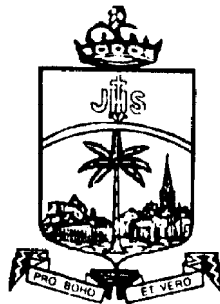


**M.Sc. COMPUTER SCIENCE**  
**SYLLABUS: 2010-2012**

**CHOICE BASED CREDIT SYSTEM**  
**(CBCS)**



**St. JOSEPH'S COLLEGE (Autonomous)**

*Re-accredited with A+ Grade by NAAC*

*College with Potential for Excellence by UGC*

**TIRUCHIRAPPALLI - 620 002, INDIA**



## FEATURES OF CHOICE BASED CREDIT SYSTEM PG COURSES

The Autonomous (1978) St. Joseph's College, Reaccredited with A+ Grade from NAAC (2006), had introduced the Choice Based Credit System (CBCS) for PG courses from the academic year 2001 – 2002. As per the guidelines of Tamil Nadu State Council of Higher Education (TANSCHE) and the Bharathidasan University, the College has reformulated the CBCS in 2008 – 2009 by incorporating the uniqueness and integrity of the college.

### OBJECTIVES OF THE CREDIT SYSTEM

- ✓ To provide mobility and flexibility for students within and outside the parent department as well as to migrate between institutions
- ✓ To provide broad-based education
- ✓ To help students learn at their own pace
- ✓ To provide students scope for acquiring extra credits
- ✓ To impart more job oriented skills to students
- ✓ To make any course multi-disciplinary in approach

### What is credit system?

Weightage to a course is given in relation to the hours assigned for the course. Generally one hour per week has one credit. For viability and conformity to the guidelines credits are awarded irrespective of the teaching hours. The following Table shows the relation between credits and hours.

Sem.	Specification	No. of Papers	Hour	Credit	Total Credits
I – IV	Core Courses (Theory & Practical)	14	6	14 x 5	70
	Project	1	--	1 x 5	Additional
I – IV	3 – Core Electives	3	4	3 x 4	12
	2 – Inter Dept. Courses (IDC)	2	4	2 x 4	08
I – IV	SHEPHERD – Extension Activity	~	70	5	Additional

Total Minimum Credits	90
Total Additional Credits (Compulsory)	10
Other Additional Credits (Dept. Specific)	....

However, there could be some flexibility because of practical, field visits, tutorials and nature of project work.

For PG courses a student must earn a minimum of 90 credits and 10 compulsory credits as mentioned in the above table. The total number of courses offered by a department is 20. However within their working hours a few departments can offer extra credit courses.

### Course Pattern

The Post Graduate degree course consists of three major components. They are Core Course, Elective Course and Inter Department Course (IDC). Also 2 compulsory components namely Project / Project related items and Shepherd, the extension components are mandatory.

### Core Course

A core course is the course offered by the parent department, totally related to the major subject, components like Practical, Projects, Group Discussion, Viva, Field Visit, Library record form part of the core course.

### Elective Course

The course is also offered by the parent department. The objective is to provide choice and flexibility within the department. The student can choose his/her elective paper. Elective is related to the major subject. The difference between core course and elective course is that there is choice for the student. The department is at liberty to offer three elective courses any semester. It must be offered at least in two different semesters. The Staff too may experiment with diverse courses.

### Inter Department Course (IDC)

IDC is an inter departmental course offered by a department for the students belonging to other departments. The objective is to provide mobility and flexibility outside the parent department. This is introduced to make every course multi-disciplinary in nature. It is to be chosen from a list of courses offered by various departments. The list is given at the end of the syllabus copies. Two IDC s must be taken by students which are offered in Semester II & III.

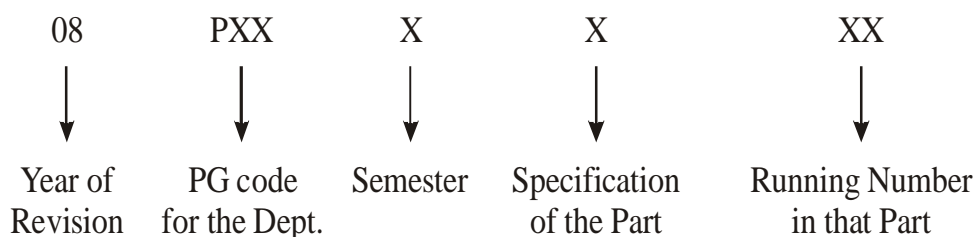
Day College (Shift-I) student may also take an IDC from SFS (Shift-II) course and vice versa

This provision enables students to earn extra credits. For the Shift – I students it is offered in their last hour and for the Shift-II

(Course) students in their first hour. The IDC are of application oriented and inter-disciplinary in nature.

### Subject Code Fixation

The following code system (9 characters) is adopted for Post Graduate courses:



01 – Core Courses: Theory & Practical

02 – Core electives

03 – Additional Core Papers (if any)

04 – Inter Departmental Courses

05 – Project (compulsory)

06 – Shepherd (compulsory)

### CIA Components

The CIA Components would comprise of two parts: (1) Test Components conducted by Controller of Examination (COE) and (2) Teacher specific component. The two centralized tests will be conducted by the COE (Mid-Semester Test & End-Semester Test) for 30% each administered for 1 hour and 30 minutes duration. The remaining 40% would comprise of any four components as listed below and will be carried out by the faculty concerned for that paper.

- ✓ Assignment, Quiz (Written / Objective), Snap test, Viva-Voce, Seminar, Listening Comprehension, Reading Comprehension, Problem Solving, Map Reading, Group Discussion, Panel Discussion, Field Visit, Creative Writing, Open Book Test, Library Record, Case Study.
- ✓ As a special consideration, students who publish papers in referred journals would be exempted from one of the teacher specific internal components in one of the papers. At the beginning of each semester, the four internal components would be informed to the students and the staff will administer those components on the date specified and the marks acquired for the same will be forwarded to the Office of COE.

### Question Pattern

Pattern	Mid & End Semester Test	Semester Exam
Part A : Objective	10 x 0.5 = 05	20 x 1 = 20
Part B : Either/or type	3 x 3 = 09	5 x 4 = 20
Part C : Comprehensive	(2/3)2 x 8 = 16	(4/5)4 x 15 = 60
	Total = <u>30</u>	Total = <u>100</u>

### Evaluation

For each course there are formative continuous internal assessment (CIA) and semester examinations (SE) in the weightage ratio 50:50. Once the marks of CIA and SE for each course are available, the Overall Percentage Mark (OPM) for a student in the programme will be calculated as shown below:

$$OPM = \frac{\sum C_i M_i}{\sum C_i} \text{ where } C_i \text{ is the credit earned for that course in any semester and } M_i \text{ is the marks obtained in that course.}$$

The Scheme of Over-all Results is as follows:

Class	PG	
	Arts (OPM)	Science (OPM)
SECOND	50 to 59.99	50 to 59.99
FIRST	60 to 74.99	60 to 79.99
DISTINCTION	75 & Above	80 & Above

The performance in Compulsory credits in Project and Project related items and in Shepherd programme is indicated by a pass and is not taken into account for computing OPM.

### Declaration of Result

Mr. /Ms. \_\_\_\_\_ has successfully completed M.Sc. / M.A. degree course in \_\_\_\_\_. The student's overall average percentage of marks is \_\_\_\_\_ and has completed the minimum 90 credits. The student has acquired 10 more compulsory credits from Project and Shepherd courses. The student has also acquired \_\_\_\_\_ (if any) extra credits from courses offered by the parent department.

