15MECC101   APPLIED MATHEMATICS       L   T   P   C  
COURSE OBJECTIVES:     3   1   0   4

- To kindle the analyticity of the engineers.
- To develop an appropriate level of mathematical literacy and competency.

INTENDED OUTCOMES:
- The students will gain the knowledge about vector spaces and linear transformations
- The learners can equip themselves in fuzzy logic techniques which are needed for Engineers in physical scenario.

UNIT – I   LINEAR SYSTEMS      14

UNIT - II   LINEAR PROGRAMMING     12
Basic concepts – Graphical and Simplex methods –Transportation problem – Assignment problem.

UNIT - III GRAPH THEORY         12
Graphs – Paths, cycles and trials – Vertex, degree and counting – Connectivity and Paths.

UNIT - IV TREES               12
Basic properties – Spanning trees and Enumeration – Optimization and trees.

UNIT – V   FUZZY LOGIC       10
Classical logic – Multivalued logics – Fuzzy propositions – Fuzzy Quantifiers.  
Total Hours: 60

TEXT BOOKS:

REFERENCES:
3. Douglas. B. West Introduction to Graph theory Prentice Hall of India Pvt Ltd., New Delhi.2007

WEBSITES:
1. www.mathworks
2. nptel.ac.in
3. www.mathworld.com
4. www.springer.com
COURSE OBJECTIVES:

- To do an advanced study of the Instruction Set Architecture, Instruction Level Parallelism with hardware and software approaches, Memory and I/O systems and different multiprocessor architectures with an analysis of their performance
- To study the ISA design, instruction pipelining and performance related issues.
- To do a detailed study of ILP with dynamic approaches.
- To do a detailed study of ILP with software approaches.
- To study the different multiprocessor architectures and related issues.
- To study the Memory and I/O systems and their performance issues.

INTENDED OUTCOMES:

- Students should be able to program using the capabilities of the stack, the program counter, and the status register and show how these are used to execute a machine code program.
- Students should be able to apply knowledge of the processor’s internal registers and operations by use of a PC based microprocessor simulator.
- Students should be able to write assemble assembly language programs, assemble into machine a cross assembler utility and download and run their program on the training boards.
- Students should be able to design electrical circuitry to the processor I/O ports in order to interface the processor to external devices.

UNIT I       PIPELINING AND ILP


UNIT II       ADVANCED TECHNIQUES FOR EXPLOITING ILP


UNIT III      MULTIPROCESSORS

Symmetric and distributed shared memory architectures – Cache coherence issues -

UNIT IV MULTI-CORE ARCHITECTURES

UNIT V MEMORY HIERARCHY DESIGN
Introduction - Optimizations of Cache Performance - Memory Technology and Optimizations - Protection: Virtual Memory and Virtual Machines - Design of Memory Hierarchies - Case Studies.

Total Hours : 45

REFERENCES:
COURSE OBJECTIVES:

- To provide an in-depth knowledge in problem solving techniques and data structures.
- To learn the systematic way of solving problems
- To understand the different methods of organizing large amounts of data
- To learn to program in C
- To efficiently implement the different data structures
- To efficiently implement solutions for specific problems
- To provide an in-depth knowledge in problem solving techniques and data structures.

INTENDED OUTCOMES:

- Understand the properties of various data structures
- Identify the strengths and weaknesses of different data structures
- Design and employ appropriate data structures for solving computing problems
- Possess the knowledge of various existing algorithms
- Analyze and compare the efficiency of algorithms
- Possess the ability to design efficient algorithms for solving computing problems

UNIT I SEARCH STRUCTURES


UNIT II HEAP STRUCTURES


UNIT III ALGORITHM ANALYSIS

UNIT IV  MULTIMEDIA STRUCTURES


UNIT V  ALGORITHMS


Total Hours 45+15 : 60

REFERENCES:

15MECS104 OBJECT ORIENTED SYSTEM ENGINEERING

COURSE OBJECTIVES:
- To have a thorough knowledge of process models, analysis and system design engineering.
- To have an overview of classical paradigm
- To know about the implementation of Object oriented system engineering.
- To know the concepts of deployment and maintenance.

INTENDED OUTCOMES:
- Apply software design principles to object-oriented design
- Develop object-oriented models for a medium-sized software system
- Evaluate design trade-off of different designs
- Implement an object-oriented design in a suitable language
- Use commonly available object-oriented design frameworks for application development
- Apply knowledge of basic science and engineering fundamentals

UNIT I CLASSICAL PARADIGM
9
System Concepts – Project Organization – Communication – Project Management

UNIT II PROCESS MODELS
9

UNIT III ANALYSIS
9
Requirements Elicitation – Use Cases – Unified Modeling Language, Tools – Analysis Object Model (Domain Model) – Analysis Dynamic Models – Non-functional requirements – Analysis Patterns

UNIT IV DESIGN
9

UNIT V IMPLEMENTATION, DEPLOYMENT AND MAINTENANCE
9

Total Hours : 45
REFERENCES:
2. Craig Larman, Applying UML and Patterns, Pearson Education, 2005
COURSE OBJECTIVES:

- To study the fundamentals of networking systems
- To be aware of quality service
- To study high performance and high speed networks in this subject

INTENDED OUTCOMES:

- Describe the services, functions, and inter-relationship of different layers in network models
- Describe how components in different layers inter-operate and analyze their performance.
- Design solutions to solve engineering problems that require the applications of computer network technology.
- Describe how rapid progress of computer and network technology can impact on the society.

