

**SNR SONS COLLEGE
(AUTONOMOUS)
DEPARTMENT OF INFORMATION TECHNOLOGY
M. Sc. INFORMATION TECHNOLOGY
(ACADEMIC YEAR 2015 – 2016 ONWARDS)
SCHEME OF EXAMINATION**

SEMESTER -I

S.No.	Course Code	Course	Credits	Exam Hrs	CIA	CE	Total
1	15MIT101	RDBMS	4	3	25	75	100
2	15MIT102	VB. NET	4	3	25	75	100
3	15MIT103	Mobile Communications	4	3	25	75	100
4	15MIT104	Design and Analysis of Algorithms	4	3	25	75	100
5	15MIT105	Information Security	4	3	25	75	100
6	15MIT106	Practical – I : RDBMS LAB	3	3	40	60	100
7	15MIT107	Practical – II : VB.NET LAB	3	3	40	60	100

SEMESTER-II

S. No.	Course Code	Course	Credits	Exam Hrs	CIA	CE	Total
1	15MIT201	Advanced JAVA	4	3	25	75	100
2	15MIT202	Advanced Web Programming	4	3	25	75	100
3	15MIT203	Data Mining and Warehousing	5	3	25	75	100
4		SUPPORTIVE COURSE-I	4	3	25	75	100
5	15MIT204/ 15MIT204A/ 15MIT204B	Elective -I	4	3	25	75	100
6	15MIT205	Practical – III : Java Programming Lab	3	3	40	60	100
7	15MIT206	Practical IV : Advanced Web Programming Lab	3	3	40	60	100

CIA – Continuous Internal Assessment

CE – Comprehensive Examination

SEMESTER -III

S. No.	Course Code	Course	Credits	Exam Hrs	CIA	CE	Total
1	15MIT301	ASP.Net	4	3	25	75	100
2	15MIT302	J2EE Technology	4	3	25	75	100
3		SUPPORTIVE COURSE-II	4	3	25	75	100
4	15MIT303/ 15MIT303A/ 15MIT303B	Elective – II	4	3	25	75	100
5	15MIT304	Practical – V : ASP.Net Programming Lab	3	3	40	60	100
6	15MIT305	Practical – VI : J2EE Programming Lab	3	3	40	60	100
7		IDC-Network Security	3*	3	40	60	100*

SEMESTER-IV

S. No.	Course Code	Course	Credits	Project Report	Viva	Total
1	15MIT401	Project Work and Viva voce	15	160	40	200

CIA - Continuous Internal Assessment Total Credits for the Programme = 90

CE - Comprehensive Examination Total Marks for the Programme = 2200

IDC – Inter Departmental Course

- **Credits and marks will not be included in CGPA Calculations**

Dr.N.Sumathi
Chairman
Board of Studies – Information Technology
S N R Sons College (Autonomous)
Coimbatore – 06

ELECTIVE PAPERS

Semester Course Code	II	Semester Paper	III
15MIT204	Software Project Management	15MIT303	Grid and Cloud Computing
15MIT204A	Digital Image Processing	15MIT303A	Information Coding Techniques
15MIT204B	Bioinformatics	15MIT303B	Neural Network and Fuzzy Logic

SUPPORTIVE COURSE

Semester Paper	II	III
1	Object Oriented Analysis and Design	Software Testing
2	Multimedia and its Applications	Parallel Processing

Instruction hours / week : 4

Objectives

On successful completion of the course the students should have understood the concept of Database Management System and SQL programming.

UNIT -I

Database and database users: Introduction-Characteristics of the database approach- Actors of the scene- Advantages of using the DBMS approach.**Database system concepts and architecture:** Data models, schema & instances-Three schema architecture and data independence-database languages and interfaces-Centralized and Client/Server architecture of DBMS.**Data modeling using the ER-Model:** Entity types, Entity sets, Attributes and keys-Relationship types, relationship sets roles & structural constraints- weak entity types-ER Diagrams, naming conventions and design issues-Enhanced EER modeling.

UNIT -II

Relational Model: Relational model concepts - Relational model constraints & Relational database schemas – Update operation and dealing with constraint violations.**The Relational Algebra & Relational Calculus :** Unary Relational operations-Relational algebra operation from set theory – Binary Relational operation- Additional relational operation - Tuple Relational Calculus- The Domain Relational Calculus.

UNIT-III

SQL: SQL Data definition & data types – Basic constraints in SQL – Schema change statements in SQL- Basic queries in SQL –More complex queries in SQL –Insert, Delete & Update in SQL – Additional features in SQL. **More SQL:** Assertions – Views – Database Programming issues & techniques –Embedded SQL.

UNIT -IV

Functional dependencies and Normalization for relational databases: Functional dependencies – Normal forms based on primary keys- General Definition for second and third normal forms- Boyce Codd normal form –Multi - valued dependencies & fourth normal form – Join dependencies & Fifth normal form. **Data Storage Indexing and Query processing :** Introduction- Secondary storage devices- placing file records on disk- indexing structure for files – translating SQL queries into Relational Algebra - Algorithms for select and join operation – using heuristics in Query optimization.

UNIT -V

Introduction to transaction processing concepts: Introduction – Transaction and system concepts- desirable properties of transaction- characterize schedules based on recoverability and serializability - Transaction Support in SQL-Concurrency control techniques – Database recovery concepts –optimistic concurrency control-Granularity of data items & multiple granularity using locks. **Database security, Enhanced data models, Distributed databases:** Introduction to database security issues- concepts for object databases- Distributed database concepts.

TEXT BOOK

1. Ramez Elmasri ,Shamkant B.Navathe, “Fundamentals of Database Systems”, Addison Wesley Publications, Fourth Edition, 2008.

UNIT I - Chapter 1,2,3 **UNIT II**-Chapter5,6 **UNIT III** - Chapter 7

UNIT IV - Chapter 8,9,10 **UNIT V** - Chapter 12,13,14

REFERENCE BOOKS

1. Raghu Ramakrishnan, Johannes Gehrke, “Data Base Management Systems”, McGraw-Hill Third Edition, 2003.
2. C.J.Date, “Introduction to Database systems“, Addison Wesley publication, 6th Edition.

VB. NET

15MIT102

Instruction hours / week :4

Objectives

On successful completion of the course the students should gain the problem solving skills using VB.NET.

UNIT I

Introduction: Welcome to Visual Basic.Net – Windows versus DOS Programming – Visual Basic.Net IDE – Creating a simple Application – The Microsoft. Net frame work: Writing Software for windows- Common Language Runtime – The common Type system and Common Language Specification.

UNIT II

Writing Software : Information and Data – Variables – Comments and White space – Data types – Storing Variables – Methods. Controlling the Flow: The If Statement – Select Case – Loops

UNIT III

Building Windows Applications: Responding to Events – Building a simple Application – Creating Complex Applications – Using Multiple Forms – Displaying Dialog Boxes – Creating Menus

UNIT IV

Debugging and Error Handling – Building Objects: Understanding objects – Building classes – Reusability – Constructors – Inheritance – The framework classes.

UNIT V

Advanced Object-Oriented Techniques – Accessing Databases: What is a Database?
– SQL SELECT Statement – Data Access Components – Data Binding – ADO.NET – The ADO.NET Classes in Action.

TEXT BOOK:

1.Thearon Willis , Jonathan Crossland , Richard Blair , “Beginning VB.NET” ,Wiley dreamtech 2003.

UNIT I	Chapter 1, 2	UNIT II	Chapter 3, 4	UNIT III	Chapter 6, 7, 8
UNIT IV	Chapter 9, 10	UNIT V	Chapter 11, 15, 16		

REFERENCE BOOKS:

- 1 Alex Homer ,”VB.Net programming “ , WROX Publications.
2. Matt J. Crouch, “ASP .Net and VB .Net Web Programming”, Pearson Education.

