PSG College of Arts & Science

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M.Sc. COMPUTER SCIENCE

2018 - 2021

M.Sc. Computer Science Programme
Scheme of Examinations
(For Students Admitted In June 2014-15 and onwards)

CODE NO.	SUBJECT	EXAM DURA-TION (Hrs)	Max. Marks			Credit points
			CA	CE	Total	
First Semester						
14CMP01	Network Management	3	25	75	100	3
14CMP02	Semantic Web and Ontology	3	25	75	100	3
14CMP03	Data Mining and its Applications	3	25	75	100	4
14CMP04	Object Oriented Software Engineering	3	25	75	100	4
14CMP05	Soft Computing	3	25	75	100	4
14CMP06	Web Applications Development Technology	3	25	75	100	4
14CMP07	Programming Lab -I	3	40	60	100	4
Second semester						
14CMP08	Software Agents	3	25	75	100	3
14CMP09	Knowledge Management and Business Intelligence #	3	25	75	100	4
14CMP10	Advanced Communication Networks	3	25	75	100	3
14CMP11	Core Elective –I	3	25	75	100	5
14CMP12	Bio-Metrics	-	100	-	100	3
14CMP13	Statistical Methods and Applied Operations Research (IDC-ST)	3	25	75	100	2
14CMP14	Programming Lab -II	3	40	60	100	4
14SBP01	**Skill Based Subject** : Cyber Security	---	100	---	100	2

Code No.	Subject	Exam Duration (Hrs)	Max. Marks			Credit points
			CA	CE	Total	
Third semester						
14CMP15	Multimedia and its Applications #	3	25	75	100	4
14CMP16	Data Science in Cloud Computing and Big Data	3	25	75	100	3
14CMP17	Enterprise Resource Planning	3	25	75	100	3
14CMP18	Software Testing	-	100	-	100	3
14CMP19	Programming Lab -III	3	40	60	100	4
14CMP20	Mini-Project and Viva Voce	-	40	60	100	4
14CMP21	Core Elective II	3	25	75	100	5
14CMP22A OR 14CMP22B OR 14CMP22C	***Cluster IDC*** – **Theory** Fuzzy Logic (IDC – MA) OR Statistical Technique (IDC – ST) OR Physics for Mathematical Science (IDC – PH)	3	25	75	100	2
14CMP23A OR 14CMP23B 14CMP23C	***Cluster IDC*** – **Practical** Fuzzy Logic Practical (MA) OR Statistical Technique Practical (ST) OR Physics for mathematical science Practical (PH)	3	40	60	100	2
Fourth semester						
14CMP24	Project Work and Viva-Voce -	-	80	120	200	8
					Total	90

Cluster IDC Offered by the Department

Cluster IDC

14MAP12C/14STP16C/14PHP15C Web Design using HTML & Java Script (Theory)
(for Mathematics, Statistics & Physics Departments)

14MAP13C/14STP17C/14PHP16C Web Design using HTML & Java Script (Practical)
(for Mathematics, Statistics & Physics Departments)

Elective – I

(i) WAP & WML
(ii) Data Compression
(iii) Nano Technology
(iv) Advanced RDBMS

Elective – II

(i) Electronic Commerce
(ii) Service Oriented Architecture
(iii) Data and Web Warehousing
(iv) Parallel Processing and Algorithms

14CMP01 NETWORK MANAGEMENT SEMESTER I

OBJECTIVE: 40 hours

To enable the students to gain knowledge on Network Management and to understand the protocols that governs the transactions between the sending station and receiving station.

UNIT-I: 8 hours

The Need for Network Management-Different devices-Different administration-Concepts-Model-Managed nodes- Network Management Stations- Network Management Protocol- Management Information.

UNIT-II: 8 hours

Data Representation-Modules-Types and Values-Macros-Object Identifiers-Components of the Framework.

UNIT-III: 8 hours

Information Model-Structure of Management Information-Information Modules-Object definitions-Object Syntax-Textual Conventions-Syntax Refinement-Object Groups-Identifying an Object Instance-MIB Modules- Conformance Statements-Module Compliance- Importing Macro definitions-Co-existence-Object and Notification definitions.

UNIT-IV: 8 hours

Administrative Model-Concepts-Authentication-Privacy-Authorization-Communities Procedures-Originating a Message-Receiving a message-Listening for messages.

UNIT-V: 8 hours

Operational Model-Protocol Interactions- Interactions-Retrieval Requests-Modification Requests-Manipulating Conceptual Rows-Trap Interactions-Manager-to-Manager Interactions-Transport Mapping- Co-existence.

Text book:

Marshall.T.Rose, "An Introduction to Networking Management", Revised Second Edition-Prentice Hall Series, 1996. (Unit I-V)

14CMP02 SEMANTIC WEB AND ONTOLOGY SEMESTER I

OBJECTIVE: 40 Hours

To introduce the concept of semantic web and building ontology for various application areas with the help of open source tools giving a strong foundation and also research focus.

UNIT - I 8 Hours

Introduction: The future of Internet – Introduction, the Syntactic Web – Semantic Web – How the Semantic Web Works – What the Semantic Web is not – What will be the Side Effects of Semantic Web – Concepts: Ontology in Computer Science – Classifying Ontologies – Web Ontology Description Language – Ontologies – Categories – Intelligence – Knowledge Representation in Description Logic: Introduction – An Informal Example – the Family of Attribute Languages – Inference Problems for Assertions.

UNIT - II 8 Hours

RDF and RDF Schema: Introduction – XML Essentials – RDF Schema – A Summary of the RDF/RDF Schema Vocabulary – OWL: Introduction – Requirements for Web Ontology Description Languages – Header Information – Versioning – Annotation Properties – Classes – Individuals – Data types – OWL Vocabulary – Rule Languages: Introduction – Usage Scenarios for Rule Languages – Datalog – RuleML – SWRL – TRIPLE.

UNIT - III 8 Hours

Semantic Web Services: Introduction – Web Service Essentials – OWL-S Service Ontology, an OWL-S Example – Technologies: Methods for Ontology Development: Uschold and King Ontology Development Method – Toronto Virtual Enterprise Method – Methontology – KACTUS Project Ontology Development Method – Lexicon-Based Ontology Development Method – Simplified Methods – Ontology Sources: Introduction – Metadata – Upper Ontologies – Other Ontologies of Interest – Ontology Libraries.

UNIT - IV 8 Hours

Applications: Software Agents: Introduction – Agent Forms – Agent Architecture – Agents in the Semantic Web Context – Semantic Desktop: Introduction – Semantic Desktop Metadata – Semantic Desktop Ontologies – Semantic Desktop Architecture – Semantic Desktop Related Applications.

UNIT - V 8 Hours

Ontology Applications in Art: Introduction – Ontologies for the Description of Works of Art – Metadata Schemas for the Description of Works of Art – Semantic Annotation of Art Images – Geospatial Semantic Web: Introduction – Basic Geospatial Concepts – Classifying Geospatial Features – Gazetteers – Geospatial Metadata – the OGC Catalogue Specification, Geospatial Web Services – Examples of Spatial Data Infrastructures – Examples of A Metadata Catalogue for Earth Science Data.

Text Book:

1. Karin K. Breitman, Marco Antonoi Casanova, Walter Truszkowski. “Semantic Web,-concepts, technologies, and applications”, Springer International Edition, 2009. (Unit I - V)

Reference Books:

1. Grigoris Antoniou and Frank van Harmelen, “A Semantic Web Primer”, The MIT Press Cambridge, Massachusetts London, England, 2008. ISBN 978-0-262-01242-3
2. Pascal Hitzler, “Foundations of Semantic Web Technologies”, Chapman &Hall/CRC , 2009. ISBN: 9781420090505.

14CMP03 DATA MINING AND ITS APPLICATIONS SEMESTER I

OBJECTIVE: **45 Hours**

To enable the students to gain knowledge on Data Mining and its Applications, Advanced Database Systems and Advanced Database Applications with Operational Database Systems And Data Warehouse.

UNIT- 1 **7 Hours**

Introduction- What Motivated Data Mining? Why Is It Important? - What Is Data Mining?-Data Mining-On What Kind of Data?-Relational Databases-Data Warehouse-Transactional Databases-Advanced Data and information Systems and Advanced Applications- Data Mining Functionalities-Concepts/Class Description: Characterization and Discrimination-Association of the patterns Interesting?- Classification of Data Mining Systems-Major Issues in Data Mining-Why Preprocessors the Data?- Data Cleaning-Missing Values-Noisy Data-Inconsistent Data-Data Transformation-Data Reduction- Data Cube Aggregation- Dimensionality Reduction- Data Compression.

UNIT- II **10 Hours**

Difference between Operational Database Systems and Data Warehouses –Why Have A Separate Data Warehouse?-A Multidimensional Data Model- From Tabels And Spreadsheets to Data Cube- Stars, Snowflakes, And Fact Constellation: Schemas for Multidimensional Databases-Examples For- Defining Star, Snowflake, and Fact Constellation Schemas- Measures: Their Categorization and Computation- Introducing Concept Hierarchies-OLAP Operations In the Multidimensional Data Model –A Starnet Query Model For Querying Multidimensional Databases- Data Warehouse Architecture- Steps For Design And Construction Of Data Warehouse Architecture-A Three-Tier Data Warehouse Architecture House Architecture-The Data warehousing and OLAP- Data Warehouse Architecture-Building a Data warehouse- Data Mart-ETL-Distributed Data Warehouse Architecture- Virtual Data Warehouse- Web Based Data Warehouse -Types of OLAP servers: ROLAP versus MOLAP versus HOLAP-Data warehouse Implementation-Metadata Repository- From Data Warehousing to Data Mining-Data Warehouse Usage-From On-Line Analytical Processing to On-Line Analytical Mining.

UNIT- III **10 Hours**

Association Rule Mining-Market Basket Analysis: A Motivating Example For Association Rule Mining-Basic Concepts-Association Rule Mining: A Road Map-Mining Single-Dimensional Boolean Association Rules From Transactional Databases- The Apriori Algorithm: Finding Frequent Itemsets Using Candidate Generation- Generating Association Rules From Frequent Itemsets- Improving The Efficiency Of Apriori-Mining Frequent Itemset without candidate Generation-Iceburg Queries-Mining Multilevel Association Rules From Transaction Databases-Multilevel Association Rules- Approaches to Mining Multilevel Association Rules- Checking For Redundant Multilevel Association Rules-Mining Multidimensional Association Rules From Relation Databases and Data Warehouses-Multidimensional Association Rules- Mining Multidimensional Association Rules Using Static Discretization of Quantitative Attribute.

