

411 - MASTER OF COMPUTER APPLICATIONS

Programme Structure and Scheme of Examination (under CBCS)
(Applicable to the candidates admitted from the academic year 2022 -2023 onwards)

Course Code	Course Title	H/W	C	MARKS		
				CIA	ESE	TOTAL
FIRST SEMESTER						
22PMCAC11	Core Theory – I : Data Structures using C++	5	4	25	75	100
22PMCAC12	Core Theory – II : Relational Database Management System	5	4	25	75	100
22PMCAC13	Core Theory – III : Operating Systems	5	4	25	75	100
22PMCAP14	Core Practical – I : Data Structures using C++ Lab	4	2	40	60	100
22PMCAP15	Core Practical – II : Relational Database Management System -Lab	4	2	40	60	100
22PMCAE16	Core Elective – I	4	4	25	75	100
22PMCAO17	Open Elective – I	3	3	25	75	100
	Total Credits	30	23			700
SECOND SEMESTER						
22PMCAC21	Core Theory – IV : Java Programming	5	4	25	75	100
22PMCAC22	Core Theory – V : Web Technology	5	4	25	75	100
22PMCAC23	Core Theory – VI : Accounting and Financial Management	5	4	25	75	100
22PMCAP24	Core Practical – III : Java Programming – Lab	4	2	40	60	100
22PMCAP25	Core Practical – IV : Web Technology – Lab	4	2	40	60	100
22PMCAE26	Core Elective – II	5	4	25	75	100
22PHUMR27	Compulsory Course: Human Rights	2	2	25	75	100
	Total Credits	30	22			700

List of Core Elective Papers (Choose 1 out of 3 in each Semester)

Semester	Course Code	Course Title	H/W	C	Marks		
					CIA	ESE	Total
I	22PMCAE16-1	Discrete Mathematics	4	4	25	75	100
	22PMCAE16-2	Management Information System	4	4	25	75	100
	22PMCAE16-3	E- Commerce	4	4	25	75	100
II	22PMCAE26-1	Software Engineering	4	4	25	75	100
	22PMCAE26-2	Data Mining Techniques	4	4	25	75	100
	22PMCAE26-3	Cloud Computing	4	4	25	75	100

List of Open Electives (Choose 1 out of 3 in each Semester)

Semester	Course Code	Course Title	H/W	C	CIA	ESE	Total
I	22PMCAO17-1	Multimedia and Animation	3	3	25	75	100
	22PMCAO17-2	Data Science for Business	3	3	25	75	100
	22PMCAO17-3	Digital Marketing	3	3	25	75	100

SEMESTER - I PART -	22PMCAC11:DATA STRUCTURES USING C++	CREDITS: 4 HOURS: 5
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COURSE OBJECTIVES

1. To understand the concepts of object-oriented programming and master OOP using C++.
2. To understand the concepts of Inheritance, polymorphism and templates.
3. To understand the concepts of different view of data, stack and queues.
4. To understand the concepts of Programming with Recursion, Binary Search Tree and graphs.
5. To understand the concepts of Sorting and Searching Algorithms.

UNIT-I : Principles of Object Oriented Programming

Hours : 15

Principles of Object Oriented Programming – Beginning with C++ – Token , Expressions and Control Structures- Functions in C++ – Classes and Objects – Constructors and Destructors.

UNIT-II : Operator Overloading

Hours : 15

Operator Overloading and Type Conversions – Inheritance : Extending Classes – Pointers, Virtual Functions and Polymorphism - Managing Console I/O Operations. Working with Files - Templates – Exception Handling – Manipulating Strings.

UNIT-III : Data Design & implementations

Hours : 15

Different views of data – Abstraction and Built-in Types – Arrays ADTs Stacks and Queue (Linear and Linked) , Stack (Array and Pointer)- Applications- Infix to Postfix Conversions – Queue(Array and Pointer) – List(Array and Pointer) – Applications: (Polynomial Addition) - Doubly Linked Lists.

UNIT – IV : Programming with Recursion

Hours : 15

Recursion – Verifying and Writing Recursive Functions – Binary Search Tree : Implementation – Tree Traversal – Graphs: Implementations – BFS – DFS – Dijkstras Shortest Path Algorithm.(Chapter 7:Section 7.1,7.4 7.5, Chapter 8:Section 8.1,8.4, Chapter 9:Section 9.3)

UNIT-V : Sorting and Searching Algorithms

Hours : 15

Sorting – Searching – Hashing (Chapter 10: Section 10.1,10.2,10.3).

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

- 1.The Student will be able to understand the concepts of object oriented programming Apply structure and inline functions.
- 2.The Student will be able to understand the concepts of the types of inheritances and Applying various levels of Inheritance for real time problems Apply the OOPs concepts class and object. Understand Explain the file concept and exception handlings in C++
- 3.The Student will be able to understand the concepts of Stacks and Queue using array and pointers.
- 4.The Student will be able to understand the concepts of Recursion, Binary Search Tree and graphs.
- 5.The Student will be able to understand the concepts of Sorting and Searching Algorithms.

Text Book

1. Object Oriented Programming with C++, E Balagurusamy , Tata McGraw Hill, 6th Edition,2014.
2. C++ Plus Data Structure, Nell Dale, Jones & Bartlett Publishers , 4th Edition, 2010. (Units III,VI & V)

Supplementary Readings

1. C++ The Complete Reference, Herbert Schildt, Tata McGraw Hill, 4th Edition, 2003.
2. OOP In ANSI C and Turbo C, Ashok N.Kamthene, Pearson Education, 6th Edition, 2008.
3. Data Structures and Algorithms, Alfred V. Aho, Jeffrey D. Ullman, John E. Hopcroft, Addison Wesley Longman Inc., 2nd Edition, 1999.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3		3	
CO2		3	3		3
CO3	3			3	
CO4	3	3			3
CO5	3	3	3		

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : I	22PMCAC12: RELATIONAL DATABASE MANAGEMENT SYSTEM	CREDIT : 4
PART :		HOURS : 5

COURSE OBJECTIVES

1. To understand the different issues involved in the design and implementation of a database system.
2. To study the physical and logical database designs, database modeling, relational, hierarchical, and network models
3. To understand and use data manipulation language to query, update, and manage a database.
4. To develop an understanding of essential DBMS concepts such as: database security, integrity, and concurrency.
5. To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.