## COURSE DETAIL

SEM	CODE	SUBJECT	HR	CR
I	10PCS 1 1 01	DATA BASE SYSTEMS	5	5
	10PCS 1 1 02	MATHEMETICAL FOUNDATIONS	5	5
	10PCS 1 1 03	C++ AND DATA STRUCTURES	5	5
	10PCS 1 1 04	NUMERICAL APTITUDE	2	2
	10PCS 1 1 05	LAB: C++ AND DATA STRUCTURES	5	5
	10PCS 1 1 06	LAB: RDBMS & D2K	4	4
	10PCS 1 2 01A	ELECTIVE I: OOAD & UML (OR)	4	4
	10PCS 1 2 01B	ELECTIVE I: MIS	(4)	(4)
		Total For Semester I	30	30
II	10PCS 2 1 07	JAVA PROGRAMMING	5	5
	10PCS 2 1 08	DISTRIBUTED TECHNOLOGIES	5	5
	10PCS 2 1 09	COMPUTER ORGANIZATION & ARCHITECTURE	5	5
	10PCS 2 1 10	INTER PERSONAL SOFT SKILLS	2	2
	10PCS 2 1 11	LAB: JAVA	5	5
	10PCS 2 1 12	LAB: DISTRIBUTED TECHNOLOGIES	4	4
	10PCS 2 4 01A	IDC I: FUNDAMENTALS OF IT (OR)	4	4
	10PCS 2 4 01B	IDC I: WEB DESIGN	(4)	(4)
		Total For Semester II	30	30
III	10PCS 3 1 13	SOFTWARE ENGINEERING	5	5
	10PCS 3 1 14	DOS	5	5
	10PCS 3 1 15	TCP / IP	5	5
	10PCS 3 1 16	MINI PROJECT	3	3
	10PCS 3 2 02A	ELECTIVE II: SOFTWARE TESTING (OR)	4	4
	10PCS 3 2 02B	ELECTIVE II: GRID COMPUTING	(4)	(4)
	10PCS 3 2 03A	ELECTIVE III: DATA WAREHOUSING & DATA MINING(OR)	4	4
	10PCS 3 2 03B	ELECTIVE III: ANN	(4)	(4)
	10PCS 3 4 02A	IDC II: FLASH (OR)	4	4
	10PCS 3 4 02B	IDC II: DREAMWEAVER	(4)	(4)
		Total For Semester III	30	30
IV	10PCS 4 5 01	MAJOR PROJECT		5
II-III		EXTENSION SERVICE: SHEPHERD		5
		TOTAL FOR ALL SEMESTERS	100	100

Sem : I  
10PCS 1 1 01

Hours/Week : 5  
Credits : 5

## **DATABASE SYSTEMS**

### **AIM**

To offer exposure to the design and manipulation of relational database systems

### **UNIT I**

13 Hrs

**INTRODUCTION:** Database Systems Application - Database System versus File System - View of Data - Data Models - Database Languages - Database Users and Administrators - Transaction Management - Database Systems Structure. **ENTITY-RELATIONSHIP MODEL:** Basic Concepts - Constraints - Keys - E-R Diagram - Extended E-R features. **RELATIONAL MODEL:** Structure of Relational Database - Relational Algebra.

### **UNIT II**

13 Hrs

**SQL:** Basic Structure - Set Operations - Aggregate Functions - Null Values - Nested Sub Queries - Views - Complex Queries - Modification of the Database - Joined Relations - DDL - Embedded SQL. **INTEGRITY AND SECURITY:** Domain Constraints - Referential Integrity - Assertion - Triggers. **OBJECT-ORIENTED DATABASE:** Object-Oriented Data Model - QBE.

### **UNIT III**

13 Hrs

**NORMALIZATION:** Non-loss Decomposition and Functional Dependencies - First, Second and Third Normal Forms - Dependency Preservation - Boyce/Codd Normal Form - Multivalued Dependencies and Fourth Normal Form - Join Dependencies and Fifth Normal Form.

### **UNIT IV**

13 Hrs

**TRANSACTION MANAGEMENT:** Transaction Concept - Transaction State - Implementation of Atomicity and Durability -



Concurrent Executions - Serializability - Recoverability - Testing for Serializability. **CONCURRENCY CONTROL:** Lock Based Protocols - Timestamp Based Protocols - Deadlock Handling. **RECOVERY SYSTEM:** Failure Classification - Storage Structure - Log Based Recovery - Shadow Paging.

## UNIT V

13 Hrs

**DISTRIBUTED & PARALLEL DATABASES:** Distributed Data Storage - Distributed Transaction - Distributed Query Processing. **PARALLEL DATABASES:** I/O Parallelism - Interquery Parallelism - Intraquery Parallelism - Intraoperation parallelism - Interoperation Parallelism - Design of Parallel System.

## BOOKS FOR STUDY

1. Silberschatz, Korth & Sudarshan, "Database System Concepts", 4th Ed., McGraw-Hill, California, 2002. Units: I, II, IV & V
2. C.J. Date, "An Introduction to Database Systems", Pearson Education, New Delhi, 2005.

Unit: III

## BOOK FOR REFERENCE

Bipin C. Desai, "An Introduction to Database Systems", Galgotia Pub., New Delhi, 1999.

Sem : I  
10PCS 1 1 02

Hours/Week : 5  
Credits : 5

## **MATHEMATICAL FOUNDATIONS**

### **AIM**

To impart the mathematical concepts and numerical methods required to Computer Science.

**UNIT I** 13 Hrs

**RECURSION AND RECURRENCE RELATION:** The Many Faces of Recursion - Sequences - Recurrence Relation - Some Common Recurrence Relation - Generating Functions.

**UNIT II** 13 Hrs

**CODING THEORY:** Introduction - Cryptography - Caesar Cypher Coding - Matrix Encoding - Scrambled Codes - Hamming Metric - Hamming Distance - Error Detecting Capability of an Encoding.

**UNIT III** 13 Hrs

**MATHEMATICAL LOGIC:** Propositions - Evaluation - Precedence Rules - Tautologies - Reasoning using Equivalence Transformation - Laws of Equivalence - Substitution Rules - A Natural Deduction System - Deductive Proofs - Inference Rules - Proofs and Sub Proofs.

**UNIT IV** 13 Hrs

**INTERPOLATION:** Lagrange's and Newton's Interpolation— Interpolating Polynomials using Finite Difference. **NUMERICAL INTEGRATION:** Trapezoidal, Simpson's rules and Romberg Integration.

**UNIT V** 13 Hrs

**NUMERICAL METHODS:** Polynomial Equations: Birge-Vieta,

Graeffe's Root Squaring Methods. INTEGRATION: Gauss Lagrange – Gauss Chebyshev – Gauss Laguerre and Gauss Hermite Methods.

### BOOKS FOR STUDY

1. Alan Doerr, Kenneth, Levasseur, "Applied Discrete Structure for Computer Science", Galgotia Pub., New Delhi, 1995, (Chapters: 8.1 - 8.5) UNIT-I
2. James L. Fisher, "Application Oriented Algebra", Dun Donnelly Pub., 1977. (Chapter 9.1 to 9.5 only). UNIT-II
3. David Gries, "The Science of Programming", Narosa Pub. House, New Delhi, 1993. (Chapters 1,2,3.1 to 3.3). UNIT – III
4. M.K. Jain, S.R.K. Iyengar, R.K.Jain, "Numerical Methods for Scientific and Engineering Computation", 3rd Ed., New Age Pub., New Delhi, 1992, Chapters: 2.8.5.8 uNIT-IV & V

Sem : I  
10PCS 1 1 03

Hours/Week : 5  
Credits : 5

## **C++ AND DATA STRUCTURES**

### **AIM**

To develop programming skills in C++ language and to understand the principles of data structures and algorithms.

### **UNIT I**

13 Hrs

**INTRODUCTION:** Concepts of OOPS- Characteristics of OOPS- Advantages of OOPS-Basics-Loops and Decisions. **FUNCTIONS:** Simple Functions-Passing Arguments to Functions-Returning Values from Functions-Reference Arguments-Overloaded Functions-Inline Functions-Default Arguments- Storage Classes-Return by Reference.

