Veer Narmad South Gujarat University, Surat

Teaching and Evaluation Schedule

FOR

M.Sc (COMPUTER APPLICATION) COURSE – 1st Year

Effective from-June 2014

Semester-I

Paper No.	Paper Title	Teaching Schedule (In Hours)		Credits	University Exam		Internal Exam.	Total Marks
		Lect.	Pract.		Marks	Duration	Marks	
101	Advanced Data Structures	4	0	4	70	3	30	100
102	Advanced Relational Database Management System	4	0	4	70	3	30	100
103	Object Oriented System Design	4	0	4	70	3	30	100
104	Enterprise Data Management & ERP	4	0	4	70	3	30	100
105	Web Programming using Java	4	0	4	70	3	30	100
106	Practical 1	0	4	4	70	2	30	100
107	Practical 2	0	3	3	70	2	30	100
108	Practical 3	0	3	3	70	2	30	100
	Total	**20**	**10**	**30**	**560**	**21**	**240**	**800**

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (Computer Application)(1st Year - Semester –I)

Paper: 101 Subject: Advanced Data Structures

Effective from June 2014

Credits 4 **Total Hrs: 4**

Objective: To provide a comprehensive knowledge of Data Structures concept and their implementation.

Prerequisite: Preliminary knowledge of Data Structure and its classification.

1	Algorithmic Patterns and Problem Solvers
1.1	Brute-Force and Greedy Algorithms
1.2	Backtracking algorithm – Depth-First, Branch and Bound
1.3	Top-Down Algorithms – Divide-and-Conquer
1.4	Bottom-Up Algorithms
2	Graphs
2.1	Basics
2.2	Traversals and search – Depth-First, Breadth-First, Branch and Bound
2.3	Applications- Topological Sort
2.4	Shortest Path Algorithm
2.5	Spanning Tress
2.6	Minimum Cost Spanning trees – Prim's and Kruskal's algorithm
2.7	Critical Path Analysis
3	Trees
3.1	Basic Concepts
3.2	Binary Trees
3.3	N-ary Trees
3.4	Tree Traversals
3.4.1.	Inorder, Preorder and Postorder
3.4.2	Search Trees
3.4.2.1	Algorithms like Binary, AVL, B-Tree, B+Tree
3.5	Huffman trees and Data compression including Huffman coding
4	Hashing
4.1	Basic Idea – Keys and Hash Functions including Collision avoidance
4.2	Hashing Methods
4.2.1	Division Method
4.2.2	Middle Square Method
4.2.3	Multiplication Method
4.2.4	Fibonacci Hashing
4.3	Hash Function Implementations
4.3.1	Integral Keys
4.3.2	Floating Point Keys
4.3.3	Character String Keys
4.3.4	Hashing Containers

4.3.5	Using Associations
4.4	Hash Tables
4.4.1	Abstract Hash Tables
4.5.	Scatter Tables
4.5.1	Chained Scatter Table
4.5.2	Scatter Table using Open Addressing Hashing
5	Heaps and Garbage Collection
5.1	Basic Concepts Heaps
5.2	Binary, Leftist, Binomial Queues
5.3	Recent Applications
5.4	Basic concepts of Garbage Collection
5.5	Reference Counting Garbage Collections
5.6	Mark-and-Sweep Garbage Collections
5.7	Stop-and-Copy Garbage Collections
5.8	Mark-and-Compact Garbage Collections

References:

1	Data Structures and Algorithms	Alfred V. Aho, Jeffrey D. Ullman,John E. Hopcroft, Addison-Wesley.	Oracle Press
2	Data Structures and Algorithms with Object-Oriented Design Patterns in Java	Bruno R. Preiss	JohnWiley & Sons

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (Computer Application)(1st Year - Semester –I)

Paper: 102 Subject: Advanced Relational Database Management System

Effective from June 2014

Credits 4 **Total Hrs: 4**

Objective: To provide a comprehensive knowledge of efficient database design approach, which includes indexing, hashing, transaction management , concurrency control and Recovery.