Unit-I : Introduction

Hours : 15

Database System Applications – Purpose of Database Systems – View of Data – Database Languages – Relational Databases – Database design – Data storage and Querying – Transaction Management – Database Architecture – Data Mining and Information Retrieval – Database Users and Administrators – History of Database Systems.

Unit-II : Relational Databases

Hours : 15

Structure of the relational databases - Database schema - Keys - Schema diagrams - Relational query languages - Relational operations - Overview of SQL query language - SQL data definition - Basic structure of SQL queries - Additional basic operations - Set operations - Null values - Aggregate functions - Nested sub queries - Modification of the database.

Unit-III : Relational Database design

Hours : 15

Features of Good Relational Designs - Atomic Domains and First Normal Form - Decomposition Using Functional Dependencies - Functional-Dependency Theory - Algorithms for Decomposition - Decomposition Using Multivalued Dependencies - More Normal Forms - Database-Design Process.

Unit-IV : Indexing and Hashing

Hours : 15

Basic Concepts - Ordered Indices - B+-Tree Index Files - B+-Tree Extensions - Multiple-Key Access - Static Hashing - Dynamic Hashing - Comparison of Ordered Indexing and Hashing - Bitmap Indices - Index Definition in SQL- Measures of Query Cost - Selection Operation - Sorting - Join Operation - Other Operations - Evaluation of Expressions.

Unit-V : Distributed Databases

Hours : 15

Introduction - Homogeneous and Heterogeneous Databases - Distributed Data Storage - Distributed Transactions - Commit Protocols - Concurrency Control in Distributed Databases - Availability - Distributed Query Processing - Heterogeneous Distributed Databases - Cloud-Based Databases - Directory Systems.

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Define program-data independence, data models for database systems, database schema and database instances.
2. Recall Relational Algebra concepts, and use it to translate queries to Relational statements and vice versa.
3. Identify Structure Query Language statements used in creation and manipulation of Database Identify the methodology of conceptual modeling through Entity Relationship model.
4. Develop an understanding of the differences between OODBMS, ORDBMS and RDBMS and the practical implications of each approach.
5. Analyze and design a real database application.

Text Books

1. Abraham Silberschatz, Henry F. Korth and S. Sudharshan, Database System Concepts, Sixth Edition, Tata McGraw Hill, 2002.

Supplementary Readings

1. Ramez Elmasri, Shamkant B. Navathe, “Fundamentals of Database Systems”, Seventh Edition, Pearson Education, 2017.
2. R. Elmasri, S.B. Navathe, “Fundamentals of Database Systems”, Seventh Edition, Pearson Education/Addison Wesley, 2017.
3. Raghu Ramakrishnan, –Database Management Systems, Fourth Edition, McGrawHill College Publications, 2015.
4. Bipin C.Desai, An Introduction to Database Systems, Galgotia Publications, 2002.
5. Raghu Ramakrishnan and Johannes Gehrke, Database Management Systems, Third Edition, Tata McGraw Hill Higher Education, 2003.
6. Elmasri and Navathe, Fundamentals of Database Systems, Sixth Edition, Pearson Education Asia, 2010.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3			3	
CO2		3	3		3
CO3	3			3	
CO4	2		2		2
CO5		3	3		

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : I	22PMCAC13: OPERATING SYSTEMS	CREDIT : 4
PART :		HOURS : 5

COURSE OBJECTIVES :

1. To learn the fundamentals of Operating Systems.
2. To learn the mechanisms of OS to handle processes and threads and their communication.
3. To learn the mechanisms involved in the memory management.
4. To gain knowledge on Distributed OS concepts that includes architecture, Mutual exclusion algorithms, deadlock detection algorithms and agreement protocols.
5. To know the components and Management aspects of concurrency management.

Unit-I : Introduction

Hours : 15

Introduction – Operating System Structure - Operating System Operations – Protection and Security – Kernel Data Structures - Computing Environments - Open Source Operating Systems - Operating System Services – User operating system Interface – System calls - Types of system calls – System programs – Operating System design and Implementation – Operating System: debugging - Operating System: Generation – System Boot.

Unit-II : Process Management

Hours : 15

Process Management – Process Concepts – Process Scheduling – Operation on Processes – Interprocess Communication – Threads – Multicore Programming - Multithreading Models – Thread Libraries - Implicit Threading - Threading Issues – Process Synchronization – The Critical Section Problem – Peterson’s Solution – CPU Scheduling – Scheduling Criteria – Scheduling Algorithms - Deadlocks – System Model – Deadlock Characterization – Methods for handling Deadlocks – Deadlock Prevention – Deadlock Avoidance – Deadlock Detection – Recovery from Deadlock.

Unit-III : Memory Management

Hours : 15

Memory Management – Background – Swapping – Contiguous Memory Allocation – Paging – Structure of the Page Table – Virtual Memory Background - Demand Paging – Copy-on-Write – Page Replacement – Allocation of Frames – Thrashing – Memory-Mapped Files – Allocating Kernel Memory – Other Considerations – Operating System Examples.

Unit-IV : File System

Hours : 15

Storage Management – Overview of Mass Storage Structure – Disk Structure – Disk Attachment – Disk Scheduling – Disk Management – Swap Space Management- RAID Structure – Stable Storage Implementation – Tertiary Storage Structure – I/O Hardware – Application of I/O Interface – Kernel I/O Subsystem - File Concept – Access Methods – Directory Structure – File System Mounting – File Sharing – Protection – File System Structure – File System Implementation – Directory Implementation – Allocation Methods – Free Space Management – Efficiency and Performance.

Unit-V : Android Operating System

Hours : 15

Case study: Windows 7 - History - Design Principles - System Components - Terminal Services and Fast User Switching - File System - Networking - Programmer Interface. Android - Overview of Android Operating System - The Android ecosystem – Android Architecture - Android Versioning.