UNIT- IV **9 Hours**

Classification Based On Concepts From Association Rule Mining-Other Classification Methods – K-Nearest Neighbor Classifiers- CaseBased Reasoning – Genetic Algorithms-Rough Set Approach – Fuzzy Set Approaches- What Is Cluster Analysis? – Types of Data in Cluster Analysis- Interval- Scaled Variables- Binary Variables- Nominal, Ordinal, and Radio- Scaled Variable- Variables of Mixed Types-A Categorizations Of Major Clustering Methods – Partitioning Methods- Classical Portioning Methods: K-Means And K-Mediods- Partitioning Methods In Large Databases: From K-Mediods To CLARANS.

UNIT- V **9 Hours**

Successful Data Mining Project Management – Project Delivery Concept- Project Analysis- Project Staffing- Project Schedule- Data Mining Application – Data Mining For Biomedical and DNA Analysis- Data Mining For Financial – Data Analysis- Data Mining For The Retail Industry- Data Mining In Financial Services -The Industry – Challenges – General Data Mining Applications – Case Study: Direct Marketing Profiling- Data Mining In Health Care And Medicine – The Industry - Challenges – General Data Mining Applications – Case Study: Predicting Patient Diagnosis For PVD – Data Mining In Telecommunications- The Industry- Challenges In Telecommunication Industry.

Text books:

1. Jiawei Han, Micheline Kamber , "Data Mining Concepts and Techniques", 2006. (Unit: I-V)
2. Rajan Chattamvelli, "Data Mining Methods", Narosa Publishing House,2006. (Unit: II)

Reference books:

1. Arun K Pujari. "Data Mining Techniques", Orient Blackswan (October 15, 2013)
2. Rhonda Delmater, Monte Hancock , "Data Mining Explained A Manager's Guide to Customer-Centric Business intelligence", Digital Press (January 10, 2001)

14CMP04 OBJECT-ORIENTED SOFTWARE ENGINEERING

SEMESTER - I

OBJECTIVE: 45 Hours

To enable the student to gain knowledge in software engineering, UML, Packages and Software life Cycle Models.

UNIT - I 9 Hours

Introduction to software engineering: What is Software Engineering: Modeling – Problem solving – Knowledge Acquisition – Rationale. Software Engineering Concepts: Participants and Roles – Systems and models – Work products – Activities, Tasks, and Resources – Functional and Non-Functional Requirements – Notations, Methods, and Methodologies. Software engineering development activities: Requirement Elicitation – Analysis – System Design – Object Design – Implementation – Testing- Managing Software Development.

UNIT – II 9 Hours

Why We Model: The importance of modelling – Principles of Modeling – Object Oriented Modeling - Introducing the UML - Overview of UML - A Conceptual Model of the UML – Software Development Life Cycle – Classes –Relationships – Diagrams: Class Diagrams – Object Diagrams- Modeling Simple Collaborations- Modeling a Logical Database Schema- Forward and Reverse Engineering.

UNIT – III 9 Hours

Advanced Structural Modeling- Advanced Classes- Advanced Relationships- Interface, types, and Roles- Modeling Static and Dynamic Types- Packages- Instance- Interaction- Use Cases- Use Case Diagrams- Interaction Diagrams – Activity Diagrams - State chart Diagrams –Component Diagram- Deployment Diagram- Diagram Organization- Diagram Extensions- Modeling a Client Server System- Modeling a Fully Distributed System- Modeling an Architecture of a System.

UNIT – IV 9 Hours

Project Management: Introduction – Overview of Project Management – Project Management Concepts: Tasks and Activities – Work Products, Work Packages and Roles – Work Breakdown Structure – Task Model – Skill Matrix – Organizations – Visualizing Organization Structures – The Software Project Management Plan – Project management Activities: Planning the Project – Organizing the Project – Controlling the Project – Terminating the Project.

UNIT – V 9 Hours

Software Life Cycle: Introduction –Standard for Developing Life Cycle Processes: Processes and Activities – Life Cycle Modeling – Project Management – Pre-Development – Development – Post-Development – Integral processes – Characterizing the Maturity of Software life Cycle Models – Life Cycle Models: Sequential Activity-Centered Models – Iterative Activity-Centered Models – Entity-Centered Models.

Text books:

1. Bernd Bruegge, Allen H. Dutoit, "Object-Oriented Software Engineering using UML, Patterns and Java", 2nd Edition, Pearson Education, India,2005. (Unit – I, IV, V)

2. Grady Booch, James Rumbaugh, IvarJacbson, “The Unified Modeling Language User Guide”, Pearson Edition Asia, 7th Indian Reprint 2002. (Unit - II, III)

Reference book:

Roger S. Pressman, “Software Engineering a Practitioner’s Approach”, 7th Edition, McGraw Hill.

14CMP05 SOFT COMPUTING SEMESTER I

OBJECTIVE: **45 Hours**

To introduce the knowledge in Soft computing using Genetic Algorithm, Neural Network ,Fuzzy Systems in MATLAB

UNIT-I **9 Hours**

Hard Computing- Features of Hard computing –Soft Computing –Features of Soft Computing-Hybrid Computing-Applications of Soft Computing- Optimization-Classification of Optimization- principles of Optimization – Traditional methods of Optimization – ACO –PSO.

UNIT –II **9 Hours**

A Brief History of Evolutionary Computation –Classical Search and Optimization methods-Fundamentals of Genetic Algorithm –Biological terminology-The Algorithm :Representation-Basic Genetic Algorithm -The Fitness of a Solution –Initialization –Selection-Reproduction –Termination Criteria –Encoding –The GA operator –Crossover-Mutation –Advantage, limitation and Application of Genetic Algorithm.

UNIT-III **9 Hours**

Basic Concepts-Biological Neuron-Modeling an Artificial Neuron –Major Component of an Artificial Neuron-Neural Network Architecture : The Fully Connected Network-Layered Networks-Acyclic Networks-Feed forward Networks-Recurrent Networks-Learning Technologies: Supervised Learning-Unsupervised Learning –Reinforcement Learning –Learning Rates-Learning Laws-The Perceptron-Advantage and Disadvantage of Neural Networks-Application Area of Neural Networks

UNIT –IV **9 Hours**

Fuzzy World-what is Fuzzy Logic-Evolution Of Fuzzy Logic- Deriving Force behind Fuzzy Logic- Fuzzy Logic for Control-Crisp Sets -Fuzzy Sets-Types of Membership Functions-Operation on Fuzzy Sets-Properties of Fuzzy Sets-Some Basic concept About Fuzzy Sets-Geometric Representation of Fuzzy Sets.

UNIT-V **9 Hours**

Crisp Relations-Fuzzy Relations –Fuzzification - Defuzzification - -Predicate Logic-Fuzzy Proposition Logic-Fuzzy if-then Rules-Fuzzy Inference Systems-Types of Fuzzy Inference Systems-Fuzzy Controllers-Application Areas of Fuzzy Logic

Text books:

1. D.K Pratihar, ”Soft Computing ”, Narosa Publishing House, 2008. (Unit II,II,IV,V)
2. Manish Mahajan, Rajdev Tiwari, ” Introduction to SOFT COMPUTING”, ACME learning Private limited, 2010(Unit I)

Reference books:

1. Dr.S.N.Sivanandam and Ms.S.N.Deepa,” Principles of Soft Computing”, Wiley India(P) Ltd , 2007.
2. S.Rajaskharan, Vijayalakshmi Pai,”Neural Network”, Fuzzy logic and Genetic Algorithm, PHI, 2002.

14CMP06 WEB APPLICATIONS DEVELOPMENT TECHNOLOGY

SEMESTER I

OBJECTIVE: 45 Hours

To enable the students to gain Knowledge on Developing Web Applications Development using HTML5, Perl, PHP, and MYSQL Database and its Features.

UNIT-I 9 Hours

Introduction to Web Applications: Overview of the Internet-The Layers of the Internet-Domain Name Service-URL-Basic HTTP Transactions-Get and Post Transactions-Secured Transactions-Server Side Technologies for Web Applications. Mark Up on the Front End: What is Mark Up?-HTML List-HTML Tables-Cascading Style Sheets. Processing on the front End: Html Forms- The java script Language- Browser Object- Methods for the Browser Objects- Events-processing form elements- Form validation before submission- Text validation with string object-Introduction to Perl & CGI Programming.

UNIT-II 9 Hours

Introduction to HTML5: Main Structure-The <head>-Using new HTML5 structural elements- Styling HTML5 with CSS- When to use the new HTML5 structural elements. Text-Structuring main content areas- Adding blog posts and comments- Working with HTML5 outlines- Understanding WAI-ARIA- Even more new structures!-Redefined elements- Global attributes- Removed attributes. Forms-video and Audio- Canvas- Data Storage-Offline- Drag and Drop- Geolocation- Messaging and Workers- Real Time-Polyfilling.

UNIT-III 9 Hours

Perl Modules and Email Utilities: Perl Modules and Object Oriented Syntax- the CGI.pn modules-Email in Web Applications-Email via an external program. The Data Tier: Tables and Relational Data- Structured Text Files-The 3 Tier Model For web Applications-SQL Primer-Data Base Interface in Perl-Database Driven Web Applications- CSV: A Perl Database Emulator-Perl ODBC Interface and MS Access. Regular Expressions and Matching : Regular Expressions-Patterns in List Context-Analyzing Log Files-Searching in Web Applications.

UNIT-IV 9 Hours

A Complete Example and Security Summary-PHP: Introduction to PHP-Functions-File Operations and Pattern Matching-Environment Variables, Form Data and Email-Session Variables and Cookies- Database Interface- A Database Driven PHP Applications.ASP: Introduction to ASP-Functions Functions-File Operations and Pattern Matching-Environment Variables, Form Data and Email-Session Variables and Cookies- Database Interface-A Database Driven ASP Applications-An Overview of ASP.Net. SQL and MYSQL –Database Basics – MYSQL Command Interpreter – Managing Databases and Tables – Inserting, Updating, and Deleting Data – Querying with SQL SELECT-Join Queries – Case Study: Adding a New Wine.

