

S.N.R SONS COLLEGE(Autonomous)
DEPARTMENT OF COMPUTER SCIENCE
M.Sc. Computer Science
(ACADEMIC YEAR : 2016-2017)
SCHEME OF EXAMINATION

SEMESTER I

Course Code	Course	Credits	Exam Hrs	CA	CE	TOTAL
15MCS101	CORE JAVA	4	3	25	75	100
15MCS102	VISUAL PROGRAMMING	4	3	25	75	100
15MCS103	ADVANCED OPERATING SYSTEM	4	3	25	75	100
15MCS104	DATAMINING AND WAREHOUSING	4	3	25	75	100
15MCS105	INFORMATION SECURITY	4	3	25	75	100
15MCS106	PRACTICAL I: NETWORKING& JAVA PROGRAMMING	3	3	40	60	100
15MCS107	PRACTICAL II: VISUAL PROGRAMMING	3	3	40	60	100
	Total	26				700

SEMESTER II

Course Code	Course	Credits	Exam Hrs	CA	CE	TOTAL
15MCS201	RDBMS WITH ORACLE	4	3	25	75	100
15MCS202	WEB TECHNOLOGY	4	3	25	75	100
15MCS203	DIGITAL IMAGE PROCESSING	4	3	25	75	100
	SUPPORTIVE COURSE I:	4	3	25	75	100
15MCS204	ELECTIVE I:	4	3	25	75	100
15MCS205	PRACTICAL III: ORACLE PROGRAMMING	3	3	40	60	100
15MCS206	PRACTICAL IV: WEB DESIGN	3	3	40	60	100
	Total	26				700

SEMESTER III

Course Code	Course	Credits	Exam Hrs	CA	CE	TOTAL
15MCS301	ASP.NET	4	3	25	75	100
15MCS302	J2EE Technology	5	3	25	75	100
	SUPPORTIVE COURSE II :	4	3	25	75	100
15MCS303	ELECTIVE II :	4	3	25	75	100
15MCS304	PRACTICALV: PROGRAMMING IN ASP.NET	3	3	40	60	100
15MCS305	PRACTICAL VI: J2EE PROGRAMMING	3	3	40	60	100
	IDC: Cyber Security*	3	3	-	-	100
	Total	23				600

SEMESTER IV

Course Code	Course	Credits	Exam Hrs	CA	CE	TOTAL
15MCS401	PROJECT WORK AND VIVA-VOCE	15	3	160	40	200
	Total	15				200

SUPPORTIVE COURSE I

SUPPORTIVE COURSE II

1. E-COMMERCE	1. DISTRIBUTED COMPUTING
2. WAP AND MOBILE COMMUNICATION	2. ENTERPRISE RESOURCE PLANNING
3. GENETIC ALGORITHM	3. CLOUD COMPUTING

ELECTIVE I

ELECTIVE II

1. UNIFIED MODELLING LANGUAGE	1. NEURAL NETWORKING AND FUZZY LOGIC
2. SOFTWARE PROJECT MANAGEMENT	2. EMBEDDED SYSTEMS
3. BIO-INFORMATICS	3. SOFTWARE TESTING

CA – Continuous Internal Assessment

CA – Comprehensive Examination

***IDC- Inter Department Course**

Total Credits : 90

Total Marks : 2200

Dr. G.P.Ramesh Kumar,
Chairman,
Board of Studies- Computer Science,
S N R Sons College(Autonomous),
Coimbatore-6.

CORE JAVA

15MCS101

Objective: To acquire the knowledge about the programming concepts using Java and create applications using Applets.

No of Instruction hours/week: 4

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

The Collection Framework: Collections Overview – The Collection Interfaces-The Collection Classes-Using Iterator-The Legacy Classes and Interfaces – String Tokenizer-Date – Calendar - Input/Output – File – The Byte Streams.

UNIT – IV

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 – V

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

TEXT BOOK “The Complete Reference Java 2” 3rd Edition Tata McGrawHill publication

Unit I – Chapter 1 to 5

Unit II – Chapter 6,8 to 11,13

Unit III – Chapter 15 to

17

Unit IV- Chapter 18,19

Unit V – Chapter 20 to 22

REFERENCE BOOK

Patrick Naughton “The Java Hand Book” Tata McGrawHill publication.

VISUAL PROGRAMMING

15MCS102

Objective: To develop the knowledge about the visual programming concepts using Visual Basic and create programs using VB.

No of Instruction hours/week: 4

Unit I

Overview of Integrated Development Environment-Declaring constants, Variables-Scope-Data types-Arrays, Dynamic arrays-Subroutines-Functions-String functions-If, Select case statements-Looping-MDI forms-Input, Message boxes-Menus.

Unit II

Custom controls: Textbox, Rich text box, Command button, Check box, Option button, List box, Combo box, Scroll bars, Picture box, Image box, Timer, Label, Frame, Shape, Line, Slider, Grid Controls, Progress bar, status bar, Tool bar, TreeView, Classes and objects.

Unit III

Creating ActiveX controls-Databases using DAO, RDO, ADO-Working with database objects in code-Data Report-Crystal Report-OLE.

Unit IV

MFC Fundamentals: MFC class hierarchy-Member functions-Creating frame windows-Processing messages-Message box-Menus-Dialog box-Check box-Static controls-Radio button-Scroll bars.

Unit V

Working with Icons, Cursors, Bitmaps-Working with graphics-Document view architecture.Working with data base.

Text Books

1. Steven Holzner-‘Visual Basic 6 programming black book’ – The CORIOLIS group

USA 2000

(Unit I - Chapters 2-5 Unit II - Chapters 6-16, 27

Unit III - Chapters 20, 24-26)

2. Herbert Schilt - 'MFC programming from the ground up' - Tata McGraw Hill,

2nd Ed.,2000

(Unit IV - Chapters 2-6 Unit V - Chapters 7, 9, 17)

Reference Books

1. Gary Cornell - 'Visual Basic 6 from the ground up' – Tata McGraw Hill, 1997

2. Shirley Wodtke – 'MFC C++ Classes'

ADVANCED OPERATING SYSTEM

15MCS103

Objective: To gain the information about the advanced and distributed operating system concepts and learn real time applications.