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Analyze the structure of OS and basic architectural components involved in design.
2. Analyze and design the applications to run in parallel either using process or thread models of different OS.
3. Analyze the various device and resource management techniques for time sharing and distributed systems.
4. Understand the mutual exclusion, deadlock detection and agreement protocols of Distributed OS.
5. Interpret the mechanisms adopted for file sharing in distributed applications.

Text Book

1. Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, Operating Systems Concepts, John Wiley & Sons, Inc., Ninth Edition, 2004.

Supplementary Readings

1. Abraham Silberschatz, Peter Galvin and Gagne, "Operating System Concepts", 10th Edition, Addison Wesley, 2018.
2. Andrew S. Tanenbaum, Herbert Boston, "Modern Operating Systems". 4th edition, Pearson, 2015.
3. Ann McHoes, Ida M. Flynn, "Understanding Operating Systems", 7th Edition, Cengage Learning, 2013.
4. Andrew S. Tanenbaum, Modern Operating Systems, Prentice Hall of India, Third Edition, 2007.
5. Deitel ,H. M., Operating Systems, Pearson Education, Third Edition, 2004.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
C01	3			3	
C02		3	3		3
C03		3			
C04	3			2	2
C05	3	3	2		2

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : I	22PMCAP14: DATA STRUCTURES USING C++ - LAB	CREDIT : 2
PART :		HOURS : 4

COURSE OBJECTIVES :

- 1.To develop C++ programming skills in design
- 2.To understand the basic concepts of different abstract types and structure of data.
- 3.To understand the concepts of Function Overloading
- 4.To understand the concepts of Stack, Queue, List, Doubly Linked List - using Pointers- using Arrays.
- 5.To understand the concepts of Searching and Sorting Algorithms.

LIST OF LAB EXERCISES

Hours : 60

1. Constructors & Destructors, Copy Constructor.
2. Friend Function & Friend Class.
3. Inheritance.
4. Polymorphism & Function Overloading.
5. Virtual Functions.
6. Overload Unary & Binary Operators Both as Member Function & Non Member Function.
7. Class Templates & Function Templates.
8. Exception Handling Mechanism.
9. Standard Template Library concept.
10. File Stream classes.
11. Array implementation of Stack, Queue : Infix to postfix
12. Implementation of Stack, Queue, List, Doubly Linked List - using Pointers- Polynomial Addition
13. Implementation of Binary Search Tree, Traversal
14. Implementation of Searching and Sorting Algorithms.
15. Graph Implementation of shortest path (Djikstras)

COURSE OUTCOMES:

After completing the Course successfully, the student will be able to

1. Understand the Creating and Deleting the Objects with the Concepts of Constructors and Destructors.
2. Demonstrate the Polymorphism Concepts and Operator Overloading.
3. Understand basic Data Structures such as Arrays, Linked Lists, Stacks, Queues, Doubly Linked List and Infix to Postfix Conversion.
4. Apply Algorithm for solving problems like Sorting and Searching.
5. Apply Algorithms and use Graphs and Trees as tools to visualize and simplify Problems

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3		3	
CO2	4		3	4	3
CO3	3	3			
CO4	4			2	2
CO5	2	4			2

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : I	22PMCAP15: RELATIONAL DATABASE MANAGEMENT SYSTEM - LAB	CREDIT : 2
PART :		HOURS : 4

COURSE OBJECTIVES

1. To engage themselves in lifelong learning of Database management systems theories and technologies that enables them to pursue higher studies.
2. Apply integrity constraints on a database using a state-of-the-art RDBMS.
3. To interact professionally with colleagues or clients located abroad and the ability to overcome challenges that arises from geographic distance, cultural differences, and multiple languages in the context of computing.
4. Develop team spirit, effective work habits, and professional attitude in written and oral forms, towards the development of database applications.
5. Develop PL/SQL programs including procedures, stored functions, cursors and packages for data manipulation.

LIST OF LAB EXERCISES

Hours : 60

Cycle – I (Simple SQL)

1. Employee Management System Using SQL Commands.
2. Students Management System Using SQL Commands.
3. Bank Management System Using SQL Commands.
4. Index Creation.
5. Implementation of SQL queries for route database.
6. Implementation of SQL queries for route database - part I.
7. Implementation of SQL queries for route database - Part II.
8. Creating view using SQL commands.
9. Creation of Table Partition.
10. Default trigger procedure and drop command
11. Report creation.

Cycle – II (PL/SQL)

1. Factorial of number
2. Checking whether a number is prime or not
3. Fibonacci series
4. Reversing the string
5. Swapping of two numbers
6. Odd or even number
7. Duplication of records

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. In drawing the ER, EER, and UML Diagrams.
2. In analyzing the business requirements and producing a viable model for the implementation of the database.
- 3 In converting the entity-relationship diagrams into relational tables.
4. To develop appropriate Databases to a given problem that integrates ethical, social, legal, and economic concerns.
5. Students will be able to design and implement database applications on their own

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3		3	
CO2	3		3		3
CO3			3		
CO4	3	2			2
CO5	3		2	3	

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : I	22PMCAE16-1: DISCRETE MATHEMATICS	CREDIT : 4
PART :		HOURS : 4

COURSE OBJECTIVES

1. Introduce concepts of mathematical logic for analyzing propositions and proving theorems.
2. Use sets for solving applied problems, and use the properties of set operations algebraically
3. Work with relations and investigate their properties.
4. Apply logical reasoning to solve a variety of problems.
5. Introduce basic concepts of graphs, digraphs and trees.

UNIT- I : Graph

Hours : 12

Introduction – paths and circuits – isomorphism – sub graphs- connectedness – Euler graph – operations – Hamiltonian paths and circuits – Traveling Salesman Problem.

UNIT –II : Trees

Hours : 12

properties of trees – distance and centers – rooted and binary tree – spanning tree- matrix representations of graph: Incidence matrix – adjacency matrix – graph theoretic algorithms – shortest path between two vertices – shortest path between all pairs.

UNIT- III : Mathematical Logic

Hours : 12

Statements and notation – connectives – Well-formed formulas – tautologies – equivalence of formulas – duality law – Normal Forms: Disjunctive Normal Forms – Conjunctive Normal Forms- Principal Disjunctive-Principal Conjunctive Normal Forms.