Prerequisite: Basic concept of database management system, Normalization and Relation Database design

1	Storage and File Structure
1.1	File Organization- Sequential Files, Index Sequential files, Index files
1.2	Organization of Records in Files
2.	Indexing and Hashing
2.1	Basic Concepts
2.2	Ordered Indices
2.3	Overview of B+Tree and B-Tree Index Structures
2.4	Overview of Static and Dynamic Hashing Techniques
2.5	Bitmap Indices
3	Query Processing .
3.1	SQL Overview
3.2	Various SQL statements
3.3	Various typed of joins, Nested Subqueries and Complex queries
3.4	Views
3.5	Integrity Constraints
3.6	Authorization
3.7	SQL Functions, Procedures and Triggers
4	Transactions Management
4.1	Transaction Concept & State
4.2	Implementation of Atomicity and Durability
4.3	Concurrent Executions
4.4	Serializability
4.5	Recoverability
4.6	Implementation of Isolation
4.7	Testing for Serializability
5.	Concurrency Control
5.1	Lock-Based Protocols
5.2	Timestamp-Based Protocols
5.3	Validation-Based Protocols

5.4	Multiple Granularity
5.5	Multiversion Schemes
5.6	Deadlock Handling
5.7	Insert and Delete Operations
6.	Recovery System
6.1	Failure Classification
6.2	Storage Structure
6.2.1	Storage Types
6.2.2	Storage implementation
6.2.3	Data Access
6.3	Recovery and Atomicity
6.4	Logbased Recovery
6.4.1	Deferred Database Modification
6.4.2	Immediate Database Modification
6.4.3	Checkpoints
6.5	Shadow Paging
6.6	Recovery and Concurrent Transaction
6.6.1	Interaction with Concurrency
6.6.2	Transaction Rollback
6.6.3	Checkpoints
6.6.4	Restart Recovery

References:

1	Database System Concepts	Silberschatz Henry F. Korth and S. Sudarshan	McGraw-Hill.
2	An Introduction to Database System	C.J. Date	Addision Wisley
3	An Introduction to Database System	Bipin C. Desai	Galgotia
4	Database Management Systems-Designing & Building Business Applications	Gerald V Post	Irwin Professional Publication
5	Database Management Systems	Raghu Ramakrishnan, Johannes Gehrke	McGraw-Hill

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (Computer Application)(1st Year - Semester –I)

Paper: 103 Subject: Object Oriented System Design

Effective from June 2014

Credits 4 **Total Hrs: 4**

Objective: To provide a comprehensive knowledge of Object Oriented concepts, tools, development life cycle, problem solving, modeling, analysis and design

Prerequisite: Concept of Software Engineering

1	Object Oriented Design Fundamentals and Methodologies
1.1	Complexity of Software
1.2	The Object Orientation - Classes and Objects, Attributes, Methods, Messages, Responsibilities, Object Types, Object State
1.3	Pillars of Object Orientation-Abstraction, Encapsulation, Polymorphism, Inheritance, Object and Class Relationships,
1.4	Object Oriented Software Development Life Cycle.
1.5	Object Oriented Methodology: Rumbaugh, Booch, Jacobson, Shaler/Mellor, Coad/Yardon
1.6	Design Patterns- Generative and Non Generative Patterns, Pattern Template, Antipatterns, Capturing Patters
1.7	Frameworks-overview of .Net framework – Foundation Class Libraries
1.8	The Unified Approach of Analysis, Design, Iterative Development and ContinuousTesting, Layered approach to Software Development
2.	Object Oriented Analysis & Design
2.1	Analysis
2.1.1	Use case model-identifying & refining actors, scenarios and use cases
2.1.2	Classification- Identifying Classes, Object relationships, attributes And Methods.
2.2	Design Basics
2.2.1	Design Process, Axioms and Corollaries
2.2.2	System Design concepts -Decomposing the system, Designing Subsystems and Classes, Interfaces, Layers and Partitions, Control Flow and Access Control, Architectural styles.
2.3	Detailed Design
2.3.1	Designing Classes & Components- abstraction, encapsulation, reuse
2.3.2	Designing Data Access Layer- Data Persistence, Object Relational Database Design, Object Oriented Database Design
3.	UML Class and Use-case Diagrams
3.1	Class Diagram

3.1.1	Class Notation-Static Structure
3.1.2	Object Diagram
3.1.3	Class Interface Notation
3.1.4	Incorporating Associations, Association role, qualifier, multiplicity, Association class, Binary and N-ary Associations, aggregation and Composition Associations, Generalization
3.2	Use case Diagrams
3.2.1	Scope, Benefits and Elements
3.2.2	Identifying, Actors, Scenarios and Use cases
3.3	A Case Study
4	UML Interaction Diagrams
4.1	Sequence Diagram - Elements and Guidelines
4.2	Collaboration Diagram - Elements and Guidelines
4.3	Activity Diagram - Elements and Guidelines
4.4	State Chart Diagram - Elements and Guidelines
4.5	A Case Study
5.	UML Implementation Diagrams
5.1	Component Diagram –Elements & Guidelines
5.2	Deployment Diagram - Elements & Guidelines
5.3	A Case Study
6.	Evaluating Object Oriented System
6.1	Evaluation Testing- Unit testing, Integration Testing and System Testing, testing Process
6.2	Metrics for measuring Object oriented systems