No of Instruction hours/week: 4

UNIT I

OS Design and Implementation:- Introduction – Operating System - Definition – Functions - History of Operating System – Types of Operating System – Operating System Concepts – Operating System Structure – The Nature of the Design problem – Interface Design – Implementation – Trends in Operating System Design.

UNIT II

Process and Threads – Processes – Threads – Interprocess Communication – Classical IPC Problems – Scheduling – Deadlocks : Detection and Recovery, Avoidance and Prevention.

UNIT III

File System –Files – Directories – File System Implementation. Case study: Design of UNIX (memory and process management).

UNIT IV

Distributed Operating System Concepts & Design - Fundamentals – Remote Procedure Calls – The RPC Model – Transparency of RPC – Implementing RPC mechanism - Stub Generation - RPC messages – Marshalling Arguments and Results – Server Management - Parameter – Passing Semantics – Call Semantics - Communication Protocol for RPCs. Distributed File System: Introduction – Desirable Features – File Models – File – Accessing - Models – File – Sharing Semantics – File – Caching Schemes – File Replication – Fault Tolerance - Atomic Transaction.

UNIT V

Real - Time Operating Systems and Microkernels: Characteristics of Real – Time Systems – Microkernel's and RTOS – Scheduling for Real – Time Systems.

TEXT BOOKS

1. Andrew S. Tanenbaum, “Modern Operating Systems”, Prentice hall of India. Second Edition, 2002 [Units I, II, III]
2. Pradeep K.Sinha, “Distributed operating systems concepts and design”, Prentice hall of India, 2002[Unit IV]
3. Pramod Chandra P.Bhatt, “An Introduction to operating systems concepts and Practice”. [Unit V], PHI, 2003.

DATA MINING AND WAREHOUSING

15MCS104

Objective: To educate about the data mining and data warehousing concepts and applications.

No of Instruction hours/week: 4

DATA MINING

UNIT I

Expanding Universe of Data – Production Factor – Data Mining – Data Mining Versus Query Tools – Data Mining in Marketing – Practical Applications. Learning – Self – Learning Computer Systems – Machine Learning and Methodology of Science – Concept Learning.

UNIT II

Knowledge Discovery Process – Data Selection – Cleaning – Enrichment – Coding – Data Mining – Preliminary Analysis of The Data Set Using Relational Query Tools – Visualization Techniques – Likelihood and Distance – OLAP Tools – K- Nearest Neighbor – Decision Trees – Association Rules – Neural Networks – Genetic Algorithms – Reporting.

UNIT III

Different Forms of Knowledge – Getting Started – Data Selection – Cleaning – Enrichment – Coding – Reporting – KDD Enrichment – Ten Golden Rules.

DATA WAREHOUSING

UNIT IV

Introduction – Delivery Process – Data Warehouse Architecture: System Processes- Extract And Load Process – Clean And Transform Data – Backup And Archive Process – Query Management Process - Process Architecture – Load Manager – Warehouse Manager – Detailed Information – Summary Information – Metadata – Data Marting

UNIT V

Design : Database Schema – Star flake Schemas – Identifying Facts and Dimensions – Designing Fact and Dimension Tables – Designing the Star flake Schema – Query redirection – Multidimensional schemas - Partitioning Strategy – Types of partitioning – Operating the Data warehouse – Testing the Data Warehouse – Data Warehouse Futures.

TEXT BOOK

1. Pieter Adriaans, Dolf Zantinge, 'Data Mining', Pearson Education, 1998

UNIT I – Chapters 1, 2 **UNIT II** – Chapter 4 **UNIT III** – Chapter 5

2. Sam Anahory and Dennis Murray – “Data Warehousing in the Real World “

Pearson Education, 1997

UNIT IV – Chapters - 1,2,3,4 **UNIT V** – Chapters – 5, 6, 16, 19 and 20

INFORMATION SECURITY

15MCS105

Objective: To acquire the knowledge of information security concepts and educate security technologies.

UNIT I

Introduction to Information Security: Introduction – History – What is Security –

Critical Characteristic 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 & the Organization.

UNIT II

The Need For Security: Introduction – Business Needs – Threats – Attacks – Secure Software Development.

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

UNIT III

Cryptography: Introduction – Foundations of Cryptography – Cryptographic 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 Blueprint – Continuity Strategies.

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

Implementing Information Security: Introduction – Technical Topics of Implementation – Nontechnical Aspects of Implementation

UNIT V

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

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

Security & Personnel: Introduction – Employment Policies & Practices – Security Considerations for Nonemployees – Internal Control Strategies – Privacy & the Security for Personnel Data.

TEXT BOOKS:

Michael E Whitman and Herbert 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

NETWORKING AND JAVA Programming

15MCS106

Objective: To develop the knowledge about the programming concepts of networking using Java and create application programs.

No of Instruction hours/week: 3

Networking Lab

1. Program for machine to machine chatting
2. Program for file transfer
3. Program for socket linking
4. Program to implement Remote Method Invocation
5. Program to Implement Dijkstra's Routing Algorithm.
6. Program to Implement Bellman and Ford's algorithm

Java Lab

1. Write a program in Java to implement inheritance.
2. Write a program to create a Java Package.
3. Write a program to implement Overloading and Overriding
4. Write a program to implement Multithreading.
5. Write a program to implement Exceptional handling with throws Exception class.
6. Write a program to implement Exceptional handling without throws Exception class.
7. Write a program to implement Interface.
8. Write a program to implement File Handling.
9. Write a Applet program to create a registration form of student.

PRACTICAL-II
Visual Programming (VB and VC++)

15MCS107

Objective: To create database and application programs using Visual Basic.

No of Instruction hours/week: 3

Visual Basic

1. Write a program to implement the calculator using Command Button controls.
2. Write a program to generate calendar for the given year using Flex Grid control.
3. Develop a VB program by using Timer control to increase height & width of text box and change color of form.
4. Develop a VB program by using Fibonacci series for the given number in combo box using DoWhile loop.
5. Write a program to perform a student mark list using DAO control.
6. Write a program to design an electricity bill using DATA control.
7. Write a program to animate picture and text using File, Drive and Dir controls.
8. Write a program to design a form with required controls and it should contain the Options to perform the following using Data control
 1. Add a record.
 2. Edit a record.
 3. Find a record.
 4. Delete a record
9. Write a program to perform following using DAO Control to Move the pointer to first, last, next, previous records.
10. Develop a VB Program in MS Access using ADO Control with data report to navigate records.
11. Develop a VB Program in MS Access using ADO Control with data report to manipulation of records.