UNIT- IV : Set Theory

Hours : 12

Basic concepts of set theory – notation – inclusion and equality – power set – operations – Venn Diagrams – identifiers – Cartesian products – relations and ordering – functions – composition –inverse- binary and n-ary operations.

UNIT- V : Lattices as partially ordered sets

Hours : 12

Definition – properties – special lattices: complete, complemented, distributive lattices – Boolean Algebra - properties of Boolean algebra.

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Define various basic terms in graph theory and discrete mathematical structure
2. Summarize various theories in graph theory and discrete mathematical structure
3. Solve simple problems in graph theory and discrete mathematical structure
4. Analyze and compare various methods in graph theory and discrete mathematical structure
5. Explain and solve problems related graph theory, mathematical logic, set theory and Boolean

Text Books

1. Narsing Deo, "Graph Theory with Applications to Engineering and Computer Science", Prentice Hall, 2013,
2. J.P.Tremblay, R. Manohar, "Discrete Mathematical Structure with Applications to Computer Science", McGraw-Hill International Edition, 2008.

Supplementary Readings

1. Seymour Lipschutz and Mars Lipson, "Discrete Mathematics", Second Edition, Schaum's outline series, Tata McGraw-Hill publishing Company Limited, New Delhi, 1999.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3		3	
CO2	3	3	3	2	2
CO3	3		3		1
CO4	3	2	2	3	3
CO5	3	2	3	3	

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : I	22PMCAE16-2: MANAGEMENT INFORMATION SYSTEM	CREDIT : 4
PART :		HOURS : 4

COURSE OBJECTIVES

1. Provide students with a background on the use and advantages of information systems in organization with a focus on managerial aspects of MIS.
2. Understand the basic concepts and technologies used in the field of management information system.
3. Understand the processes developing and implementing information systems
4. Learn about the importance of managing organizational change associated with information systems implementation.
5. Promote an awareness of the economic, social, and ethical implications of such systems on society and IT professionals.

Unit-I : Introduction to Information System

Hours : 12

Introduction to IS- the need information technology (IT) in business – fundamentals of IS concepts – overview of IS – solving business problems with IS – developing IS solutions.

Unit-II : Information systems for business operations

Hours : 12

Business IS – marketing, manufacturing, human resource, accounting and financial information systems – transaction processing system – management information and decision support systems.

Unit-III : Managing information technology

Hours : 12

Managing information resource and technologies – global IT management – planning and implementing business change with IT.

Unit-IV : Enterprise Resource Planning (ERP)

Hours : 12

An overview of ERP – benefits of ERP – ERP and related technologies – business process reengineering – data warehousing – data mining – online analytical processing – supply chain management.

Unit-V : ERP implementation

Hours : 12

ERP implementation life cycle – implementation methodology – hidden cost – organizing the implementation – vendors, consultants and users contracts with vendors, consultants and employees project management and monitoring – ERP present and future – turbo change the ERP systems – enterprise integration applications – ERP and E-commerce – ERP and Internet.

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Basic Knowledge pertaining to Information Systems
2. Knowledge pertaining to Business Operations.
3. Managing ability pertaining to Information Technology.
4. Knowledge pertaining to ERP.
5. Implementing ability of ERP package.

Text Book

1. James A O'Brien, Management Information Systems for managing IT in the Internetworked Enterprise, 4th Edition, Tata McGraw Hill, New Delhi, 1999.

Supplementary Readings

1. Alexis Leon, ERP Demystified, McGraw Hill Education.
2. W. S. Jawadekar, Management Information Systems: A Global Digital Enterprise Perspective, McGraw Hill Education.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	4	4	4	4	3
CO2	4	4	4	4	4
CO3	3	3	4	4	4
CO4	3	3	4	4	4
CO5	3	3	4	4	3

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : I	22PMCAE16-3: E-COMMERCE	CREDIT : 4
PART :		HOURS : 4

COURSE OBJECTIVES

1. This objective of this study is to use of e-commerce domain companies and consumers.
2. This study is conducted to evaluate the perception and attentive and secure recommending payment method based on analysis and study.
3. The results are expected to contribute significantly towards the current thinking, security regarding e-commerce online transactions.
4. The main objectives are involved an attempt to determine the current awareness and alert in the particular area in ecommerce like security issues, Screening, Recommended payment method, Internal order cancellations.
5. This study provides best solution to e-commerce domain companies/industries and alert and awareness to common man. For safe and secure transaction consumers and e-commerce domain companies should follow some basic rules and regulations with latest technologies.

Unit-I : Introduction to E-Commerce

Hours : 12

Benefits-Impacts-Classification and Application of E- Commerce-Business Model-Architectural Frame Work.

Unit-II : Network Infrastructure

Hours : 12

Local Area Network-Ethernet-Wide Area Network-Internet- TCP/IP Reference Model-Domain Name System-Internet Industry structure- Information Distribution and Messaging: FTP Application-Electronic Mail-World Wide Web Server - HTTP - Web Server Implementations.

Unit-III : Information Publishing Technology

Hours : 12

Information Publishing-Web Browsers-HTMLCGI- Multimedia Content-Other Multimedia Objects-VRML-Securing the Business on Internet- Why Information on Internet is Vulnerable?-Security Policy-Procedures and Practices-Site Security-Protecting the Network-Firewalls- Securing the Web Service.

Unit-IV : Electronic Payment Systems

Hours : 12

Securing Network Transaction-Electronic Payment Systems: Introduction -Online Payment Systems-Pre-paid Electronic Payment System-Post-paid Electronic Payment System- Requirement Metrics of a Payment System.

Unit-V : Search Engines and Directory Services

Hours : 12

Information Directories -Search Engines- Internet Adverting-Agents in Electronic Commerce: Needs and Types of Agents- Agent Technologies -Agents Standards and Protocols-Agents Applications-Case Study.

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Recognize the impact of Information and Communication technologies, especially of the Internet in business operations.
2. Recognize the fundamental principles of e-Business and e-Commerce.
3. Distinguish the role of Management in the context of e-Business and e-Commerce.

4. Explain the added value, risks and barriers in the adoption of e-Business and e-Commerce.
5. Examine applications of e- Commerce in relation to the applied.