UNIT – I FOUNDATIONS OF NETWORKING 9


UNIT II QUALITY OF SERVICE 9

Traffic Characteristics and Descriptors – Quality of Service and Metrics – Best Effort model and Guaranteed Service Model – Limitations of IP networks – Scheduling and Dropping policies for BE and GS models – Traffic Shaping algorithms – End to End solutions – Laissez Faire Approach – Possible improvements in TCP – Significance of UDP in inelastic traffic

UNIT III HIGH PERFORMANCE NETWORKS 9

UNIT IV  HIGH SPEED NETWORKS


UNIT V  NETWORK MANAGEMENT


Total Hours : 45

REFERENCES:

COURSE OBJECTIVES:
To become proficient with the fundamental tools of program design using structured problem solving, data representation, software engineering principles and comparative analysis of algorithms. To develop the ability to design and write programs for implementation of such algorithms.

INTENDED OUTCOMES:
- Declaration and use of various nonprimitive data types.
- Define and build basic data structures.
- Understand applicability for the various data structures.
- Understand the concept of logic encapsulation.
- Fundamental management of data in virtual storage.
- Understand differences between recursive and iterative methods.
- To design algorithmic solutions to storage problems.
- Implement designed algorithms into programming code.
- Demonstrate data structure storage management problem solutions.

1. Linked lists
2. Multistacks
3. Double Ended Queue (Deques) & Circular Queues
4. Min Heap
5. Deaps
6. Leftist Heap
7. AVL Tree
8. B: Tree
9. Quick Sort
10. Greedy algorithm
11. Knapsack using Dynamic Programming
12. Graph coloring using backtracking

Total Hours : 45
SEMESTER – II
COURSE OBJECTIVES:

- Advanced database aims at developing computer application with different kinds of data models. It is also deals with the Transaction management of these different databases.
- To study the needs of different databases.
- To understand about different data models that can be used for these databases.
- To make the students to get familiarized with transaction management of the database.
- To develop in-depth knowledge about web and intelligent database.
- To provide an introductory concept about the way in which data can be stored in geographical information systems etc.,

INTENDED OUTCOMES:

- Understand issues related performance and reliability in building applications involving large-scale database systems.
- Understand Database Technologies used in large-scale applications such as Google search Engines.
- Understand the concepts and technologies underpinning new forms of Web data.
- Deep knowledge of transaction processing and recovery from failures and concepts employed in modern database systems.

UNIT – I  PARALLEL AND DISTRIBUTED DATABASES  9


UNIT II  OBJECT AND OBJECT RELATIONAL DATABASES  9

UNIT – III  XML DATABASES

UNIT – IV  MOBILE DATABASES
Mobile Databases: Location and Handoff Management - Effect of Mobility on Data Management - Location Dependent Data Distribution - Mobile Transaction Models - Concurrency Control - Transaction Commit Protocols- Mobile Database Recovery Schemes

UNIT – V  MULTIMEDIA DATABASES

Total Hours 45+15 : 60

REFERENCES:

COURSE OBJECTIVES:

- To study the structure of, and cost models associated with, the PRAM, mesh and hypercube models of parallel computation.
- To study the metrics of cost, speed-up and efficiency and use these as conceptual tools with which to analyse and discriminate between alternative candidates parallel algorithms for given problems.
- To study with appropriate use of diagrams, sketch the structure and operation of well known parallel algorithms in a range of application areas, including sorting, matrix and graph.

INTENDED OUTCOMES:

- Have an understanding of parallel algorithms, analysis and architectures
- Obtain experience developing parallel algorithms for various parallel architectures

UNIT I PRAM MODEL 9


UNIT II CLASSIFYING MIMD ALGORITHMS 9


UNIT III SORTING 9

UNIT IV SEARCH


UNIT V MATRIX MULTIPLICATION


Total Hours : 45

REFERENCES:

COURSE OBJECTIVES:

- To understand, design and Intermediate representation.
- To study the optimization procedure.
- To understand, design code generation schemes.
- To understand optimization of codes and runtime environment and case studies

INTENDED OUTCOMES:

- At the end of the course the student will be able to design and implement a simple compiler.
- Describe the fundamental concepts of compiler functions
- Identify the fundamental elements of compiler optimization
- Discuss some of the technical challenges encountered in the areas of scalar optimization, dataflow analysis, scheduling and register allocation

UNIT – I  INTRODUCTION


UNIT – II  INTERMEDIATE REPRESENTATION


UNIT – III  PROCEDURE OPTIMIZATION

UNIT – IV  CODE SCHEDULING


UNIT – V  CASE STUDIES

Case Studies – Sun Compilers for SPARC – IBM XL Compilers – Alpha compilers – PA – RISC assembly language – COOL – (Classroom Object oriented language) - Compiler testing tools – SPIM

Total Hours : 45

REFERENCES:

COURSE OBJECTIVES:

- To give in-depth knowledge in how a modern operating system (Unix) is designed regarding its internal algorithms.
- To study, how internal and external communication is realized and how and dynamic modules are implemented.
- To study the implementation of Unix process management and scheduling.
- To study the architecture if a Unix I/O system.

INTENDED OUTCOMES:

- Identify the services provided by operating systems.
- Understand the internal structure of an operating system and be able to write programs using system calls.
- Understand and solve problems involving process control, mutual exclusion, deadlock and synchronization.

UNIT I OVERVIEW 9


UNIT II FILE SUBSYSTEM 9


UNIT III SYSTEM CALLS FOR THE FILE SYSTEM 9

UNIT IV  PROCESSES


UNIT V  MEMORY MANAGEMENT AND I/O


Total Hours: 45

REFERENCES:
COURSE OBJECTIVES:

- To provide basics for various techniques in Mobile Communications and Mobile Content services
- To learn the basics of Wireless voice and data communications technologies.
- To build working knowledge on various telephone and satellite networks.
- To study the working principles of wireless LAN and its standards.