MOBILE COMMUNICATIONS

15MIT103

Instruction hours / week : 4

Objectives

On successful completion of the course the students should have understood the trends and principles of mobile communication.

UNIT I

Introduction : Application – a short history of wireless communication - a market for mobile communications – some open research topics – a simplified reference model. **Wireless transmission :** frequencies for radio transmission – signals – antennas – signal propagation – multiplexing.

UNIT II

Medium Access Control : motivation for a specialized – MAC – SDMA – FDMA – TDMA – CDMA . **Telecommunications systems :** GSM – DECT – TETRA.

UNIT III

Satellite Systems : history - applications – basics – broadcast systems: overview , cyclical repetition of data – digital audio broadcasting – digital video broadcasting – convergence of broadcasting and mobile communications.

UNIT IV

Wireless LAN – Infrared vs. radio transmission infrastructure and ad-hoc network – IEEE 802.11 – HIPERLAN – Blue tooth.

UNIT V

Mobile – network layer – mobile IP – dynamic host configuration protocol – mobile transport layer – transport layer – traditional TCP.

TEXT BOOK

1. John H. Schiller ,“ MOBILE COMMUNICATIONS” , Pearson education, 2nd Edition 2004.

UNIT I Chapter 1 & 2

UNIT II Chapter 3 & 4

UNIT III Chapter 5 & 6

UNIT IV Chapter 7

UNIT V Chapter 8 & 9

REFERENCE BOOK

1. Raj kamal, “Mobile Computing“ , Oxford University Press, 2010.

DESIGN AND ANALYSIS OF ALGORITHMS

15MIT104

Instruction hours / week :4

Objectives

On successful completion of the course the students should have understood the various algorithm techniques.

UNIT – I

Introduction: Introduction to an algorithm, Algorithm specification.

Divide and Conquer: The General Method, Binary Search, Finding Maximum and Minimum, Merge sort, Quick sort, Selection sort, Strassen's Matrix Multiplication.

UNIT – II

The Greedy Method: The general method, Optimal storage on tapes, knapsack problem, Job Sequencing with deadlines, Minimum cost spanning trees, Optimal storage on tapes, Optimal Merge patterns, Single Source Shortest paths.

UNIT – III

Dynamic Programming: The general method, Multistage graphs, All pair Shortest paths, Optimal Binary Search trees, 0/1 knapsack, The Traveling salesperson problem, Flow shop scheduling.

UNIT – IV

Basic Search and Traversal Techniques: The techniques – Code optimization – AND/OR graph – Game trees - biconnected components and DFS.

UNIT – V

Backtracking: The general method, The 8 Queens problem, Sum of subsets, Graph Coloring, Hamiltonian Cycles, Knapsack Problem.

Branch and Bound : The Method, 0/1 knapsack problem, Traveling salesperson

TEXT BOOK

1. Ellis Horowitz, Sartaz Sahni, Sanguthevar Rajasekaran” Fundamentals of Computer Algorithms”, Galgotia Publications.

UNIT I	Chapter 1,3	UNIT II	Chapter 4
UNIT III	Chapter 5	UNIT IV	Chapter 6
UNIT V	Chapter 7, 8		

REFERENCE BOOK

1. S.E Goodman,S.T Hedentnieni, “Introduction to the Design and analysis of algorithms”, Tata McGraw Hill Publications, 2000.

INFORMATION SECURITY

15MIT105

Instruction hours / week: 4

Objectives

On successful completion of the course the students should have understood the trends and principles of Information Security.

UNIT – I

Introduction to Information Security: Introduction – History – What is Security – Critical Characteristics of information – NSTISSC Security Model – Components of an Information System – Securing Components – Balancing Information Security and Access – Approaches to Information Security Implementation – SDLC – The Security SDLC – Security Professionals and Organizations.

UNIT – II

The Need for Security: Introduction – business Needs – Threats – Attacks – Secure Software Development.

Legal, Ethical and Professional Issues in Information Security: Introduction – Law and Ethics in Information Security – Relevant U.S. Laws – International Laws and Legal Bodies – Ethics and Information Security – Codes of Ethics and Professional Organizations.

UNIT – III

Cryptography: Introduction – Foundation of Cryptography –Cryptography Tools – Attacks on Cryptosystems.

Risk Management: An overview of Risk Management – Risk Identification – Risk Assessment – Risk Control Strategies – Selecting a Risk Control Strategy – Quantitative Vs Qualitative Risk Control Practices – Risk Management Discussion Points.

UNIT – IV

Planning for Security: Introduction – Information Security policy, Standards and Practices – Information Security Blue Print – Continuity Strategies.

Security Technology: Introduction – Physical Design – Firewalls – Protecting Remote Connections.

Implementing Information Security: Introduction – Technical Topics of Implementation – Non Technical Topics of Implementation.

UNIT – V

Security Technology: Intrusion Detection – and Prevention Systems – Honey Pots, Honey Nets and Padded Cell System – Scanning and Analysis Tools – Access Control Devices.

Physical Security: Introduction – Physical Access Control – Fire Security and Safety.

Security and Personnel: Introduction – Employment Policies – and Practices – Security Considerations for Non Employees – Internal Control Strategies – Privacy and Security for Personnel Data.

TEXT BOOKS:

1. Michael E Whitman and H.J. Mattord, “Principles Of Information security”, Vikas Publishing House, New Delhi, 2003.

REFERENCES:

1. Micki Krause, Harold F.Tipton, “ Handbook of Information Security Management”, Vol 1-3 CRC Press LLC, 2004.
2. Stuart Mc Clure, Joel Scrambray, George Kurtz, “ Hacking Exposed”, Tata McGrawHil, 2003.

PRACTICAL- I

RDBMS LAB

15MIT106

Instruction hours / week : 5

Objectives

On successful completion of the course the students should have gained practical training in Relational Database Management System

1. Database of a Computer Centre .

Table 1:Programmers

Fields : Pno, Pname, DOB, Sex, salary,Specialization 1&2.

Constraints: All Fields are not null.

Pno is Primary key.

Salary ≥ 2000 .

Sex = 'm'or 'f'.

Table 2: Software

Fields : S/W no, S/W name, Developed in, Selling cost,

Developing cost, No. of s/w's sold, pno.

Constraints: S/w No is primary key.

Pno is foreign key.

All fields are not null.

Queries:

1. Find the names & ages of all programmers.
2. Display names & date of birth of programmers join in January.
3. Display the details of the s/w developed by a particular programmer.
4. Display female programmers who are specialized in particular language
5. What is the highest no. of copies sold by a package.
6. How much revenue has been earned by a sale of packages developed in C.
7. What is the costliest s/w developed in JAVA.
8. Display the details of the s/w developed by male programmer Earning more than 3000.
9. Display the details of the s/w developed by male programmer born after 1965
10. Which language listed in 1&2 has not been used for developing any package.

2. Create a Database & answer the queries(Insert valid records)

Table 1 : Employee Table

Fields : Empno, Ename,Job,Manager,Hiredate,salary,Commission,Deptno.

Constraints:Empno is primary key,Deptno is reference key(not null).

Table 2: Department Table

Fields : Deptno, Deptname,Location.

Constraints: Deptno is primary key.