UNIT-V 9 Hours

Introduction to XML: Well-formed XML-Validated XML-XML Namespaces-the document object model-DOM in the browser-DOM on the server.XML in Web Applications: XML for Mobile data-XML and CSS-X Path Basics-XSLT –XSLT in Web Applications-uses for XML-Java Script in Web Applications-DHTML Overview. Querying Web Databases – Querying a MYSQL Database Using PHP–Processing User Input – MYSQL Function Reference – Overview – Core Components- Packages- Writing to Web Databases- Database Inserts, Updates, and Deletes – issues in Writing Data to Databases.

Text Books:

1. Craig Knuckles, David Yuen, "Web Applications: Concepts and Real World Design", John Wiley and Sons, 2008 (Unit I, III, IV, V).
2. Bruce Lawson, Remy sharp, "Introducing HTML5", Second Edition, New Riders Publications,2011 (Unit II).
3. Hugh E.Williams, David Lane, "Web Database Application with PHP and MYSQL", O'Reilly Media, Second Edition, 2004 (Unit IV-V).

14CMP07 PROGRAMMING LAB – I SEMESTER I

OBJECTIVE:

To enable students to gain practical knowledge in the area of Network Management, Data Science in Cloud Computing and Big Data, Advanced Communication Networks, Object Oriented Software Engineering, Soft Computing, Web Applications Development Technologies.

Network Management:

1. Write a program to achieve cryptography by using the method of Transposition Cipher.
2. Write a program to achieve cryptography by using the method of Block Cipher Principle.
3. Write a program to test a large number of Primarily using Miller Rabin Algorithm.
4. Write a program by using RSA algorithm to achieve a Public Key Encryption.

Semantic Web and Ontology:

1. Create a querying ontology for Education domain using Protégé OWL.
2. Build a Simple Ontology for groceries in TamilNadu using Protégé OWL.
3. Building Ontology for English to Tamil Technical Word in computer science.
4. Create a F-Logic implementation of RDFS entailment.

Data Mining:

1. Analyze the Database using Classification & Prediction Method and Results are represented through graph.
2. Write a Program to find the Patterns and its Positions

I) Find the Patterns

ii) Find the Frequency of each h Items and its Position

iii) Find the Outlier

3. Develop a Multi Dimensional OLAP Processor for Business Systems. The Dimensions nclude Time, Place &Product. Perform Rollup & Drilldown Operations.
4. Apply APRIORI Algorithm and Find Frequency Item Sets from a Candidate Generation List.

Object Oriented Software Engineering:

Problems based on UML using Rational Rose Software:

1. Creation of Use case Diagram for a given Application.
2. Creation of Sequence Diagram for a given Application.
3. Creation of Class and Interaction Diagrams for a given Application.
4. Creation of State Chart and Activity Diagrams for a given Application.

Soft Computing:

1. Write a Program to implement perceptron using Neural network.
2. Write a program to implement a Fuzzy and crisp relations.
3. Consider the following Fuzzy sets A={1/2+0.4/3+0.6/4+0.3/5} B={0.3/2 + 0.2/3+0.6/4+0.5/5} Calculate A U B, A∩B, A, B

4. Write a MATLAB program for maximizing $f(x) = x^2$ using Genetic Algorithm where x is ranges from 0 to 31, perform 5 iterations only.

Web Applications Development Technologies:

1. Creating a dynamic website using HTML with following Components:
   i. Frames ii. Tables iii. Forms with Data Validation in VB or Java Script.
2. Developing a Personal Web site using HTML5.
3. Developing a Web Site in HTML5 to demonstrate the usage of Video and Audio Contents.
4. Develop an application to demonstrate the usage of Perl Modules and Perl Database Emulator.
5. Develop an application to connect MySql Database using PHP Script.

14CMP08 SOFTWARE AGENTS SEMESTER II

OBJECTIVE: 45 Hours

To enable the students to gain knowledge in Software Agents, Practical Reasoning Agents and the Applications for Multi Agent Systems.

UNIT - I 9 Hours

Introduction: What Is a Software Agent? – Agent as an Ascription–Agent as a Description. Why Software Agents? Simplifying Distributed Computing– Incorporating Agents as Resource Managers- Overcoming User Interface Problems– Indirect Management Using Agents– Toward Agent-Enabled System Architectures. Overview: Agents and the User Experience - Agents for Learning and Intelligent Assistance- Agent Communication, Collaboration, and Mobility.

UNIT - II 9 Hours

Intelligent Autonomous Agents: Intelligent Agents- Deductive Reasoning Agents- Practical Reasoning Agents- Reactive and Hybrid Agents. Communication and Cooperation: Understanding Each Other- Communicating- Working Together- Methodologies- Applications. Multi Agent Decision Making: Making Group Decisions- Forming Coalitions- Arguing.

UNIT – III 9 Hours

Intelligent Agents: What is intelligent an agent?-What is a learning agent?-Approaches to knowledge base development-An overview of disciple approach. Knowledge Representation and Reasoning: Introduction-semantic network representation of objects-general concepts and rules-Generalization. Knowledge Acquisition and learning: Introduction-knowledge elicitation-Rule Learning-Agent Interaction.

UNIT - IV 9 Hours

The disciple shell and Methodology: Architecture of disciple shell-Methodology for building intelligent agents-Expert agent interactions during knowledge elicitation process- Expert agent interactions during rule learning process- Expert agent interaction during rule refinement process. Case study: Assessment agent for Higher-Order Thinking skills in history-developing a customized disciple agent-Building the knowledge base-verifying, validating and maintaining the agent.

UNIT – V 9 Hours

Introduction: JADE features- The Agent Platform 7- The Agent class: Agent life cycle- Inter-agent communication- Agents with a graphical user interface (GUI) - Managing agent parameters-Agent Communication Language (ACL) Messages- The agent tasks- Implementing Agent behaviors. Interaction Protocols: Achieve RE (Achieve Rational Effect) - Generic states of interaction protocols- Support for Agent Mobility.

Text books:

1. Jeffrey M Bradshaw, ”Software Agents”, The MIT Press(Unit-I)

2. Michael Wooldridge, ” An Introduction to MultiAgent Systems”, Wiley, 2nd edition , 2009(Unit-II)
3. Gheorghe Tecuci, “Building Intelligent Agents “, Academic Press,2003(Unit- III,IV)
4. jade.tilab.com/doc/programmersguide.pdf. (Unit- V)

14CMP09 KNOWLEDGE MANAGEMENT AND BUSINESS INTELLIGENCE SEMESTER II

OBJECTIVE: **40 Hours**

To enable the students to help in justifying the knowledge management and business intelligence investments and explains Knowledge Creation and Business Intelligence, Knowledge Portal Technologies in knowledge management.

UNIT – I **8 Hours**

#(Basics - What is Knowledge Management? - Key Challenges)# - KM Life Cycle - Understanding Knowledge – Definitions - Cognition and Knowledge Management - Data, Information, and Knowledge - Types of Knowledge - Expert Knowledge.

UNIT – II **8 Hours**

Knowledge Management System Life Cycle - Challenges in Building KM Systems - Conventional Versus KM System Life Cycle - KM System Life Cycle - System Justification - Role of Rapid Prototyping - Role of Knowledge Developer – User Training.

UNIT – III **8 Hours**

Knowledge Creation - Nonaka's Model of Knowledge Creation and Transformation - Knowledge Architecture - Capturing Tacit Knowledge – Evaluating the Expert – Developing a relationship with Expert – Interview as a tool – Brainstorming – Repertory Grid - Nominal-Group Techniques(NGT) – Delphi method – Concept mapping Knowledge Codification - Codification Tools and Procedures - Knowledge Developers Skill Set - Knowledge Transfer - Transfer Methods - Portals Basics - Business Challenge - Knowledge Portal Technologies - Ethical and Legal Issues - Knowledge Owners - Legal Issues.

UNIT – IV **8 Hours**

Changing Business Environments and Computerized Decision Support - A Framework for Business Intelligence - Intelligence Creation and Use and BI Governance - Transaction Processing versus Analytic Processing - Successful BI Implementation - Major Tools and Techniques of Business Intelligence.

UNIT – V **8 Hours**

Implementing BI: An Overview - BI and Integration Implementation - Connecting BI Systems to Databases and Other Enterprise Systems - On-Demand BI - Issues of Legality, Privacy, and Ethics -Emerging Topics in BI: An Overview - The Web 2.0 Revolution - Online Social Networking: Basics and Examples - Virtual Worlds - Social Networks and BI: Collaborative Decision Making - RFID and New BI Application Opportunities - Reality Mining.

Text Books:

1. M.Awad, Hassan M.Ghaziri, "Knowledge Management", Pearson Education, 2004, (Units I, II and III).
2. Efraim Turban, Ramesh Sharda, Dursun Delen and David King, "Business Intelligence" 2nd Edition, 2010. (Unit IV – Chapter 1, Unit – V -Chapter 6).

14CMP10 ADVANCED COMMUNICATION NETWORKS

SEMESTER II

OBJECTIVE: 40 Hours

To enable the student to gain knowledge in communication Network Architecture and Network Layer IP Protocol Activities.

UNIT- I

THE OSI MODEL AND THE TCP/IP PROTOCOL SUITE 7 Hours

OSI Model- Layers in the OSI Model-Physical Layer Data link Layer- Network Layer- Transport Layer- Session Layer- Presentation Layer- Application Layer- TCP/IP Protocol suite- Addressing – Physical Address- Logical Address- Port Address- IP Versions- Connecting devices- Repeaters, Hubs, Bridges- Routers.

UNIT- II

ROUTING AND ROUTING PROTOCOLS: 9 Hours

Delivery- connection type- direct versus Indirect delivery- Forwarding- Forwarding Techniques- Routing- Statics versus Dynamic Routing Tables- Structure of a Router Multicasting and Multicasting Routing Protocols- Unicast, Multicast and Broadcast- Multicast Applications- Access to distributed Data bases- Information Dissemination- Dissemination of News- Teleconferencing- Distance Learning- Multicast routing- Optimal Routing- Routing protocols- Multicast Link State Routing: MOSPF-Multicast Distance Vector: DVMRP-CBT- Formation of the Tree- Sending Multicast Packets- Selecting the Rendezvous Router- PIM-PIM-DM-PIM-SM-MBONE.