References:

1	Object Oriented System Development	Ali Bahrami	McGraw Hill
2	Object Oriented Modeling and Design	J. Rambaugh, M. Blaha et al, William Premerlani, Fredrick Eddy, William Lorensen,	PHI
3	Object Oriented Modeling and Design with UML	J. Rambaugh, M. Blaha	PHI
4	Oriented Software Engineering	Ivar Jacobson	AWL
5	Magnifying Object Oriented Analysis and Design	Arpita Gopal, Netra Patil	
6	Applying UML & Patterns: An Introduction to Object Oriented Analysis and Design, Pearson Education	Larman	
7	Object Oriented Software Engineering using UML, Patterns and Java, Pearson Education.	Bernd Bruegge, Allen H. Dutoit	

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (Computer Application)(1st Year - Semester –I)

Paper: 104 Subject: Enterprise Data Management and ERP

Effective from June 2014

Credits 4 **Total Hrs: 4**

Objective: To provide a comprehensive knowledge of the concepts related to Information Systems and modeling of data in these systems.

Prerequisite: Concept of Information System

1	Data Management
1.1	Hierarchy of Data
1.2	Data Modeling
1.3	Data Integrity
1.4	Data Quality
1.5	Metadata
1.6	Legacy Systems and Data Migration
2.	Information System
2.1	Overview of Information System
2.2	Overview of different types of Information Systems: MIS, DSS, GDSS, ESS, GIS, KBS
2.3	Impact of Information System on an organization
2.4	An Introduction to Electronic Commerce and Mobile Commerce
2.5	Threats and security to e-commerce and m-commerce
3.	Introduction To ERP
3.1	Evolution of ERP and Reasons for the growth of ERP
3.2	Scenario and Justification of ERP in India
3.3	Various Modules Of ERP,
3.4	Advantage of ERP.
3.5	ERP for Small Business
3.6	ERP for make to order companies
3.7	Business Process Mapping for ERP Module Design
3.8	Hardware Environment and its Selection for ERP Implementation.
4	ERP Product and Modules
4.1	Introduction to ERP Products and modules
4.2	Finance module
4.3	Plant Maintenance module
4.4	Quality Management module
4.5	Materials Management
5	ERP implementation lifecycle
5.1	Issues in implementing ERP packages
5.2	Pre-evaluation screening

5.3	Package evaluation
5.4	Project planning phase, gap analysis, reengineering,
5.5	Configuration, implementation, team training, testing, going live
5.6	End-user training, post implementation (Maintenance mode).
5.7	Vendors, Consultants and users, In-House Implementation - pros and cons.

6.	Business Intelligence
6.1	Introduction
6.2	Types of Business Rule
6.3	Implementing Business Rule
6.4	Business Re-engineering
6.5	Overview of Data Warehousing and Data Mining
6.6	Business Intelligence using Data Warehousing and Data Mining
6.7	Business Intelligence Applications: Customer Relationship Management, Supply Chain Management.

References:

1	Enterprise Resource Planning	By Alexis Leon	TMH
2	Principles on Information Systems: A Managerial Approach	Ralph Stair and Gearge Reynolds	Thomson Course Technology
3	Management Information System: Managing the Digital Firm	Kenneth Laudon and Jane Laudon	PHI
4	Content Management Bible	Bob Boiko	Wiley Publishing Inc.
5	Management Information System: Text & Applications	C.S. V. Murthy	Himalaya Publishing House
6	Management Information System	W.S. Jawadekar	Tata McGraw Hill
7	Information System for Modern Management	Murdick Ross and Claget	Prentice Hall
8	Maximizing your ERP System: A practical guide for Managers	Scott Hamilton	McGraw Hill
9	ERP : Making It Happen	By Thomas F. Wallace, Michale H. Kremzar	Wiley Publication
10	ERP: Tools, Techniques, and Applications for Integrating the Supply Chain, Second Edition	Carol A. Ptak, Eli Schragenheim	Wiley Publication
11	Enterprise Sales and Operations Planning	E. Palmatier, Colleen Crum	J.Ross publishing
12	SAP MM Questions and Answers	Kogent	Learning Solutions Publicattion:Jones & Bartlett Learning ,
13	ERP 100 Success Secrets	By Godfrey Glenn	
14	Management Information Systems	By Gordon B davis and Margethe H Olson	TMGH, New Delhi
15	Management Information System	Sadagopan	PHI

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (Computer Application)(1st Year - Semester –I)

Paper: 105 Subject: Web Programming using JAVA

Effective from June 2014

Credits 4 **Total Hrs: 4**

Objective: To provide an in-depth knowledge of most recent server side programming technology.