Queries:

1. List the employees who joined before '03-AUG-93'.
2. List the employees name who has a manager sorted by their salaries.
3. Increment the salaries of all employees by 10% other than clerks and salesman.
4. List the department-wise strength of employees sorted by their Strength.
5. List the department-wise total salary paid.
6. List the employee number, name, job, deptname with deptno 20,30,40.
7. List employees name, Hiredate between '03-AUG-80' and '03-AUG-81' sorted in descending order and name in ascending order.
8. List the department-wise, designation-wise maximum, minimum, total salary and strength of employees.
9. Delete the employees in the departno=20.
10. Create view of employee who are earning salary > 10000 and designation as manager.

3. Table1 : Customer

Fields : Customer name char(20) not null,
Customer street char(30),
Customer city char(30).

Constraints : Customer name is a primary key.

Table 2 : Branch

Field : Branch name char(15) not null,
Branch city char(30)
Assets number(14,2)

Constraints: Branch name is primary key & Assets >=0

Table3 : Account

Fields : Account number char(10) not null,
Branch name char(15),
Balance number(9,2) not null.

Constraints: Primary key is account number & Balance >=0.

Table4 : Loan

Fields : Loan number number(5),
Amount number(7,2),
Branch char(15).

Table 5: Borrower

Fields : Customername char(20), Loan-no number(5).

Table 6: Depositor.

Fields : customer name char(20), Account number char(10)

Queries:

1. Find all loan number for loans made at particular branch with loan amounts > 10,000.
2. Find loan number of those loans with loan amounts between 90000 & 100000.
3. For all customer who have a loan from the bank, find their Names & loan no
4. Find all customers having a loan, an account or both at the bank.
5. Find all customers who have both loan and an account at the bank.
6. All customers have an account but no loan at the bank.
7. Find the average account balance at each branch.

8. Include age field in the customer table.
 9. Pay 5% interest on account whose balance is greater than average.
 10. Find names of all branches that have assets greater than that of each Branch in xyz.
4. Write a PL/SQL program to swap two numbers without taking third variable.
 5. Write a PL/SQL program to display the given number in reverse order.
 6. Write a PL/SQL program to display some numbers lesser than given number.
 7. Write a PL/SQL code block to calculate the area of a circle for a value of radius varying from 3 to 7, Store the radius and the corresponding values of calculated area in an empty table named areas, Consisting of two columns radius and areas
 8. Write a PL/SQL code block that will accept an account number from the user, check if the users balance is less than minimum balance, only then deduct Rs.100 from the balance. This process is fired on the Account table.
 9. Create a table with the following fields.
customer no, customer name, units, amount.
Write a PL/SQL procedure to calculate the amount and update the same Using main block. To calculate the amount the following information is used.

UNITS	CHARGE(Rs)
< 500	2 per unit
<=1000	3 per unit
>1000	5 per unit

10. Write a PL/SQL procedure that has an outer loop and an inner loop. The outer loop iterates 5 times, and the inner loop iterates 4 times. In the outer loop, insert a row into the TEMP table that has the outer Loop's index in NUM_COL1, NULL in NUM_COL2, and the messages in "OUTER LOOP" in CHAR_COL. In the inner loop, insert a row into the TEMP table that has the outer Loop's index in the NUM_COL1, inner loop's index in NUM_COL2, and the Message "INNER LOOP" in CHAR_COL.

TEMP TABLE		
NUMBER(4)	NUMBER(4)	CHAR(12)
NUM_COL1	NUM_COL2	CHAR_COL

11. Write a PL/SQL block to get a number "n" from the operator, using an "&" variable. Using a simple loop, get the name and salary of the people with the top "n" Salaries in the company. All names and salaries may be found in the EMP table.

EMP TABLE
ENAME CHAR(15)
SAL NUMBER(7,2) Store them in a table called TOP_SALES,
with columns NAME CHAR(20) and SALARY number(7,2) . Repeat the
procedure using a Cursor FOR loop.

12. Use the provided table descriptions below, write a PL/SQL block to Satisfy the following scenario. Get an order number from operator and find the associated PRODUCT_ID. Search the INVENTORY table. If the product is "IN STOCK", place a date into the order's associated ARRIVAL_DATE which is 7 days from today's date. If the product is "BACK ORDERED", place a date into the order's associated ARRIVAL_DATE which is one month from today's date. If the product is "SPECIAL ORDER", place a date two months from today's Date into the order's associated ARRIVAL_DATE, and fulfill the special order by inserting a row into the SPECIAL_ORDERS table. Use the ORDER_NO from the CUST_ORDERS Table.

INVENTORY TABLE

NUMBER(6)	CHAR(30)	CHAR(20)	NUMBER(3)
PROD_ID	PROD_DESCR	PROD_STATUS	STD_ORDER_QTY

CUST_ORDERS TABLE

NUMBER(12)	NUMBER(6)	DATE
ORDER_NO	PROD_ID	ARRIVAL_DATE

SPECIAL_ORDERS TABLE

NUMBER(12)	NUMBER(6)	NUMBER(3)
ORDER_NO	PROD_ID	ORDER_QTY

13. Reservation System :Usage of Functions and Procedures.
14. Create a table with the following fields.
Regno ,student name,mark1,mark2,mark3,total,result.
1.Insert records.
2.Update the records.
3.Write a trigger to prevent the deletion of records.
4.Write a trigger to validate marks and register no.
15. Design a report form for Invoice Preparation.

VB.NET LAB

15MIT107

Instruction hours / week :5

Objectives

On successful completion of the course the students should have gained programming skills in VB.Net.

1. Create a VB.NET Program using Control and loop Statements
2. Write a VB.NET program to count Words in a given Sentence
3. Write a VB.NET program Using String Functions.
4. Create Status Bar , Tool Bar , Add Image to Tool Bar, Activate them using suitable coding.
5. Create an Edit Box and Show how it works.
6. Create a VB.NET application using Dialog Boxes and Dialog Controls.
7. Create menu in VB.Net and use suitable coding to activate it. (example: view menu , tool bar etc.)
8. Create an Employee database and display the details of a selected employee. prepare pay slip
9. Create a company database and display their product details using datagrid.
10. Create a VB.Net form using Custom Graphics. (i) Listening to mouse (ii) Drawing Graphics circle Objects etc.
11. Implement Arithmetic calculator using console.
12. Develop a program to produce grade sheet using console.
13. Create MDI application having file menu (New, Open, Save, Print, Close) and Format menu (Font, Forecolor, Backcolor).
14. Write a VB.NET that displays two advertisements alternately. When the user clicks on one of the advertisements, he/she is redirected to “www.amazon.com”, and the other advertisement redirects the user to “www.fabmart.com”. The weightage of the amazon advertisement is 50 and that of the other one is 40. The advertisement should be centered horizontally and should cover 60% of the width of the screen. Its height should be 80 units. The width of the border should be 5 units.
15. Write a VB.NET Program for creation for website dynamic page of options with homepage Modules are Courses,Aboutus, Gallery,staff,results demo.

ADVANCED JAVA

15MIT201

Instruction hours / week : 4

Objectives

On successful completion of the course the students should have gained problem solving skills using Advanced Java.

UNIT –I

The Genesis of Java : Java’s Bytecode – Java Characteristics – Object Oriented Programming- Lexical Issues- Variables, Data Types and Arrays- Operators- Control Statements.

UNIT – II

Introducing Classes-Inheritance – Package and Interfaces- Exceptional Handling – Multithreaded Programming- String Handling

UNIT – III

Networking: Networking Basics-InetAddress – Datagrams - Sockets for clients and servers- URL-URL Connection.

Applets:Applet Basic Applet Architecture-The HTML Applet Tag-Passing Parameters to Applets-Document Base and Code Base.