VC++

12. Write a program to create a window with a mouse free drawing facility.
13. Write a program to draw shapes like line, arc, rectangle, ellipse, circle etc.
- 14 Write a program to implement Message Map.
- 15 Write a program to draw circle on mouse click point.

RDBMS WITH ORACLE

15MCS201

Objective: To acquire the knowledge about the database creation and programming using SQL.

No of Instruction hours/week: 4

UNIT-I:

Overview of database systems: File system versus DBMS – advantages of a DBMS –the relational model –levels of abstraction in a DBMS- Data independence - Queries in a DBMS – Transaction management – Structure of a DBMS. Data base design: Database design and ER diagrams-Entities ,attributes And entity sets-Relationships and relationship sets –Additional features of the ER model –conceptual database design with the ER model.

UNIT-II:

Relational model: Introduction to relational model-Integrity - Constraints over relations – Enforcing integrity constraints-Querying Relational data-Logical database design-Introduction to views- Destroying /altering tables and views. Relational algebra and calculus :Relational algebra –relational calculus.

UNIT-III:

SQL :The form of a basic SQL query –UNION,INTERSECT,EXCEPT-Nested queries – Aggregate functions-Null values-Complex integrity Constraints in SQL –Triggers and active databases. Schema refinement & Normal forms: Introduction to schema refinement –Functional dependencies – forms-Properties of decomposition-Normalization-Schema refinement in database design –Other kinds of refinement.

UNIT-IV:

Transaction management : The ACID properties-Transaction and Schedules-Concurrent execution of transaction-Lock based concurrency control- Performance of locking-Transaction support in SQL. Concurrency control: 2PL,Serializability and recoverability-Introduction to lock Management –lock conversion-specialized locking techniques-concurrency control without locking.

UNIT-V:

Security :Introduction to database security-access control-Discretionary Access control-mandatory access control –additional issues to security. Object database systems Motivation examples-structured data types – Operation on structured data types-encapsulation & ADTS-inheritance-Objects, OIDs and reference types-database design for ORDBMS-OODBMS – comparing RDBMS,OODBMS and ORDBMS.

TEXT BOOK:

1. Raghu Ramakrishanan,Johannes Gehrke-“ Database Management Systems”, Third edition,Mcgraw –Hill Higher education.

Unit-I (Chapter 1 , 2),Unit-II (Chapter 3 , 4), Unit-III (Chapter 5 , 19)

Unit-IV (Chapter 16 , 17),Unit-V (Chapter 21 , 23)

REFERENCE BOOK:

1.Silberschatz , Korth ,sudharsan ,” Database System Concepts”,fourth edition,
Mcgraw hill higher education.

WEB TECHNOLOGY

15MCS202

Objective: To develop the web page development programming using HTML, XML and AP.net.

No of Instruction hours/week: 4

UNIT - I

Introduction to XHTML: Introduction – Editing XHTML-First XHTML Example-W3C XHTML Validation Service-Headers-Linking-Images-Special Characters and More Line Breaks-Unordered List-Nested and Ordered Lists

XHTML Tables-Tables and Formatting-Forms-Complex Forms-Internal Linking-Creating & Using Image Maps-Meta Elements-Frameset-Nested Frameset

UNIT – II

Introduction–User Input & prompt Dialogs-Memory Concepts-Arithmetic-Relational Operators-Logical Operators-Control Structures-If, Else, While, Do-While, For, Break, Continue-Programmer-Defined Functions-Scope rules-Global Function-Recursion-Arrays-Passing Arrays to Function-Multidimensional Arrays.

UNIT – III

JavaScript-Object-Math Object-String Object-Date Object-Boolean and Number Objects-Document Object-Window Object-Using Cookies

DHTML Object Model and Collections:-Object Referencing-Collections all and Children-Dynamic Styles-Dynamic Positioning-Frames Collection-Navigator Object

DHTML Event Model:-Event Onclick-Onload-Onerror-Onmousemove-Onmouseout-Onfocus-Onblur-Onsubmit-Onreset-Event Bubbling-DHTML Events

Cascading Style Sheets:-Inline Styles-Embedded Styles Sheets-Conflicting Styles Sheets- W3C CSS Validation Service-Positioning Element-Backgrounds-Element Dimension-Text Flow and Box Model-User Style Sheets

UNIT – IV

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 – V

ASP.NET :Introduction- .NET Overview-Setup-Jscript.NET-Web Forms-Session Tracking-ASP.NET & XML-Reading and Writing Text Files-Connecting to a Database in ASP.NET-Code Behind Approach-ASP.NET Web Services

TEXT BOOK

1. Internet & World Wide Web – How to Program – 3rd Edition – Deitel & Deitel, Goldberg – Pearson Education. (UNIT - I Chapter 4, 5 UNIT – II Chapter 7,8,9,10,11 UNIT – III Chapter 6,12,13,14 UNIT – IV Chapter 20 UNIT – V Chapter 23)

REFERENCE BOOK

- 1 HTML COMPLETE REFERENCE “Thomas Powell”
2. JAVA SCRIPT COMPLETE REFERENCE . “Thomas Powell” & Fritz Schneider
3. “XML and ASP .NET “ Evans - Pearson Publications.

DIGITAL IMAGE PROCESSING

15MCS203

Objective: To educate the knowledge about various digital image processing concepts applications.

No of Instruction hours/week: 4

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.

Image enhancement in the frequency domain : Introduction to the Fourier Transform and the frequency domain. – Sharpening Frequency Domain Filters

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. **“DIGITAL IMAGE PROCESSING “**, Rafael. C. Gonzalez, Richard E. Woods Second Edition, Pearson education.
(Unit I : Chapter I , Chapter II Unit II : Chapter III Unit III : Chapter V

Unit IV : Chapter VIII Unit V: Chapter X)

REFERENCE BOOKS

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

SUPPORTIVE COURSE II

1. E-COMMERCE

15MCB

Objective: To gain the information about the electronic commerce concepts and applications.

