. Database SQLite: Student Biodata
7. Fragments - Tablet Programming
8. Media Player

Semester-V

EC IV - CLOUD COMPUTING

Internal Marks : 25

External Marks : 75 **Subject Code : PKE4**

Total Marks : 100 **Exam Hrs : 3**

Objectives:

1. To introduce cloud computing paradigm.
2. To understand the mechanisms needed to harness cloud computing in their own respective endeavours.

UNIT I

Introduction to Cloud Computing: Roots of Cloud Computing – Layers and Typesof Clouds – Features of a cloud – Infrastructure Management – Infrastructure as a Service Providers – Platform as a Service Providers – Challenges and Risks. **Migrating into a Cloud:** Broad Approaches to Migrating into the Cloud – The Seven Step Model of Migration into a Cloud. **Integration as a Service Paradigm:** The Evolution of SaaS–The Challenges of SaaS Paradigm – Approaching the SaaS Integration Enigma – New Integration Scenarios – The Integration Methodologies – SaaS Integration Products, Platforms and Services–B2Bi Services.

UNIT II

The Enterprise Cloud Computing Paradigm: Background of Enterprise cloud computing paradigm – Issues for Enterprise Applications on the Cloud – Transition Challenges – Enterprise Cloud Technology and Market Evolution – Business drivers toward a marketplace for Enterprise cloud computing – The Cloud Supply Chain. **Management of Virtual Machines for Cloud Infrastructures:** The Anatomy of Cloud Infrastructure –Distributed Management of Virtual Infrastructures – Scheduling Techniques for Advance Reservation of Capacity – RVWS Design – **Cluster as a Service**: The Logical Design –**Cloud Storage** : from LANs TO WANs –Technologies for Data Security in Cloud Computing .

UNIT III

Workflow Engine for Clouds: Workflow Management Systems and Clouds – Architecture of Workflow Management Systems – Utilizing Clouds for Workflow Execution. **Understanding Scientific Applications for Cloud Environments:** A Classification of Scientific Applications and Services in the Cloud – SAGA based Scientific Applications that Utilize Clouds. **Map Reduce Programming Model** : Map Reduce Programming Model –Major Map Reduce Implementations for the Cloud – Map

Reduce Impacts and Research Directions. A Model for Federated Cloud Computing – Traditional Approaches to SLO Management – Types of SLA – Life Cycle of SLA – SLA Management in Cloud –Automated Policy based Management.

UNIT IV

HPC On Cloud: Grid and Cloud – Performance related Issues. **Best Practices in Architecting Cloud Applications:** Background – Cloud Concepts – Cloud Best Practices –GrepTheWeb Case Study. **Building Content Delivery Networks Using Clouds:** Introduction – Background – MetaCDN – Performance of MetaCDN. **Resource Cloud Mashups:** Introduction – Concepts of a Cloud Mashup – Realizing Resource Mashups.

UNIT V

Data Security in the Cloud: The Current State of Data Security in the Cloud – Homo Sapiens and Digital Information – Risk – Identity – The Cloud, Digital Identity and Data Security. **Content Level Security:** Pros and Cons – Legal Issues in Cloud Computing –Data Privacy and Security Issues – Cloud Contracting models – **Case Studies**: Aneka and CommetCloud.42

TEXT BOOK

1. Rajkumar Buyya, James Broberg and Andrzej Goscinski, ***Cloud Computing Principles and Paradigms***, Wiley India Pvt.Ltd., 2014.

REFERENCE BOOKS

1. Tim Mather, Subra Kumaraswamy, Shahed Latif , ***Cloud Security and Privacy,*** O'Reilly, First Edition, 2009.

2. George Reese, ***Cloud Application Architectures,*** O'Reilly Media, Inc., FirstEdition,2009.

3. Ronald L.Krutz, Russell Dean Vines, ***Cloud Security: A Comprehensive Guide to Secure Cloud Computing,*** Wiley's Publications, 2010.

SEMESTER-V

EC V - PRINCIPLES OF COMPILER DESIGN

Internal Marks : 25

External Marks : 75 **Subject Code : PKE5**

Total Marks : 100 **Exam Hrs : 3**

Objectives

To understand the various phases of a compiler and to develop skills in designing a compiler.

UNIT I

Compiler - Phases of Compiler – Lexical Analysis – Role of Lexical analyzer – Finite Automata – Regular Expression – From a Regular expression to an NFA , NFA to DFA – Design of Lexical Analyzer.

UNIT II

Syntax Analyzer – CFG – Role of the Parser – CFG – Top Down Parsing – Recursive descent parsing, predictive Parsers – Bottom up Parsing – Shift reduce, operator precedence parsers.

UNIT III

Syntax directed definition :- Construction of Syntax trees – Intermediate code generation – Intermediate Languages – Syntax trees, post fix form, Three address code – Boolean expressions.

UNIT IV

Symbol table – contents of Symbol table – Data Structures for Symbol table – Runtime storage Administration – Implementation of Stack allocation scheme – Storage allocation in Fortran.

UNIT V

Code Optimization and code generation – principles sources of optimization – loop optimization – Dag Representation of Basic blocks. Code generation – problems in code generation – a simple code generator – Register allocation and Assignment – Peephole optimization.

Text Books

1. Compilers Principles ,Techniques and Tools Alfred V.Aho, Ravi Sethi, Jeffrey D.Ullman.

- Chapter 1 : (1.1,1.3), Chapter 3: (3.1,3.6,3.7,3.9), Chapter 4: (4.1,4.2,4.4 – 4.6),
- Chapter 5: (5.1,5.2), Chapter 7: (7.5), Chapter 8: (8.1,8.4)
- Principles of Compiler Design Alfred V.Aho and Jeffrey D.Ullman.
- Chapter 9: (9.1,9.2), Chapter 10: (10.1,10.2,10.3)
- Chapter 12: (12.1,12.2,12.3), Chapter 15: (15.2,15.4,15.5,15.7)