UNIT – IV

Event Handling: The delegation event model

AWT:AWT classes-Window fundamentals-Working with frame windows-Working with Graphics-Using AWT controls and Layout Managers and Menus

UNIT – V

A Tour of SWING: JApplet –Icons and labels – Textfields – Buttons – Combo boxes – Tabbed Panes – Scroll panes – Trees –Tables – Exploring Swing

TEXT BOOK

1. Patrick Naughton, Herbert Schildt, “The Complete Reference Java 2”, Tata McGrawHill publication, 3rd Edition 1999.

UNIT I - Chapter 1,2,3,4,5 **UNIT II** - Chapter 6,8,9,10,11,13

UNIT III - Chapter 18,19 **UNIT IV** - Chapter 20,21,22 **UNIT V** - Chapter 26

REFERENCE BOOKS

1 Patrick Naughton, “The Java Hand Book”, Tata McGraw Hill publication, 2002.

2. Balagurusamy ,“Programming with Java”, Tata McGrawHill publication,Third Edition, 2008.

Instruction hours / week : 4

Objectives

On successful completion of the course the students should have understood the programming concepts of XML, Scripting language and PHP.

UNIT – I

JavaScript Object: Introduction to Scripting – JavaScript Objects –DHTML Object Model and Collections –DHTML Event Model –Cascading Style Sheets.

UNIT – II

XML:-Introduction-Structuring Data-XML Namespace-DTD and Schemas-XML Vocabularies-DOM-DOM Methods-Simple API for XML-XSL-SOAP-Web Services- Water™ XML-Based Programming Language

UNIT – III

PHP: Introduction – Essential PHP – Operators and Flow Control- String and Array – Creating Functions

UNIT – IV

Reading Data in web Pages – PHP Browser – Advanced Object Oriented Programming– Cookies and FTP – File Handling

UNIT – V

Working with Database – Ajax –Advanced Ajax – Drawing Images on the server- Creating RSS –Adding New Elements and Attributes –Interacting With other PHP XML Packages

TEXT BOOKS

1. Deitel & Deitel, Goldberg, “Internet & World Wide Web – How to Program “, Pearson Education, 3rd Edition.
2. Steven Holzner, “The Complete Reference PHP Covers PHP 5.2” , Tata McGraw-Hill Publication, 2008.

UNIT I - Chapter 6,12,13,14 UNIT II - Chapter 20 UNIT III - Chapter 1,2,3,4 (2)

UNIT IV 5,6,7,8,9,11 UNIT V 10,12,13,14,15

Book 1 : Unit I,II Book 2 : Unit III,IV,V

REFERENCE BOOKS

- 1 Thomas Powell ,”HTML COMPLETE REFERENCE”,1999
2. Thomas Powell, Fritz Schneider ,”JAVA SCRIPT COMPLETE REFERENCE”,2000 .

Instruction hours / week: 4

Objectives

On successful completion of the course the students should have understood the elements of Datamining and Warehousing

UNIT - I

Data Mining: Introduction: What is Data Mining - Kind of Data – Functionalities – Classification – Issues.

Data Preprocessing: Why Preprocess Data – Data Cleaning – Data Integration and Transformation – Data Reduction

UNIT - II

Data Warehousing: What is Data Warehouse – A Multidimensional Data Model – Data Warehouse Architecture – Implementation – From Data Warehousing to Data Mining .

UNIT – III

Data Mining Primitives – Designing GUI based on Data Mining Query Language – Architectures of Data Mining Systems.

Concept Description : Characterization and Comparison – Definition – Data Generalization and Summarization Based Characterization- Analytical Characterization: Analysis of Attribute Relevance – Mining Class Comparisons: Discriminating between different classes.

UNIT – IV

Mining Association Rules in Large Databases: Association Rule Mining – Mining Single Dimensional Boolean Association Rules from Traditional Databases – Mining Multilevel Association Rules from Transaction Databases.

Classification and Prediction: Definition – Issues regarding Classification and Prediction – Classification by Decision Tree Induction – Classification based on Concepts from Association Rule Mining –Other Classification Methods - Prediction.

UNIT – V

Cluster Analysis: Definition – Types of Data – A Categorization of Major Clustering Methods – Partitioning Methods – Hierarchical Methods – Density Based Methods.

Applications and Trends in data Mining: Data Mining Applications - Trends in data Mining.

TEXT BOOK

Jiawei Han and Micheline Kamber ‘Data Mining Concepts and Techniques’, Morgan Kaufmann Publishers 2001.

UNIT I Chapter 1, 3 UNIT II Chapter 2 UNIT III Chapter 4, 5
UNIT IV Chapter 6, 7 UNIT V Chapter 8, 10

REFERENCE BOOKS

1. Pieter Adriaans, Dolf Zantinge, “Data Mining” , Pearson Education, 1998.
2. Sam Anahory and Dennis Murray, “Data Warehousing in the Real World “ Pearson Education, 1997.

ELECTIVE –I

SOFTWARE PROJECT MANAGEMENT

15MIT204

Instruction hours / week : 4

Objectives

On successful completion of the course the students should have understood the trends and principles of Software Project Management.

UNIT I

Introduction- software projects versus other types of project – contract management and technical project management – Activities – Plans and methodologies – categorizing – Management – Problems – Objectives – Stakeholders – Requirement Specification – Management Control. Stepwise Project Planning. Project Evaluation – Strategic and Technical Assessment – Cost-Benefit Analysis – Cash flow forecasting –Cost Benefit evaluation Techniques – Risk Evaluation.

UNIT II

Selection of an appropriate project approach – Choosing technologies – Technical plan contents list – Process Models – Waterfall Model – V-Process model – Spiral model – Software Prototyping – Incremental Delivery – Dynamic Systems – Iterative processes Selecting. Software Effort Estimation – Estimates – Problems – Basis – Estimation Techniques – Expert Judgement – Estimating by Analogy – Albrecht function point analysis – Function points Mark II – Procedural code-oriented approach – COCOMO. Activity Planning – Objectives – Schedules – Activities – Sequencing and Scheduling – Network planning models – Formulating – Time dimension – Forward and Backward pass – Critical path – Activity float – Shortening - Critical activities.

UNIT III

Risk Management – Nature of risk – Types of risk – Managing risk – Hazard Identification – Analysis – Risk planning and control – Evaluating risks. Resource Allocation – Nature of Resources – Identifying requirements – Scheduling – Creating Critical paths- Counting cost – Publishing Schedule – Cost Schedules – Sequencing. Monitoring and Control – Creating Framework – Collecting data – Visualizing progress – Cost monitoring – Prioritizing Monitoring – Change control.

UNIT IV

Managing Contracts – Types – Stages – Typical terms – Contract Management – Acceptance. Managing people and organizing teams – Understanding and Organizational Behaviour – Selecting – Instruction best methods – Motivation – Oldham-Hackman model – Working in Groups – Becoming a team – Decision making – Leadership – Organizational Structures – Stress – Health and Safety. Software Quality – The place – Importance – Defining – ISO 9126 – Quality measures – Product versus process – External standards – Techniques – Quality plans. Small projects – Introduction – Problems with student projects – Content of a project plan.

UNIT V

PRINCE 2 – Case Study – Introduction – Components – Planning technique – Project Organization – Stages – Procedures – Directing – Starting – Initiating – Controlling a Stage – Managing product Delivery – Managing Stage Boundaries – Closing a project.