### **UNIT II**

13 Hrs

**OBJECTS AND CLASSES:** A Simple Class - Objects-Constructors-Destructors-Objects as Function Arguments-Returning Objects from Functions-Structures and Classes-Classes, Object and Memory-Static Class Data-Array and Strings-Operator Overloading -Data Conversion. **INHERITANCE:** Derived Class Constructors – Overloading Member Functions- Class Hierarchies- Public and Private Inheritance-Levels of Inheritance-Pointers.

### **UNIT III**

13 Hrs

**POLYMORPHISM:** Friend Functions- Static Functions-this Pointer. **FILES AND STREAMS:** Streams-String I/O-Character I/O – Object I/O-File Pointers - Exception Handling - Command Line Arguments.

### **UNIT IV**

13 Hrs

**DATA STRUCTURES:** Primitive Data Structures-Arrays-Ordered Lists-Representation of Arrays-Stacks- A Mazing Problem-Evaluation

of Expressions-Queue-Circular Queue-Linked Lists- Trees- Binary trees.

**UNIT V****13 Hrs**

**SORTING:** Bubble Sort-Selection Sort-Shaker Sort-Insertion Sort-Shell Sort- Tree Sort- Quick Sort-Merge Sort - Searching- Hash Table Method.

**BOOKS FOR STUDY**

1. E. Balagurusamy, "Object Oriented Programming with C++", TATA McGraw Hill, 3rd Edition ,New delhi,2002.
2. Ellis Horowitz and Sartaj Sahni, "Fundamentals of Data Structures", Galgotia, 2005
3. Nicklaus Wirth, "Algorithms + Data Structures=Programs", PHI, New Delhi, 2002.

**BOOK FOR REFERENCE**

Robert Lafore, "Object-Oriented Programming in Microsoft C++", Galgotia, New Delhi, 2003.

Sem : I  
10PCS 1 1 04

Hours/Week : 2  
Credits : 2

## **NUMERICAL APTITUDE**

### **AIM**

To reuse and master the basic techniques of arithmetic operations so that this skills will augment to their professional capacity.

### **UNIT I**

Numbers - HCF – LCM - Decimal Fractions – Simplification- Square Roots- Cube Roots –Averages - Problems in Numbers and Ages.

### **UNIT II**

Surds - Indices- Percentages- Profit and Loss- Ratio and Proportion- Partnership- Chain Rule- Time and Work- Pipes and Distances.

### **UNIT III**

Time and Distance- Problems on Trains- Boats and Streams- Allegation- Simple Interest-Compound Interest, Logarithms- Area.

### **UNIT IV**

Volume and Surface Area - Races and Games of Skill – Calendar – Clocks - Stocks and Shares - Permutation and Combination- Probability.

### **UNIT V**

True Discount - Bankers Discount - Height and Distances - Odd Man Out and Series – Tabulation - Bar Graphs- Pie Charts- Line Graphs.

### **BOOK FOR STUDY**

R. S. Aggarwal, "Quantitative Aptitude for Competitive Examinations", Seventh Revised Edition, S. Chand and Co. Ltd, New Delhi, 2005.

Sem : I  
10PCS 1 1 05

Hours/Week : 5  
Credits : 5

## **LAB - C++ AND DATA STRUCTURES**

C++

1. Classes and Objects.
2. Constructors and Destructors.
3. Operator Overloading.
4. Inheritance.
5. Polymorphism.
6. File I/O Operations.

### **DATA STRUCTURES**

7. Stack Operation.
8. Queue Operation.
9. Singly Linked List.
10. Tree Traversal- Inorder, Preorder, Postorder
11. Sorting
12. Searching

Sem : I  
10PCS 1 1 06

Hours/Week : 4  
Credits : 4

## **LAB - RDBMS & D2K**

### **RDBMS**

1. Basic Queries and Aggregate Functions.
2. Queries Using Set Operators.
3. Various Joins.
4. Nested Sub Queries and Correlated Sub Queries.
5. View Creation and Manipulation.
6. Preparation of Student Mark Sheet Using Cursor.
7. PL/SQL Program for Trigger and Exception.
8. PL/SQL Program Using Procedure, Functions and Packages.

### **D2K**

9. EB Bill Form Creation.
10. Display Product Details using Menus, Alert & Validation.





Sem : I  
10PCS 1 2 01A

Hours/Week : 4  
Credits : 4

## **ELECTIVE I - OOAD & UNIFIED MODELING LANGUAGE**

### **AIM**

To impart knowledge about UML concepts and OOAD.

### **UNIT I**

12 Hrs

**COMPLEXITY:** The Inherent Complexity of Software – The Structure of Complex Systems – Bringing Order to Chaos – On Designing Complex Systems – Categories of Analysis and Design Methods. **THE OBJECT MODEL:** The Evolution of Object Model – Elements of Object Model – Applying the Object Model – Foundations of the Object Model.

### **UNIT II**

12 Hrs

**CLASSES AND OBJECTS :** The Nature of an Object – Relationships Among Objects – The Nature of a Class – Relationship Among Classes – The Interplay Classes and Objects – Key Abstraction and Mechanisms – A Problem of Classification.

### **UNIT III**

12 Hrs

**INTRODUCTION:** Modeling - Importance of Modeling – Principles of Modeling – Object Oriented Modeling – Introducing the UML.

### **UNIT IV**

12 Hrs

**BASIC STRUCTURAL MODELING:** Classes – Relationships – Common Mechanisms – Diagrams – Class Diagrams.

### **UNIT V**

12 Hrs

**BASIC BEHAVIORAL MODELING:** Interactions – Use Cases – Use Case Diagrams – Interaction Diagrams – Activity Diagrams.

**BOOKS FOR STUDY**

1. Grady Booch, "Object – Oriented Analysis and Design with Applications", Pearson Education, 9th Indian Reprint, 2002.
2. Grady Booch, James Rumbaugh, Ivar Jacobson "The Unified Modeling Language User Guide", Pearson Education, New Delhi, 2004.

**BOOKS FOR REFERENCE**

1. Tom Pender, " UML 2 Bible", Wiley Publishing Inc., USA.
2. Hans-Erik Eriksson and Magnus Penker, " UML Toolkit", Wiley Computer Publishing, New York.
3. Ali Bahrami, "Object Oriented Systems Development" Irwin – McGraw Hill, New Delhi.

Sem : I  
10PCS 1 2 01B

Hours/Week : 4  
Credits : 4

## **ELECTIVE I - MANAGEMENT INFORMATION SYSTEMS**

### **AIM**

To give an understanding about Information Systems, how it relates to managerial end-users business and to impart the knowledge on ERP Systems.

### **UNIT I**

10 Hrs

**INTRODUCTION TO INFORMATION SYSTEMS (IS):** Why Study IS - Why Business Need Information Technology (IT) - Fundamentals of IS Concepts - Overview of IS - Solving Business Problems with IS - Developing IS Solutions.

### **UNIT II**

12 Hrs

**INFORMATION SYSTEMS FOR BUSINESS OPERATIONS:** Business IS - Marketing, Manufacturing, Human Resource, Accounting and Financial Information Systems - Transaction Processing System - Management Information and Decision Support Systems. **MANAGING INFORMATION TECHNOLOGY:** Managing Information Resource and Technologies - Global IT Management - Planning and Implementing Business Change with IT.

### **UNIT III**

12 Hrs

**ENTERPRISE RESOURCE PLANNING (ERP):** An Overview - Benefits of ERP - ERP and Related Technologies - Business Process Reengineering. **ERP IMPLEMENTATION:** ERP Implementation Life Cycle - Implementation Methodology - Hidden Cost - Organizing the Implementation - Vendors, Consultants and Users Contracts with Vendors, Consultants and Employees Project Management and Monitoring - ERP Present and Future - ERP and E-commerce - ERP and Internet.