INTENDED OUTCOMES:

- Grasp the concepts and features of mobile computing technologies and applications
- Have a good understanding of how the underlying wireless and mobile communication networks work, their technical features, and what kinds of applications they can support
- Identify the important issues of developing mobile computing systems and applications
- Organize the functionalities and components of mobile computing systems into different layers and apply various techniques for realizing the functionalities
- Organize and manage software built for deployment and demonstration

UNIT I  WIRELESS NETWORKS  

Wireless networks- emerging technologies- Blue tooth, WiFi, WiMAX, 3G, WATM.- Mobile IP protocols -WAP push architecture-Wml scripts and applications.

UNIT II  MOBILE COMPUTING  

Mobile computing environment—functions-architecture-design considerations ,content architecture -CC/PP exchange protocol ,context manager. Data management in WAE-Coda file system- caching schemes- Mobility QOS. Security in mobile computing.

UNIT III  MOBILE NETWORKS  

Handoff in wireless mobile networks-reference model-handoff schemes. Location management in cellular networks - Mobility models- location and tracking management schemes- time, movement ,profile and distance based update strategies. ALI technologies
UNIT IV  PERVASIVE COMPUTING

Pervasive Computing- Principles, Characteristics- interaction transparency, context aware, automated experience capture. Architecture for pervasive computing- Pervasive devices- embedded controls.- smart sensors and actuators -Context communication and access services

UNIT V  PROTOCOLS


Total Hours: 45

REFERENCES:
COURSE OBJECTIVES:

- To provide a sound introduction to the discipline of database management as a subject in its own right, rather than as a compendium of techniques and product-specific tools.
- To familiarize the participant with the nuances of database environments towards an information-oriented data-processing oriented framework.
- To give a good formal foundation on the relational model of data.
- To present SQL and procedural interfaces to SQL comprehensively.

INTENDED OUTCOMES:

- Design and implement a database schema for a given problem-domain.
- Normalize a database.
- Populate and query a database using SQL DML/DDL commands.
- Declare and enforce integrity constraints on a database using a state-of-the-art RDBMS.
- Programming PL/SQL including stored procedures, stored functions, cursors, packages.
- Design and build a GUI application using a 4GL.

1. Library Management System
2. Quiz System
3. Payroll System
4. HR Management System
5. Inventory Control System
6. e-Book
7. Online Banking
8. Online Ticket Reservation System
9. Online Shopping
10. Online Tax Payment System

Total Hours: 45
SEMESTER- III
COURSE OBJECTIVES:
- To study the research methodology and pedagogy
- To enable the students to get involved in research activities

INTENDED OUTCOMES:
- Facilitate a group to achieve agreed-upon goals.
- Determine and apply the appropriate statistical procedures to analyze the results of simple experiments.
- Develop an individual learning plan for a child with a learning disability.
- Analyze blood samples using equipment at local community hospitals.
- Produce a strategic plan for a small manufacturing business.
- Analyze a character’s motivation and portray that character before an audience.

UNIT – I HIGHER EDUCATION AN INTRODUCTION


UNIT – II RESEARCH PROCESSES AND METHODOLOGY


UNIT – III EFFECTIVE RESEARCH SKILLS

UNIT – IV    TECHNIQUES OF TEACHING AND EVALUATION


UNIT – V    ESSENTIALS FOR EFFECTIVE COMMUNICATION IN ENGLISH


REFERENCES:

1. Hubbuch, Susan M, Writing Research Papers Across the Curriculum , Thompson, New York, 2009
6. Yogesh kumar singh Educational Psychology Erusia Publishing House, New Delhi. 2010
COURSE OBJECTIVES:

- To understand the content and successfully complete this course, a student must have an understanding of computers, operating systems, networking, and databases. Experience in specific segments of storage infrastructure would also be helpful to fully assimilate the course material.
- To evaluate storage architectures, including storage subsystems, DAS, SAN, NAS, CAS
- To define backup, recovery, disaster recovery, business continuity, and replication
- To examine emerging technologies including IP-SAN
- To understand logical and physical components of a storage infrastructure

INTENDED OUTCOMES:

- Describe important storage technologies’ features such as availability, replication, scalability and performance
- Work in project teams to install, administer and upgrade popular storage solutions
- Identify and install current storage virtualization technologies
- Manage virtual servers and storage between remote locations
- Design, analyze and manage clusters of resources
- Analyze and differentiate between IT industry-specific certifications

UNIT – I  INTRODUCTION TO STORAGE TECHNOLOGY  9

Review data creation and the amount of data being created and understand the value of data to a business– challenges in data storage and data management– Solutions available for data storage– Core elements of a data center infrastructure– role of each element in supporting business activities

UNIT – II  STORAGE SYSTEMS ARCHITECTURE  9

Hardware and software components of the host environment– Key protocols and concepts used by each component –Physical and logical components of a connectivity environment –Major physical components of a disk drive and their function– logical constructs of a physical disk– access characteristics– and performance Implications– Concept of RAID and its components – Different RAID levels and their suitability for different application environments  RAID 0, RAID 1, RAID 3, RAID 4, RAID 5, RAID 0+1, RAID 1+0, RAID 6– Compare and contrast integrated and modular storage systems –High – level architecture and working of an intelligent storage system
UNIT – III  INTRODUCTION TO NETWORKED STORAGE  9

Evolution of networked storage– Architecture– components– and topologies of FC – SAN– NAS– and IP – SAN – Benefits of the different networked storage options– Understand the need for long – term archiving solutions and describe how CAS fulfills the need – Understand the appropriateness of the different networked storage options for different application environments

UNIT – IV INFORMATION AVAILABILITY & MONITORING & MANAGING DATACENTER  9

List reasons for planned/unplanned outages and the impact of downtime– Impact of downtime– Differentiate between business continuity (BC) and disaster recovery (DR) – RTO and RPO – Identify single points of failure in a storage infrastructure and list solutions to mitigate these failures – Architecture of backup/recovery and the different backup/recovery topologies – replication technologies and their role in ensuring information availability and business continuity– Remote replication technologies and their role in providing disaster recovery and business continuity capabilities – Identify key areas to monitor in data center– Industry standards for data center monitoring and management– Key metrics to monitor for different components in a storage infrastructure– Key management tasks in a data center.