TEXT BOOK

1. Bob Hughes and Mike Cotterell, “Software Project Management “, Tata McGraw-Hill, Third Edition, 2008.

UNIT I Chapter 1, 2, 3 **UNIT II** Chapter 4, 5, 6 **UNIT III** Chapter 7, 8, 9
UNIT IV Chapter 10, 11, 12, 13 **UNIT V** APPENDIX A

REFERENCE BOOK

1. G.P. Sudakar “Elements of Software Project Management”, PHI, 2010.

DIGITAL IMAGE PROCESSING

15MIT204A

Instruction hours / week : 4

Objectives

On successful completion of the course the students should have knowledge on concepts of Digital Image Processing

UNIT I

Introduction – what is Digital Image Processing – the origin of DIP – examples of fields that used DIP – fundamentals steps in DIP – components of an image processing system.

Digital image fundamentals : elements of visual perception – light and the electromagnetic spectrum – image sensing and acquisition – image sampling and quantization – some basic relationship between pixels – linear & nonlinear operations.

UNIT II

Image enhancement in the spatial domain – background – some basic gray level transformations – histogram processing – enhancement using arithmetic /logic operations – basics of spatial filtering – smoothing spatial filters – sharpening spatial filters – combining spatial enhancement methods.

UNIT III

Image restoration – a model of the image degradation/restoration process – noise models – restoration is the process of noise only – spatial filtering – periodic noise reduction by frequency domain filtering - linear, portion – invariant degradations – estimating the degradation function – inverse filtering – minimum mean square error filtering – constrained least squares filtering – geometric mean filter – geometric transformations.

UNIT IV

Image compression – fundamentals – image compression models – elements of information theory – error free compression – lossy compression – image compression standards.

UNIT V

Image segmentation – detection and discontinuities – edge linking and boundary deduction thresholding – region based segmentation – segmentation by morphological watersheds – the use of motion in segmentation.

TEXT BOOK

1. Rafael. C. Gonzalez, Richard E. Woods “**DIGITAL IMAGE PROCESSING** “, Pearson education, Second Edition.

UNIT I -Chapter1, 2 **UNIT II** - Chapter 3 **UNIT III** - Chapter 5

UNIT IV - Chapter 8 **UNIT V**- Chapter 10

REFERENCE BOOKS

1. B. Chanda, D. Dutta Majumder , “ DIGITAL IMAGE PROCESSING AND ANALYSIS” PHI , 2003.
2. Nick Efford, “DIGITAL IMAGE PROCESSING A PRACTICAL INTRODUCING USING JAVA”, Pearson Education, 2004.

BIOINFORMATICS

15MIT204B

Instruction hours / week : 4

Objectives

On successful completion of the course the students should have understood the trends and principles of Bioinformatics.

UNIT I

INTRODUCTION: Introduction, The dawn of sequencing, what is bioinformatics?, The biological sequence/ structure deficit, Genome projects, Status of the human genome project, why is bioinformatics important?, Pattern recognition and prediction, The folding problem, The role of chaperones, Sequence analysis, Homology and analogy, The devil is in the detail

UNIT II

INFORMATION NETWORKS : Introduction, What is the Internet?, How do computers find each other?, Facilities used on the Internet, What is the World wide Web? , Web browsers, HTTP, HTML, and URLs, The European Molecular Biology network – EMBnet , The National Center for Biotechnology Information – NCBI ,Virtual tourism

UNIT III

PROTEIN INFORMATION RESOURCES : Introduction, Biological databases, Primary sequence database, Secondary databases, Composite protein sequence databases, Structure classification databases

UNIT IV

GENOME INFORMATION RESOURCES : Introduction, DNA sequence Databases, Specialized Genomic Resources

UNIT V

DNA SEQUENCE ANALYSIS : Introduction, why analyse DNA?, Genes structure and DNA sequences, Features of DNA sequence analysis, Issues in the interpretation of EST searches, Two approaches to gene hunting, the expression profile of a cell, cDNA libraries and ESTs, Different approaches to EST analysis, Effects of EST data on DNA databases , A practical example of EST analysis.

TEXT BOOK

1. T K Attwood, D J Parry Smith, “Introduction to Bioinformatics”, Low Price Edition, Pearson Education.

REFERENCE BOOKS

1. Jean – Michel Claverine and Cedric Notredame , “Bioinformatics – A Beginner’s Guide “.
2. Vittal R.Srinivas “Bioinformatics – A Modern Approach “.
3. Zoe’s Lacronix , Terence Critchlow , “Bioinformatics – Managing Scientific data”.

PRACTICAL-III

JAVA PROGRAMMING LAB

15MIT205

Instruction hours / week : 5

Objectives

On successful completion of the course the students should have gained practical training in Java programming.

1. Write a Java Program to implement Constructors.
2. Write a program in Java to implement inheritance.
3. Write a program to create a Java Package.
4. Write a Java program to implement Interface.
5. Write a program to implement Overloading and Overriding
6. Write a program to demonstrate the use of dynamic polymorphism.
7. Write a simple program to implement Multithreading.
8. Develop a simple GUI application program to illustrate the use of multithreads.
9. Write a program to generate three types of exception and then incorporate necessary catch blocks to catch and handle them appropriately.
10. Write a Java Program to illustrate the Java networking concepts.
11. Write a Applet program to create a registration form of student.
12. Write a Java program to implement the different layouts
13. Write a Java program to implement event handling.
14. Write a Java Swing program to create a online application form for college admission.
15. Develop a simple Java program to illustrate the use of Tabbed panes, Scroll Panes and Trees of Swing.

ADVANCED WEB PROGRAMMING LAB

Instruction hours / week : 5

Objectives

On successful completion of the course the students should have gained knowledge on web page development.

1. Design a web page for a college web page.
2. Write a JavaScript program to implement Cascading Style Sheet.
3. Write a JavaScript Program for Object Modeling
4. Write a JavaScript program for Event handling
5. Write a DTD for an XML document
6. Write a JavaScript code that uses DOM
7. Write a XML program for Web Service interaction(SOAP/UDDI/WSDL)
8. Write a PHP program for Text manipulation using Regular expression
9. Write a PHP program for Handling Cookies
10. Write a PHP program for file handling
11. Write a PHP program to perform client side data validation.
12. Write a simple AJAX program
13. Write a simple AJAX program to download an image.
14. Write a PHP program to create RSS.
15. Write a PHP program to create graphics image.

SUPPORTIVE COURSE

MULTIMEDIA AND ITS APPLICATIONS

Instruction hours / week : 4

Objectives

On successful completion of the course the students should have knowledge on trends and principles of Multimedia.

UNIT I

Multimedia systems design: an introduction: multimedia elements – multimedia applications – multimedia systems architecture – evolving technologies for multimedia systems – defining objects for multimedia systems – multimedia data interface standards.

UNIT II

Compressions and decompression : types of compression – binary image compression schemes – color, gray scale and still video image compression – video image compression – audio compression – fractal compression.

UNIT III

Data and file format standards : rich-text format - TIFF file format – resource interchange file format – MIDI file format – JPEG DIB file format for still and motion images – AVI indeo file format – MPEG standards – TWAIN .

UNIT IV

Multimedia input output technologies – key technology issues – pen input – video and image display systems – print output technologies – image scanners – digital voice and audio – digital camera – video images and animation – full motion video.

UNIT V

Multimedia application design : multimedia application classes – types of multimedia systems Virtual reality design – components of multimedia systems – organizing multimedia databases – application work flow design issues – distributed application design issues.
Hypermedia messaging : mobile messaging – hypermedia message components – hypermedia linking and embedding – creating hypermedia messages – intergrated multimedia message standards – integrated document management.

TEXT BOOK

1. Prabhat K. Andleigh, Kiran Thakrarn, “Multimedia systems desing”, PHI, 2009.

UNIT I Chapter 1 **UNIT II** Chapter 2 **UNIT III** Chapter 3
UNIT IV Chapter 4 **UNIT V** Chapter 7 & 9

REFERENCE BOOKS

1. Ze-Nian Li,Mark , S Draw, ”Fundamentals of multimedia”, Pearson Education, 2008.
2. John .F. Koegel Benford, ” Multimedia Systems”, Pearson Education, First Edition, 1998.