**UNIT IV**

13 Hrs

**FROM E-COMMERCE TO E-BUSINESS:** Linking Today's Business with Tomorrow's Technology –E-business – Structural Transformation – E-business Requires Flexible Business Design Challenge Traditional Definition of Value – E-business Trend Spotting: Increase Speed of Service – Empower your Customer – Provide Integrated Solution, Not Piecemeal Products – Integrate your Sales and Service – Ease of Use – Provide Flexible Fulfillment and Convenient Service Delivery – Increase Process Visibility.

**UNIT V**

13 Hrs

**E-BUSINESS DESIGN:** Construction an E-business Design – Self Diagnosis – Reversing the Value Chain – Choosing a Narrow Focus – Constructing the E-business Architecture: The New Era of Cross – Functional integrated Apps – Aligning the e-business Design with Application Integration. **CUSTOMER RELATIONSHIP MANAGEMENT:** Defining CRM – The New CRM Architecture – Next-Generation CRM Trends.

**BOOKS FOR STUDY**

1. James A O'Brien, "Management Information Systems for Managing IT in the Interneted Enterprise", 4th Ed., Tata McGraw Hill, New Delhi, 1999. UNITS I & II
2. Alexis Leon, "ERP Demystified", Tata McGraw Hill, New Delhi, 2000. UNIT III
3. Ravi Kalakota and Marcia Robinson, "e-Business Roadmap for Success", Addison-Wesley, New Delhi, 2000. UNITS IV & V

**BOOK FOR REFERENCE**

W.S. Jaswadekar, "Management Information Systems", Tata McGraw Hill, New Delhi, 1998.

Sem : II  
10PCS 2 1 07

Hours/Week : 5  
Credits : 5

## **JAVA PROGRAMMING**

### **AIM**

To understand the fundamental concepts of the object oriented technology and the power of internet programming

### **UNIT I**

12 Hrs

**AN OVERVIEW OF JAVA:** Object Oriented Programming- The OOP Principles –A First Simple Java Program – Java Keywords. **INTRODUCING CLASSES:** The General Form of a Class – A Simple Class – Declaring Objects – Introducing Methods – Constructors – this Keyword – The Finalize Method.

### **UNIT II**

13 Hrs

**CLASSES AND OBJECTS:** Overloading Methods – Overloading Constructors – Returning Objects – Recursion – Introducing Access Control – Understanding Static –Introducing Nested and Inner Classes – Command Line Arguments. **INHERITANCE:** Inheritance Basics – Super – Dynamic Method Dispatch – Abstract Class – Final with Inheritance.

### **UNIT III**

13 Hrs

**PACKAGES AND INTERFACES:** Packages – Access Protection – Importing Packages – Interfaces. **EXCEPTION HANDLING:** Exception Handling Fundamentals – Exception Types – Try And Catch – Multiple Catch Clauses – Throw – Throws – Finally – Built In Exceptions .

### **UNIT IV**

13 Hrs

**I/O BASICS:** Reading Console Input – Writing Console Output – The Stream Classes – Byte Stream – I/O Stream – File Input Stream – File Output Stream. **APPLET:** An Applet Skeleton –Applet

Display Methods – Requesting Repainting –The HTML Tag – Passing Parameter to Applets. AWT: Event Classes – Event Listeners – Labels – Buttons – Checkboxes – Checkbox Group – Choice Control – Window Fundamentals – Layout Managers – Menu Bars And Menus

**UNIT V****14 Hrs**

**MULTITHREADING:** The Main Thread – Creating A Thread – Thread Priorities – Synchronization – Inter Thread Communication – Suspending, Resuming And Stopping Threads. **NETWORKING:** Networking Basics – TCP/IP Clients Sockets – TCP/IP Servers Sockets -Datagram's

**BOOK FOR STUDY**

Herbert Schildt, "The Complete Reference Java 2", McGraw- Hill, 5th Edition, New Delhi, 2002

**BOOK FOR REFERENCE**

C.MUTHU, "Programming with JAVA", Vijay Nicole Imprints, Chennai, 2004

Sem: II  
10PCS 2 1 08

Hours/Week : 5  
Credits : 5

## **DISTRIBUTED TECHNOLOGIES**

### **AIM**

To Understand the Architecture of Distributed System, and Compare the Technologies Associated With J2EE and DOTNET.

### **UNIT I**

13 Hrs

**INTRODUCTION:** J2EE Architecture – MVC Architecture – Struts Framework. **PRESENTATION SERVICES:** Servlet – JSP – Javamail – RMI – JMS.

### **UNIT II**

13 Hrs

**EJB:** Session Beans - Stateless and Stateful – Entity Beans – CMP and BMP – Message Driven Beans.

### **UNIT III**

13 Hrs

**INTRODUCTION:** What is ASP.NET? - Looping Program Structure – Basics of Programming – Programming Flow – Designing Application – Design the Structure for a Website Application. **STRUCTURE OF WEBSITE APPLICATION:** Processing ASP.NET Application – Programming ASP.NET With VB.NET – Built In ASP.NET Objects And Interactivity - Using The Request Object – The Response Object.

### **UNIT IV**

13 Hrs

**WEB FORMS AND ASP.NET:** Web Form And Events – Web Form Event Handler – Build A Web Form Application. ASP.NET Configuration – ASP.NET and State – ASP Session – The Session Objects – Using the Session Objects – Using the Session Objects with ASP.NET. **ASP.NET OBJECTS AND COMPONENTS:** The Scripting Object Model– Active Server Components And Controls – Validation Controls – An Example Of Rotating Ads In ASP.



**UNIT V****13 Hrs**

**ADO.NET: Interactivity And Latency – Using The Connection Object – Creating A Stored Procedure With Parameter – Using The Command Object – Grid View.**

**BOOKS FOR STUDY**

1. Justin Couch, Daniel H. Steinberg, "J2EE Bible", Wiley India(P) Ltd, New Delhi, 2002. UNIT I
2. Paul Tremblett, "Instant Enterprise Java – Beans", Tata McGraw Hill Publishing Company, New Delhi, 2001. UNIT II
3. Dave Mercer, "ASP.NET": A Beginner's Guide", Tata Mcgraw Hill Publishing Company Limited, New Delhi. UNIT III, IV & V

**BOOKS FOR REFERENCE**

1. Jim Keogh "The Complete Reference J2EE", Tata McGraw Hill Edition, 2002.
2. Dino Esposito, "Introducing Microsoft ASP.NET 2.0", Prentice Hall of India Private Limited.
3. Rebecca M. Riorden, "Microsoft ADO.NET Step by Step", Prentice Hall of India Private Limited.

Sem : II  
10PCS 2 1 09

Hours/Week : 5  
Credits : 5

## COMPUTER ORGANIZATION AND ARCHITECTURE

### AIM

To give basic knowledge on various building blocks of a typical digital computer and microprocessors

### UNIT I

13 Hrs

**BASIC COMPUTER ORGANIZATION:** Basic Computer Organization and Design - Instruction Codes - Computer Register - Computer Instruction - Timing and Control - Instruction Cycle - Memory Reference Instructions - Input / Output & Interrupt - Design of Basic Computer - Design of Accumulator Logic.  
**MICROPROGRAMMED CONTROL:** Control Memory - Address Sequencing - Micro Program Example - Design of Control Unit.

### UNIT II

13 Hrs

**CPU:** General Register Organization - Stack Organization - Instruction Formats - Addressing Modes - Data Transfer and Manipulation - Program Control - RISC. **Pipeline & Vector Processing:** Parallel Processing - Pipelining - Arithmetic Pipeline - Instruction Pipeline - RISC Pipeline - Vector processing - Array Processors.

### UNIT III

13 Hrs

**COMPUTER ARITHMETIC:** Addition, Subtraction, Multiplication and Division Algorithms - Float Point Arithmetic Operations - Decimal Arithmetic Unit - Decimal Arithmetic Operations.