Text Book

1. Bharat Bhasker, ‘Electronic Commerce Framework Technologies and Applications’,Tata McGraw Hill Publication,2003.

Supplementary Readings

1. Ravi Kalakota and Andrew B. Whinston, Eleventh Impression, 2011,, Frontiers of Electronic Commerce, Pearson Education Inc., Delhi.
2. Joseph A. Brady, Ellen F. Monk,Bret J. Wangner, “Concepts in Enterprise Resource Planning” , Thomson Learning, 2001.
3. Ravi Kalakota and Andrew B Whinston,“Frontiers of Electronic Commerce“, PearsonEducation Asia,1999
4. Marilyn Greenstein and Todd M Feinman, ”Electronic commerce: Security, Risk Management and Control“, TataMcGraw-Hill,2000.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
C01	3	3		3	
C02			3		3
C03		3		3	
C04	3	2			3
C05		3	2		

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : II	22PMCAC21: JAVA PROGRAMMING	CREDIT : 4
PART :		HOURS : 5

COURSE OBJECTIVES

1. To understand fundamentals of concepts of java programming.
2. To understand the Applet, string handling and AWT concepts.
3. Gain knowledge about Swing and JDBC.
4. Be familiar with understand Java bean and EJB.
5. To gain the Knowledge of Servlet and JSP.

Unit-I : Core Java

Hours : 15

Introduction – Operators – Data types – Variables – Arrays - Control Statements - Methods & Classes- Inheritance-package and interface-Exception handling-Multithread programming.

Unit-II : Java Applet

Hours : 15

I/O-Java Applet-String handling-Networking- Event Handling- Introduction to AWT- AWT controls- Layout managers-Menus-Images-Graphics.

Unit-III : Java swing and JDBC

Hours : 15

Creating a swing Applet and Application-Programming using Panes-Pluggable Look and feel-Labels- Text fields-Buttons- Toggle Buttons- Checkboxes- Radio Buttons-View Ports-Scroll Panes-Scroll Bars- List-Combo Box-Progress bars- Menus and Toolbars-Layered Panes- Tabbed Panes- Split Panes-Layouts-Windows- Dialog Boxes- Inner frame.

JDBC: The connectivity Model-JDBC/ODBC Bridge-Java.sql package-connectivity to remote database – navigating through multiple rows retrieved from a database.

Unit-IV : Java Beans

Hours : 15

Application Builder tools-The bean developer kit (BDK)-JAR files-Introduction-Developing a simple bean-using bound properties-The java Beans API- Session Beans-Entity Beans-Introduction to Enterprise Java Beans(EJB)-Introduction to RMI(Remote Method Invocation):A simple client-server application using RMI.

Unit-V : Java Servlets

Hours : 15

Servlet basic-Servlet API basic-Lifecycle of a Servlet- Running Servlet-Debugging Servlet-Thread-safe Servlet-HTTP Redirects- Cookies-Introduction to Java server pages (JSP).

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. To learn the structure and model of the Java programming language.
2. To gain the knowledge of java programming statement.
3. Develop software in the Java programming language.
4. To gain the knowledge of Java servlets.
5. Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements

Text Books

1. Herbert Schidt, "The Complete Reference JAVA2", TataMc- Graw Hill 5thEdition 2002.

Supplementary Readings

1. Balagurusamy E., "Programming with A Perimer 3eJava", TataMc-Graw Hill, 2007.
2. DustinR.Callway, "Inside Servlets", Addison Wesley, 1999.
3. Mark Watka "Using Java2 Enterprise Edition", Que, 1st edition, 2001.
4. SetvenHolzner, "Java2 Black Book", Coriolis Group Books, 2001.
5. NPTEL: https://onlinecourses.nptel.ac.in/noc19_cs07/course

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
C01	3			3	
C02			3		3
C03	3	3			3
C04	3	2			2
C05		2	2		

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : II	22PMCAC22: WEB TECHNOLOGY	CREDIT : 4
PART :		HOURS : 5

COURSE OBJECTIVES

1. To learn about Java, HTML, CSS concepts.
2. Deploy Java Applets and Servlets.
3. To know about appropriate client-side or Server-side applications.
4. To gain the Knowledge of XML and its applications.
5. To know about ASP and create adaptive web pages.

UNIT - I : HTML

Hours : 15

Introduction: Structure of HTML-tag and elements- attributes Tells us about elements- basic text formatting- presentational- phase elements- lists- basic link- adding images, flash, video and audio to a webpage- basic table elements and attributes- creating a form with the <form> element- form controls, frames: The <frameset> elements- the <frame> element.

UNIT – II : CSS

Hours : 15

Introduction CSS-CSS properties: Controlling text- text formatting- text pseudo code classes- selectors, links: background- lists- tables- outlines- positioning and layout with CSS, design issues: typography - navigation- tables – forms.

UNIT – III : Java Script

Hours : 15

How to add a script to your pages- the document object model- variables- operators- functions- conditional statements- looping- form validation and enhancement- Java Script libraries- meta tags-HTML5.

UNIT – IV : ASP.NET

Hours : 15

Data types- variables- arrays- properties- namespace - method- interface- delegation- button- textbox- timer –checkbox- radio button - menu.

UNIT – V : ADO.NET

Hours : 15

ASP.NET: Difference between ASP and ASP.net- architecture of ASP.net- difference between code behind window and aspx file-Ad_ rotator-validation control-calendar controls-ADO.net object model- architecture of ado.net- working with crystal report.

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Knowledge pertaining to HTML Fundamentals
2. Designing capabilities using CSS
3. Modular Programming using Scripts.
4. Web Site Development using ASP.Net.
5. Web Site Development with database support using ADO.Net.

Text Books

1. Jon Duckett, Beginning HTML, XHTML, CSS and JavaScript, Wiley Publishing Inc.
2. Harvey M. Deitel, Paul J. Deitel, C# Programmers, Second Edition, Pearson Education.