SUPPORTIVE COURSE

OBJECT ORIENTED ANALYSIS AND DESIGN

Instruction hours / week : 4

Objectives

On successful completion of the course the students should have understood the trends and principles of object oriented methodologies and gain problem solving skills using object based models.

UNIT I

Introduction : What is Object-Oriented? - What is Object-Oriented Development? - Object-Oriented Themes - Evidence for Usefulness of Object-Oriented Development. Modeling As A Design Technique: Modeling - The Object Modeling Technique.

Object Modeling: Objects and Classes - Links and Associations - Advanced Link and Association Concepts - Generalization and Inheritance - Grouping Constructs -A Sample Object Model.

UNIT II

Analysis: Overview of Analysis - Problem Statement - Automated Teller Machine Example - Object Modeling - Dynamic Modeling - Functional Modeling - Adding Operations.

UNIT III

System Design: Overview of System Design - Breaking a System into Subsystems - Identifying Concurrency - Allocating Subsystems to Processors and Tasks - Management of Data Stores - Handling Global Resources - Choosing Software Control Implementation - Handling Boundary Conditions - Setting Trade-off Priorities - Common Architectural Frameworks - Architecture of the ATM System.

UNIT IV

Object Design : Overview of Object Design - Combining the Three Models - Designing Algorithms. Design Optimizations – Implementation of Control – Adjustment of Inheritance – Design of Associations – Object Representation. Comparison of Methodologies: Structured Analysis/Structured Design, Jackson Structured Development – Information Modeling Notations.

From Design To Implementation - Implementation Using a Programming Languages - Implementation Using a Database System - Implementation Outside a Computer.

UNIT V

Object-Oriented Languages: Translating a Design into an Implementation - Class Definitions - Creating Object - Calling Operations - Using Inheritance - Implementing Associations - Object-Oriented Language Features - Survey of Object-Oriented Languages.

Applications: Object Diagram Compiler, Computer Animation : Problem Statement - Analysis - System Design - Object Design - Implementation.

TEXT BOOK

1. James Rumbaugh, Michael Blaha, William Premerlani, Frederick Eddy, William Lorensen
“Object-Oriented Modeling and Design” – Prentice-Hall of India Publications, 2002.

UNIT-I Chapter 1,2,3 **UNIT-II** Chapter 8 **UNIT-III** Chapter 9

UNIT-IV Chapter 10,12,13 **UNIT-V** Chapter 15,18,19

REFERENCE BOOKS

1. Simon Bennett, Steve McRobb & Ray Former, “Object Oriented System Analysis & Design using UML “, Tata McGrawHill, 2005.
2. Graddy Booch, “Object Oriented Analysis and Design”, Addison Wesley, First Edition, 1999.

Instruction hours / week: 5

Objectives

On successful completion of the course the students should have gained problem solving skills using ASP.NET

UNIT I

ASP.NET Applications: ASP.NET File Types – Three ways to code web forms – ASP.NET Configuration. Web Form Fundamentals: A Simple Page Applet – Improving the Currency Converter – A Deeper Look at HTML Control Classes – The Page Class. Web Controls: Stepping up to Web Controls – Web Control Classes – AutoPostBack and Web Control Events – A Simple Web Page Applet – Assessing Web Controls.

UNIT II

Validation and Rich Controls: The Calendar Control – Formatting the Calendar – Restricting Dates – The AdRotator – The Advertisement File – The AdRotator Class. Validation: The Validation Controls – The Validation Process – The Validator Class – A Simple Validation Example.

UNIT III

The Data List, Data Grid & Repeater: Introducing Templates – Using Templates with the Data List – Data Binding with Multiple Templates – Comparing the Template Controls – Preparing your List for Selection & Editing – Selecting Items – Editing Items – Paging & Sorting with the Data Grid.

UNIT IV

Tracing logging and error handling: common errors – The .Net exception object – Handling Exception – Throwing own exceptions – Logging Exceptions – Error pages – Page Tracing.

UNIT V

Overview of ADO.NET - Introducing ADO.NET and Data management – Characteristics of ADO.NET – The ADO.NET Object Model. ADO.NET Data Access: SQL Basics – The SQL Select Statement – The SQL Update Statement – The SQL Insert Statement – The SQL Delete Statement – Accessing, Creating a Connection – Defining a Select Command – Updating Data – Accessing Disconnected Data – Selecting Multiple Tables – Modifying Disconnected Data – Updating Disconnected Data.

TEXT BOOK

1. Matthew Mac Donald, “ASP.NET – The Complete Reference”, Tata Mc Graw Hill 2005.

UNIT I Chapter 5,6,7 **UNIT II** Chapter 9 **UNIT III** Chapter 15

UNIT IV Chapter 11 **UNIT V** Chapter 12,13

REFERENCE BOOKS

1. Andrew Duthie , “ASP.NET Using VB.Net 2005 Step by step “, Pearson Education.
2. ASP.Net Bible – Wrox Publications

Instruction hours / week: 5

Objectives

On successful completion of the course the students should understand the methods and principles of problem solving skills using J2EE technology.

UNIT I

J2EE Basics : J2EE Multi-Tier Architecture – J2EE Design Patterns & Frameworks:Pattern Concepts – Pattern Catalog.

UNIT II

JDBC Objects : The Concept of JDBC – JDBC Driver types – A Brief Overview of the JDBC Process – Database Connections – Statement Objects – Resultset – Transaction Processing – JDBC and Embedded SQL : Inserting data into tables – Updating tables.

UNIT III

Java Servlets : Java Servlets and CGI – A simple Java Servlet – Anatomy of a Java Servlet – Reading Data from a client – Reading HTTP request headers – Sending data to a client – working with Cookies – Tracking Sessions.

JSP : JSP tags – Tomcat – Request String – User Sessions – Cookies – Session Objects.

UNIT IV

EJB : The EJB Container – Classes – Interfaces – The anatomy of a deployment descriptor – Environmental Elements – Referencing EJB – Session Java Beans – Entity Java Beans – The JAR File.

UNIT V

RMI: RMI Concepts – Server side – Client side.

TEXT BOOK

1. Jim Keogh, “The Complete Reference J2EE” , Tata McGrawHill publication, 2002.

UNIT I Chapter 2, 4 **UNIT II** Chapter 6,7 **UNIT III** Chapter 10,11

UNIT IV Chapter 12 **UNIT V** Chapter 15

REFERENCE BOOK

1. James Mc Govern, “J2EE1.4 Bible”, Wiley Publishing Inc, 2003.

ELECTIVE – II

GRID AND CLOUD COMPUTING

15MIT303

Instruction hours / week: 5

Objectives

On successful completion of the course the students should have understood the fundamentals of Grid and Cloud Computing.

Unit- I

Cloud Computing Basics – Cloud computing overview – Cloud Components – Infrastructure – Services – Applications – Storage – Database Services – Intranets and the Cloud – Components – Hypervisor Applications – First movers in the cloud – Amazon – Google – Microsoft. Benefits – scalability – simplicity – knowledgeable vendors – more internal resources – security- limitations – your sensitive information- applications not ready – Developing your own applications.

Unit – II

Cloud computing technology – hardware and infrastructure – clients – mobile – thin – thick-security – data leakage – offloading work – logging – forensics – development – auditing – network – basic public internet – the accelerated internet – optimized internet overlay – site to site vpn – cloud providers – cloud consumers – pipe size – redundancy. Accessing the cloud – platforms – web applications framework – web hosting service – proprietary method – web applications – your choices – sample applications – web APIs – what are APIs – How API work – API creators – web browsers – internet explorer- Firefox – safari – chrome – cloud storage-overview – basics – storage as a service – providers – security – reliability – advantages.