Prerequisite: Basic understanding of Web, HTTP, HTML, JavaScript, Programming in Core Java ,Object Oriented Concepts, DBMS

1	Java Database Connectivity
1.1	JDBC API
1.2	JDBC Drivers and Components
1.3	Basic Steps to JDBC
1.3.1	Using Joins, Transactions, Stored Procedures
1.4	Executing SQL Queries
1.4.1	Handling null fields
1.4.2	The ResultSet Object
1.5	Handle Exception
1.5.1	BatchUpdateException, DataTruncation
1.5.2	SQLException, SQLWarning
1.6	Writing a Complete Application
2	Servlet
2.1	Servlet in the Middle Tier
2.2	The Servlet Life Cycle
2.3	Java Servlet Development Kit
2.3.1	The javax.servlet Package
2.3.2	The Javax.servlet.http Package
2.4	Handling HTTP Get/Post Request
2.5	Using Cookies
2.6	Session Tracking
2.7	Sharing Connection Pools
2.8	Writing a Complete Application
3	Introduction to JSP
3.1	JSP tags
3.2	JSP directives
3.3	Scripting elements
3.4	Flow of control
3.5	Conditionalization

3.6	Actions and implicit objects
3.7	JSP components
3.8	JSP bean tags
3.9	Working with databases
3.10	Writing a Complete Application
4	MVC Architecture & Struts
4.1	MVC Architecture
4.2	Struts Architecture
4.3	How Struts Works?
4.4	Introduction to the Struts Controller
4.5	Introduction to the Struts classes - ActionForward, ActionForm, ActionServlet, Action classes
4.6	Understanding struts-config.xml
4.7	Understanding Action Mappings
4.8	Using Struts HTML Tags
4.9	Introduction to Struts Validator Framework
4.10	Client Side Address Validation in Struts
4.11	Custom Validators Example
4.12	Developing Application with Struts Tiles
4.13	Internationalizing Struts Application
5	Introduction to Beans and EJB 3.0 Architecture
5.1	Session Bean
5.2	Entity Bean
5.3	Statefull and Stateless Entity Beans with Examples
5.4	Various Application Servers (WebLogic, Jrun, Tomcat, WebSphere)

References:

1	Web Development with Java Server Pages	D. K. Fields, M. A. Kolb, S. Bayern	Manning Pub.
2	Java Cook Book	Ian Darwin	O'relley
3	Advanced Java	Jambu Krishnamurthi	Comp-U Learn Inc
4	Beginning J2ME: From Novice to Professional	S. LI and J. Knudsen	Apress
5	Mastering Enterprise Java Beans 3.0	Rima Patel	Wiely Publication

Veer Narmad South Gujarat University, Surat

Syllabus
M.Sc. (Computer Application)-1st Year
Semester -I
Effective from June 2014

Paper No : 106

Paper Title : Practical 1 [L:0, P:4]

Practical shall be based Paper No. : 105 Paper Title : Web Programming using JAVA.

Veer Narmad South Gujarat University, Surat

Syllabus
M.Sc. (Computer Application)-1st Year
Semester -I
Effective from June 2014

Paper No : 107

Paper Title : Practical 2 [L:0, P:3]

Practical shall be based Paper No. : 101 Paper Title : Advanced Data Structures.

Veer Narmad South Gujarat University, Surat

Syllabus
M.Sc. (Computer Application)-1st Year
Semester -I
Effective from June 2014

Paper No : 108

Paper Title : Practical 3 [L:0, P:3]

Practical shall be based Paper No. : 102 Paper Title : Advanced RDBMS.

Veer Narmad South Gujarat University, Surat

Teaching and Evaluation Schedule

FOR

M.Sc (COMPUTER APPLICATION) COURSE – 1st Year

Effective from-June 2014

Semester-II

Paper No.	Paper Title	Teaching Schedule (In Hours)		Credits	University Exam		Internal Exam.	Total Marks
		Lect.	Pract.		Marks	Duration	Marks	
201	Advanced Concepts of Operating System	4	0	4	70	3	30	100
202	Web Programming using C#.Net	4	0	4	70	3	30	100
203	Advanced Software Engineering	4	0	4	70	3	30	100
204	Data Warehousing and Data Mining	4	0	4	70	3	30	100
205	Information Security	4	0	4	70	3	30	100
206	Practical 1	0	4	4	70	2	30	100
207	Practical 2	0	3	3	70	2	30	100
208	Practical 3	0	3	3	70	2	30	100
	Total	**20**	**10**	**30**	**560**	**21**	**240**	**800**