Supplementary Readings

1. E. Balaguruswamy, Programming with C#, Second Edition, Tata McGraw Hill Publications.
2. Laura Lemay, Rafe Colburn, Jennifer Kyrnin, Mastering HTML, CSS & Javascript, Web Publishing.
3. Matthew Macdonald, ASP.NET: The Complete Reference Paperback.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3		3	
CO2	3		3		2
CO3			3		2
CO4	3				3
CO5		3	3		

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : II	22PMCAC23: ACCOUNTING AND FINANCIAL MANAGEMENT	CREDIT : 4
PART :		HOURS : 5

COURSE OBJECTIVES

1. Understand the meaning of Accounting and explain the Accounting Principles and Concepts
2. Explain good practices in budgeting
3. Describe importance of financial management
4. List the key financial reports that monitor the organization's financial affairs
5. Explain the process for preparing financial reports

Unit – I : Introduction

Hours : 15

Basic Accounting Terms – Accounting Equation – Accounting Procedures – Rules of Debit and Credit – Transactions – Journals – Ledgers – Trial Balance.

Unit – II : Trading account

Hours : 15

Trading account- Rectifications of Errors – Financial Statements – Adjustments – Profit and Loss Account – Balance Sheet.

Unit – III : Depreciation

Hours : 15

Meaning - need - methods of charging depreciation. Accounting Packages: General Framework - Accounting Applications. (Tally. ERP 9, QuickBooks India, Zoho Books, Busy Accounting).

Unit – IV : Marginal and Standard Costing

Hours : 15

Marginal Costing - Break Even Analysis - Standard Costing: Analysis of Variance.

Unit - V : Budgeting

Hours : 15

Characteristics - Advantages - Classification - Preparation of Budgets. Capital Budgeting: Meaning - Methods of Capital Investment Decision making.

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Analyze and record transactions, construct financial statements, and close the books for the accounting period and will have the ability to adjust and correct errors in the process of accounting.
2. Understand the fall in value of assets and use of accounting packages.
3. Identify and analyze the costing systems adopted in the business organizations and can demonstrate mastery of costing systems, cost management systems.
4. Appreciate budgeting systems and performance and critically analyze and provide recommendations to improve the operations of organizations.
5. Demonstrate the need for appropriate decision making, control and performance evaluation of an organization.

Text Books

1. TS Grewal's "Double Entry Book Keeping-Solutions for Accountancy-Financial Accounting", Sultan Chand Sons, 2021
2. R Ramachandran & R Srinivasan, "Management Accounting" (Theories, Problems & Solutions), Sriram Publications, 6th Revised Edition, 2017.

Supplementary Readings

1. SN Maheswari “Cost & Management Accounting”, Sultan Chand Sons, New Delhi, 2015.
2. Tally ERP9 Training Guide – 4th Revised & Updated Edition, 2018
3. MC Shukla, TS Grewal and SC Gupta “Advanced Accounting”, S Chand and Company (Pvt.) Ltd., Ram Nagar, New Delhi, 2016.
4. RSN Pillai & Bagavathi “Management Accounting”, Sultan Chand Sons, New Delhi, 2017.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3	2	3	1
CO2	3	2	3	1	2
CO3	3	3	3	2	2
CO4	3	3	2	1	3
CO5	1	3	3	1	2

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : II	22PMCAP24: JAVA PROGRAMMING - LAB	CREDIT : 2
PART :		HOURS : 4

COURSE OBJECTIVES

1. To understand how to design, implement, test, debug, and document programs that use basic data types and computation, simple I/O, conditional and control structures, string handling and functions.
2. To understand the importance of Classes & objects along with constructors, Arrays and Vectors.
3. Discuss the principles of inheritance, interface and packages and demonstrate through problem analysis assignments how they relate to the design of methods, abstract classes and interfaces and packages.
4. To understand importance of Multi-threading & different exception handling mechanisms.
5. To learn experience of designing, implementing, testing, and debugging graphical user interfaces in Java using applet and AWT that respond to different user events.

LIST OF LAB EXERCISES

Hours : 60

1. Write a JAVA program to implement class and object
2. Write a JAVA program to implement command line argument.
3. Write a JAVA program to implement the bitwise operators.
4. Write a JAVA program to implement method overloading.
5. Write a JAVA program to implement packages.
6. Write a JAVA program to implement interface.
7. Write a JAVA program to implement inheritance mechanism.
8. Write a JAVA program to implement exception handling.
9. Write a JAVA program to implement user-defined exception handling.
10. Write a JAVA program to implement multithreaded programming concept.
11. Write a JAVA program to implement abstract class concept.
12. Write a JAVA program to implement RMI concept.
13. Applet using Labels, Text Fields and Buttons.
14. Library Management using JDBC concept
15. Programs using Swings Concepts

COURSE OUTCOMES:

After completing the Course successfully, the student will be able to

1. Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.
2. Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
3. Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
4. Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.
5. Identify and describe common abstract.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3		3	
CO2	3		3		3
CO3			3		2
CO4	3				2
CO5		3	3		

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : II	22PMCAP25: WEB TECHNOLOGY - LAB	CREDIT : 2
PART :		HOURS : 4

COURSE OBJECTIVES

1. To learn about Java, HTML, DHTML concepts.
2. Deploy Java Applets and Servlets.
3. To know about appropriate client-side or Server-side applications.
4. To gain the Knowledge of ADO.Net and its applications.
5. To know about ASP.net and create adaptive web pages.

LIST OF LAB EXERCISES

Hours : 60

1. Usage of Simple HTML commands, Graphics and image formats and Background Graphics and Color.
2. HTML Program to demonstrate the Usage of Tables, Frames, Forms, hyperlinks.
3. How to create a simple CSS style sheet using notepad.
4. Write CSS code to apply different style (color, background color).
5. Write a JavaScript function that converts upper case to lower case, and lower case to upper case in one form and display it in another form.
6. Write a JavaScript code block, which validates a username and password.
7. If either the name or password field is not entered display an error message.
8. The fields are entered do not match with default values display an error message.
9. If the fields entered match, display the welcome message in another page.
10. Write Asp.net program to find sum of all digits of a given number and check whether the given number is an Armstrong number and display the result using a popup window.
11. Write a Asp.net program to get substring from a given string and change the color using scroll bar, font size and name using a value entered in a text box.
12. Write an Asp.net program to store the staff's general information like Staff_id, name, mobile_no, Email_id, DOB.,etc., in a database using Validation control and calendar control.
13. Develop a simple database program to prepare a student mark Sheet using ms-access simple applications using ASP.