UNIT- III

NETWORK LAYERED IP PROTOCOLS 8 Hours

IP Protocols- IP- Datagram-Checksum- IP Package-Internet Group Management Protocol(IGMP)-Group Management- IGMP management- IGMP Operation- Encapsulation- IGMP Package- Internet Control Message Protocols(ICMP)- Types of Messages- Message Format- Error Reporting- Query- Checksum- Debugging Tools- ICMP packages.

UNIT- IV 8 Hours

ARP AND RARP

ARP- packet format- Encapsulation, Operation ARP over ATM- proxy ARP- ARP package – cache table- O/P module- I/P module- cache- control module- RARP- packet format- encapsulation- RARP server.

IP OVER ATM

IP over ATM- ATM WANS- Carrying a Datagram in Cells- Routing the Cells- ATM ARP- Logical IP subnet (LIS)

UNIT- V 8 Hours

MOBILE IP

Mobile IP- Addressing- Agents- Three Phases- inefficiency in Mobile IP- Addressing- Stationary Hosts- Mobile Hosts- Agents- Home Agents- Foreign Agent- Three Phases- Agent Discovery- Registration- Data transfer- Inefficiency in Mobile IP- Double Crossing- Triangle Routing Solution.

TRANSMISSION CONTROL PROTOCOL

TCP Services- TCP features- Segment- TCP Connection- State Transmission Diagram.

Text Book:
Behrouz A. Forouzan, "TCP/IP Protocol Suite", TATA McGraw-Hill Publishing, 4th edition, 2010. (Unit I-V)

Reference Book:
Behrouz A. Forouzan, "Data Communication Networks", TATA McGraw-Hill Publishing,4th edition, 2010.

ELECTIVE I

14CMP11 **1. WAP & WML** **SEMESTER II**

OBJECTIVE: **45 Hours**

To introduce the knowledge in Mobile computing using Mobile Computing Application, WAP, XML Schema , Mobile Device Operating Systems.

UNIT – I **9 Hours**

Mobile Computing – Mobile Computing Vs wireless Networking – Mobile Computing Applications – Characteristics of Mobile computing – Structure of Mobile Computing Application. MAC Protocols – Wireless MAC Issues – Fixed Assignment Schemes – Random Assignment Schemes – Reservation Based Schemes.

UNIT – II **9 Hours**

WAP application architecture – WAP internal Architecture – WAP gateways – functionality of a WAP gateway – positioning of a WAP gateway in the network – Selecting, installing and configuring WAP gateways.

UNIT – III **9 Hours**

XML introduction – XML documents – XML namespaces – XML Schema – processing XML. WML - structure – text formatting – Navigation – Display Features – Events – Variables – Input & parameter passing. WML Script – Lexical structure – variables and literals - operators – type conversions – control constructs – function – standard libraries – Error Checking.

UNIT – IV **9 Hours**

WAP Security – need for security – encryption technologies – comparing security models – Wireless security issues – future of wireless security – security products – Push technologies – Push model – push framework.

UNIT - V **9 Hours**

Mobile Device Operating Systems – Special Constrains & Requirements – Commercial Mobile Operating Systems – Software Development Kit: iOS, Android, BlackBerry, Windows Phone – M-Commerce – Structure – Pros & Cons – Mobile Payment System – Security Issues.

Text Books:

1. Prasant Kumar Pattnaik, Rajib Mall, "Fundamentals of Mobile Computing", PHI Learning Pvt. Ltd, New Delhi – 2012.(Unit I & V)
2.Charles Arehart, Nirmal Chidambaram, et.al. "Professional WAP", Shroff Publishers & Distributors Pvt. Ltd, 2000.(Unit II & IV)
3. Kris Jamsa, "WML & WML Script a Begineer's Guide", Tata Mc-Graw Hill Publishing Company Limited, 2001.(Unit III)

ELECTIVE I

14CMP11 2. DATA COMPRESSION SEMESTER II

OBJECTIVE: 45 Hours

To enable the students to gain knowledge on Data Compression, String Compression and Image Compression with Audio & Video Compression.

UNIT - I 10 Hours

Basic Techniques: Run Length Encoding- RLE Text Compression- RLE Image Compression- Move-To-Front Coding- Scalar Quantization- Statistical Methods: Information Theory Concepts- Variable – Sine Codes- Prefix Codes – The Golomb Code- The Kraft-Macmillan Inequality- Shanon-Fano Coding – The Counting Argument – Huffman Coding – Adaptive Huffman Coding – MNP5 – MNP7- Reliability- Facsimile Compression – Arithmetic Coding – Adaptive Arithmetic Coding – The QM Coder – Text- Compression – PPM – Context – Tree – Weighting.

UNIT - II 10 Hours

Dictionary Methods: String Compression – LZ77 (Sling Window) – LZSS – Repetition Times – QIC – 122 – LZ78 – LZFG – LZRW1 – LZRW4 – LZW – LZMW –LZP – LZY – LZP – Repetition Finder – Unix Compression – GIF Images – The V.42bits Protocols – Zip And Grip – ARC And Pkzip – ARJ And LHArc – EXE Compressors – CRC – Data Compression Patents – A Unification.

UNIT - III 10 Hours

Image Compression: Approaches To Image Compression – Intuitive Methods – Image Transformations – Test Images – JPEG – JPEG-LS Progressive Image Compression JBIG – JBIG2- Simple Images: EDIAC – Vector Quantization – Adaptive Vector Quantization – Block Matching – Block Truncation Coding – Context – Based Methods – FELICS – Progressive FELICS – MLP – PPPM – CALIC – Differential Lossless Compression – DPCM – Context – Tree Weighting – Block Tree Predictive Coding – Quadtrees – Quadrisection – Space – Filling Curves – Hillbert Scan And VQ – Finite Automata Methods – Iterated Function Systems – Cell Encoding.

UNIT - IV 8 Hours

Video Compression: Analog Video – The CRT –Composite And Components Video – Digital Video– High –Definition Televisions – Video Compression – Suboptimal Search Methods – MPEG – MPEG-1 Main Components – MPEG-1 Video Syntax – Motion Compensation – Pel Reconstruction – H.261 – H.216 Compressed Stream.

UNIT - V 7 Hours

Audio Compression: Sound – Digital Audio – The Human Auditory System - µ - Law And A- Law Companding – ADPCM Audio Compression – MPEG-1 Audio Layers – Other Methods: The Burrows-Wheeler Method – Symbol Ranking – ACB – Sort – Based Context Similarity – Sparse Strings – Word-Based Text Compression – Textual Image Compression – Dynamic Markov Coding – FHM Curve Compression – Sequitur – Triangle Mesh Compression: Edgebreaker.

Text book:

1. David Salomon, “Data Compression – The Complete Reference”, Second Edition, Springer-Verlang New York Inc,2004. (Unit I – V)

ELECTIVE I

14CMP11 **3. NANO TECHNOLOGY** **SEMESTER II**

OBJECTIVE: **45 Hours**

To enable the students to gain knowledge on Nano Technology, Nanotechnology Science with Nanophotonics and Nanoelectronics.

UNIT - I **9 Hours**

What is Nanotechnology and What Are Business Application: - Introduction and Scope – Present Course of Investigation - Basic Nanotechnology Science–Physics - Approach and Scope – Basic Science – Basic Properties of Conductors, Insulators, and Semiconductors - Basic Properties of silicon and Basic of Transistor Operations -Conclusion.

UNIT - II **9 Hours**

Basic Nanotechnology Science – Chemistry - Introduction and Background - Basic Chemistry Concepts - Conclusion.

UNIT - III **9 Hours**

Nanotubes, Nanonmaterial, and Nanonmaterial Processing – Introduction - Basic Nanostructures - Manufacturing Techniques - System Design - Conclusion.

UNIT - IV **9 Hours**

Nano photonics:- Introduction and Background: A Plethora of Opportunities- General Photonics Trends - Basic Nano photonics – Photonic Crystals - Telecom Applications of Photonic Crystals – Plasmonics – Advanced Topics – Conclusion.

UNIT - V **9 Hours**

Nanoelectronics: - Introduction - Overview of Basic Nanoelectronic Technologies - Additional Details on Nanoelectronic Systems – Conclusion.

Text Book:

Daniel Minoli, "Nanotechnology Applications to Telecommunications and Networking", John Wiley and Sons Inc Publishing, 2005. (Unit I - V)

ELECTIVE I

14CMP11 4. ADVANCED RDBMS SEMESTER II

OBJECTIVE: 45 Hours

To enable the students to gain knowledge on Advanced RDBMS, Object-Oriented Databases and Concurrency Control Techniques.

UNIT - I 7 Hours

Concepts For Object-Oriented Databases- Object Identity, Object Structure, And Type Constructors-Encapsulation Of Operations, Methods, And Persistence – Type Hierarchies And Inheritance – Complex Objects – Other Object-Oriented Concepts-Object Databases Standards, Language And Design – Overview Of Object Model Of ODMG – The Object Definition Language- The Object Query Language – Overview Of C++ Language Binding – Object Database Conceptual Design-Overview Of The CORBA Standard For Distributed Objects.

UNIT – II 8 Hours

Functional Dependencies & Normalization For Relational Databases: Informal Design Guidelines For Relational Schemas-Functional Dependencies- Normal Forms Based On Primary Keys- General Definitions Of Second And Third Normal Forms - Boyce-codd Normal Form - Relational Database Design And Further Dependencies: Algorithms For Relational Database Schema Design-Multivalued Dependencies And Fourth Normal From-Join Dependencies And Fifth Normal Form.

UNIT - III 10 Hours

Database System Architecture And The System Catalog: System Architectures For DBMS – Catalogs For Relational DBMS – System Catalog Information In Oracle- Other Catalog Information Accesses By DBMS Software Modules-Data Dictionary And Data Repository Systems- Query Processing And Optimization: Translating SQL Queries Into Relational Algebra – Basic Algorithms For Executing Query Operations- Using Heuristics In Query Optimization – Using Selectivity And Cost Estimates In Query Optimization.

UNIT – IV 10 Hours

Concurrency Control Techniques: Looking Techniques For Concurrency Control-Concurrency Control Based On Timestamp Ordering-Multiversion Concurrency Control Techniques- Validation Concurrency Control Techniques – Granularity Of Data Items And Multiple Granularity Locking- Using Locks For Concurrency Control In Indexes – Some Other Concurrency Control Issues- Database Recovery Techniques: Recovery Concepts-Recovery Techniques Based On Deferred Update--Recovery Techniques Based On Immediate Update – Database Security And Authorization: Database Security Issues – Discretionary Access Control Based On Granting/Revoking Of Privileges.