No of Instruction hours/week: 4

UNIT I :

Welcome to Electronic Commerce : the Anatomy of E-Commerce applications – consumer applications – organization applications .

The Network Infrastructure for Electronic Commerce: market forces influencing the I-Way – components of the I-way - global information distribution networks – public policy issues shaping the I- way.

UNIT II:

Network Security and Firewalls :client server network security – emerging client – server security threats – firewalls and network security – data and message security – challenge – response systems – encrypted documents and electronic mail – U.S Government regulations and encryption.

Electronic Commerce and WWW: architectural framework for electronic commerce – www as the architecture – web background: hypertext publishing – technology behind the web – security and the web.

Consumer – Oriented Electronic Commerce: consumer oriented applications – mercantile process models – mercantile models from the consumer’s perspective – mercantile models from the merchant’s perspective.

UNIT III:

Electronic Payment Systems: types of electronic payment systems – digital token-based electronic payment systems – smart cards and electronic payment systems – credit card – based electronic payment systems.

Interorganizational Commerce and EDI: electronic data interchange – EDI applications in business – EDI : Legal , security ,and privacy issues – EDI and electronic commerce.

EDI Implementation , MIME, and value Added networks – standardization and EDI - EDI software implementation – EDI envelope for message transport – value – added networks (VANs) – internet based EDI.

UNIT IV :

The Corporate Digital Library : dimensions of internal electronic commerce systems – making a business case for a document library – types of digital documents – issues behind document infrastructure – corporate data warehouses.

Advertising and Marketing on the Internet : the new age of information-based marketing – advertising on the internet – charting the on-line marketing process – market research.

On- Demand Education and Digital Copyrights : computer – based education and training – technological components of education on – demand – digital copyrights and electronic commerce.

UNIT V:

Software Agents : history of software agents – characteristics and properties of agents – the technology behind software agents – telescript agent language - safe-tcl – applets, browsers, and software agents – software agents in action.

Multimedia and Digital Video: key multimedia concepts – digital video and electronic commerce – desktop video processing – desktop video conferencing .

Broadband Telecommunications: broadband background concepts – frame relay – cell relay – switched multimegabit data service (SMDS) – Asynchronous transfer mode(ATM).

TEXT BOOK

1.Ravi kalakota & Andrew B. Whinston ,”Frontiers of Electronic Commerce”

pearson education Asia , 2004.

(Unit I – Chapter I & II ;

Unit II – Chapter V, VI, & VII ;

Unit III – Chapter VIII, IX & X;

Unit IV – Chapter XII, XIII & XV ;

Unit V – Chapter XVI, XVIII, & XIX)

REFERENCE BOOKS

1. Jeffery F. Rayport, Bernard J. Jaworski,”E- Commerce “, TMCH , 2002
2. P.T.Joseph, “E-Commerce – A managerial perspective “ . PHI , 2003

2. WAP AND MOBILE COMMUNICATION

15MCB

Objective: To develop the knowledge about WAP and mobile communication concepts applications.

No of Instruction hours/week: 4

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 braodcasting 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. JOHEN H. SCHILLER “ MOBILE COMMUNICATIONS” second edition, pearson education – 2004.

UNIT I :(Chapter I & II)

UNIT II: (Chapter III & IV)

UNIT III: (Chapter V & VI)

UNIT IV: (Chapter VII)

UNIT V: (Chapter VIII & IX)

3.GENETIC ALGORITHMS

15MCB

Objective: To educate the knowledge about the concepts and applications used in genetic algorithms.

No of Instruction hours/week: 4

UNIT I

Introduction to genetic algorithms – Genetic Algorithms Revisited : Mathematical Foundations : The fundamental theorem – Schema Processing at work : An example by hand revisited – The two armed and k-armed Bandit problem - The Building Block Hypothesis

UNIT II

Computer Implementation of Genetic Algorithm : Data structures – Reproduction, crossover, and Mutation – Mapping Objective functions to Fitness form – Fitness Scaling – Coding – A multi parameter mapped Fixed point Coding – Discretisation – Constraints – **Some Application of Genetic Algorithms**

UNIT III

Advanced Operators and Techniques in Genetic Search: Dominance, Diploidy and Abeyance Inversion and other reordering Operators – Other Micro – Operators – Niche and Speciation – Multi Objective Optimization – Knowledge Based Techniques.

UNIT IV

Introduction to Genetics Based Machine Learning – Classifier System – Rule and Message system – Apportionment of Credit Algorithm : The Bucket Brigade – Genetic Algorithm – A simple Classifier system – Results using simple classifier system

UNIT V

Applications of Genetics Based Machine Learning : The rise of GBML - Development of CS- 1, The first Classifier System smith's Poker Player – Other early GBML Efforts.

TEXT BOOK

1.David e Goldberg,“Genetic Algorithms in Search, Optimization & Machine Learning “,

UNIT I: Chapters 1,2

UNIT II: Chapters 3,4

UNIT III: Chapter 5

UNIT IV: Chapter 6

UNIT V :Chapter 7

REFERENCE BOOK

1.An Mitchel “, “Introduction to Genetic Algorithms “, Prentice Hall of India.

ELECTIVE I

1. UNIFIED MODELING LANGUAGE

15MCS204

Objective: To develop the knowledge about the unified modeling language and objects using use case diagrams.

No of Instruction hours/week: 4

UNIT 1

Introduction the UML - understanding object orientation – working with object orientation – working with relationships – understanding aggregation, composites, interface, relations.

UNIT 2

Introducing use cases – working with use case diagrams – working with state programs – working with sequence diagrams – working with collaboration diagrams.

UNIT 3

Working with activity diagrams – working with component diagrams – working with deployment diagrams – extending understanding the foundations of the UML – Fitting the UML into a development process

UNIT 4

Introducing the case study – programming a domain analysis – gathering system requirements – developing the use cases – getting into interactions and state changes.

UNIT 5

Designing look, feel and deployment – Understanding design patterns – Modelling embedded systems- shaping the future of the UML.