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Knowledge pertaining to HTML Fundamentals
2. Designing capabilities using CSS
3. Modular Programming using Scripts.
4. Web Site Development using ASP.Net.
5. Web Site Development with database support using ADO.Net.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	4	4		3	
CO2		3	3		3
CO3	3		4		3
CO4	4	2			4
CO5		3	4		

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : II	22PMCAE26-1: SOFTWARE ENGINEERING	CREDIT : 4
PART :		HOURS : 4

COURSE OBJECTIVES

1. Introduces the concepts and methods required for the construction of large software intensive systems.
2. Gives the idea of choosing the Requirements in Software Engineering.
3. Gives an understanding of the concept of Data Engineering.
4. To impart knowledge on Testing and Debugging.
5. To enable the students to learn the basics of Project Management & Scheduling.

UNIT-I: INTRODUCTION TO EVOLVING SOFTWARE

Hours : 12

Evolving Role of Software – Nature of Software – Software Engineering – The Software Process– Software Engineering Practices – Software Myths – A Generic View of Process Model – Process Assessment and Improvement – Process Models : Waterfall Model – Incremental Process Models – Evolutionary Process Models – Concurrent Models.

UNIT-II: REQUIREMENTS ENGINEERING

Hours :12

Requirements Engineering: Establishing the Groundwork – Initiating the Requirements Engineering Process – Eliciting Requirements – Collaborative Requirements Gathering – Quality Function Deployment – Usage Scenarios – Elicitation work Products – Building the Requirements Model – Elements of Requirements Model – Analysis Pattern – Requirements Analysis – Data Modeling Concepts.

UNIT-III: DATA ENGINEERING

Hours :12

Data Engineering: Design Process and Design Quality – Design Concepts – The Design Model - Creating an Architectural Design – Software Architecture – Data Design – Architectural style – Architectural Design – Architectural Mapping Using Data Flow – Performing User Interface Design – Golden Rules.

UNIT-IV: TESTING STRATEGIES

Hours :12

Testing Strategies: Strategic Approach to Software Testing – Strategic Issues – Test Strategies for Conventional and Object Oriented Software – Validation Testing – System Testing – Art of Debugging. Software Testing Fundamentals – White Box Testing – Basis Path Testing – Control Structure Testing – Black Box Testing – Model Based Testing.

UNIT-V: PROJECT MANAGEMENT

Hours :12

Project Management: Management Spectrum – People – Product – Process – Project – Critical Practices – Estimation: Project Planning Process – Software Scope and Feasibility – Resources – Software Project Estimation – Project Scheduling – Quality Concepts – Software Quality Assurance – Elements of Software Quality Assurance – Formal Technical Reviews.

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Knowledge on different process models
2. Knowledge on how requirements can be collected.
3. Knowledge pertaining to building an Analysis Model.
4. Knowledge to test Software.
5. Managerial Capabilities to Deploy a Project.

Text Books

1. Roger S Pressman, "Software Engineering – A Practitioner's Approach", McGraw Hill International Edition, New York: 2005, Seventh Edition
2. Mall Rajib, "Software Engineering", PHI Learning, 2009, 3 Third Edition.

Supplementary Readings

1. Ian Somerville, "Software Engineering", Pearson Education, 2006, 7th Edition.
2. Richard Fairley, "Software Engineering Concepts" Tata McGraw-Hill Education, 2011.
3. Pfleeger and Lawrence, "Software Engineering: Theory and Practice", Pearson Education, 2001, Second Edition.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3	4	3	
CO2	4	3	3		3
CO3	3	3	4	3	
CO4	3	2	3	4	3
CO5	3	3	2		4

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : II	22PMCAE26-2: DATA MINING TECHNIQUES	CREDIT : 4
PART :		HOURS : 4

COURSE OBJECTIVES

1. To introduce concepts of data mining techniques.
2. To understand its applications in knowledge extraction from databases.
3. To develop skills of using recent data mining software for solving practical problems.
4. To understand preprocessing operations on data.
5. To understand data interpretation, transformation and reduction techniques.

Unit-I : Introduction

Hours : 12

Data mining – Motivation – Importance - DM Vs KDD - DM Architecture - Data Types – DM Tasks –DM System Classification - Primitives of DM - Data Mining Query Language - DM Metrics - DM Applications - DM Issues – Social Implications of DM.

Unit-II : Data Preprocessing

Hours : 12

Summarization - Data cleaning - Data Integration and Transformation - Data Reduction - Discretization and Concept Hierarchy Generation.

Unit-III : Data Mining Classification

Hours : 12

Mining Frequent Patterns – Frequent Item set Mining Methods. Classification: Classification by Decision Tree Induction – Bayesian Classification – Rule based Classification - Prediction– Accuracy and Error Measures.

Unit-IV : Cluster Analysis

Hours : 12

Cluster Analysis – Types of Data in Cluster Analysis – Categorization of clustering Methods – Partition Methods - Outlier Analysis – Mining Data Streams – Social Network Analysis – Mining the World Wide Web.

Unit-V : Data Warehousing

Hours : 12

OLTP Vs OLAP - Multidimensional Data Model -DW Architecture Efficient Processing of OLAP queries - Metadata repository – DWH Implementation – OLAM.

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Explain the concepts in data mining and KDD, recognizing issues in DataMining.
2. Practice the preprocessing operations of Data.
3. Define the methodologies in Data interpretation, transformation and reduction.

4. Perform Association Rule Mining, Classify and Cluster the data sets into groups.
5. Implement star schema through ETL tools.