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (Computer Application)(1st Year - Semester –II)

Paper: 201 Subject: Advanced Operating System

Effective from June 2014

Credits 4 **Total Hrs: 4**

Objective: Provide deeper knowledge of advance concepts of Operating System
Prerequisite: Basic knowledge of Operating System concepts and working

1	**Introduction of Operating System**
1.1	Overview of Operating System services
1.2	Structure of OS
1.3	APIs / System Calls
1.4	Interrupts and Signals
2	**Process Management & Synchronization**
2.1	Process Concepts and its States and Transition
2.2	Process Creation and termination
2.3	Process Scheduling Algorithms
2.3.1	FCFS
2.3.2	Round Robin Scheduling
2.3.3	Shortest Job Next
2.3.4	Shortest Remaining Next
2.4	Process Synchronization and Deadlock
2.4.1	Semaphore
2.4.1.1	Implementing Semaphores
2.4.1.2	Producer Consumer Problem
2.4.1.3	Readers & Writers Problem
2.4.1.4	Bounded-Buffer Problem
2.4.2	Monitors with Signal
2.4.2.1	Dining-Philosophers Solution
2.4.3	Process queue
2.4.4	Atomic Transaction
2.4.5	Deadlock
2.4.6	Methods for handling Deadlock
2.4.7	Recovery from Deadlock
3.	Threads
3.1	Thread Usage and its Classical Model
3.2	Implementation of Thread in User and Kernel Space
3.3	Hybrid Implementation
3.4	Comparison with Process

4	**Memory Management**
4.1	Overview of Paging & Segmentation
4.2	Virtual Memory
4.3	Demand Paging
4.4	Page Allocation & Replacement Algorithms
4.4.1	FIFO
4.4.2	Optimal Page Replacement
4.4.3	LRU-Approximation
4.4.4	Not Recently Used Page Replacement

5	**Overview Of Distributed Operating System**
5.1	Design issues
5.2	Process Management - Migration
5.3	File Management
5.4	Device Management
5.5	Memory Management
5.6	Deadlock handling

6	**Network Operating System**
6.1	Introduction
6.2	Resource Sharing

7	**Real Time Operating System**
7.1	Introduction
7.2	System Characteristics
7.3	Features of Real-Time Kernels

References:

1	Operating System Concepts	Abraham Silberschatz, Peter Baer Galvin and Greg Gagne	John Wiley & Sons
2	Operating System A Concept Based Approach	D.M Dhamdhere	McGraw Hill
3	Operating Systems: Internals and Design	Willam Stallings	Prentice Hall
4	Operating Systems A Design Oriented Approach	Charles Chowley	TMH
5	Operating Systems Design And Implementation	Andrew S Tanebaum, Albers S Woodhull	Prentice Hall
6	Operating System	Madnick	Mac GrawHill
7	Operating System	A.S. Godbole	

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (Computer Application)(1st Year - Semester –II)

Paper: 202 Subject: Web Programming using C#.Net

Effective from June 2014

Credits 4 **Total Hrs: 4**

Objective: To provide an in-depth knowledge of most recent server side programming technology.

Prerequisite: Basic understanding of Web, HTTP, HTML, JavaScript, Programming in .Net and Object Oriented Concept, DBMS.

1	ASP.NET using C#
1.1	Life cycle of ASP.Net Application on IIS 7.0 & Lifecycle of ASP.Net Web Page
1.2	Structure of Application- Application Domain, Application Lifetime, Application Directory Structure
1.3	HTML Controls, Server Controls and Validation controls, Overview of Silverlight
1.4	Web Forms-Dynamic Compilation, Control Trees, Debugging and Tracing
1.5	Rich Controls for various activities like File Upload, Calendar, Advertisement, Page Views
1.6	Using States-Application State, Session State, ViewState
1.7	HTTP Handlers, Postback and Cross-page Posting
1.8	State Management
1.8.1	Working with Browser Cookies
1.8.2	Working with Session State
1.8.3	Working with Profiles
2.	Working with Data
2.1	Working with ADO.NET
2.2.1	Creating Database Connection
2.2.2	Executing Database Commands
2.2.3	SqlDataSource control
2.2.4	AccessDataSource control
2.2.5	ObjectDataSource control
2.2.6	XmlDatasource Control
2.2	Data Binding with Controls
2.2.1	Various List Controls
2.2.2	GridView Control
2.2.3	DetailsViewControl
2.2.4	Repeater and Datalist Controls
2.2.5	ListView and DataPager Controls
2.2.5	Chart Control