### UNIT IV

13 Hrs

**MDS MICRO CONTROLLERS :** Micro Computer Development System - Microprocessor Kits - Single Chip Microcomputer -

Embedded Processor - Digital Signal Processor - IO processor - Co-processor - Intel 740 - 3d Graphics Chip - Intel 8086 - Intel 80186 - Intel 80286 - Intel 8088.

## UNIT V

13 Hrs

**MCIROPROCESSORS** : 32bit and 64 bit Microprocessor - Intel 80386 - Intel 80436 - Pentium Processor - MMX Technology - Pentium MMX - Pentium Pro Microprocessor - Dynamic Execution of Instruction - Speculative Execution - Branch Prediction - Pentium II - Celeron - Pentium IV - IA 64 Itanium - Some Other Microprocessor.

## BOOKS FOR STUDY

1. M. Morris Mano, "Computer System Architecture", 3rd Ed., PHI, New Delhi, 2003. UNITS: I, II & III
2. B. Ram, "Fundamentals of Microprocessors & Micro Computers", 6th Ed., Dhanpat Rai, New Delhi, 2005. UNITS: IV & V

## BOOKS FOR REFERENCE

1. Thomas C. Bartee, "Computer Architecture and Logic Design", McGraw Hill, New York, 1991.
2. Muhammad Ali Mazidi and Janice Gillispie Mazidi, "The 8051 Micro Controller and Embedded Systems", Pearson Education, New Delhi, 2000.

Sem : II  
10PCS 2 1 10

Hours/Week : 2  
Credits : 2

## **INTER PERSONAL SOFT SKILLS**

### **AIM**

To impart various interpersonal skills which are needed for job hunting and working in the industry.

### **UNIT I**

**COMMUNICATION SKILL:** Importance of Right Communication – Body Language – Facial Expressions – Eye Contact & Eye Movements – Tone of Voice – Languages - Etiquettes – Cross Cultural Communication – Exercises for Communication.

### **UNIT II**

**GROUP DISCUSSION & INTERVIEW TECHNIQUES:** Components of Group Discussion – Points to Remember in Group Discussion – Personal Interview Techniques – Mock Interview – Stress Interview – Exercises for Group Discussion – Exercises for Interview.

### **UNIT III**

**LEADERSHIP SKILL:** Definition of Good Leader – Different Kinds of Leaders – Personal Qualities of a Good Leader – Relationship Traits of a Good Leader – Leadership Strategies – Role of a Leader – Leading and Motivation – Managerial Skills for a Good Leader – Exercises for Leadership.

### **UNIT IV**

**TEAM BUILDING:** Importance of Team Work – Intra and Inter Team Work – Team Building – Conflict Management – Negotiation – Persuasion – Assertive Skills – Dealing with Difficult Behaviors – Exercises for Team Building.

**UNIT V**

**PROFESSIONAL EFFECTIVENESS:** Importance of Professional Effectiveness – Self management – Creativity Management – Time Management – Stress Management – Priority Management – Presentation Management – Change Management – Exercises for Professional Effectiveness.

**BOOK FOR REFERENCE**

Mohan, Basic Managerial Skills For All, 6th Edition, PHI, New Delhi.

Sem : II  
10PCS 2 1 11

Hours/Week : 5  
Credits : 5

### **LAB – JAVA**

1. Class, Object and Constructor
2. Inheritance
3. Polymorphism
4. Interface & Packages
5. Exception Handling
6. I/O Streams
7. Applet & AWT
8. JDBC Connectivity
9. Inter Thread Communication
10. Networking

Sem : II  
10PCS 2 1 12

Hours/Week : 4  
Credits : 4

## **LAB – DISTRIBUTED TECHNOLOGIES**

### J2EE

1. Servlets (Returning Information)
2. JSP (Get and Post Method)
3. JSP with JDBC
4. RMI
5. EJB: Session Bean
6. EJB: Entity Bean

### ASP.NET

7. ASP.NET: Get and Post Method.
8. ASP.NET: Login Form (It Will Expire 3 Wrong Attempts).
9. Ad Rotator.
10. Cookies Manipulation.
11. ASP.NET and ADO.NET.
12. ASP.NET: Validation Controls

Sem: II  
10PCS 2 4 01A

Hours/Week : 4  
Credit : 4

## **IDC I - FUNDAMENTALS OF IT**

### **AIM**

To understand the basic concepts of computer and the role of information technology in the broader context of information system.

### **UNIT I**

12 Hrs

**COMPUTER BASICS:** Evolution-Generations-Classifications and Applications of Computers. **COMPUTER ARCHITECTURE:** Central Processing Unit. **COMPUTER MEMORY AND STORAGE:** Memory Hierarchy-RAM-ROM-Magnetic Tape-Magnetic Disk and their types-I/O devices.

### **UNIT II**

12 Hrs

**OPERATING SYSTEM:** Definition-Types and Functions. **INFORMATION TECHNOLOGY BASICS:** Information-Technology-Information Technology-Role of Information Technology-Careers in IT.

### **UNIT III**

12 Hrs

**MULTIMEDIA:** Definition-Systems and applications. **COMPUTER SOFTWARE:** Definition- Installing and uninstalling software. **MSOFFICE:** Working with Documents- Text-Tables-Working with Excel Workbook-Formulas and functions—Inserting charts- Working with PowerPoint-Designs and Presentation.

### **UNIT IV**

12 Hrs

**DATA COMMUNIACTION AND COMPUTER NETWORK:** Data Communication-Transmission Media-Types of Network-Network topologies-Network Devices. **THE INTERNET:** Evolution of Internet-Getting Connected to Internet - Web Browser -Search Engines. **COMPUTER SECURITY:** Definition-Malicious Programs-Firewall.



**UNIT V****12 Hrs**

**DATABASE:** Definition- Types of Databases. **EMERGING TRENDS IN IT:** E-Commerce- EDI- Mobile Communication- Bluetooth- GPS-Infrared Communication-Smart Card.

**BOOK FOR STUDY**

"Introduction to Information Technology", Itl Education Solutions Limited, 2006

Sem : II  
10PCS 2 4 01B

Hours/week : 4  
Credit : 4

## **IDC I – WEB DESIGN**

### **AIM**

To understand the complete concepts of HTML and JAVA SCRIPT.

### **UNIT I**

12 Hrs

**INTRODUCTION TO HTML:** Designing a Home Page - HTML Documents – Anchor Tag – Hyper links – Simple HTML Documents. **HEAD AND BODY SECTION:** Title – Colorful WebPages – Some Sample HTML Documents - Aligning the Heading – Images and Pictures - Unordered List – Ordered List.

### **UNIT II**

12 Hrs

**TABLES:** Table Creation in HTML – Cells Spanning Multiple Rows/Columns – Some Sample Tables. **DHTML AND STYLE SHEETS:** Inline Styles – External Styles Sheets – Multiple Styles. **FRAMES:** Frame Definition – Nested Framesets.

### **UNIT III**

12 Hrs

**JAVASCRIPT:** Objects – Methods – Events and Program Flow – Running Script Using Names. **OBJECT AND METHODS:** Built in Objects – Operators and Variables – Keywords – Functions – Object Interaction.

### **UNIT IV**

12 Hrs

**INTERACTIVE WEBPAGES:** Using Conditional Statements for Decision Making – If Statements – If-Else Conditional Statements – While Conditional Statements – Break and Continue Statements – Creating Functions in Java Script – Declaring a Function – Designing a Simple Function.

**UNIT V****12 Hrs**

**DYNAMIC WEB PAGES:** Changing Pages Based on Time and Date – Using Arrays – Changing the Background Color through Random Numbers – Turning the Color Generator into a Function – Creating an Image Object – Creating an Area Object – Basic Scripts Construction – Field Level Validation.