UNIT – V  SECURING STORAGE AND STORAGE VIRTUALIZATION  9

Information security– Critical security attributes for information systems– Storage security domains– List and analyzes the common threats in each domain– Virtualization technologies– block – level and file – level virtualization technologies and processes

REFERENCES:


Total Hours: 45
COURSE OBJECTIVES:

- To introduce the techniques of soft computing and adaptive neuro-fuzzy inferencing systems which differ from conventional AI and computing in terms of its tolerance to imprecision and uncertainty
- To introduce the ideas of fuzzy sets, fuzzy logic and use of heuristics based on human experience
- To become familiar with neural networks that can learn from available examples and generalize to form appropriate rules for inferencing systems
- To provide the mathematical background for carrying out the optimization associated with neural network learning

INTENDED OUTCOMES:

- Describe, argue for and critique the Soft Computing discipline. Students will be able to use at least two of the Soft Computing techniques
- Given an artificial intelligence project, a student will be able to: identify and select a suitable Soft Computing technology to solve the problem; construct a solution and implement a Soft Computing solution.

UNIT – I  FUZZY SET THEORY


UNIT – II  OPTIMIZATION


UNIT – III  NEURAL NETWORKS

UNIT – IV  NEURO FUZZY MODELING


UNIT – V  APPLICATION OF COMPUTATIONAL INTELLIGENCE


Total Hours : 45

REFERENCES:
ELECTIVES
COURSE OBJECTIVES:

- To understand J2ME architecture
- To be familiar with J2ME user Interface
- To be familiar with J2ME data management

INTENDED OUTCOMES:

- Set up a J2ME platform for mobile phone game development.
- Describe the stages of the game development process.
- Explain various issues that arise in game design.
- Analyst issues and trade-offs in game implementation.
- Design and develop a computer game for mobile phone application.
- Develop and implement play-testing strategies for games

UNIT – I J2ME Overview


UNIT-II J2ME Architecture and Development Environment


UNIT-III J2ME User Interface

Commands, Items, and Event Processing - J2ME User Interfaces - Display Class - The Palm OS Emulator - Command Class - Command Listener - Item Class - Item Listener - Exception Handling - Throwing aMIDlet State Change Exception. High-Level Display: Screens - Screen Class – Choice Group Class – Date Field Class - Gauge Class - String
UNIT-IV  J2ME Data Management  9
Record Management System - Record Storage - The Record Store - Record Store Scope - Setting Up a Record Store - Writing and Reading Records - Creating a New Record and Reading an Existing Record - Writing and Reading Mixed Data Types - Record Enumeration - Reading a Record of a Simple Data Type into a Record Enumeration - Reading a Mixed Data Type Record into a Record Enumeration - Sorting Records - Sorting Single Data Type Records in a Record Enumeration - Sorting Mixed Data Type Records in a Record Enumeration - Searching Records.

UNIT-V  J2ME Networking and Web Services  9
Hypertext Transfer Protocol - Communication Management Using HTTP Commands - Session Management - Web Services - J2EE Multi-Tier Web Services Architecture - J2ME MIDlets and Web Services - WSDL and SOAP.

REFERENCES:
1. Jonathan Knudsen, Sing Li  Beginning J2ME: From Novice to Professional, 2005

Total Hours : 45
15MECSE02        PATTERN RECOGNITION

COURSE OBJECTIVES:
- Understand and apply various algorithms for pattern recognition
- Realize the clustering concepts and algorithms
- Bring out structural pattern recognition and feature extraction techniques

INTENDED OUTCOMES:
- The candidate is capable of analyzing relevant professional and research ethical problems in machine learning and pattern recognition.
- The candidate is capable of applying his/her machine learning and pattern recognition knowledge and skills in new fields, in order to accomplish advanced tasks and projects.
- The candidate can work independently and is familiar with terminology in the field of machine learning and pattern recognition.
- The candidate is capable of discussing professional problems, analyses and conclusions in the field of machine learning and pattern recognition, both with specialists and with general audience.
- The candidate is capable of contributing to innovation and innovation processes.

UNIT I PATTERN CLASSIFIER

UNIT II UNSUPERVISED CLASSIFICATION
Clustering for unsupervised learning and classification - Clustering concept - C-means algorithm – Hierarchical clustering procedures - Graph theoretic approach to pattern clustering - Validity of clustering solutions.

UNIT III STRUCTURAL PATTERN
Recognition Elements of formal grammars - String generation as pattern description - Recognition of syntactic description - Parsing - Stochastic grammars and applications - Graph based structural representation.
UNIT IV FEATURE EXTRACTION AND SELECTION

UNIT V RECENT ADVANCES

Total Hours: 45

REFERENCES:
COURSE OBJECTIVES:
- To impart the basic concepts of web services.
- To study the XML techniques in real time application.
- To study the security feature in web application.

INTENDED OUTCOMES:
- Design and code data transfer scripts using XML languages for the transfer of data over business networks and the Internet.
- Validate XML documents with the use of Document Type Definitions and schemas according to industry standards.
- Transfer/transform various data formats such as text and images so that this information can be transferred to and from server storage devices on business and health care networks and the Internet.
- Validate XML code and associated DTDs and schemas using a XML editing tool so that the XML code can be used within business and healthcare industries.
- Write and maintain HL7 segments at an elementary level for an entry level position in the Health Care Industry.