Textbook

UML in 24 hours by Joseph Schmuller SAMSTECHMEDIA PUBLICATIONS

References

1. Applying UML and patterns by Craig Larman Pearson Education.
2. Real Time UML by Bruce Powel Douglass Pearson Education.
3. UML Distilled Second Edition by Martin Fowler Grady Booch, Ivar Jacobson, James Raumbaugh.

2.SOFTWARE PROJECT MANAGEMENT

15MCS204

Objective: To educate the information about the software developing concepts and steps involved for creating applications.

No of Instruction hours/week: 4

UNIT I (CHAPTER 1, 2, 3)

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 (CHAPTER 4, 5, 6)

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 (CHAPTER 7, 8, 9)

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 (CHAPTER 10, 11, 12, 13)

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 (APPENDIX A)

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

3. BIOINFORMATICS

15MCS204

Objective: To acquire the knowledge about bioinformatics using genome and protein resources.

No of Instruction hours/week: 4

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:

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

Reference Book:

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

Hours of instructions: 6 Hrs per week

Subject Description: This subject deals with ASP.NET concepts.

Goal: Enable to create wide range of Applications using ASP.NET and develop project in ASP.NET

Objective: To gain knowledge on ASP.NET concepts

UNIT I

Getting started with ASP.NET : Opening & running an ASP.Net Web Application – Creating an ASP.Net Web Application- Understanding programming basics.

UNIT II

ASP.NET Infrastructure : Managing state- configuring an ASP.Net Application –Security in ASP.Net

UNIT III

ASP.NET Web Forms : Creating Web forms – Using Server controls – Accessing & Binding Data

UNIT IV

Beyond the Basics : Creating custom server controls – Creating and using web services – using caching to improve performance

UNIT V

Deploying an ASP.NET Application –Tracing & debugging ASP.NET Application.

TEXT BOOK

1. “ASP.NET Programming with Visual Basic.NET Step By Step “

By G.Andrew Duthie – PHI Publications.

UNIT I Chapter 1,2,3

UNIT II Chapter 4,5,6

UNIT III Chapter 7,8,9

UNIT IV Chapter 10,11,12

UNIT V Chapter 13,14

REFERENCES

1. ”Professional ASP.Net 1.1 “ By Alex Homer – WROX Publications.

2. “ASP .Net and VB .Net Web Programming” By MATT J. CROUCH. Pearson Education.

3. “ASP.Net “ Tips & Techniques Greg Buczek , Tata Mc Graw Hill, edition 2002.

J2EE TECHNOLOGY

14MCS302

Hours of instructions: 6 Hrs per week

Subject Description: This subject deals with J2EE technology concepts like servlet,EJB and RMI.

Goal: Enable to create wide range of Applications using J2EE and develop project in J2EE

Objective: To give knowledge about J2EE concepts

UNIT I

J2EE Basics : J2EE Multitier 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. “The Complete Reference J2EE” , Jim Keogh, Tata McGrawHill publication.

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

“J2EE1.4 Bible” Wiley Publishing Inc.

SUPPORTIVE COURSE II
1. DISTRIBUTED COMPUTING

14MCB

Hours of instructions: 5 Hrs per week

Subject Description: This subject deals with Distributed computing concepts.

Goal: Enable to create wide range of knowledge in parallel processing and wireless computing

Objective: To inculcate knowledge on client/server model concepts and distributed database systems.

UNIT I

Introduction : History – Computer Organization for Parallel and Distributed Computing - Communication and Computer Networks – Operating System for Distributed and Parallel Computing – The Client/Server Model – Distributed Database Systems – Parallel Programming Languages & Algorithms.

Computer Organization for Parallel and Distributed Computing : Pipeline and Vector Processors – Multi Computers and Computer Networks – Multi Processors – Massive Parallel Architecture – Non-Von Newmann- type Computers – Cache Architecture in Multi Processors.

UNIT II

Communications and Computer Networks : Communications – Network Topology – Network Interconnection – Integrated Services Digital Network (ISDN) – Asynchronous Transfer Mode (ATM) – Wire Less Computing.

UNIT III

Operating System for Distributed and Parallel Computing : Network Operating System – Distributed Operating System - Operating System for Parallel Computing – Distributed and Parallel System Modeling – Example Systems.

UNIT IV

The Client – Server Model : File Servers – Name and Directory Servers – Printer Servers – An Electronic Mail (E-Mail) Server – The Move to Client-Server Systems.

UNIT V

Distributed Database Systems : Some Introductory Concepts – The Case for Distribution – The Distribution Problem and Pattern – Queries and Updates in DDBs – Failures – Some Examples Systems

Parallel Programming Languages and Algorithms : Parallel Language and Algorithm Design for the Array Processor – Other Von Neumann-type Languages – C,C++ and Parallel C++ - Non – Von Neumann – type Languages.

Text Book :

“An Introduction to Distributed and Parallel Computing” by Joel M.Crichlow – Second Edition – Prentice Hall India.

2. ENTERPRISE RESOURCE PLANNING

14MCB

Hours of instructions: 5 Hrs per week

Subject Description: This subject deals with ERP concepts.

Goal: Enable to create wide range of knowledge in SCM and SAP.

Objective: To acquire knowledge about ERP and Internet concepts with E-commerce

UNIT I

Introduction : ERP: An overview- Enterprise –An overview –Benefits of ERP-ERP and Related Technologies – Business Process Reengineering-Data Warehousing-Data Mining – On Line Analytical Processing – Supply Chain Management.

UNIT II

ERP Implementation: ERP Implementation Life Cycle-Implementation Methodology – Not all packages are created Equal- ERP Implementation-The Hidden costs-Organizing the Implementation – Vendors, Consultants and users- Contracts with vendors, Consultants and Employees- Project Management and Monitoring – After ERP Implementation.

UNIT III

Business Modules: Business Modules in an ERP Package – Finance – Manufacturing – Human Resources – Plant Maintenance – Materials Management – Quality Management – Sales and Distribution.

UNIT IV

ERP Market: ERP Market place- SAP AG – People Soft –Baan Company- JD Edwards world solutions company- oracle corporation –QAD.