UNIT – V 10 Hours

Enhanced Data Models For Advanced Applications – Active Database Concepts – Temporal Database Concepts–Spatial And Multimedia Databases–Distributed Databases And Client–Server Architecture – Distributed Database Concepts–Data Fragmentation, Replication And Allocation Techniques For Distributed Database Design – Types Of Distributed Database Systems – Query Processing In Distributed Database – Overview Of Concurrency Control And Recovery In Distributed Databases – An Overview Of Client–Server Architecture And Its Relationship To Distributed Databases – Distributed Databases In Oracle – Future Prospects Of Client-Server Technology.

Text Books:

1. Ramez Elmasri, Shamkant B.Navathe, "Fundamentals Of Database Systems", Addison-Wesley, 2000. (Unit I,II,III)

2. Raghu Ramakrishnana, Johannnes Gehrtee, "DBMS Management Systems", Mcgraw Hill,3rd Edition,2003. (Unit IV,V)

14CMP12 BIO-METRICS SEMESTER II

OBJECTIVE: 45 Hours

- To provide an in-depth survey of the state-of-the-art in biometric recognition.
- To present in detail recent advances in techniques for biometric recognition.

UNIT-I 9 Hours

What is Biometrics - Why Biometrics - Benefits of Biometrics versus Traditional Authentication Methods - Benefits of Biometrics in Identification Systems. Person authentication, in general -Overview of biometrics - Biometric identification - Biometric verification – Biometric enrollment - Biometric system security.

UNIT-II 9 Hours

Authentication and Biometrics - Authentication methods - Authenticattion protocols - Matching biometric - verification by humans - Passwords versus biometrics. Biometric Technologies -Passive Biometrics, Active Biometrics - A Good Biometric.

UNIT-III 9 Hours

Finger Biometric Technologies - Types of algorithms used for interpretation – Which algorithm is best? – Face Biometric Technologies - Types of algorithms used for facial interpretation - Which algorithm is best? - Voice Biometric Technologies - Types of algorithms used for voice interpretation - Which algorithm is best? - Iris Biometric Technology – Description of the Iris algorithm – Hand geometry – Signature verification.

UNIT-IV 9 Hours

Additional Biometrics - DNA - Retina recognition – Thermo grams – Keystroke – Ear recognition – Skin reflectance – Lip motion – Body odor. Thwarting attacks – Attacking biometric identifiers – front-end attack – Back-end attack – Other attacks.

UNIT-V 9 Hours

Selecting a Biometric – Biometric attributes – sensor properties – Template sizes – Scalability – Application Properties – Evaluating options – Affordability and cost. Positive and negatives of the biometrics. (Pros and Cons of fingerprint, face, voice, Iris, Hand and Signature)

Text books:

1. Ruud M.Bolle, Jonathan H.Connell, Sharath Pankanti, Nalini K.Ratha, Andrew W.Senior "Guide to Biometrics", springer International Edition,2004.(Unit -I,II,IV,V)
2. Paul Reid "Biometrics for Network Security", Pearson Education,2009.(Unit- II,III)
3. Samar Nanavati, Michael Thieme, Raj Nanavati "Biometrics identity verification in a Networked world", Wiley computer publishing,2002.(Unit –I)

References:

1. Anil K Jain, Patrick Flynn, Arun A Ross, "Handbook of Biometrics", Springer, 2008
2. John D. Woodword Jr., "Biometrics", Dreamtech Press, New Delhi, 2003.

14CMP13 Statistical Methods And Applied Operations Research Semester:II
(For MSc Computer Science)

Objective : To educate the students in the concepts of statistics and operations research with their applications in the fields of Computer Science and Information technology.

UNIT I

Probability – Addition, Multiplication and Baye's theorems – Simple problems. Random variables – Discrete and Continuous random variables- Distribution functions of a random variable and their properties- Properties of Binomial, Poisson, Normal and Gamma distributions.

UNIT II

Concept of Test of significance – Asymptotic test with regard to proportion(s), mean(s) and Correlation co-efficient(s). Exact test based on distribution with regard to mean(s), standard deviation(s) and Paired t- test – Exact test based on chi square – chi-square test of independence of attributes – 2X2 Contingency table – Test of goodness of fit – Single variance and two variance test.

UNIT III

Concept of Inventory- Inventory decisions- Economic lot size models- economic lot size system with uniform demand, Economic lot size with different rates of demand in different cycles- Economic lot size with finite rate of replenishment- Concept of reorder level- Determinations of Buffer stock (concept only)- Purchase inventory model with one price breakup – with multiple price breaks.

UNIT IV

Queuing Theory – Introduction – Mechanism of queuing process – Organisation of several channels – arrivals of queuing process –Arrival rates and Service rates – Detailed study of M/M/1/FIFO Model – M/M/1/ά/FIFO – M/M/1/N/FIFO – M/Ek/1/FIFO.

UNIT V

Theory of Games- Introduction: Two person Zero- Sum Games. Games without saddle points- Mixed Strategies. Graphical solutions of 2xn and mx2 games-Dominance property- Modified dominance property - Reducing the game problem in to an LPP.

Note : Derivations not included

REFERENCE:

1. Kapoor V.k & Gupta S.C : Fundamentals of Mathematical Statistics
2. Kantiswarup ,Gupta P.K& Manmohan : Operations Research

14CMP14 PROGRAMMING LAB -II SEMESTER II

OBJECTIVE:

To enable the students to gain the knowledge on Software Agents, Knowledge Management and Business Intelligence, Data Mining, Web Database Application, Bio – Metric, Statistical Methods and Applied Operations Research, WAP & WML.

Software Agents:

Programs based on Software Flora – II for Knowledge Intensive Applications like Intelligent Agents, Semantic Web and Ontology Management.

1.F- Logic
2. Hilog
3.Transaction Logic
4.Defeasible Reasoning

Knowledge Management and Business Intelligence:

Problems Based on Business Intelligent Tool:

Two Problems from Each Tool -

1. Eclipse BRT – Business Intelligence and Reporting Tools Project. -//Eclipse .org for Reference.
2. R-A free software programming Language and Environment for Stastical Computing and Graphics – Data Analysis.

Advanced Communication Networks:

1. Check the Transmission and Receiving of Data between three different files in 'C' that represent through acknowledgement frame
2. Transmit the Lengthy data from one terminal to another or between files that splits the data into packets using packet number. Perform Assembling and Resembling of data
3. Using 'C' program, demonstrate the Unicast Routing process
4. Using 'C' program demonstrate the Multicast Routing Protocol activities.

Bio – Metrics:

1.Write a program to check and verify the stored template with user input using Fingerprint matching

2.Write a program to authenticate and validate the bio-metric template using Face Recognition

3. Write a program to check the User Age Estimation using Bio-metric techniques

4.Write a program to check the User Emotion Status using Bio-metric techniques

5.Write a program to develop the Bio-metric system security using Retina Recognition

Statistical Methods and Applied Operations Research:

1. Write a program for finding the Saddle point and the Value of the game if Saddle point does not exist

2. Write a program for the Test based on Single mean and Difference of mean for large sample

3. Write a program for CHI-SQUARE TEST for independence of attributes

4. Write a program for fitting a Poisson distribution

Elective – I Based on the Subject offered from the four options:
WAP & WML

1. Write a program to create a Login Page with Timers in WML
2. Write a WML program to demonstrate Weather Forecasting
3. Write a WML program to Create Menu's using Templates
4. Write a WML program to Implement Variables and Links with contents on it.

14CMP15 MULTIMEDIA AND ITS APPLICATIONS SEMESTER III

OBJECTIVE: **45 Hours**

To enable the students to gain knowledge on Multimedia and Its Applications, Multimedia Hardware with 3D modeling and animation tools and more reference.

UNIT - I **7 Hours**

Introduction to Multimedia – Usage of Multimedia - Introduction to Making Multimedia – Multimedia Skills and Training

The Team – Project Manager – Multimedia Designer – Interface Designer – Writer – Video, Audio specialist - Multimedia programmer – Programmer – Multimedia for the Web - The sum of the Parts.

UNIT - II **8 Hours**

Multimedia Hardware - Macintosh and Windows Production Platforms - Hardware Peripherals - Connections – Memory and Storage Devices – # Input Devices – Touch Screens - Magnetic Card Encoders and Readers – Flat Bed Scanners - Infrared Remotes - Voice Recognition Systems - Digital Cameras - Output Hardware- Projectors Printers Communication Devices - Modems - Cable Modems.#

UNIT - III **10 Hours**

Multimedia Software Basic Tools - Text Editing Word processing Tools - Painting and Drawing Tools – 3D Modeling and Animation Tools – Animation ,Video and Digital Movie Tools – Making Instant Multimedia - Spreadsheet – Database – Presentation tools – Multimedia Authoring Tools – Types of Authoring Tools – Time based Authoring Tool – Object Oriented Authoring Tool.

UNIT - IV **10 Hours**

Multimedia Building Blocks - Text - Using Text in Multimedia - Computers and Text - Font Editing and Design Tools - Hypermedia and Hypertext - Sound - Digital Audio - Audio File Formats – Images – Still Images - Color - Animation - Video – Broadcast Video Standards - Integrating Computers and Television - Shooting and Editing Video - Digital Video.

UNIT - V **10 Hours**

Multimedia and the Internet - How the Internet works? - Internetworking - Connections - Internet services - The World Wide Web - Web servers - Web Browsers - Web Page Markers and Site Builders - Plug – Ins and Delivery Vehicles.

Text book:

Tay Vaughan, "Multimedia – Making It Work", Tata McGraw Hill, Fourth Edition,2010.
(Unit I-V)

#- Self Study.

14CMP16 DATA SCIENCE IN CLOUD COMPUTING AND BIG DATA

SEMESTER III

OBJECTIVE: **40 Hours**

- To introduce the broad perceptive of cloud architecture and model
- To understand the concept of Virtualization and design of cloud Services
- To explore the fundamental concepts of big data.
- To learn to analyze the big data using intelligent techniques.
- To understand the applications using Map Reduce Concepts.