2.3	Data Access with LINQ
2.3.1	Introduction of LINQ
2.3.2	LinqDataSource control
2.3.3	LINQ to Dataset
2.3.4	Overview of LINQ to SQL
2.4	Overview of ADO.Net Entity Framework
3	Better Web Forms
3.1	Creating custom controls with User Controls
3.1.1	Creating and Registering User Controls
3.1.2	Exposing properties and events of a User Control
3.1.3	Dynamically Loading User Controls.
3.1.4	Overview of Custom Control building
3.1.5	Overview of creating Template Controls
3.2	Designing website with Themes & Master Pages
3.2.1	Working with Simple and Nested Master Pages
3.2.2	Creating Themes
3.2.3	Working with skins & CSS
3.3.4	Creating Global themes
3.3.5	Applying Themes Dynamically
3.3	Website Navigation
3.3.1	SiteMaps & SiteMapPath Control
3.3.2	Working with Menu Control
3.3.3	Using Menu Control with Multiview Control
3.3.4	Binding Menu Control to SiteMap, XML file and Database
3.3.5	Working with TreeView Control
4	ASP.NET Security Model
4.1	Forms Authentication
4.1.1	Working with various Login controls-Login control, Create User Wizard Control, Login Status Control, Login Name control, ChangePassword Control and PasswordRecovery Control
4.1.2	Configuring Forms Authentication with cookieless forms and with Sliding Expiration
4.1.3	Forms authentication Across Applications and Domains
4.1.4	Working with FormAuthentication and User class
4.2	Overview of Windows Authentication
4.3	Authorization and Roles
4.3.1	Authorization by Role, authorizing Files by Location and authorization With images and other File Types.
4.3.2	Overview of ASP.Net Membership
4.3.3	Overview of Role Manager
5.	ASP.Net MVC Application
5.1	Introduction to ASP.Net MVC Framework
5.2	Building an MVC page

5.3	Accepting Form Input
6.	Configuring Applications
6.1	Website configuration with Website Administration Tool
6.2	Working with ASP.Net configuration Sections
6.3	Creating Custom Configuration Sections
7.	Deploying ASP.Net Web Applications
7.1	Packaging web applications
7.2	Using Web.Config Transformation
7.3	Deploying Databases
7.4	One-Click Publishing Web applications
8	Advanced ASP.NET
8.1	Overview of ASP.Net Web Services
8.2	Overview of implementation of Email & SMS utility
8.3	Overview of working with serverside ASP.NET AJAX and AJAx control Toolkit
8.4	Overview of using Client-side AJAX with JQuery in ASP.Net

References:

1	Pro ASP.NET 3.5 in C# 2008	Matthew MacDonald	Apress
2	ASP.NET 4.0 Unleashed	Stephen Walther	Sams
3	Professional ASP.NET 3.5: In C# and VB (Programmer to Programmer)	by Bill Evjen	Wrox
4	Beginning ASP.NET 3.5 in VB 2008	Matthew MacDonald	Apress
5	ASP.Net 4.0 Black Book		dreamtech press

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (Computer Application)(1st Year - Semester –II)

Paper: 203 Subject: Advanced Software Engineering

Effective from June 2014

Credits 4 **Total Hrs: 4**

Objective: To provide a comprehensive knowledge of advanced Software Engineering Models and approaches

Prerequisite: Basic Concept of Software Engineering.

1	Advanced Software Process Models
1.1	Component-Based Process Model
1.1.1	The CBSE Process
1.1.2	Domain Engineering
1.1.3	Component-based development
1.1.4	Component classification, retrieval and reuse
1.2	Agile Process Models
1.2.1	Xtreame Programming(XP)
1.2.2	Adaptive Software Development
1.2.3	Dynamic System development Model(DSDM)
1.2.4	Scrum
1.2.5	Feature Driven development(FDD)
1.2.6	Agile Modelling(AM)
2	Client/Server Software engineering.
2.1	The structure of client/server systems,
2.2	Analysis modeling issues,
2.3	Design for c/s system,
2.4	Testing issues.
3	Web Engineering
3.1	Introduction
3.2	Formulation and Planning for Web Engineering
3.3	Analysis Modeling for Web Applications
3.4	Design Modeling for Web Applications
3.5	Testing Web Applications
4	Reengineering
4.1	Business process reengineering,
4.2	Software reengineering,
4.3	Reverse engineering,
4.4	Restructuring,

4.5	Forward engineering,
4.6	Economics of reengineering.
5	Software Quality Management
5.1	Basic Concepts of Software Quality
5.1.1	Defining Quality
5.1.2	Software Quality Factors,
5.1.3	Software Quality Metrics
5.2	Software Quality Assurance:
5.2.1	Introduction
5.2.2	Payoffs and Tradeoffs of SQA,
5.2.3	Quality through the Software Process
5.2.4	Components of an SQA Plan
5.2.5	Software Reviews
5.3	Formal Technical Reviews:
5.3.1	The Review Meetings
5.3.2	Review Reporting and Recordkeeping
5.3.3	Review Guidelines
5.4	Overview of ISO 9000 software quality Standards, CMM