UNIT V

System Software Associates- Turbo Charge the ERP system – Enterprise Integration Application – ERP and E-Commerce – ERP and Internet – Future Directions in ERP.

TEXT BOOK:

“ERP Demystified” - ALEXIS LEON – Tata McGraw-Hill,2003.

3. CLOUD COMPUTING

15MCB

Hours of Instruction : 5 Hrs per week

Subject Description: This subject deals with cloud development tools.

Goal: Enable to create & evaluate the various cloud development tools.

Objective: To gain knowledge on the best practice model to apply when developing and deploying cloud based applications.

UNIT I - CLOUD INTRODUCTION

Cloud Computing Fundamentals: Cloud Computing definition, Types of cloud, Cloud services: Benefits and challenges of cloud computing, Evolution of Cloud Computing , usage scenarios and Applications , Business models around Cloud – Major Players in Cloud Computing - Issues in Cloud - Eucalyptus - Nimbus - Open Nebula, CloudSim.

UNIT II - CLOUD SERVICES AND FILE SYSTEM

Types of Cloud services: Software as a Service - Platform as a Service – Infrastructure as a Service - Database as a Service - Monitoring as a Service – Communication as services. Service providers- Google App Engine, Amazon EC2, Microsoft Azure, Sales force.Introduction to MapReduce, GFS, HDFS, Hadoop Framework.

UNIT III - COLLABORATING WITH CLOUD

Collaborating on Calendars, Schedules and Task Management – Collaborating on Event Management, Contact Management, Project Management – Collaborating on Word Processing ,Databases – Storing and Sharing Files- Collaborating via Web-Based Communication Tools – Evaluating Web Mail Services – Collaborating via Social Networks – Collaborating via Blogs and Wikis.

UNIT IV - VIRTUALIZATION FOR CLOUD

Need for Virtualization – Pros and cons of Virtualization – Types of Virtualization – System Vm, Process VM, Virtual Machine monitor – Virtual machine properties - Interpretation and binary translation, HLL VM - Hypervisors – Xen, KVM , VMWare, Virtual Box, Hyper-V.

UNIT V - SECURITY, STANDARDS, AND APPLICATIONS

Security in Clouds: Cloud security challenges – Software as a Service Security, Common Standards: The Open Cloud Consortium – The Distributed management Task Force – Standards for application Developers – Standards for Messaging – Standards for Security, End user access to cloud computing, Mobile Internet devices and the cloud.

TEXT BOOKS

1. Bloor R., Kanfman M., Halper F. Judith Hurwitz “Cloud Computing for Dummies” (Wiley India Edition),2010 (UNIT-I)
2. John Rittinghouse& James Ransome, “Cloud Computing Implementation Management and Strategy”, CRC Press, 2010.(UNIT-II)
3. Anthoy T Velte ,Cloud Computing : “A Practical Approach”, McGraw Hill,2009(UNIT-II- 3 ,11)
4. Michael Miller, Cloud Computing: “Web-Based Applications That Change the Way You Work and Collaborate Online”, Que Publishing, August 2008.(UNITIII)
5. James E Smith, Ravi Nair, “Virtual Machines”, Morgan Kaufmann Publishers, 2006.(UNIT-IV)
6. http://cloud-standards.org/wiki/index.php?title=Main_Page(UNIT - V)

REFERENCES

1. Haley Beard, “Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing”, Applications and Data Centers in the Cloud with SLAs, Emereo Pty Limited, July 2008
2. webpages.iust.ac.ir/hsalimi/.../89.../Cloud%20Common%20standards.ppt ennebula.org,
3. www.cloudbus.org/cloudsim/, <http://www.eucalyptus.com/>
4. hadoop.apache.org
5. http://hadoop.apache.org/docs/stable/hdfs_design.html
6. http://static.googleusercontent.com/external_content/untrusted_dlcp/research.google.com/en/archive/mapreduce-osdi04.pdf

ELECTIVE II

1. NEURAL NETWORK AND FUZZY LOGIC

14MCS303

Hours of instructions: 5 Hrs per week

Subject Description: This subject deals with Neural Network concepts.

Goal: Enable to create wide range of knowledge in Neural network algorithms and Fuzzy Logic.

Objective: To get knowledge on Adaptive Resonance Theory and Crisp 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

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UNIT V

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

TEXT BOOK

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

2. EMBEDDED SYSTEMS

14MCS303

Hours of instructions: 5 Hrs per week

Subject Description: This subject deals with Embedded System concepts.

Goal: Enable to create wide range of knowledge in Embedded System hardware and software.

Objective: To obtain knowledge on Real time operating systems and Embedded System concepts

Unit – I

Hardware Fundamentals: Terminology, Gates, Timing diagram, Memory Advanced hardware fundamentals: Microprocessor, busses, DMA, Interrupts, built ins on microprocessor

Unit – II

Interrupts: Microprocessor Architecture, Interrupt basics, the shared data problem-interrupt latency Software architectures: Round robin- round robin with Interrupts – Function – Queue scheduling architecture – real time Operating system architecture.

Unit – III

Introduction to real time OS: Task and task states-tasks and data, semaphores and shared data More OS Services: Message queries, mail boxes and pipes-timer functions- Events-Memory Management-Interrupt Routines in an RTOS Environment.

Unit – IV

Basic Design Using Real Time Operating System: Overview- Principles – Encapsulating Semaphores and Queues-Hard real time Scheduling Embedded Software Development Tools: Host and Target Machines-Linked Locators for embedded software-getting embedded software into target system.

Unit – V

Debugging techniques: Testing on your host machine- Instruction set simulators- The asset Macro – Using laboratory Tools Case Studies: An example of Program Structure, Screen Display, Library Functions, Source Code.

Text Book:

- 1."An Embedded Software Primer", David E Simon, Pearson Education,
Low Price Edition.

Reference Book:

1. “Embedded System- Architecture, Programming and Design”, Raj Kamal, Tata McGraw Hill Publishers, Second Reprint 2004.

3. SOFTWARE TESTING

14MCS303

Hours of instructions: 5 Hrs per week

Subject Description: This subject deals with Software Testing concepts.

Goal: Enable to create wide range of knowledge in Software Testing tools

Objective: For giving knowledge about Build the test data, Execute tests, Record Test Results.