UNIT I

8Hours

Cloud Architecture And Mode: Technologies for Network-Based System – System Models for Distributed and Cloud Computing – NIST Cloud Computing Reference Architecture. Cloud Models:- Characteristics – Cloud Services – Cloud models (IaaS, PaaS, SaaS) – Public vs Private Cloud –Cloud Solutions - Cloud ecosystem – Service management – Computing on demand. Virtualization :Basics of Virtualization - Types of Virtualization - Implementation Levels of Virtualization - Virtualization Structures - Tools and Mechanisms - Virtualization of CPU, Memory, I/O Devices - Virtual Clusters and Resource management – Virtualization for Data-center Automation.

UNIT II

8Hours

Cloud Infrastructure: Architectural Design of Compute and Storage Clouds – Layered Cloud Architecture Development – Design Challenges - Inter Cloud Resource Management – Resource Provisioning and Platform Deployment – Global Exchange of Cloud Resources.Programming Model: Parallel and Distributed Programming Paradigms – MapReduce, Twister and Iterative MapReduce – Hadoop Library from Apache – Mapping Applications - Programming Support - Google App Engine, Amazon AWS - Cloud Software Environments -Eucalyptus, Open Nebula, OpenStack, Aneka, CloudSim.

UNIT III

8Hours

Big Data: Introduction- Fundamentals of Big Data-Examining Big Data Types-Old Meets New-Technology Foundations for Big Data: Digging into Big Data Technology Components-Virtualization and How It Supports Distributed Computing-Examining the Cloud and Big Data.-Big Data Management: Operational Databases-Map Reduce Fundamentals-Exploring the World of Hadoop-The Hadoop Foundation and Ecosystem-Appliances and Big Data Warehouses.

UNIT IV

8Hours

Analytics and Big Data: Defining Big Data Analytics-Understanding Text Analytics and Big Data-Customized Approaches for Analysis of Big Data.Big Data Implementation: Integrating Data Sources-Dealing with Real-Time Data Streams and Complex Event Processing-Operational zing Big Data-Applying Big Data within Your Organization-Security and Governance for Big Data Environments.

UNIT V

8Hours

Big Data Solutions in the Real World: The Importance of Big Data to Business-Analyzing Data in Motion-Improving Business Processes With Big Data Analytics. The Part of Tens: Ten Big Data Best Practices-Ten Great Big Data Resources-Ten Big Data Do’s and Don’ts.

Case Study: Data Science

1. Installation and Experimentation Using R-Open Source Software-R Studio Frame Work with following Applications: Beer-Farms and Peas.
2. Case Study on Twitter using Sampling Distributions.
3. Handling Unstructured Data Using R-Studio.
4. Handling Data Storage using R-Map Mash Up.

Text Books:

1. Kai Hwang, Geoffrey C Fox, Jack G Dongarra, "Distributed and Cloud Computing, Processing to the Internet of Things", Morgan Kaufmann Publishers, 2012.From Parallel (Unit I-II)

2. Judith Hurwitz, Alan Nugent, Dr. Fern Halper and Marcia Kaufman,"Big Data for Dummies" A Wiley Brand Publications. 2013. (Unit III-V)

3. Jeffrey Stanton, "An Introduction to Data Science" Syracuse University, 2012 (Case Study)

References:

1. Michael Miller, "Cloud Computing ", Que Publishing, 2008

2. Nick Antonopoulos, Cloud computing, Springer Publications, 2010

14CMP17 ENTERPRISE RESOURCE PLANNING SEMESTER III

OBJECTIVE: 40 Hours

To enable the students to help in justifying the ERP investments and explains why it is imperative that the organizations should implement ERP system in transforming business at Internet speed.

UNIT- I 6 **Hours**

INTRODUCTION

Enterprise An Overview- Introduction to ERP- Common ERP Myths- A brief History of ERP-Enterprise Resource Planning (ERP)-Reasons for the growth of the ERP Market- The Advantages of ERP- Over-Expectations in ERP- Roadmap for Successful ERP Implementation- The Role of CIO- The Future of ERP Packages- Basic ERP Concepts - Justifying ERP Investments- Risks of ERP- Benefits of ERP- Introduction- Information Integration-Reduction of Lead-Time- On Time Shipment- Reduction in Cycle Time-Improved Resource Utilization- Better Customer Satisfaction-Improved Supplier Performance- Increased Flexibility- Reduced Quality Cost- Better Analysis and Planning capabilities- Improved Information Accuracy and Decision Making Capability-Use of Latest Technology.

UNIT- II **7 Hours**

ERP AND TECHNOLOGY

ERP and Related Technologies- Business Intelligence (BI)-E-Commerce and E-Business- Business Process Reengineering(BPR)- Data Warehousing - Data mining-On-line Analytical Processing(OLAP)- Product Life Cycle Management- Supply Chain Management(SCM)- Customer Relationship Management(CRM)- Advanced Technology and ERP Security.

UNIT- III **9 Hours**

ERP IMPLEMENTATION

ERP implementation Life cycle- Implementation Methodologies- Vendors and Consultants - Contracts with Vendors, Consultants and Employees- Project Management and monitoring- After ERP Implementation- Operation and Maintenance of the ERP system-Measuring the performance of the ERP system.

UNIT- IV **9 Hours**

THE BUSINESS MODULES

Business Modules of an ERP package- Finance- Manufacturing – Human Resource-Plant Maintenance- Material management- Quality management- Marketing- Sales, Distribution and Service.

UNIT- V **9 Hours**

THE ERP MARKET AND ERP- PRESENT AND FUTURE

ERP Marketplace and Marketplace Dynamics- SAP AG- Oracle Corporation- People soft- JD Edwards- QAD Inc- SSA Global- Lawson Software- Epicor- Intuitive- Turbo Charge the ERP system - Enterprise Application Integration(EAI)- ERP and E-Business- ERP, Internet and WWW- ERP II- ERP and Total Quality Management.

TEXT BOOK

"ERP DEMYSTIFIED" by Alexis Leon, Second Edition, Tata McGraw Hill Publishing, 2004.

(Unit I-V)

REFERENCE BOOK

"Enterprise Resource Planning", by Alexis Leon, Tata McGraw Hill Publishing, 2004.

14CMP18 SOFTWARE TESTING SEMESTER III

OBJECTIVE: 40 Hours

To enable the students to gain knowledge on software Quality Assurance and Different type of testing with Automated Testing Tools.

UNIT - I 8 Hours

Software Development Life Cycle and Quality Assurance**:** Measuring Success of Software project - Criteria for the success of a software project - client's Expectations - Software Quality Assurance - The Software Process - Phases in Software Development Life Cycle - Life Cycle Models - Waterfall Model - Prototyping Model - Spiral Model - Synchronize and stabilize Model. Software metrics - Risk Management - Risk item Identification - Risk Analysis - Risk Prioritization - Risk Control.

UNIT - II 8 Hours

Testing Techniques - Black-Box Testing Techniques - White-Box Testing Technique - Integration Testing - Functional Vs Non-Functional Testing - Performance Testing - Methodology for Performance Testing - Regression of Testing - types of Regression testing.

UNIT - III 8 Hours

Test Management: Test Organization - Structure of Testing group - Test Planning - Software Metrics: Need of Software Measurement - Definition of Software Metrics - Classification of Software Metrics - Entities to be Measured - Size Metrics - Testing Metrics for Monitoring and Controlling the Testing Process: Measurement of Objectives for Testing - Attributes and Corresponding Metrics in Software Testing - Attributes - Test Point Analysis (TPA).

UNIT - IV 8 Hours

Software Quality Management: Software Quality - Broadening the Concept of Quality - Quality Cost - Benefits of Investment on Quality - Quality Control and Quality Assurance - Quality Management (QM) - QM and Project Management - Quality Factors - Methods of Quality Management - Software Quality Metrics - SQA Models.

UNIT - V 8 Hours

Automation and Testing tools: Need for Automation - Categorization of Testing Tools - Selection of Testing Tools - Costs Incurred in Testing Tools - Guidelines for Automated Testing - Overview of Some Commercial Testing Tools. Introducing the Tools in the Testing Process - Win Runner - Testing an Application by using Win Runner - Testing the Standard Calculator Application - Test Script Language (TSL) - Load Runner - Creating User Script by using Virtual User Generator - Creating Virtual Users by using Load Runner Controller - Test Director - Testing Management - Process -Managing the Testing Process using Test Director.

Text Books:

1. Dr.K.V.K.K.Prasad, "Software Testing", Revised Edition 2005, Wiley Dream Tech Press. (UNIT - I)
2. Srinivasan Desikan, Gopalaswamy Rames- "Software Testing - Principles and Practices", Pearson Education. (UNIT - II)
3. Naresh Chauhan, "Software Testing - Principles and Practices", 2010 Edition, Oxford University Press. (Unit - II, III, IV, V)

4. Dr.K.V.K.K.Prasad, “Software Testing Certification Study Guide”, 2007 Edition, Wiley Dream Tech Press. (UNIT - V)

Reference Books:

1. Boris Beizer, “Software Testing Technique”, 2003 Edition, Wiley Dream Tech Press.
2. Limaye, “Software Testing”, 2007 Edition, Tata McGraw Hill.
3. Aditya P Mathur, “Foundations of Software Testing”,2008, Pearson Education.
4. Brian Hambling, Angelina Samaroo, “Software Testing: An Iseb Intermediate Certificate”, 2009, British Informatics Society Ltd.

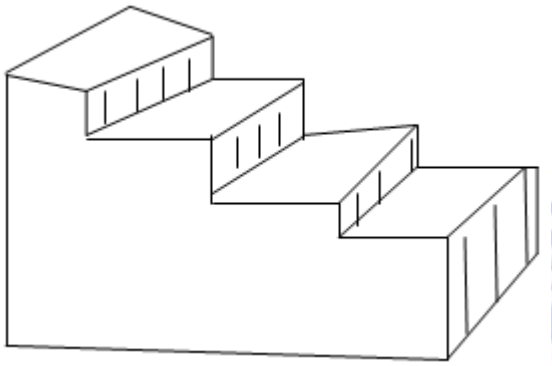
14CMP19 PROGRAMMING LAB III SEMESTER III

Objective:

To enable the students to gain the knowledge on Multimedia, Semantic Web & Ontology, Enterprise Resource Planning , Software Testing and Electronic Commerce.