**BOOKS FOR STUDY**

1. C. Xavier, "World Wide Web Design with HTML", Tata McGraw Hill Ltd, New Delhi.

**UNIT I & II**

2. Lee Purcell, Mary Jane Mara, "The ABC's of Java Script", BPB Publications, New Delhi.

**UNIT III, IV & V**

Sem : III  
10PCS 3 1 13

Hours/Week : 5  
Credits : 5

## SOFTWARE ENGINEERING

### AIM

To provide the basic concepts of software engineering and various phases in software development life cycle.

### UNIT I

10 Hrs

**SOFTWARE PROCESS:** Software Engineering - A Layered Technology – Process Framework – Capability Maturity Model & Integration (CMMI). **PROCESS MODELS:** Waterfall Model- Incremental Process Model – Evolutionary Process Model – Specialized Process Model. **SYSTEM ENGINEERING:** System Engineering Hierarchy – System Modeling.

### UNIT II

13 Hrs

**REQUIREMENTS ENGINEERING:** Requirements Engineering Tasks- Initiating Requirements Engineering process-Eliciting Requirements-Developing Use Cases –Negotiating Requirements. **BUILDING THE ANALYSIS MODEL:** Data Modeling Concepts- Scenario Based Modeling- Flow oriented Modeling – Class Based Modeling

### UNIT III

14 Hrs

**DESIGN ENGINEERING:** Design Concepts – Design Model. **ARCHITECTURAL DESIGN:** Software Architecture – Architectural Styles & Patterns – Mapping Data Flow into Software Architecture. **COMPONENT LEVEL DESIGN:** Component Definition – Designing Class Based Components. **UI DESIGN:** The Golden Rules – UI Analysis & Design – Interface Design Steps.

### UNIT IV

14 Hrs

**TESTING STRATEGIES:** Strategic Approach for Software

Testing – Test Strategies for Conventional & Object Oriented Software – Validation Testing – System Testing – The Art of Debugging. **TESTING TACTICS:** Software Testing Fundamentals – White Box Testing – Basis Path Testing – Control Structure Testing- Black Box Testing.

## **UNIT V**

14 Hrs

**METRICS FOR PROCESS & PROJECTS:** Metrics in the Process & Projects Domains- Software Measurement. **RISK MANAGEMENT:** Software Risks – Risk Identification. **QUALITY MANGAMENT:** Quality Concepts – Software Quality Assurance- Formal Technical Reviews – **CHANGE MANAGEMENT:** Software Configuration Management – SCM Process.

## **BOOK FOR STUDY**

Roger S. Pressman, "Software Engineering-A Practitioners Approach", McGraw Hill International, 6th Edition, New York, 2005.

## **BOOK FOR REFERENCE**

Richard Fairley, "Software Engineering Concepts", McGraw Hill International Edition, 1996

Sem : III  
10PCS 3 1 14

Hours/Week : 5  
Credits : 5

## **DISTRIBUTED OPERATING SYSTEM**

### **AIM**

To provide a clear description of the fundamental concepts in an operating system and design principles that is applicable to a variety of distributed operating system.

### **UNIT I**

13 Hrs

**INTRODUCTION:** Meaning -Early Systems - Multiprogrammed Batch Systems - Real-Time Systems. **COMPUTER SYSTEM STRUCTURES:** Computer-System Operation - Storage Hierarchy - General System Architecture - **OPERATING SYSTEM STRUCTURES:** System Components - System Calls - Virtual Machines - System Generation.

### **UNIT II**

13 Hrs

**PROCESS MANAGEMENT:** Processes - Process Concept - Operation on Processes - Inter-Process Communication. **CPU SCHEDULING:** Basic Concepts - Scheduling Algorithms - Real Time Scheduling - Process Synchronization - Background - Critical - Selection Problem - Semaphores - Deadlocks - System Model - Methods for Handling Deadlocks - Deadlock Avoidance - Recovery from Deadlock.

### **UNIT III**

13 Hrs

**DISRIBUTED COMPUTING SYSTEM:** Evolution - Models - Distributed Operating System - Issues in Designing DOS - Distributed Computing Environment. **COMMUNICATION IN DISTRIBUTED SYSTEM:** Protocols - Features of Good Message Passing System - Issues in IPC by Message Passing - Synchronization-Buffering - Process Addressing - Failure Handling - Group Communication.

**UNIT IV****13 Hrs**

**SYNCHRONIZATION:** Clock Synchronization – Event Ordering - Mutual Exclusion-Deadlock - Election Algorithms.  
**PROCESS MANAGEMENT:** Process Migration - Threads.

**UNIT V****13 Hrs**

**SECURITY:** Potential Attacks to Computer Systems – Cryptography – Authentication - Access Control - Digital Signatures - Design Principles. **INTER PROCESS COMMUNICATION:** Process Tracing - System V IPC - Sockets. **MULTI PROCESSOR SYSTEMS:** Problem of Multiprocessor Systems - Solution with Master and Slave Processors - Solution with Semaphores.

**BOOKS FOR STUDY**

1. Abraham Silberschatz and Peter Baer Galvin, "Operating System Concepts", 4th Ed., Addison Wesley., New York, 1999.  
Unit I & II
2. Pradeep K. Sinha, "Distributed Operating Systems Concepts and Design", Prentice Hall, New Delhi, 2004.  
Unit III, IV & V

**BOOK FOR REFERNECE**

Andrew S Tanaenbaum, "Modern Operating Systems", PHI, New Delhi, 1997.

Sem : III  
10PCS 3 1 15

Hours/Week : 5  
Credits : 5

## TCP/IP

### AIM

To understand the concepts of TCP/IP and their usage in communication network.

### UNIT I

13 Hrs

**INTRODUCTION:** Standards-Internet-History- OSI Model- Protocol Suite-Addressing- Transmission Media-Local Area and Wide Area Networks-Switching-Connecting Devices-IP Addressing.

### UNIT II

13 Hrs

**INTERNET PROTOCOL:** Sub Netting-IP Packets- Delivery-Routing-Routing Model-Routing Table- Datagram-Fragmentation-Checksum-IP Design-ARP-RARP-Internet Control Message Protocol-Internet Group Management Protocol.

### UNIT III

13 Hrs

**TANSMISSION CONTROL PROTOCOL:** TCP Services-Flow Control-Error Control-TCP Operation and Design Connection – Transition Diagram – Congestion Control- User Datagram Protocol-UDP Operation-Use UDP Design.

### UNIT IV

13 Hrs

**APPLICATION LAYER AND CLIENT SERVER MODEL:** Concurrency-BOOTP-DHCP-Domain Name System-Name Space-Distribution-Resolution-Message-Telnet- Network Virtual Terminal-Character Set-Controlling the Server-Remote Login.

### UNIT V

13 Hrs

**APPLICATION PROTOCOLS:** File Transfer Protocol-Connections-Communication- Simple Mail Transfer Protocol-Simple



Network Management Protocol-Hyper Text Transfer Protocol-Request and Response Messages.

#### BOOK FOR STUDY

Behrouz A.Forouzan, "TCP/IP Protocol Suite", Tata McGraw Hill Edition, 2000.

#### BOOK FOR REFERENCE

Douglas E.Comer, David L.Stevens, "Internetworking with TCP/IP", Prentice-Hall Of India Pvt.Ltd, 2nd Edition, 1994.

Sem : III  
10PCS 3 2 02A

Hours/Week : 4  
Credits : 4

## **ELECTIVE II - SOFTWARE TESTING**

### **AIM**

To introduce the basic concepts of software testing that helps in our carrier.

### **UNIT I**

12 Hrs

**PRINCIPLES OF TESTING:** Context of Testing in Producing Software - Test in Time - Test the Tests First - Phases of Software Project – Quality - Quality Assurance and Quality Control - Testing Verification and Validation - Software Test Life Cycle Models.  
**TECHNIQUES:** White Box and Black Box Testing.

### **UNIT II**

12 Hrs

**TYPES OF TESTING:** Integration Testing -System Acceptance Testing - Performance Testing - Regression Testing - Ad hoc Testing -Usability and Accessibility Testing.