References:

1	Software Engineering: A Practitioner's Approach, 6/e	Roger S Pressman	Tata McGrawHill
2	Software Engineering: A Practitioner's Approach, 7/e	Roger S Pressman	Tata McGrawHill
3	Web Engineering: A Practitioner's Approach 1/e	Roger Pressman, David Lowe	Tata McGrawHill
4	Software Engineering	Ian Sommerville	Pearson Education (Addison-Wesley)
5	Web Engineering	Emila Mendes, Nile Mosley	New Age Information (Springer) Publication
6	Client / Server Computing	Patrick Smith, Steve	PHI publication Guengerich
7	ISO 9001:2000 for Software Organizations	Swapna Kishore, Rajesh Naik	TATA McGrawHill
8	CMM in Practice	Pankaj Jalote	Pearson Education Publication

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (Computer Application)(1st Year - Semester –II)

Paper: 204 Subject: Data Warehousing & Data Mining

Effective from June 2014

Credits 4 **Total Hrs: 4**

Objective: To provide a comprehensive knowledge of Data Warehousing and different Data Mining Techniques

Prerequisite: Basic Concept of RDBMS, Information System, OLTP.

1	Introduction to Datawarehousing
1.1	Data Warehouse characteristics
1.2	Data Marts
1.3	Applications of Data Warehousing
2	Online Analytical Processing
2.1	OLTP and OLAP systems
2.2	Star schema for multidimensional view
2.3	Multifact star schema or snow flake schema
2.4	Introductions to OLAP Tools
3	Developing A Data Warehouse
3.1	Building a Data Warehouse
3.2	Architectural strategies & Design issues
3.3	Data Content
3.4	Metadata
3.5	Distribution of data
3.6	Introduction to Data Warehousing Tools
3.7	Performance considerations
4	Introduction to Data Mining
4.1	Importance of and Motivation behind data mining
42	Data Mining process and knowledge discovery
4.3	Introduction to Data Mining techniques
4.4	Data Preprocessing-Cleaning, Integration and Transformation, Reduction, Dicretization etc.
4.5	Major issues in Data Mining
5	Association Rule Mining
5.1	Basic concepts and Roadmap for association rule mining and its Applications
5.2	Apriori Algorithm, its limitations and improvements
5.3	Comparative study of various Association Rule Mining Algorithms
5.4	Introduction to Multilevel Association Rule Mining, Multi Dimensional Association, Rule Mining, Correlation analysis and Guided Association Rule Mining
6	Classification and Prediction

6.1	Introduction and Applications of classification
6.2	Data Preparation for classification and prediction
6.3	Decision tree Model based classifier
6.4	Decision tree Induction-based classifier, Advantages and Limitations, Hunts Algorithm,
6.5	Tree pruning
6.6	Measures for Attribute selection -Info.Gain, GINI Index, Entropy, Classification error
6.7	Rule based classification, its coverage and accuracy, Advantages and limitations
6.8	Building Classification rules, Direct and Indirect Methods
6.9	Rule simplification, rule ordering schemes, Instance elimination, Rule evaluation, stopping criteria and rule pruning
6.10	Comparative study of various classification algorithms
7	Clustering
7.1	Introduction and Applications of clustering
7.2	Types of Data Variables in clustering-Interval scaled, Binary, Nomonal, Ordinal, Ratio Scaled
7.3	Categorization of Major clustering Methods
7.4	Partitioning Methods - *k*-Means algorithm and *k*-Medoids
7.5	Introduction other clustering methods- Hierarchical Clustering, Agglomerative Clustering, Density based Clustering Methods, Grid-Based Clustering, Model Based Clustering
8	Other Data Mining Techniques
8.1	Data Prediction-Linear regression based prediction
8.2	Outlier Analysis- Statistical based, Distance based, Deviation based
8.3	Conceptual Techniques- Data characterization and Generalization, Data Comparison or Discrimination
9.	Mining Complex DataTypes
9.1	Mining Time-Series and Sequence Data – Trend Analysis, Similarity Search, Sequential Pattern Mining, Periodicity Analysis.
9.2	Mining Text Databases- Text Data Analysis and Information Retrieval, Keyword-based Association and Document Classification
9.3	Mining Spatial Databases-Construction of DataCube and OLAP, Clustering Methods, Association Analysis, Classification and Trend Analysis, Mining Raster Databases
9.4	Mining Multimedia Databases-Similarity Search Classification and Prediction Analysis
9.5	Web Mining-Web Structure Mining