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 – Development 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.

Unit I –Chapter 1&2 Unit II – Chapter 3&4 Unit III- 6&8

Unit IV – Chapter 9,10,11,12,13 Unit – 14,15,20

References :

1. “Software Testing Techniques”,- Boris Beizer, Dreamtech
2. , ?Introducing Software Testing?,- Louise Tamres Pearson Education.

**PRACTICAL III
ORACLE PROGRAMMING**

15MCS205

Objective: To acquire the database creation and application knowledge using writing programs using SQL and PL/SQL.

No of Instruction hours/week: 4

SIMPLE QUERIES

Exercise :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.

Exercise : 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.

Exercise :3

Create a Table to perform various functions:

- a) Group Functions
- b) String Functions
- c) Date Functions
- d) Conversion Functions

Exercise :4

Create a Program to perform operators using arithmetic operation, Relational Operator and Set Operator.

PL/SQL BLOCK

Exercise :5

Create a table for Data transfer using SQL.

TABLE NAME dtr ename salary

TABLE NAME pt ename salary

Exercise :6

1. 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

- 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.

Exercise :7

Create a student Information table and give total average and result using PL\SQLblock.

Exercise :8

- 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

Exercise :9

Write a PL/SQL block for payroll processing.

TRIGGERS

Exercise :10

- 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.

Exercise :11

Create a database to implement the master detail relationship.

CREATE TABLE MAS(DEPTNO,DEPTNAME,VARCHAR)

CREATE TABLE DET(EMPNO,EMPNAME,VARCHAR)

FUNCTIONS

Exercise :12

Write a recursive function to find the factorial of a number.

Exercise :13

Write a recursive function to find the recursion

REPORTS

Exercise 14

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 day 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

Exercise :15

Design a report form for Invoice Preparation.`

PRACTICAL-V

WEB DESIGN

15MCS206

Objective: To acquire the web design knowledge and writing scripting programs

No of Instruction hours/week: 4

1. Write a HTML program to design a web page for S.N.R Sons College using links, images and tables,
2. Design a Web page for advertise the products of a company.
3. Create an E-mail Registration Form for new users sign up.
4. Design a HTML program to implement links with in a page.
5. Design a Web page which implements the following DHTML events.
a) on click b) on mouse over c) on mouse exit d) key events.
6. Write a Javascript program to implement string functions.
7. Write a Javascript program to design popup menus.
8. Write a Javascript program to validate username, password, e-mail id, phone no, in a registration form.
9. Write a Javascript program to find square root of numbers.
10. Write a Javascript program to sort an array.
11. Write a Javascript program to find a day for given date.
12. Write a Javascript program to implement the use of any five 5 Javascript objects.
13. Write a DHTML program for object model program to implement object referencing.
14. Write a ASP.NET program to find number of days.
15. Create a Style sheet and link it with a HTML Page.

PRACTICAL –IV
ASP.NET Programming

14MCS304

Hours of instructions: 5 Hrs per week

Subject Description: This subject deals with ASP.NET Programming concepts.

Goal: Enable to create wide range of Applications using ASP.NET and develop project in ASP.NET

Objective: To Educate and make knowledge on ASP.NET applications and Database connectivity

1. Write a ASP .NET Application using Conditional and Looping Statements.
2. Write a ASP .NET program to implement Inheritance.
3. Write a ASP .NET program to implement Polymorphism.
4. Write a ASP .NET program to implement the use of Application Object.
5. Write a ASP .Net Program to implement the use of Session Object.
6. Find No. of days between two dates using Calendar Control.
7. Create a Registration Form using Required Field Validator and other relevant Validater Controls.
8. Create a Purchase Order Form and input records to a table in
 - a) MS Access Database
 - b) MS SQL ServerUsing ADO .NET
9. Create Student information form using Datagrid and insert the values in student table and also display records for given student.
10. Write a ASP .Net program which uses the following concepts
 - a) Web Config
 - b) Security
11. Write a ASP .NET program to include a Button and Image.
12. Write a ASP .NET program for DataBoundsControl(using Array).
13. Write a ASP .NET program for application to dispay Date and Time.
14. Write a ASP .NET program for Web server Controls in Aspx file using dropdownlist.
15. Write a ASP .NET program for user control in a Aspx file.

PRACTICAL-VI

J2EE PROGRAMMING

14MCS305

Hours of instructions: 5 Hrs per week

Subject Description: This subject deals with J2EE Programming concepts.

Goal: Enable to create wide range of Applications using JSP, RMI and develop projects in J2EE technology.

Objective: To Educate and create knowledge about J2EE applications and Database connectivity

1. Write a program using JDBC for creating a table, Inserting records and to list out of records.
1. Write a program using JDBC for deleting records and updating records.
2. Write a program using JDBC for creating a table, inserting records and to list out of records using SQL Database.
4. Write a program using Java servlet to handle form data.
5. Write a simple Servlet program to create a table of all the headers it receives along with their associated values.
6. Write a Servlet program to pass value from one page to another page.
7. Write a program in JSP by using session object.
8. Write a program in JSP to create a Cookie

9. Write a program in JSP to find the number of days between two given dates.
10. Write a program to build a simple Client Server application using RMI.
11. Write a RMI program to check and manipulate the application from the client.
12. Write a program to create a simple Enterprise Java Beans.
13. Write a program to create a JAR file after the creation of a Bean.
14. Write a RMI program to get the IP address of another client.
15. Write a program in EJB.

IDC- CYBER SECURITY

Hours of Instruction : 4 Hrs per week

Subject Description: This subject deals with cyber security policies.

Goal: Enable to create security using efforts, planning, policies & procedures.

Objective: To gain knowledge on information about cyber security.

UNIT I Introduction to Computer Security: Definition, Threats to security, Government requirements, Information Protection and Access Controls, Computer security efforts, Standards, Computer Security mandates and legislation, Privacy considerations, International security activity.

UNIT II Secure System Planning and administration, Introduction to the orange book, Security policy requirements, accountability, assurance and documentation requirements, Network Security, The Red book and Government network evaluations.

UNIT III Information security policies and procedures: Corporate policies- Tier 1, Tier 2 and Tier3 policies - process management-planning and preparation-developing policies-asset classification policy-developing standards.