UNIT – I INTRODUCTION

UNIT – II XML TECHNOLOGY

UNIT – III SOAP

UNIT – IV WEB SERVICES
- Overview – Architecture – Key Technologies – UDDI – WSDL – ebXML – SOAP And Web Services In E – Com – Overview Of .NET And J2EE.
UNIT – V XML SECURITY


Total Hours : 45

REFERENCES:

COURSE OBJECTIVES:

- To study the importance of Bio Informatics among the students
- To study the relationship between Data mining with Bio informatics
- To simulate the Biological tools using softwares

INTENDED OUTCOMES:

- Genomes, genome sequencing, genomic structure and comparison.
- The fundamental theory of genome and post genomic analysis.
- The data arising from such studies.
- The application of computing and statistics to predictive biology.
- The technology for studies in modern post-genomic biology and the data that is generated by such studies.
- The advantages and shortcomings of various bioinformatics software tools.
- The appropriate application of a range of bioinformatics software.

UNIT – I INTRODUCTION


UNIT – II DATABASE AND NETWORKS


UNIT – III SEARCH ENGINES AND DATA VISUALIZATION


UNIT – IV STATISTICS, DATA MINING AND PATTERN MATCHING


UNIT – V MODELING SIMULATION AND COLLABORATION


Total Hours : 45

REFERENCES:
1. Zheng Rong Yang, Machine learning approaches to Bioinformatics, World Scientific, 2010
COURSE OBJECTIVES:

- To understand the principles of encryption algorithms; conventional and public key cryptography. To have a detailed knowledge about authentication, hash functions and application level security mechanisms.
- To know the methods of conventional encryption.
- To understand the concepts of public key encryption and number theory.
- To know the network security tools and applications.
- To understand the system level security used.

INTENDED OUTCOMES:

- Compliance with legislative and policy objectives;
- Cost-effective allocation of resources based on a risk assessment;
- Responsible governance of the Province’s information assets;
- Secure provision of government information and information resources.

UNIT – I  INTRODUCTION


UNIT – II PUBLIC KEY ENCRYPTION

RSA – Elliptic Curve Cryptography – Number Theory Concepts

UNIT – III MESSAGE AUTHENTICATION


UNIT – IV NETWORK SECURITY PRACTICE


UNIT – V SYSTEM SECURITY


Total Hours : 45

REFERENCES:

COURSE OBJECTIVES:

- To give sufficient background for undertaking embedded systems design.
- To introduce students to the embedded systems, its hardware and software.
- To introduce devices and buses used for embedded networking.
- To explain programming concepts and embedded programming in C and C++.
- To explain real time operating systems, inter-task communication and an exemplary case of MUCOS – IIRTOS.

INTENDED OUTCOMES:

- Explain the principles and models of concurrent computation
- Calculate composition of state machines according to different kinds of composition
- Explain characteristics of multitasking program and scheduling policies
- Express and analyze simple specifications using temporal logic
- Explain the different techniques used to perform reachability and real-time analyses

UNIT – I INTRODUCTION TO EMBEDDED SYSTEMS

Definition and Classification – Overview of Processors and hardware units in an embedded system – Software embedded into the system – Exemplary Embedded Systems – Embedded Systems on a Chip (SoC) and the use of VLSI designed circuits

UNIT – II DEVICES AND BUSES FOR DEVICES NETWORK


UNIT – III EMBEDDED PROGRAMMING

Programming in assembly language (ALP) vs. High Level Language – C Program Elements, Macros and functions – Use of Pointers – NULL Pointers – Use of Function Calls – Multiple function calls in a Cyclic Order in the Main Function Pointers – Function

UNIT – IV REAL TIME OPERATING SYSTEMS – PART – 1

OS Services – Interrupt Routines Handling, Task scheduling models – Handling of task scheduling and latency and deadlines as performance metrics – Inter Process Communication And Synchronisation – Shared data problem – Use of Semaphore(s) – Priority Inversion Problem and Deadlock Situations – Inter Process Communications using Signals – Semaphore Flag or mutex as Resource key – Message Queues – Mailboxes – Pipes – Virtual (Logical) Sockets – RPCs.

UNIT – V REAL TIME OPERATING SYSTEMS – PART – 2


**Total Hours : 45**

**REFERENCES:**

COURSE OBJECTIVES:

- To understand the basic concepts of Digital image processing
- To enable the students to analyze the details of image compression and segmentation
- To make the students to understand image recognition and Interpretation

INTENDED OUTCOMES:

- Appraise the benefits and latest developments of digital imaging and PACS;
- Review the use of digital imaging technology in clinical practice;
- Evaluate the existing methods for analyzing and visualizing digital images;
- Perform the role of a PACS administrator;
- Demonstrate awareness of security issues in digital imaging and PACS;
- Apply image informatics in research.

UNIT – I DIGITAL IMAGE FUNDAMENTALS  9


UNIT – II IMAGE ENHANCEMENT & RESTORATION  9


UNIT – III IMAGE COMPRESSION & SEGMENTATION  9


UNIT – IV REPRESENTATION AND DESCRIPTION  9

Representation schemes – Boundary descriptors – Regional descriptors – Relational Descriptors

UNIT – V OBJECT RECOGNITION AND INTERPRETATION  9

Patterns and pattern classes – Decision – Theoretic methods – Structural methods
REFERENCES:
COURSE OBJECTIVES:

- To introduce an integrated approach to software development incorporating quality assurance technologies.
- To study the Software quality models
- To study the Quality plan, implementation and documentation
- To understand the Quality measurement and metrics and CASE Tools

INTENDED OUTCOMES:

- Appreciate the importance of software quality assurance;
- Apply software testing techniques for information systems development;
- Know the inputs and deliverables of the testing process;

UNIT – I CONCEPTS


UNIT – II SOFTWARE ENGINEERING CONCEPTS


UNIT – III QUALITY ASSURANCE MODELS


UNIT – IV SOFTWARE QUALITY ASSURANCE RELATED TOPICS

Software Process – Definition and implementation; internal Auditing and Assessments; Software testing – Concepts, Tools, Reviews, Inspections & Walkthroughs; P – CMM.
PSP and TSP, CMMI, OO Methodology, Clean – room software engineering, Defect injection and prevention.