Multimedia:

1. Draw the Front, Top and Left side Orthogonal Views of the Picture given below:



2. To Animate a Man Walking in Rain with an Umbrella using flash.
3. Show the difference in animating a Rotating Ball on the Floor and a Walking Man on the Floor.
4. Generate a Square defined by the points (50, 50), (70, 50), (70, 70), (50, 70) use the Digital Straight Line program to draw the edges. Rotate the square by a Fixed Angle First around the point (50, 50) and then the point (60, 60), which are the Corner and the Centre Point of the Square. Compare the two outputs.

Data Science in Cloud Computing and Big Data:

1. Installation and Experimentation Using R-Open Source Software-R Studio Frame Work with following Applications: Beer-Farms and Peas.
2. Case Study on Twitter using Sampling Distributions.
3. Handling Unstructured Data Using R-Studio.
4. Handling Data Storage using R-Map Mash Up.
5. Demonstration using any one of the Open Source Cloud Computing Products.

Enterprise Resource Planning:

1. Write a program for banking system. Which contains,
    a. SB account and Current Account
    b. In SB account minimum balance 500
    c. In Current Account minimum balance is 1000

    Perform Credit and Debit transaction, list out daily Debit and Credit transactions and display the Personal Details.

2. Calculate salary of 100 employees based on designations like,
    a. Manager-Basic Pay-15000
    b. Supervisor-Basic Pay-7000
    c. Employees-Basic Pay-3500

   Temporary daily salary - Rs.300
   Overtime - Rs. 100/hour
   In the circle of ,
    a. Manager DA 20% of Basic Pay
    b. Supervisor HRA 10% of Basic Pay
    c. Employee CCA 5% of Basic Pay

   Car allowance- Rs. 1500/month (only Manager)
   Deduction PF account 7% of Basic leave allowed CL 12 days/year.
   Permission allowed 2/month ML allowed yearly 15 days otherwise lose of pay.
   Calculate the monthly salary.

3. Write a program to Inventory Stock Maintenance,
    a. **Item master table**: Item id,I temname,Brand,Description,Configuration,Unit of Measurement,Unitprice
    b. **Stock Table**: Item ID, Stock date, Stock in hand, Closing Stock.
    c. **Item purchase table**: Item ID, Purchase date, Purchase Quantity, Price, Invoice No
    d. **Item Sales table**: Item ID, Sales date, Sales quantity, Price.

   Perform the following,
    a. Stock operation
    b. List out the Purchase details based on the date.
    c. List out the Sales details based on the date.
    d. ABC analysis and draw the Graph.
4. Calculate the Income Tax which is to be deducted from the Salary for every year with the following fields:

   Name, Designation and Department, Gross salary (March*12)
   Deduction: House Rent Allowance, Professional Tax
   Add: Other income if any.
   TOTAL SALARY:
   Less: Maximum Rs. 1,00,000 only,
   GI/SPF/HF,ACPF,LIC,PLI,ULIP/NSC/PPF,Housing Loan Principal(Max paid), Tuition fee(Max paid for two children)
   TAXABLE INCOME:
   MEN:

Up to Rs.1,80,000	: Nil
1,80,000 to 3,00,000	: 10%
3,00,001 to 5,00,000	: 20%
Exceeding 5,00,001	: 30%
Total Tax	:

   WOMEN:

Up to Rs.1,90,000	: Nil
1,90,000 to 3,00,000	: 10%
3,00,001 to 5,00,000	: 20%
Exceeding 5,00,001	: 30%
Total Tax	:
Total tax payable/12	: /per month

Software Testing:

1. To Test the Performance of Database Application using open source tool and show them with Minimum Three Different Ways.
2. To Test the Performance of HTTP request using open source tool and show them with Minimum Three Different Ways.
3. To Test the Performance of FTP request using open source tool and show them with Minimum Three Different Ways.
4. To Test the Performance of TCP/IP request using open source tool and show them with Minimum Three Different Ways.

Elective – II Based on the Subject offered from the four options:

Electronic Commerce:

1. Programs for designing the screen for Marketing and Implementing Online Shopping
2. Programs for Creating a Website to Market a Product
3. Programs for accepting Electronic Payment System [credit cards/debit cards/smart cards/e cash]
4. Programs for Implementing Electronic Fund Transfer from one user to another user at a global level

14CMP20 MINI PROJECT WORK AND VIVA VOCE SEMESTER III

Mini project is to be done during the summer vacation after the Second Semester and present in it in the form of project and viva voce to be conducted during the end of third Semester.

ELECTIVE II

14CMP21 1.ELECTRONIC COMMERCE SEMESTER III

OBJECTIVE: 45 Hours

To enable the student to gain Knowledge in Electronic Commerce, online Shopping, Implementation strategies, Designing Websites, and Legal and Ethical Issues.

UNIT – I 9 Hours

Marketing on the Internet Online Shopping – Internet Marketing Techniques – The E-Cycle of Internet Marketing – The Business Plan – The Product – Pricing – Place – Promotion – Personalization – Marketing Implications – Guidelines for Marketing A Site Attractive – Tracking Customers – Customer Service.

UNIT – II 9 Hours

Implementation and Maintenance_ Implementation Strategies – The Test Plan – Site Performance Issues – Disaster Planning and Recovery – Staff Training – Managing Implementation – Project Management – Maintenance Strategies – Maintenance Tasks – Monitoring Web Site Traffic – Management Implications – Business and Customer Issues.

UNIT – III 10 Hours

Designing Web Sites – The Life Cycle of Site Building – Web Navigation Design – Design Criteria – Hiring A Web Designer – Web Site Evolution and Usability Testing – Web Site Content And Traffic Management – Web Based Business-to-Business E-Commerce.

UNIT – IV 9 Hours

Payment Systems – Credit Cards – Debit Cards – Smart Cards – Digi Cash – E-Cash and the E-Wallet – Electronic Fund Transfer – Automated Cleaning House – E-Security – Security Protection And Recovery – Encryption – Authentication and Trust – Internet Security Protocols and Standards – Encryption Issues.

UNIT – V 8 Hours

Legal and Ethical Issues – Major Threats – Improving the Ethical Climate – Codes of Ethics and Other Tools – The Privacy Factor – Legal Issues – The Question of Liability – Tort Law on the Internet – Web Site – Copyright – Trade Mark – Trade Name – Taxation Issues – Legal Disputes on the Internet – Web Linking and Domain Name Disputes – Encryption Laws.

Text books:

1. Elias.M.Awad, “Electronic commerce”, Hall of India Private Limited 2002 Edition. (Unit I-III)
2. Ravi Kalakota & Andrew.B., “Frontiers of Electronic commerce” Wesley Company, Third Edition. (Unit IV-V)

ELECTIVE II

14CMP21 2.SERVICE ORIENTED ARCHITECTURE SEMESTER III

OBJECTIVE: 45 Hours

To enable the students to gain fundamental concepts of Service Oriented Architecture, SOAP, UDDI and XML to create web services, Cloud Computing architecture and services.

UNIT - I 9 Hours

Roots of SOA – Characteristics of SOA - Comparing SOA to client-server and distributed internet architectures – Anatomy of SOA- How components in an SOA interrelate - Principles of service orientation – Service Layers.

UNIT - II 9 Hours

XML structure – Elements – Creating Well-formed XML - Name Spaces – Schema Elements, Types, Attributes – XSL Transformations – Parser – Web Services Overview – Architecture.

UNIT – III 10 Hours

WSDL - Overview Of SOAP – HTTP – XML-RPC – SOAP: Protocol – Message Structure – Intermediaries – Actors – Design Patterns And Faults – SOAP With Attachments – UDDI.

UNIT – IV 9 Hours

SOA platform basics – SOA support in J2EE – Java API for XML-based web services (JAX-WS) - Java architecture for XML binding (JAXB) – Java API for XML Registries (JAXR) - Java API for XML based RPC (JAX-RPC) – JAX-RS SOA support in .NET – ASP.NET web services.

UNIT – V 8 Hours

Vision of Cloud computing – Cloud Definition – Characteristics and Benefits – Virtualization –Cloud computing Architecture – Cloud Reference Model, Types of Clouds – Cloud Platforms in Industry.

TEXT BOOKS:

1. Thomas Erl, “Service-Oriented Architecture: Concepts, Technology, and Design”, Pearson Education, 2006.(Unit –I)
2. Heather Williamson, “XML, The Complete Reference”, McGraw Hill Education, 2012. (Unit –II)
3. Frank. P. Coyle, “XML, Web Services And The Data Revolution”, Pearson Education, 2002.(Unit –II)
4. Sandeep Chatterjee, James Webber, “Developing Enterprise Web Services. An Architect’s Guide”, Pearson Education, 2005.(Unit –IV)
5. Newcomer, Lomow, “Understanding SOA with Web Services”, Pearson Education, 2005.(Unit –III,IV)
6. Rajkumar Buyya, Christian Vecchiola, S. Thamarai Selvi, “Mastering Cloud Computing”,McGraw Hill Education, 2013.(Unit –V)

Elective II

14CMP21 3.DATA AND WEB WAREHOUSING SEMESTER III

OBJECTIVE: 45 Hours

To enable the students to gain Knowledge on Data and Web Warehousing, Data Warehousing Techniques and Web warehouse techniques and its concepts.

UNIT - I 9 Hours

DATA WAREHOUSING AND WEB CONCEPTS AND PROCESS

Introduction – The Warehousing Process – Define Proper Data Sources – Oriented Data Matter. Architecture: Building the Required Foundation**:** Planning Data Warehouse Architecture: The Datawarehouse Blueprint – Managing the Process: Project Life Cycle and Management: Formulation A Project Team: Knowledge Cloning – The Project Management Team – The Project Resources Pool – The Project Work Flow.

UNIT - II 9 Hours

DATA WAREHOUSE TECHNOLOGY

Data Gathering: Information Usage Analysis: -Building A Data Model – Star Schema Design-Extending a Star Schema – Snowflake Schema – Unique Entity Definitions – An Additional Information Package Definition – Database Design: Level Of Refinement-Building The Physical Data Model a Closer Look at A Physical Data Warehouse – Data Extraction And Cleansing: Managing Corporate Data Assets – Extract Specifications – Loading Data – Optimize Extractions With Replication Agents- Data Distribution – Extraction Processing Standards Publishing and Accessing. Data Access Tools- Pay Now or Pay Later P Application Framework P Delivering the Goods: Avoiding Productions Obstacle Data Integration – Constant Tuning Required Security.