References:

1	Data Warehouse Toolkit	R. Kinball	John Wiley & Sons
2	Decision Support and Data Warehouse Systems	Efrem G. Mallach	TMH
3	Data Warehousing Fundamentals	Paulraj Pulliah	Wiley
4	Data Warehousing in the real world	S. Anahory & D. Murray	Addison Wesley
5	The Data Warehouse Lifecycle Toolkit	R. Kinball, L.Reeves Mosley	John Wiley & Sons
6	Principles of Data Mining	David Hand, Heikki Mannila,Padhraic Smyth	PHI

7	Data Warehousing	C.S.R.Prabhu	PHI
8	Data Mining Next Generation Challenges & Future Directions	Hillol Kargupta, Anupam Joshi, Yelena Yesha, Krishnamoorthy Sivakumar	PHI
9	Data Mining Concepts & Techniques	Jiawei Han, Micheline Kamber	
10	Data Mining Introductory and Advanced Topics	Dunham	Pearson
11	Data Mining Techniques and Trends	N.P Gopalan, B. Sivasalvan	PHI

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT

M.Sc. (Computer Application)(1st Year - Semester –II)

Paper: 205 Subject: Information Security

Effective from June 2014

Credits 4 **Total Hrs: 4**

Objective: To provide a comprehensive knowledge of security issues and cryptography.

Prerequisite: Programming in Java or C#.

1	Security Basics
1.1	Computer Security
1.2	Information Security
1.3	Threat and Attacks
1.4	Malicious Logic
1.5	Countermeasures
1.6	Security Policies
1.7	Confidentiality Polices
1.8	Integrity Policies
2.	Operating System Security
2.1	Security Risks
2.2	Common Ports and Services
2.3	Operating System Hardening
2.4	File Systems and Resources
2.5	User Accounts
3	Network Security
3.1	Security Incidents and Attacks
3.2	Boundary Devices
3.3	Firewalls Software - Concept, Types, Limitation and Implementation
3.4	VPN - Concept, Limitation and Implementation
3.5	Intrusion Detection and Prevention- Concept, Limitation and Implementation
4.	Other Security Areas
4.1	Web threats and attacks
4.2	Database threats and attacks
4.3	Security in wireless network-issues and solutions
4.4	Security in e-commerce, m-commerce-issues and solutions
5	Symmetric Ciphers
5.1	Encryption techniques (Caesar cipher, zebra technique, vinegar cipher, transposition cipher, play fair cipher, rail fence cipher, hill cipher)
5.2	Block Cipher
5.3	DES, Triple DES, AES
5.4	Contemporary Symmetric Cipher

6	Asymmetric encryption
6.1	Use of Number Theory
6.2	Public-key Cryptography
6.3	RSA
6.4	Authentication Protocols
6.4.1	Message authentication and hash function
6.4.2	Hash algorithms - MD5 , SHA1
6.4.3	Digital signatures
6.4.4	SSL
7.	Secure Application level Protocols
7.1	SMIME
7.2	SFTP
7.3	PGP
7.4	Steganography
7.5	HTTPS (SSL)
8.	Overview of Security Engineering.
9.	1. A case study – (Threats / Vulnerabilities and its counter measures)

References:

1	Computer Security: Art and Science	Matt Bishop	Addison-Wesley
2	Introduction to Computer Security	Matt Bishop	Addison-Wesley
3	Information security	William Stallings	
4	Cryptography and Public Key Infrastructure on the Internet	Klaus Schmeh	Willey
5	Beginning Cryptography with Java	David Hook	Wrox
6	Information Security-Theory and Practices	Dhiren Patel	PHI
7	Cryptography and Network Security, Fourth Edition	William Stallings	

Veer Narmad South Gujarat University, Surat

Syllabus
M.Sc. (Computer Application), -1st Year
Semester -II
Effective from June 2014

Paper No : 206

Paper Title : Practical 1 **[L:0, P:4]**

Practical shall be based Paper No. : 202 Paper Title : Web Programming using C#.Net.

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M.Sc. (Computer Application), -1st Year
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Paper No : 207

Paper Title : Practical 2 **[L:0, P:3]**

Practical shall be based Paper No. : 204 Paper Title : DataWarehousing and Data Mining.

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Syllabus
M.Sc. (Computer Application), -1st Year
Semester -II
Effective from June 2014

Paper No : 208

Paper Title : Practical 3 **[L:0, P:3]**

Practical shall be based Paper No. : 205 Paper Title : Information Security.