Total Hours : 45

REFERENCES:
COURSE OBJECTIVES:

- To have a detailed knowledge about Adhoc Networks and its protocols.
- To know the different Adhoc Network protocol..
- To understand the concepts of multicast routing in Adhoc Networks

INTENDED OUTCOMES:

- Compare between different types of antennas; shape and capabilities.
- Categorize satellite networks; according to the satellite altitude.
- Categorize various cellular networks according to generation, multiplexing method, architecture, capabilities and channels.
- Analyze various ad hoc networks protocols.
- Resolve different problems concerning, antenna, wireless communication and cellular networks.

UNIT – I INTRODUCTION


UNIT – II AD HOC ROUTING PROTOCOLS

UNIT – III MULTICAST ROUTING IN AD HOC NETWORKS


UNIT – IV TRANSPORT LAYER, SECURITY PROTOCOLS


UNIT – V QoS AND ENERGY MANAGEMENT


Total Hours: 45

REFERENCES:
COURSE OBJECTIVES:

- To serve as an introductory course to under graduate students with an emphasis on the design aspects of Data Mining and Data Warehousing
- To introduce the concept of data mining with in detail coverage of basic tasks, metrics, issues, and implication. Core topics like classification, clustering and association rules are exhaustively dealt with.
- To introduce the concept of data warehousing with special emphasis on architecture and design.

INTENDED OUTCOMES:

- Understand why there is a need for data warehouse in addition to traditional operational database systems;
- Identify components in typical data warehouse architectures;
- Design a data warehouse and understand the process required to construct one;
- Understand why there is a need for data mining and in what ways it is different from traditional statistical techniques;
- Understand the details of different algorithms made available by popular commercial data mining software;
- Solve real data mining problems by using the right tools to find interesting patterns;
- Understand a typical knowledge discovery process such as CRISP-DM;
- Obtain hands-on experience with some popular data mining software.

UNIT – I INTRODUCTION  


UNIT – II DATA PREPROCESSING AND ASSOCIATION RULES  

Data Preprocessing – Data Cleaning, Integration, Transformation, Reduction, Discretization Concept Hierarchies – Concept Description Data Generalization And Summarization Based Characterization – Mining Association Rules In Large Databases.

UNIT – III PREDICTIVE MODELING  

Classification And Prediction Issues Regarding Classification And Prediction – Classification By Decision Tree Induction – Bayesian Classification – Other Classification Methods – Prediction – Clusters Analysis Types Of Data In Cluster Analysis –
Categorization Of Major Clustering Methods

UNIT – IV DATA WAREHOUSING


UNIT – V APPLICATIONS

Applications of Data Mining – Social Impacts Of Data Mining – Tools – An Introduction To DB Miner – Case Studies – Mining WWW – Mining Text Database – Mining Spatial Databases.

Total Hours: 45

REFERENCES:

1. Jiawei Han, Micheline Kamber, Data Mining Concepts and Techniques, Morgan Kaufmann Publishers, New York, 2002.
COURSE OBJECTIVES:

- To understand the performance Evaluation Techniques
- To study the fundamentals of probability and Queuing theory used for evaluating the systems performance
- To study the algorithm used in analysis of network performance.

INTENDED OUTCOMES:

- Evaluate IT systems.
- Construct Time management techniques.
- Use of Programming skills.

UNIT – I INTRODUCTION


UNIT – II PROBABILITY AND STOCHASTIC PROCESSES


UNIT – III QUEUING THEORY


UNIT – IV PETRI NETS AND SYSTEM PERFORMANCE

UNIT - V ANALYSIS


Total Hours : 45

REFERENCES:

COURSE OBJECTIVES:

- Artificial Intelligence aims at developing computer applications, which encompasses perception, reasoning and learning and to provide an in-depth understanding of major techniques used to simulate intelligence
- To provide a strong foundation of fundamental concepts in Artificial Intelligence
- To provide a basic exposition to the goals and methods of Artificial Intelligence
- To enable the student to apply these techniques in applications which involve perception, reasoning and learning

INTENDED OUTCOMES:

- Describe and discuss different architectures for intelligent agents and interaction mechanisms for cooperative and competitive settings.
- Use abstract formal models of agents and agent interactions to analyze the properties of concrete designs.
- Explain the algorithmic and theoretical foundations of agents and multiagent systems, with an emphasis on knowledge-based and game-theoretic techniques.
- Be able to model, analyze and critically evaluate distributed systems using agent-based abstractions and related concepts.
- Design and implement agent-based systems using modern implementation platforms and agent programming languages.
- Design and conduct empirical experiments and evaluate the performance of implemented agent-based systems.

UNIT – I INTRODUCTION 9


UNIT – II KNOWLEDGE REPRESENTATION AND REASONING 9


UNIT – III PLANNING AGENTS 9

UNIT – IV AGENTS AND UNCERTAINTY


UNIT – V HIGHER LEVEL AGENTS


Total Hours : 45

REFERENCES:
COURSE OBJECTIVES:

- To understand the basic visualization techniques
- To study the basic principles of 2D and 3D Graphics
- To study the fundamental concepts of virtual realization systems design

INTENDED OUTCOMES:

- Model a framework for Human Activity Recognition.
- Analyze the big data for useful business applications.
- Implement search methods and Visualization

UNIT – I INTRODUCTION


UNIT – II POPULAR TECHNIQUES

Surface Plots – City scopes – Fish eye views – Benediktine Space – Perspective walls – Cone trees and Cam trees – Sphere Visualisation – Rooms – Emotical icons.