UNIT - III 9 Hours

WEB WAREHOUSING CONCEPTS

Applied Knowledge Management – Web Ware Housing and Knowledge Management – Web Warehousing: - Application of Knowledge Management Principles to the Consumer World – In Pursuit of a Definition of Knowledge- Knowledge Management and Computers – What are Knowledge Management Systems? – Databases, Data Warehouses and Knowledge Bases from Edison to Burners – Lee – A Revolution with a Cost – Your First Web Warehousing Project will be a Failure! – The New Technology Assimilation Process – The Roles of Knowledge Management in The Future – Introducing the Value Chain – Telecommunication Example – Value Chain Implementation- Key to Corporate Differentiation – A High Volume, Low-Cost Retailer – The Value Chain and Killer Applications – Value Chains and Knowledge Management – Value Chain Alignments Issues.

UNIT - IV 9 Hours

WEB WAREHOUSING PROCESS

Modeling, Visioning and Value Prepositions – Principle Challenges to Web Warehouse Solution Selection- Value Prepositions – The Nature of the Value that Systems Deliver- Turning Potential into Realization: The Role of Models and Visioning- What is a Model- Visioning – Knowledge Networks – Neighborhood and Economics – Definition of Terms- Cultural – Shift and New Technology Assimilation – Knowledge Management Consequences for the Systems Development Life Cycle.

UNIT - V **9 Hours**

WEB WAREHOUSING TECHNOLOGY

Web- Based Query and Reporting- Delivery Information Over the Web. Example: Global Sports – Conclusions – Web OLAP – The World Of OLAP Reporting – OLAP Architecture and Performance Problems – Aperio from Influence Software – Web Based Statistical Analysis and Data Mining – Data Discovery Tools Overview- Comparison of the Product- Architecture Approaches for Statistical and Data Discovery Tools – Web-Based Graphical and Geographic Information System – The Autodesk Geographical Information System.

An Introduction to Text Information Management System – Major Categories of TIMS – Conclusion – Search Engine and Facilities- Search Engine and The Web – Search Engines Architecture – Variations in the Way that Search Facilities Work- Variation in Indexing Schemas – The Excalibur Retrivalware – Project Organization- Excalibur Screen Examples- The Excalibur Retrivalware Report Card- Conclusion – Text Mining Systems – IBM Text Mining Product Offerings – Business Application Making Use of Text Mining Products – IBM Customer Relationship Intelligences Product- Text Mining in Action – Using The IBM Intelligence Miner for Text - Multimedia Information Management Systems- The Excalibur Visual Retrivalware Product- Components of the Visual Retrivalware SDK- Practical Application Of Visual Retrivalware SDK.

Technology Foundation- The Internet and Internet Services- Understanding HTML- The Stateless Web- Browsers-Server Communication in Depth- PPP and CGI:
Database Access to the Web – Delivering Traditional Data Over The Web- The PPP Approaches- The CGI Approaches- The CGI Based Architecture – Input with CGI Communication with the CGI Environment Processing – Java: The Java Runtime Environment – Component of the Java Language – A Closer Look at Some Critical Extension APIS – JDBC Accessing Database with Java-JDBC: Programming with JDBC – JDBC – Working with Specific Database – Architecture, Performance and Management- Web Warehousing Topology – Capacity Planning, Performance Tuning and Troubleshooting – Step-by-Step Guide to Capacity Planning – A Step-by-Step Guide to Performance Troubleshooting.

Text books:

1. Tom Hammergren, “Data Warehousing In Action”, 1996. (Unit –I)
2. Mark Humphries, Michael W.Hawkins,And Michelle C.Dy, “Data Warehousing Architecture And Implementation”, Prentice Hall Of India, 1999. (Unit –I)
3. Sam Anahory, Dennis Murray, “Data Warehousing in the Real World”, Addition Wesley, 1996. (Unit –II,V)
4. Sean Kelly, “Data Warehousing in Action”, John Wiley, 1997. (Unit –I,III,IV)
5. Rob Mattison, “Web Warehousing and Knowledge Management”, Tata McGraw Hill. (Unit –III.,IV)

Elective II

14CMP21 4.PARALLEL PROCESSING & ALGORITHMS SEMESTER III

OBJECTIVE: 45 Hours

To enable the students to gain Knowledge on parallel processing involved in Computing Systems, pipelining, Parallel Processing Algorithms enhanced with Array Processors.

UNIT - I 7 Hours

Introduction to Parallel Processing – Evolution of Computer Systems – Parallelism in Uni-Processor Systems – Parallel Computer Structures – Pipelines Computer – Array Computers – Multiplicity of Instructions, Data Streams – Serial Versus Parallel Processing.

UNIT - II 10 Hours

Solving Problems in Parallel – Utilizing Temporal Parallelism – Utilizing Data Parallelism – Comparison of Temporal and Data Parallel Processing – Data Parallel Processing with Specialized Processors – Inter Task Dependency – Structure of Parallel Computer – Pipelined Parallel Computers – Array Processors – Shared Memory Multiprocessors – Message Passing Multicomputers – Multilink Multidimensional Computing Systems.

UNIT - III 8 Hours

Principles of Pipelining and Vector Processing – Pipelining – Principles of Linear Pipelining – Classification of Pipeline Processors – General Pipelines and Reservation Tables – Interleaved Memory Organization – Instruction and Arithmetic Pipelines –Principles of Designing Pipelined Processors– Instruction Pre Fetch and Branch Handling – Data Buffering and Bushing Structures – Internal Forwarding and Register Tagging.

UNIT - IV 10 Hours

SIMD Array Processor – SIMD Computer Organizations – Masking and Data Routing Mechanism – Inter PE Communications Networks –Mesh, Cube Interconnection Networks, Multiprocessor Architecture Functional Structures – Loosely Coupled, Tightly Coupled Multiprocessor – Interconnection Networks –Time Shared Bus – Crossbar Switch and Multiport Memories – Multistage Networks for Multiprocessors.

UNIT - V 10 Hours

Parallel Algorithms – Scalar Product of Two Vectors – Matrix Multiplication – Partial Sums – Binomial Coefficient – Range Minima Problem – Sequential Searching – Parallel Search – Searching in Unsorted Array – Merging by Ranking – Sorting Algorithms – Sequential Sorting Algorithms – Merge Sorts.

Text books:

1. Kai Hawang, Faes.A.Briggs, "Computer Architecture and Parallel Processing" McGraw Hill international books, 1985 edition. (UNIT - I, II, III, IV).
2. V.Rajaraman,"Elements of Parallel Computing", Prentice Hall, 1990 edition3.
3. C.Xavier, S.S.Iyengar, "Introduction to Parallel Algorithms", John Willey & sons.Inc 1998 edition. (UNIT - V)

14CMP24 MAIN PROJECT WORK AND VIVA VOCE SEMESTER - IV

** Main project is to be done during the fourth Semester and present it in the form of Project/Dissertation and viva voce to be conducted during the end of the fourth Semester.

** Continuous Assessment mark is given by the Internal Examiner (guide) for 80 marks based on the performance of his/her three reviews (20 marks each) and his/her attendance and periodical reporting (20 marks).

** Project report to be valued separately by internal and external examiners (40 marks each) and viva-voce was to be conducted jointly by them (20 marks each).

14MAP12C/14STP16C/14PHP15C

WEB DESIGN USING HTML & JAVA SCRIPT (THEORY)

(IDC for Mathematics, Statistics & Physics Departments)

SEMESTER III

OBJECTIVE: **40 Hours**

To enable the student to gain Knowledge in Web related skills like web Designing and development using HTML & JavaScript

UNIT-I **8 Hours**

Internet Principles:

Introduction-Client Server Model-Protocol-Internet IP Address-Domain Name-Internet Services-Electronic Mail-World Wide Web-Internet Security-Electronic Commerce and Electronic Data Interchange

UNIT-II **8Hours**

Introduction to HTML:

A brief History-HTML Tags-HTML Documents-Header Section-Body Section-Headings-Link Document using Anchor Tag-Formatting Characters-Font Tag-Images and Pictures-Listing-Tables in HTML

UNIT-III **8 Hours**

Frames and Forms:

Frameset and definition-Frame Definition-Nested Framesets-HTML forms-Elements of Form

Elements of JavaScript:

Data Types-Variables-Operator-Conditional Statements-Array Object-Data Object-String Object

UNIT-IV **8 Hours**

Object and Events:

Document Object Model-The Document Object –Image Object-Forms and Elements-Event Handling-Browser Object-Submit Event and Data Validation

UNIT-V **8 Hours**

User Input Processing:

ParseInt() Function-ParseFloat() Function-Recursive Function-Simple Interest Example-Income Tax Example-Sales Commission Example-Circle Object Example-Quadratic Equation Example-Prime number Checking Example

Text Book:

1. C.Xavier"Web Technology and Design" New age International (p) Limited, 2003, (Unit I-V)

Reference books:

1. Deitel,Nieto, "Internet and World Wide Web-How to Program", Pearson Education Asia, 2003.
2. Danny Goodman, " JAVA SCRIPT BIBLE", Comdex Computer Publishing.
3. C.Xavier, "World Wide Web Design with HTML", 2007, TMH.
4. John Pollock, "The ABC's of Java Script", Third Edition, Tata McGrawHill Edition, WWW.Sybex.com.
5. David Flanagan, "Java Script The Definitive guide", 5th Edition, O'Reilly Media.
6. Paul Hatcher with John Gosrey, "Java Script Professional Projects"

14MAP13C/14STP17C/14PHP16C

WEB DESIGN USING HTML & JAVA SCRIPT LAB PRACTICALS

(IDC for Mathematics, Statistics & Physics Departments)

SEMESTER III

OBJECTIVE:

To enable the students to gain practical knowledge in web designing using JavaScript's, HTML.

1. Write a Program to design a class Timetable Using HTML
2. Write a Program to create a different font color in Text and animating the Text.
3. Write a Program to create a web page Using Frames and Framesets.
4. Write a HTML document to print your Bio-Data.
5. Create a Simple JavaScript Program
6. Write a Program to create a Standard Calculator using JavaScript with HTML.
7. Write a Program to validate username and password using JavaScript.
8. Write a Program to create a own web site using your department profile