UNIT IV Information security: fundamentals-Employee responsibilities- information classification- Information handling- Tools of information security- Information processing-secure program administration.

UNIT V Organizational and Human Security: Adoption of Information Security Management Standards, Human Factors in Security- Role of information security professionals.

TEXT BOOK

1. Debby Russell and Sr. G.T Gangemi, "Computer Security Basics (Paperback)", 2nd Edition, O' Reilly Media, 2006.
2. Thomas R. Peltier, "Information Security policies and procedures: A Practitioner's Reference", 2 nd Edition Prentice Hall, 2004.
3. Kenneth J. Knapp, "Cyber Security and Global Information Assurance: Threat Analysis and Response Solutions", IGI Global, 2009.
4. Thomas R Peltier, Justin Peltier and John blackley, "Information Security Fundamentals", 2 nd Edition, Prentice Hall, 1996
5. Jonathan Rosenoer, "Cyber law: the Law of the Internet", Springer-verlag, 1997.

GUIDELINES TO M.Sc. Computer Science PROJECT REPORT PREPARATION

The students should strictly adhere to the following points while preparing their final project report.

- Students are expected to undergo project work individually and submit individual project report.
- Project reports should be typed / printed in double space using A4 size bond sheets with a left margin at column 10 and a right margin at column 75.
- A page should not contain more than 25 lines.
- Wrapper should be SILVER COLOUR and printing of wrappers should be done uniformly. [As in Annexure I]
- The source code should be loaded and made readily available in the system during Viva – Voce examination for verification by the examiners.
- Table of contents should be in the specified format. [as in Annexure IV]
- A certificate from the organization where the project is undertaken by the student should be obtained and copies should be duly enclosed in the project report.
- Confirmation letter from the concern where you wish to undergo the project should be submitted on or before 23.12.2016 to the class in-charge and the guide, Computer Science, SNR Sons College, Coimbatore.
- The tenure of the project is from December 2016 to April 2017.
- The students are asked to report to the concerned guides during their project period to present their progress of work as per the instructions of the guide.
- The students should submit the project report in the last week of March 2017. Two copies are required. (Library , Student)

Tentative Dates regarding Project

I Meeting : Submission of Project Confirmation Letter on or before 30.12.16

II Meeting : Meeting the faculty guide to report about your Initial investigation on or before 18.01.2017.

III Meeting : DFDs, Form Designs, Tables and Presentation (15.02.2017) in Person

IV Meeting : Presentation of your project in front of classmates (22.03.2017)

Rough Documentation of the Project, Submitted to the respective guides, get corrected and modifications any should be done. Final Submission of the bounded project as per specifications - (24.03.2017)

Note : For each Meeting internal marks will be awarded based on their punctuality, performance and quality of work.

- **The format of the report is as follows :**
 - 1. Wrapper (Annexure I)**
 - 2. Copy of the Wrapper**
 - 3. Certificate from the department (Annexure II)**
 - 4. Declaration by the student (Annexure III)**
 - 5. Certificate from the organization**
 - 6. Acknowledgement**
 - 7. Table of contents (Annexure IV)**
 - 8. Chapters.**

NOTE : (In all the meetings , students should meet the class in-charge to sign in the attendance, Marks will be awarded for attendance)

{ANNEXURE I}

< PROJECT TITLE >

PROJECT WORK

DONE BY

NAME : < STUDENT NAME>

REG.NO : < REGISTER NUMBER >

Under the guidance of

<Name of the guide >

<Designation>

<COLLEGE EMBLEM>

**DEPARTMENT OF COMPUTER SCIENCE
SNR SONS COLLEGE (AUTONOMOUS)
(RE-ACCREDITED WITH 'A' GRADE BY NAAC)
(AFFILIATED TO BHARATHIAR UNIVERSITY)
COIMBATORE – 641 006.**

APRIL 2017.

{NOTE: This is just a sample copy. You should take care of alignment, font, font size and spacing. }

{ANNEXURE II}
(Specimen Copy of Certificate)

CERTIFICATE

**This is to certify that the project work entitled
<Name of the project >**

is a bonafide record of work done by

<Student name >

<Register No. >

**in partial fulfillment for the award of the degree of
MASTER OF COMPUTER SCIENCE
of Bharathiar University during
December 2016 to April 2017**

**Head of the Department,
Dr.G.P.Ramesh Kumar,M.C.A.,M.Phil.,PhD.
Prof. & Head,
Department of Computer Science
SNR Sons College, Cbe-6.**

**Faculty Guide
<Name of Guide>
<Designation>
Department of Computer Science
SNR Sons College, Cbe-6.**

Submitted for the viva – voce examination held on _____

EXTERNAL EXAMINER

INTERNAL EXAMINER

{ANNEXURE III}

DECLARATION

I hereby declare that this project work entitled _____ for <company name> submitted to SNR Sons College , an autonomous institution , affiliated to bharathiar university , coimbatore , is a record of original work done by me under the guidance of <guide name> and that this project work has not formed the basis for the award of any degree / diploma / associateship / fellowship or similar to any candidate in any university.

Place :

Date :

Signature of the Student

Countersigned by

<Guide Name >

{ANNEXURE – IV}

TABLE OF CONTENTS

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ABSTRACT		
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	1.1	An Overview
	1.2	Objectives of the project
	1.3	Organization profile
Chapter	II	System Analysis
	2.1	Existing System
	2.2	Proposed System
	2.3	Hardware Specification
	2.4	Software Specification
Chapter	III	Design and Development
	3.1	Data Flow Diagram
	3.2	Design process
	3.2.1	Data Base Design
	3.2.2	Input Design
	3.2.3	Output Design
Chapter	IV	Testing and Implementation
	4.1	Testing required in your project
Chapter	V	Conclusion
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Bibliography (Should be in Specific format(Author name(alphabetic order), Title of the book, Publication, Edition & Year)).		
Annexure		
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PROJECT WORK AND VIVA VOCE

15MCS401

- 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 three times during the Project period.
- 5 The Project would be evaluated and awarded a maximum of 40 marks for viva voce and 160 marks for project report evaluation.