UNIT – III ADVANCED TECHNIQUES


UNIT – IV VISUALIZATION SYSTEMS


UNIT – V SOFTWARE VISUALIZATION


Total Hours : 45
REFERENCES:
COURSE OBJECTIVES:

- To build knowledge on software project management
- To provide a strong foundation on concept of software process.
- To understand the software management disciplines.

INTENDED OUTCOMES:

- Appreciate the importance of software process and management;
- Apply project management techniques for information systems development;
- Apply the management skills to monitor and control a software project;

UNIT – I INTRODUCTION 9


UNIT – II SOFTWARE MANAGEMENT PROCESS FRAMEWORK 9

Lifecycle Phases – Artifacts of the Process – Model Based Software Architectures – Workflows of the Process – Checkpoints of the Process

UNIT – III SOFTWARE MANAGEMENT DISCIPLINES 9


UNIT – IV MANAGED AND OPTIMIZED PROCESS 9

Data Gathering and Analysis Principles of Data Gathering, Data Gathering Process, Software Measures, Data Analysis – Managing Software Quality – Defect Prevention

UNIT – V CASE STUDIES 9

COCOMO Cost Estimation Model – Change Metrics – CCPDS – R

Total Hours : 45
REFERENCES:

COURSE OBJECTIVES:

- To explain Cloud computing concepts, related services and management
- To describe basic concepts of Cloud computing.
- To explain about developing Cloud services.
- To describe about Cloud collaborations.
- To explain Management tools.

INTENDED OUTCOMES:

- Cloud computing architectures
- The design of virtual machines
- Patterns for scalable computing on clouds
- Cloud computing platform components for processing and storage

UNIT I: UNDERSTANDING CLOUD COMPUTING


UNIT II: DEVELOPING CLOUD SERVICES


UNIT III: CLOUD COMPUTING FOR EVERYONE

Centralizing Email Communications – Collaborating on Schedules – Collaborating on To-Do Lists – Collaborating Contact Lists – Cloud Computing for the Community – Collaborating on Group Projects and Events – Cloud Computing for the Corporation

UNIT IV: USING CLOUD SERVICES

UNIT V: OTHER WAYS TO COLLABORATE ONLINE


Total Hours : 45

REFERENCES:

COURSE OBJECTIVES:

- To explain hardware concepts, Mainframe OS and Terminology.
- To describe basic features of Z/OS.
- To explain about developing COBOL and JCL.

INTENDED OUTCOMES:

- Understand the operations of the Integrated Student Information System (ISIS).
- Examine comprehensively the Academic Record Keeping System, and understand the automated report card process for schools.
- Interpret data available through ISIS in making decisions.
- Review sample reports and discuss applicability

UNIT I  EVOLUTION OF MAINFRAME HARDWARE  
Overview of Computer Architecture - Classification of Computers - micro, mini, mainframes and super computer - Mainframe computer - key features - benefits - Evolution of Mainframes - Different hardware systems

UNIT II  MAINFRAMES OS AND TERMINOLOGY  
Operating systems on mainframes, Batch processing vs. online processing - mainframe operating system. - evolution - concepts of Address space, Buffer management - Virtual storage - paging - swapping - Dataset management in mainframes

UNIT III  Z/OS AND ITS FEATURES  
Z-operating system (Z/OS) - Virtual storage - Paging process - storage Managers - Program execution modes - Address space - Multiple virtual system(MVS), MVS address space, Z/OS address space - Dataset - sequential and partial dataset - Direct access storage device(DASD) - Access methods - Record formats - Introduction to virtual storage access methods(VSAM) - Catalog - VTOC
UNIT IV  INTRODUCTION TO JCL  

Introduction to Job Control language - Job processing - structure of JCL statements - Various statements in JCL - JOB statement - EXEC statement - DD statement - JCL procedures and IBM utility programs.

UNIT V  COBOL PROGRAMMING 1  

Introduction – History, evolution and Features, COBOL program Structure, steps in executing COBOL-Language Fundamentals – Divisions, sections, paragraphs, sections, sentences and statements, character set, literals, words, figurative constants, rules for forming user defined words, COBOL coding sheet. Data division – Data names, level numbers, PIC and VALUE clause, REDEIFNES, RENAMES and USAGE clause-Procedure Division – Input / Output verbs, INITIALIZE verb, data movement verbs, arithmetic verbs, sequence control verbs.

Total Hours: 45

REFERENCES:

COURSE OBJECTIVES:

- To learn the fundamentals of Operating Systems
- To gain knowledge on Distributed operating system concepts that includes architecture, Mutual exclusion algorithms, Deadlock detection algorithms and agreement protocols
- To gain insight on to the distributed resource management components viz. the algorithms for implementation of distributed shared memory, recovery and commit protocols
- To know the components and management aspects of Real time, Mobile operating systems.

INTENDED OUTCOMES:

- Clearly differentiate the issues that arise in designing real-time systems;
- Describe how embedded systems are constructed, and discuss the limitations and advantages of C as a systems programming language;
- Discuss the advantages and disadvantages of integrating garbage collection with the operating system/runtime; understand the operation of popular garbage collection algorithms;

UNIT I  FUNDAMENTALS OF OPERATING SYSTEMS  9

UNIT II  DISTRIBUTED OPERATING SYSTEMS  9

UNIT III DISTRIBUTED RESOURCE MANAGEMENT  9
UNIT IV REAL TIME AND MOBILE OPERATING SYSTEMS


UNIT V CASE STUDIES


Total Hours: 45

REFERENCES:

COURSE OBJECTIVES:
- To understand linear regression models
- To understand logistic regression models
- To understand generalized linear models
- To understand simulation using regression models
- To understand causal inference
- To understand multilevel regression
- To understand data collection and model understanding

INTENDED OUTCOMES:
- Examine the concepts of data warehousing and OLAP;
- Apply the concepts of BI and DM techniques for clustering, association, and classification;
- Understand the operation procedures of BI projects in an organization;
- Select appropriate DM tools and methods to manipulate and achieve data;
- Apply DM concepts for formulating business strategies and programs to enhance business intelligence.