Unit – III

Standards-Infrastructure-Virtualization-oVF-service-Data-Webservices-cloud computing at work-software as a service-Overview –Advantages-Software considerations-vendor-Advantages-Limitations-Local clouds and thin clients-virtualization in your organization-why virtualize-how to virtualize-concerns-security-sever solutions-Microsoft Hyper-v-VMware-VMware Infrastructure-migration to the cloud-cloud services for individuals-Available services-skytap solutions-Enterprise class cloud offerings-MS Exchange-Vmotion –VMware vcenter convertor-Hyper –V live migration –migration-which Applications do you need

Unit – IV

Grid Computing-Introduction –Early grid activities –Data-computation-Computational and data grids-Grid Applications-Schedulers-Resource Broker-Load Balancing-Grid portals-Integrated solutions –Grid Infrastructure. Grid computing Anatomy-The grid problem-concept of virtual organizations

Unit – V

Grid Architecture-Grid Architecture and relationship to other distributed Technologies. Grid computing-Road map-Autonomic computing-Business on demand and infrastructure-Virtualization-Service oriented Architecture and Grid

TEXT BOOKS:

1. Anthony T.Velte, TobyJ.Velte,Robert Elsenopeter, “Cloud computing A Practical Approach”, TataMcGrawHill

UNIT I Chapter 1, 2

UNIT II Chapter 5, 6, 7

UNIT III Chapter 8, 9, 12, 13

2. Joshy Joseph, CraigFellensein , “Grid Computing on demand”, Prentice Hall PTR, 2003

UNIT IV Chapter 1, 2, 3

UNIT V Chapter 4, 5

REFERENCE BOOKS :

1. Raj Kumar Buyya, James Broberg, Andrzej Goscinski, “Cloud Computing Principles And Paradigms”, Wiley, 2013.
2. Barrie Sosinsky, ‘ Cloud Computing Bible’, Wiley-India, 2013.

INFORMATION CODING TECHNIQUES

15MIT303A

Instruction hours / week: 5

Objectives

On successful completion of the course the students should have understand the fundamentals of information coding techniques.

UNIT - I

Information Entropy Fundamentals :Uncertainty, Information and Entropy-Source coding Theorem-Huffman coding –Shannon Fano coding –Discrete Memory less channels-channel capacity-channel coding Theorem –Channel capacity Theorem.

UNIT – II

Data and voice Coding: Delta Modulation, adaptive Delta Modulation-Coding speech at low bit rates-Adaptive differential Pulse code Modulation –Adaptive sub-band coding.

UNIT – III

Error control coding: Linear Block codes – Syndrome Decoding – Minimum distance consideration –cyclic codes –Generator Polynomial – Parity check polynomial-Encoder for cyclic codes –calculation of syndrome-Convolutional codes.

UNIT – IV

Compression Techniques: Principles-Text compression-Static Huffman coding-Dynamic Huffman coding-Arithmetic coding –Image Compression – Graphics Interchange format – Tagged Image File Format-Digitized documents-Introduction to JPEG standards.

UNIT – V

Audio and video Coding: Linear predictive coding – code excited LPC – Perceptual coding, MPEG audio coders – Dolby audio coders – Video compression – Principles – Introduction to H.261 & MPEG video standards.

TEXT BOOKS

1. Simon Haykin, “Communication System “John Wiley & Sons, 4th edition, 2001.
UNIT I Chapter 1, UNIT II Chapter 2, UNIT II Chapter 3.
2. Fred Halsall, ”Multimedia Communication, Applications Networks Protocols & Standards”, Pearson education, Asia 2002.
UNIT IV Chapters 3, UNIT V Chapters 4.

REFERENCE BOOKS

1. Proakis, “Digital Communication”, McGraw-Hill, 1982.
2. Mark Nelson, “Data Compression Book”, BPB publication,1992.
3. Watkinson,j,”Compression in Video and Audio”, Focal Press, London,1995.

ELECTIVE - II

NEURAL NETWORK AND FUZZY LOGIC

15MIT303B

Instruction hours / week: 5

Objectives

On successful completion of the course the students should have understood the trends and principles of neural network and fuzzy logic.

UNIT-I

Fundamentals of Neural Networks: Basic concept of Neural Networks – Human Brain – Model of Artificial Neuron- Neural Network Architectures-Characteristics of Neural Networks-Learning Methods-Taxonomy of Neural Network Architecture-History of Neural Network Research-Early Neural Network Architecture-Some Application domains.

UNIT-II

Backpropagation Network: Architecture of a Backpropagation Network – backpropagation Learning-Illustration
Applications –Effect of tuning parameters of the Backpropagation Neural Network- Selection of various parameters in BPN-Variations of standard Backpropagation Algorithm.

UNIT-III

Adaptive Resonance Theory – Introduction –ART1-ART2-Applications.

UNIT- IV

Fuzzy set theory- Fuzzy Versus Crisp – Crisp sets – Fuzzy sets – Crisp Relations-Fuzzy Relations .

UNIT –V

Fuzzy systems: Crisp logic – Predicate logic –Fuzzy Logic –Fuzzy rule based system – Defuzzification Methods.

TEXT BOOK

1. S. Rajasekaran , G. A.Vijayalakshmi Pai, “ Neural Networks, Fuzzy logic and Genetic Algorithms Synthesis and Applications”, PHI , 2004.

UNIT I Chapter 1 **UNIT II** Chapter 2 **UNIT III** Chapter 4
UNIT IV Chapter 5 **UNIT V** Chapter 6

Instruction hours / week: 5

Objectives

On successful completion of the course the students should have gained practical training in ASP.NET programming.

1. Write a ASP .NET program using all validator controls
2. Write a ASP .NET program to bind different web controls.
3. Write a ASP .NET program to create a cookie.
4. Write a ASP .NET program to upload and download a file.
5. Write a ASP .Net Program using session and application objects.
6. Create a student information Form and input records to a table in MS Access Database Using ADO .NET and also display the records using Datagrid .
7. Create a Employee information Form and input records to a table in MS SQL Server using ADO .NET Dataset .
8. Write a ASP.NET program to read and write XML files.
9. Write a ASP.NET program for web services.
10. Write a ASP.NET program to create menus.
11. Create an application that illustrates how a content can be buffered.
12. Create a Global.asax file with Application variables cont, color1 and gotohp. Create a Session variable called cont1. Initialize cont as 0 and assign any color to color1. For the variable gotohp, give a hyperlink to any Website. Use the variables in a Web Form. Try these with the lock and unlock methods.
13. Write a program to connect to the master database in SQL Server, in the Page_Load event. When the connection is established, the message “Connection has been established” should be displayed in a label in the form.
14. Write an application that contains a list of following technologies:
 - ASP.NET
 - ADO.NETIt also contains a textbox in which the user has to enter a name and a textarea in which the user has to enter his comments. When the Submit is clicked, the output should display the name entered in the textbox and the user-selection from the listbox. All the above should be displayed with the tracing for the page being enabled.
15. Create a Dynamic page of college website using ASP.NET controls and templates. Modules are homepage, about us, staff details, photo galleries, student result

PRACTICAL-VI

J2EE PROGRAMMING LAB

15MIT305

Instruction hours / week: 5

Objectives

On successful completion of the course the students should have gained practical training in JDBC, Java servlet, JSP, EJB and RMI

1. Write a program using JDBC for creating a table, Inserting records and to list out of records.
2. Write a program using JDBC for deleting deleting records and updating records.
3. Develop a web page for login verification using HTML and servlets.
4. Write a Servlet program to implement Session Tracking.
5. To write a Servlet program to check authentication for user using Cookies.
6. To write a Servlet program and use JDBC in it.
7. Develop a J2EE application that creates a registration form and sends the data to a servlet that displays it.
8. Write a program in JSP by using session object create number of visitors hit the page.
9. Write a program in JSP to create a Cookie and provide client information through that.
10. Write a program in JSP to find the number of days between two given dates.
11. To write a JSP program that works with JDBC.
12. Display employee details using JSP.
13. Develop a web page for calculating mark percentage of a student using JSP.
14. Write a program to build a simple Client Server application using RMI.
15. Write a program to find the marks of the students using Remote Method Invocations

INTER DEPARTMENTAL COURSE

NETWORK SECURITY

Instruction hours/Week: 4

Objectives

On Successful completion of the course the students should have understood the elements of Network Security and Management emphasizing the TCP/IP framework.