### **UNIT III**

12 Hrs

**TEST METRICS AND MEASUREMENTS:** Metrics and Measurements- Metrics in Testing, Types of Metrics – Progress Metrics-Productivity Metrics-Test Planning – Management – Execution and Reporting.

### **UNIT IV**

12 Hrs

**TESTING OF OBJECT-ORIENTED SYSTEM:** Introduction-Primer on Object-Oriented Software-Differences in OO Testing.  
**ORGANIZATION STRUCTURE FOR TESTING TEAMS:** Dimensions of Organization Structures - Structure in Single Product Companies - Structure for Multi Product Companies.

**UNIT V****12 Hrs**

**SOFTWARE TEST AUTOMATION:** Test Automation - Terms Used in Automation – Skills Needed for Automation - Scope of Automation -Design and Architecture for Automation- Generic Requirement for Test Tool/ Framework -Selecting a Testing Tool- Automation for Extreme Programming Model.

**BOOK FOR STUDY**

Srinivasan Desikan and Gopalasamy Ramesh, "Software Testing for Principles and Practices", Person Education, South Asia, 2007.

**BOOK FOR REFERENCE**

Marine L.Hutcheson, "Software Testing Fundamentals", Wiley Dreamtech, New Delhi, 2003.

Sem : III  
10PCS 3 2 02B

Hours/Week : 4  
Credits : 4

## **ELECTIVE II - GRID COMPUTING**

### **AIM**

To gain knowledge on suite of technologies that explicitly recognizes the new economics of computing and networking.

### **UNIT I**

12 Hrs

**OVERVIEW:** History – Types of Computing – Grid Computing Model – Grid Protocols – Globus Tool Kit – OGSA – Global Grid Forum. **DESKTOP GRIDS:** Desktop Grids Defined – Desktop Grid Technology – Key Elements to Evaluate – Desktop Grid Suitability – Key Areas for Exploration – Grid Server – Additional Functionality to Consider – Role of Grids in an Enterprise Computing Infrastructure – Practical Uses of Desktop Grids – Real World Examples.

### **UNIT II**

12 Hrs

**CLUSTER GRIDS:** Clusters – Industry Examples – Cluster Grids. **HPC GRIDS:** Five Steps to Scientific Insight – Applications and Architectures – HPC Application Development Environment – Production HPC Reinvented. **DATA GRIDS:** Data Grids – Alternative to data grids – Avaki Data Grid – Data Grid Architecture.

### **UNIT III**

12 Hrs

**THE OPEN GRID SERVICES ARCHITECTURE:** An Analogy for OGSA – Evolution to OGSA – OGSA Overview – Building on the OGSA Platform – Implementing OGSA Based Grids. **CREATING AND MANAGING GRID SERVICES:** Services and The Grid – Converting Existing Software – Service Discovery – Operational Requirements – Tools and Toolkits – Support in UDDI – UDDI and OGSA.

**UNIT IV**

12 Hrs

**GRID-ENABLING SOFTWARE APPLICATION:** Grid Computing – The Needs of Grid Users – Grid Deployment Criteria – Methods of Grid Deployment – Grid Enable Software – Requirements – Programming Tools and Expertise – Process – Grid Enabling a Main Stream.

**APPLICATION INTEGRATION:** Application Classification – Grid Requirements – Integrating Application Grid – Enabling Network Services – Managing Grid Environments.

**UNIT 5**

12 Hrs

**GRID COMPUTING ADOPTION IN RESEARCH AND INDUSTRY:** Global Grid Architecture – Examples of Research and Industry Grid Implementation - Grids in Life Sciences – Grids in the Telecommunications Sector – Grids in Other Industries – HIVE Computing for Transaction Processing Grids.

**BOOK FOR STUDY**

Ahmar Abbas. "Grid Computing: A Practical Guide to Technology and Applications", Fire Wall Media, New Delhi, 2004.

**BOOK FOR REFERENCE**

Joshy Joseph, Craig Fellenstien, "Grid Computing", Pearson Education, First Indian Reprint , New Delhi,2004.

**SITE FOR REFERENCE**

[www.gridblog.com](http://www.gridblog.com)

Sem : III  
10PCS 3 2 03A

Hours/Week : 4  
Credits : 4

### **ELECTIVE III - DATA WAREHOUSING & DATA MINING**

#### **AIM**

To provide an understanding of the Data Warehousing and Data Mining concepts.

#### **UNIT I**

12 Hrs

**DATA MINING AND DATA PREPROCESSING:** Data Mining – Motivation – Definition – Data Mining on Kind of Data – Functionalities – Classification – Data Mining Task Primitives – Major Issues in Data Mining – Data Preprocessing – Definition – Data Clearing – Integration and Transformation – Data Reduction.

#### **UNIT II**

12 Hrs

**DATA WAREHOUSING:** Introduction – Multidimensional Data Model – Data Warehouse Architecture – Data Warehouse Implementation – From data Warehousing to Data Mining – On Line Analytical Processing - On Line Analytical Mining.

#### **UNIT III**

12 Hrs

**FREQUENT PATTERNS, ASSOCIATIONS AND CLASSIFICATION:** The Apriori Algorithm – Definition of Classification and Prediction – Classification by Decision Tree Induction - Bayesian Classification – Rule Based Classification – Classification by Back Propagation – Lazy Learners – K-Nearest Neighbor – Other Classification Methods.

#### **UNIT IV**

12 Hrs

**CLUSTER ANALYSIS:** Definition – Types of data in Cluster Analysis – Categorization of major Clustering Techniques – Partitioning Methods – Hierarchical Clustering – BIRCH - ROCK – Grid Based Methods – Model Based Clustering Methods – Outlier Analysis.

**UNIT V****12 Hrs**

**SPATIAL, MULTIMEDIA, TEXT AND WEB DATA:** Spatial Data Mining – Multimedia Data Mining – Text Mining – Mining the World Wide Web – Data Mining Applications – Trends in Data Mining.

**BOOK FOR STUDY**

Jiawei Han and Mihceline Kamber, "Data Mining Concepts and Techniques ", 2nd Ed., Morgan Kaufmann Publishers, 2006.

**BOOKS FOR REFERENCE**

1. Margret H.Dunham, "Data Mining: Introductory and Advanced Topics", Pearson Education, 2003.
2. Arun K.Pujari, "Data Mining Techniques", University Press, 2001.

Sem : III  
10PCS 3 2 03B

Hours/Week : 4  
Credits : 4

## **ELECTIVE III - ARTIFICIAL NEURAL NETWORKS**

### *AIM*

Introduce some of the fundamental techniques and principles of neural network systems. Investigate some common models and their applications.

### UNIT I

12 Hrs

**INTRODUCTION:** Definition - Fundamental Concepts – Applications - Advantages and Disadvantages – Classifications - Biological Neural Network - Artificial Neural Structure - Activation Functions - Adding Bias – Perception – MLP.

### UNIT II

12 Hrs

**FEEDFORWARD ANNs:** Feedforward Neural Network Structure - Delta Rule - Architecture and Training - Radial Basis Function - Time Delay NN.

### UNIT III

12 Hrs

**ATTRACTOR ANNs:** Associative Learning - Attractor NN - Linear Associative Memory - Hopfield Network - Content Addressable Memory - Simulated Annealing - Boltzmann Machine - Bidirectional Associative Memory.

### UNIT IV

12 Hrs

**UNSUPERVISED ANNs:** Clustering Procedures - C-Means Algorithm - Learning Vector Quantization - MAXNET - Self-Organizing Feature Maps - Adaptive Resonance Architectures.

### UNIT V

12 Hrs

**ANN SIMULATION IN MATLAB:** Creating a Custom Neural



Network – Initializations – Setting Weights and Bias – Using Different Transfer Functions – Using Training Parameters – Simulating and Plotting Network – Designing a Complete FF Neural Network (Supervised) – Designing Self Organizing Maps (Unsupervised).