Text book

1. Jiawei Han, Micheline Kamber, "Data Mining: Concepts and Techniques", 3rd Edition, Elsevier India Private Limited, 2012

Supplementary Readings

1. Pang Ning Tan and Vipin Kumar and Michael Steinbach, Pearson "Introduction To Data Mining" 1st Edition, Pearson, October 2016
2. Margaret H. Dunham, "Data Mining: Introductory and Advanced Topics", Pearson Education, 2012.
3. K.P.Soman, Shyam Diwakar, V. Ajay, "Insight into Data Mining Theory & Practice, Prentice Hall India, 2012
4. G.H.Gupta, "Introduction to Data Mining with Case Studies", 2nd Edition, PHI.
5. Ralph Kimball, Margy Ross "The Data Warehouse Toolkit: The Complete Guide to Dimensional Modeling", 3rd Edition, Wiley, Jul 2013

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	3	3		3	
CO2			3		3
CO3				3	
CO4	3	2			3
CO5		3	2		

1-LOW 2- MEDIUM 3- HIGH

SEMESTER : II	22PMCAE26-3: CLOUD COMPUTING	CREDIT : 4
PART :		HOURS : 4

COURSE OBJECTIVES

1. To introduce the broad perceptive of cloud architecture and model.
2. To understand the concept of parallel and distributed computing
3. To be familiar with the different technologies.
4. To understand the features of virtualization.
5. To learn to design the trusted cloud Computing system with different cloud platforms

UNIT - I: INTRODUCTION

Hours : 12

Cloud Computing at a Glance, The Vision of Cloud Computing, Defining a Cloud, Cloud Computing Reference Model, Characteristics and Benefits, Challenges Ahead, Historical Developments - Distributed Systems, Virtualization, Web 2.0, Service-Oriented Computing, Utility-Oriented Computing, Building Cloud Computing Environments - Application Development, Infrastructure and System Development, Computing Platforms and Technologies - Amazon Web Services (AWS), Google AppEngine, Microsoft Azure, Hadoop, Force.com and Salesforce.com.

UNIT – II: PRINCIPLES OF PARALLEL AND DISTRIBUTED COMPUTING Hours : 12

Parallel vs. Distributed Computing , Elements of Parallel Computing - Hardware Architectures for Parallel Processing, Approaches to Parallel Programming, Levels of Parallelism, Laws of Caution, Elements of Distributed Computing - General Concepts and Definitions, Components of a Distributed System, Architectural Styles for Distributed Computing, Models for Inter-Process Communication, Technologies for Distributed Computing - Remote Procedure Call, Distributed Object Frameworks, Service Oriented Computing - Virtualization - Introduction, Characteristics of Virtualized Environments, Taxonomy of Virtualization Techniques, Execution Virtualization, and Other Types of Virtualization, Virtualization and Cloud Computing, Pros and Cons of Virtualization, Technology Examples - Xen: Paravirtualization, VMware: Full Virtualization, Microsoft Hyper-V.

UNIT - III: CLOUD COMPUTING ARCHITECTURE

Hours : 12

Introduction, Cloud Reference Model - Architecture, Infrastructure / Hardware as a Service, Platform as a Service, Software as a Service, Types of Clouds - Public Clouds, Private Clouds, Hybrid Clouds, Community Clouds, Economics of the Cloud, Open Challenges - Cloud Definition, Cloud Interoperability and Standards, Scalability and Fault Tolerance, Security, Trust, and Privacy, Organizational Aspects. High-Throughput Computing: Task Programming - Task Computing, Characterizing a Task, Computing Categories, Frameworks for Task Computing, Task-based Application Models, Aneka Task-Based Programming.

UNIT - IV: ANEKA

Hours : 12

Cloud Application Platform - Framework Overview, Anatomy of the Aneka Container - From the Ground Up: Platform Abstraction Layer, Fabric Services, Foundation Services, Application Services, Building Aneka Clouds - Infrastructure Organization Logical Organization, Private Cloud Deployment Mode, Public Cloud Deployment Mode, Hybrid Cloud Deployment Mode, Cloud Programming and Management - Aneka SDK , Management Tools. Concurrent Computing: Thread Programming- Introducing Parallelism for Single Machine Computation, Programming Applications with Threads - Techniques for Parallel Computation with Threads, Multithreading with Aneka - Introducing the Thread Programming Model, Aneka Thread vs. Common Threads, Programming Applications with Aneka Threads - Aneka Threads Application Model, Domain Decomposition: Matrix Multiplication Functional Decomposition: Sine, Cosine, and Tangent.

UNIT - V: CLOUD PLATFORMS IN INDUSTRY

Hours : 12

Amazon Web Services - Compute Services, Storage Services, Communication Services, Google AppEngine - Architecture and Core Concepts, Application Life-Cycle, Cost Model, Observations, Microsoft Azure - Azure Core Concepts - SQL Azure - Windows Azure Platform Appliance. Cloud Applications - Scientific Applications - Healthcare: ECG Analysis in the Cloud - Biology: Protein Structure Prediction - Biology: Gene Expression Data Analysis for Cancer Diagnosis - Geoscience: Satellite Image Processing, Business and Consumer Applications - CRM and ERP - Productivity - Social Networking - Media Applications - Multiplayer Online Gaming. Advanced Topics in Cloud Computing - Energy Efficiency in Clouds, Market Based Management of Clouds, Federated Clouds / InterCloud, Third Party Cloud Services

COURSE OUTCOMES

After completing the Course successfully, the student will be able to

1. Introduce the broad perceptive of cloud architecture and model.
2. Understand the concept of parallel and distributed computing
3. Understand the different technologies.
4. Understand the features of virtualization.
5. Learn to design the trusted cloud Computing system with different cloud platform

Text Book

1. Rajkumar Buyya, Christian Vecchiola, and S. ThamaraiSelvi. Mastering cloud computing: foundations and applications programming. Tata McGraw Hill Education Private Limited, New Delhi , 2013.

Supplementary Readings

1. Rittinghouse and Ransome, Cloud Computing: Implementation, Management, and Security, CRC Press, 2016.
2. Michael Miller “Cloud Computing Web based application that change the way you work and collaborate online”. Pearson edition, 2008.
3. Kris Jamsa, Cloud Computing: SaaS, PaaS, IaaS, Virtualization, Business Models, Mobile, Security and More, Jones & Bartlett Learning, 2012.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
CO1	4	3	2	3	
CO2	4	4	3		3
CO3	3	4		3	
CO4	3	2	3	2	3
CO5	4	3	2	4	

1-LOW 2- MEDIUM 3- HIGH