UNIT I

Introduction-Attacks, Services and Mechanisms-Security attacks, Security Services –A Model for Internetwork Security.

Conventional Encryption and Message Confidentiality.

UNIT II

Public Key Cryptography and Message Authentication – Public Key Crypto systems-RSA Cryptosystems-Diffie-Hellman Key Exchange-Digital Signature-Symmetric-Key Versus-Public key Crypto Systems.

UNIT III

Authentication Applications: Kerberos: Motivation-Kerberos Version4-Kerberos Version 5.

X.509 Authentication service: Certificates- Authentication Procedure-X.509 Version 3

UNIT IV

Electronic Mail Security: Pretty good privacy: Notation-Operational description-cryptographic keys and keys rings-Public Key Management.

IP Security: Overview-IP Security architecture-Authentication Header-Encapsulating security payload-combining security association-Key Management.

UNIT V

Web security: Web Security Threats-Web traffic security approaches-Secure Socket layer and Transport Layer Security-Secure Electronic Transaction.

System Security: Intruders and Virus-Firewalls.

TEXT BOOK

1. William Stallings, "Network Security Essentials Applications and Standards", Pearson Education -Fifth Indian Reprint 2004.

UNIT I -Chapter 1, 2

UNIT II-Chapter 3,4

UNIT III-Chapter 4

UNIT IV-Chapter 5, 6

UNIT V-Chapter 7,9,10

REFERENCE BOOK

1. Atul Kahate, "Cryptography and Network Security", Tata McGraw Hill 2003.

SUPPORTIVE COURSE

PARALLEL PROCESSING

Instruction hours / week: 5

Objectives

On successful completion of the course the students should have knowledge on parallel Processing

UNIT I

Introduction to parallel processing – Trends towards parallel processing – Parallelism in Uni Processor Systems – Parallel Computer structures – Architectural Classification schemes – Parallel processing Applications.

UNIT II

Solving Problems in parallel: Utilizing Temporal Parallelism – Utilizing Data Parallelism – Comparison of Temporal and Data Parallel Processing – Data parallel processing with specialized Processor – Inter-task Dependency.

Structure of Parallel Computers: A Generalized structures of a parallel computers – Vector Computers – Array Processors.

UNIT III

Principles of Pipelining and Vector Processing: Pipelining: An Overlapped parallelism – Instruction and Arithmetic pipelines – Principles of Designing pipelined processors.

UNIT IV

Structures and Algorithms for Array Processors: SIMD Array Processors – SIMD Interconnection Networks. Multiprocessor Architecture and programming Functional structures – Interconnection Networks.

UNIT V

Parallel Algorithms: Models of Computation – Analysis of Parallel Algorithms Prefix Computation – Sorting – Searching – Matrix operations.

TEXT BOOKS

1. Kai Hwang, Faye A. Briggs, “Computer Architecture and Parallel Processing”, Tata McGraw Hill Publications, 1985.
2. V.Rajaraman, C. Siva Ram Murthy, “Parallel Computers Architectures and Programming”, PHI, 2003.

REFERENCE BOOKS

1. Kai Hwang, “Advanced Computer Architecture – Parallelism, Scalability, Programmability”, Tata McGraw Hill, 1993.
2. Bary Wilkingson, Michael Allen, “Parallel Programming”, Pearson Education, 2002.
3. Michael J. Quinn, “Parallel Computing Theory and Practice”, TMCH, II Edition.

SUPPORTIVE COURSE

SOFTWARE TESTING

Instruction hours / week: 5

Objectives

On successful completion of the course the students should have knowledge on concepts of software testing.

UNIT I

Assessing Testing Capabilities and Competencies: The Three Step Process to Becoming a World-Class S/W Testing Organization – Define-a World-class Software Testing model- Develop Baselines for Your Organization- Development an Improvement Plan.

Building a S/W Testing Environment: Creating an Environment Supportive of S/W Testing- Minimizing Risks- Management Support For S/W Testing – Building a Structured Approach to S/w Testing – Developing a Test Strategy.

UNIT II

Building the S/W Testing Process: S/W Testing Guidelines – Customizing the software Testing Process.

Selecting and Installing S/W Testing Tools: Integrating Tools Into the Tester's Work Processes – Tools Available For Testing S/w – Selecting And Using Test Tools – Training Tester's In Tool Usage

UNIT III

The Seven –step Testing process: Advantage Of Following a Process – The cost of computer testing - The Seven-step S/W Testing process.

Developing The Test Plan : Overview- Objective -Profile Of The S/w Project – Understand The Project Risks – Selecting A Testing Technique – Plan Unit Testing And Analysis – Build The Test plan

UNIT IV

Verification Testing: Overview- Input – The Requirement Phase – The Design Phase – The Programming Phase

Validation Testing: Overview – Build the test data – Execute tests – Record Test Results.

Analyzing and Reporting Test Results : Overview – Input – Test plan and Project Plan – Expected Processing Results – Data Collected during Testing – Test Results data –Test Transactions, Test Suites and Test events – Defects-Efficiency.

Acceptance And Operational Testing: Overview – Objective - Input Procedures

Post – Implementation Analysis: Overview – Establishment Assessment – Identify What to Measure- Assign Measurement responsibility – Select Evaluation Approach – Identify Needed Facts – Collect Evaluation Data – Assess the Effectiveness of Testing.

UNIT V

Incorporating Specialized Testing Responsibilities: S/W Development Methodologies – Defining Requirement.

Testing Client/ Server Systems: Overview – Client/Server Systems Tasks

Testing S/W Systems Security: Overview – Input - Task.

TEXT BOOK:

1 William.E. Perry, “Effective Methods for Software Testing “, John Wiley, Third Edition , 2011.

UNIT I Chapter 1,2

UNIT II Chapter 3,4

UNIT III Chapter 6,8

UNIT IV Chapter 9,10,11,12,13

UNIT V Chapter 14,15,20

REFERENCE BOOKS :

1. Boris Beizer, “Software Testing Techniques” , Dreamtech Press, Second Edition, 2009
2. Louise Tamres, “Introducing Software Testing”, Pearson Education, First Edition, 2002.

SEMESTER -IV
PROJECT WORK AND VIVA VOCE

15MIT401

1. The Project has to be done in an organization and a certificate has to be obtained for the same from the organization/concerned.
2. The project has to be done in any area relating to computer field.
3. The students may be instructed to follow the guidelines with regard to preparation of Project Report writing.
4. The students are requested to present himself/herself for a Review for two times which will be considered for internal evaluation.
5. The project would be evaluated and awarded a maximum of 40 marks for viva voce and 160 marks for the project evaluation.