### BOOKS FOR STUDY

1. Robert J. Schalkoff, "Artificial Neural Networks", McGraw-Hill, New Delhi, 1997. UNIT : I, II & IV
2. Satish Kumar, "Neural Networks: A Classroom Approach", McGraw-Hill, New Delhi, 2004.  
UNIT: III & V

### BOOKS FOR REFERENCE

1. Haykin Simon, Neural Networks: A Comprehensive Foundation, 2nd Ed., Addison Wesley, Singapore, 2001.
2. Freeman a. James and Skapura M. David, Neural Networks: Algorithms, Applications, and Programming Techniques, Addison-Wesley Longman, California, 2002.

Sem : III  
10PCS 3 4 02A

Hours/Week : 4  
Credits : 4

## **IDC II - FLASH**

### **AIM**

To Understand the Basic Concepts of Flash and hands on experience of Flash Tools.

### **UNIT I**

12 Hrs

**INTRODUCTION TO FLASH MX ENVIRONMENT:** Toolbar-Toolbox-Timeline- Panels-Property Inspector. **MENUS:** File Menu – Edit Menu-Preference Dialog Box-View Menu-Insert Menu –Modify Menu-Text Menu-Commands Menu-Control Menu-Window Menu-Flash Default File Types.

### **UNIT II**

12 Hrs

**PANELS:** Design Panels – Development Panels – Project Panels – Properties Panel. **GRAPHIC TOOLS IN FLASH:** Drawing Tools – Object Selection Tools - Color Selection Tool – Viewing Tools.

### **UNIT III**

12 Hrs

**ADVANCED EDITING TECHNIQUES:** Reshaping the Object – Optimizing the Curves – Expand and Insert the Fills – Softening the Edges – Converting the Lines to Fills.

### **UNIT IV**

12 Hrs

**TRANSFORMATIONS:** Arranging the Elements – Aligning Objects. **FRAMES, LAYERS AND SCENES:** Frames – Layers-Scenes- Document Properties.

### **UNIT V**

12 Hrs

**SYMBOLS:** Methods of Creating Symbols – Editing the Symbols- Animated Symbols - **ANIMATION:** Frame –By-Frame

Animation – Motion Tweening – Shape Tweening – Hybrid Tweening  
– Text Animation – Timeline Effects.

### BOOK FOR STUDY

K K Thyagarajan, B Anbumani, " FLASH MX 2004" , Tata McGraw-Hill Limited, New Delhi.

### BOOK FOR REFERENCE

Robert Reinhardt, Snow Dowd, "Macromedia Flash MX 2004 Bible", Wiley Publishing Inc, Indianapolis, Indiana.

Sem: II  
10PCS3402B

Hours/Week : 4  
Credit : 4

## **IDC-II-DREAMWEAVER**

### **AIM**

To understand the various design concepts of Dreamweaver and creating web applications in effective manner.

### **UNIT I**

12 Hrs

**INTRODUCTION TO HTML:** History of HTML – Head and Body Sections-Ordered and Unordered Lists – Table Handling – Frames – Forms.

### **UNIT II**

12 Hrs

**INTRODUCTION TO DREAMWEAVER MX:** Understand the Internet, WWW and Data Driven Web Application Components –The Dreamweaver MX Environment – Learn to Work with Dreamweaver MX- Use the Site Panel –Work in the Document Window- Learn Dreamweaver’s Menu System – Learn about Dreamweaver MX Objects, Behaviors.

### **UNIT III**

12 Hrs

**CREATING A WEB PAGE:** Open, Edit and Save a Web Page in Dreamweaver MX – Naming Your Page – Editing the Page – Add Text to a Page and Format It – Understand the Types of Images Available to the Web Page – Format and Align Images on the Page - Use Tables to Position Elements on the Page.

### **UNIT IV**

12 Hrs

**CREATING A WEB SITE:** Define a New Web Site in Dreamweaver MX – Manage and Add Pages to Your Site – Add New Pages to Your Site – Adding New Directories to Your Site – Publish Your Site to the Internet. **ADDING CONTENT TO YOUR SITE:** Build a Home Page in Dreamweaver – Create Templates in Dreamweaver - Use Templates to Add Pages to Your Site.

**UNIT V****12 Hrs**

**PLANNING THE SITE:** Plan and Design Your Site-Establish the Purpose of the Site –Make Basic Site Construction Decisions – Add Pages to the Site with the Site Map – Understand Basic Design Concepts – Use Collaborative Development.

**BOOKS FOR STUDY**

1. C Xavier, "World Wide Web Design with HTML" Tata McGraw-Hill Limited, New Delhi.
2. Ray West and Tom Muck, "Dreamweaver MX: A Beginner's Guide", Tata McGraw-Hill Publishing Company Limited, New Delhi.

**BOOK FOR REFERENCE**

Joseph W. Lowery, "Dreamweaver MX 2004 Bible", Wiley Publishing Inc, Indianapolis, Indiana.

## **INTER DEPARTMENTAL COURSE - IDC**

### **BIOCHEMISTRY**

- 10PBC2401 APPLIED NUTRITION
- 10PBC3402 FIRST AID MANAGEMENT

### **BIOTECHNOLOGY**

- 10PBT2401 BASIC BIOINFORMATICS
- 10PBT3402 BASIC GENOMICS & PROTEOMICS

### **CHEMISTRY**

- 10PCH2401 HEALTH CHEMISTRY
- 10PCH3402 INDUSTRIAL CHEMISTRY

### **COMMERCE**

- 10PCO2401 FINANCIAL ACCOUNTING FOR MANAGERS
- 10PCO3402 MANAGEMENT CONCEPTS & ORGANIZATIONAL BEHAVIOR

### **COMPUTER APPLICATIONS**

- 10PCA2401 INTERNET CONCEPTS
- 10PCA2402 FOUNDATION OF COMPUTER SCIENCE
- 10PCA3403 COMPUTER APPLICATIONS FOR SOCIAL SCIENCES
- 10PCA3404 FUNDAMENTALS OF PROGRAMMING

### **COMPUTER SCIENCE**

- 10PCS2401A FUNDAMENTALS OF IT
- 10PCS2401B WEB DESIGN
- 10PCS3402A FLASH
- 10PCS3402B DREAM WEAVER

### **ECONOMICS**

- 10PEC2401 ECONOMICS FOR MANAGERS
- 10PEC3402 INDIAN ECONOMY

### **ELECTRONICS**

- 10PEL2401 ELECTRONICS IN COMMUNICATION
- 10PEL3402 COMPUTER HARDWARE

## ENGLISH

- 08PEN2401 BUSINESS ENGLISH  
08PEN3402 INTERVIEW SKILLS AND GROUP DYNAMICS

## HISTORY

- 08PHS2401 PUBLIC ADMINISTRATION  
08PHS3402 APPLIED TOURISM

## HUMAN RESOURCE MANAGEMENT

- 10PHR2401 FUNDAMENTALS OF HRM  
10PHR3402 PERSONALITY AND SOFT SKILLS DEVELOPMENT

## INFORMATION TECHNOLOGY

- 10PIT2401A FUNDAMENTALS OF IT  
10PIT2401B WEB DESIGN  
10PIT3402A FLASH  
10PIT3402B DREAM WEAVER

## MATHEMATICS

- 10PMA2401 OPERATIONS RESEARCH  
10PMA3402 NUMERICAL METHODS

## PHYSICS

- 10PPH2401 MODERN PHOTOGRAPHY  
10PPH3402 MEDICAL PHYSICS

## PLANT BIOLOGY &amp; PLANT BIOTECHNOLOGY

- 10PPB2401 NANOBIO TECHNOLOGY  
10PPB3402 REMOTE SENSING AND GIS

## TAMIL

- 10PTA2401 முருகு; கழிப்பு; நியூ; தி; ஜி; கபு; - 1  
10PTA3402 முருகு; கழிப்பு; நியூ; தி; ஜி; கபு; - 2