UNIT I  LINEAR REGRESSION 9

UNIT II  LOGISTIC AND GENERALIZED LINEAR MODELS 9

UNIT III  SIMULATION AND CAUSAL INFERENCE 9
experiments – observational studies – causal inference using advanced models – matching – instrumental variables

UNIT IV  MULTILEVEL REGRESSION


UNIT V  DATA COLLECTION AND MODEL UNDERSTANDING


Total Hours: 45

REFERENCES:

COURSE OBJECTIVES:

- To provide good understanding of fundamental concepts in real time systems.
- To provide understanding of advanced topics in real time systems.
- To provide understanding on basic multi-task scheduling algorithms for periodic, aperiodic, and sporadic tasks as well as understand the impact of the latter two on scheduling.
- To expose to understand capabilities of commercial off-the-shelf R-T kernel.
- To expose to real time communications and databases.

INTENDED OUTCOMES:

- Clearly differentiate the different issues that arise in designing soft and hard real-time, concurrent, reactive, safety-critical and embedded systems.
- Explain the various concepts of time that arise in real-time systems.
- Analyze and apply a variety of scheduling mechanisms suitable for soft and hard real-time systems. Conduct simple performance and schedulability analysis to demonstrate that a system can successfully meet real-time constraints.
- Explain the additional problems that arise in developing distributed and networked real-time systems.

UNIT I  INTRODUCTION 9


UNIT II  SCHEDULING REAL-TIME TASKS 9


UNIT III  RESOURCE SHARING AMONG RT TASKS & SCHEDULING RT TASKS 9

UNIT IV COMMERCIAL RT OPERATING SYSTEMS


UNIT V RT COMMUNICATION & DATABASES


Total Hours: 45

REFERENCES:
COURSE OBJECTIVES:

- To understand the machine learning theory
- To implement linear and non-linear learning models
- To implement distance-based clustering techniques
- To build tree and rule based models
- To apply reinforcement learning techniques

INTENDED OUTCOMES:

- Build on the algorithmic foundations of statistical pattern recognition and machine learning approaches and their integration into practical analysis systems;
- Discern the capabilities of different modeling and analysis approaches, which allows for informed decisions regarding the suitability of particular recognition and learning techniques;
- Exploit the potential of pattern recognition and machine learning techniques for real-world applications.

UNIT I  FOUNDATIONS OF LEARNING


UNIT II  LINEAR MODELS


UNIT III  DISTANCE-BASED MODELS

UNIT IV TREE AND RULE MODELS


UNIT V REINFORCEMENT LEARNING


Total Hours: 45

REFERENCES:
15MECSE021  MANAGING BIG DATA

COURSE OBJECTIVES:
- Understand big data for business intelligence
- Learn business case studies for big data analytics
- Understand nosql big data management
- Perform map-reduce analytics using Hadoop and related tools

INTENDED OUTCOMES:
- Understand the concept and challenge of big data and why existing technology is inadequate to analyze the big data;
- Collect, manage, store, query, and analyze various form of big data; and
- Gain hands-on experience on large-scale analytics tools to solve some open big data problems;
- Understand the impact of big data for business decisions and strategy

UNIT I  UNDERSTANDING BIG DATA


UNIT II  NOSQL DATA MANAGEMENT


UNIT III  BASICS OF HADOOP

UNIT IV  MAPREDUCE APPLICATIONS  9
MapReduce workflows – unit tests with MRUnit – test data and local tests –
anatomy of MapReduce job run – classic Map-reduce – YARN – failures in
classic Map-reduce and YARN – job scheduling – shuffle and sort – task
execution – MapReduce types – input formats – output formats

UNIT V  HADOOP RELATED TOOLS  9
Hbase – data model and implementations – Hbase clients – Hbase examples –
praxis.Cassandra – cassandra data model – cassandra examples – cassandra
clients – Hadoop integration.Pig – Grunt – pig data model – Pig Latin – developing
and testing Pig Latin scripts. Hive – data types and file formats – HiveQL data
definition – HiveQL data manipulation – HiveQL queries.

Total Hours: 45

REFERENCES:
1. Michael Minnelli, Michelle Chambers, and Ambiga Dhiraj, "Big Data, Big
Analytics: Emerging Business Intelligence and Analytic Trends for Today's
2. P. J. Sadalage and M. Fowler, “NoSQL Distilled: A Brief Guide to the
MOBILE APPLICATION DEVELOPMENT

COURSE OBJECTIVES:
- Understand system requirements for mobile applications
- Generate suitable design using specific mobile development frameworks
- Generate mobile application design
- Implement the design using specific mobile development frameworks
- Deploy the mobile applications in marketplace for distribution

INTENDED OUTCOMES:
- Develop mobile applications using third party application tools
- Modify and test existing applications for mobile use
- Design, customize and enhance mobile applications
- Modify existing mobile apps for better performance

UNIT I INTRODUCTION
Introduction to mobile applications – Embedded systems - Market and business drivers for mobile applications – Publishing and delivery of mobile applications – Requirements gathering and validation for mobile applications

UNIT II BASIC DESIGN
Introduction – Basics of embedded systems design – Embedded OS - Design constraints for mobile applications, both hardware and software related – Architecting mobile applications– User interfaces for mobile applications – touch events and gestures – Achieving quality constraints – performance, usability, security, availability and modifiability.

UNIT III ADVANCED DESIGN
Designing applications with multimedia and web access capabilities – Integration with GPS and social media networking applications – Accessing applications hosted in a cloud computing environment – Design patterns for mobile applications.

UNIT IV TECHNOLOGY I - ANDROID
UNIT V TECHNOLOGY II - IOS

Introduction to Objective C – iOS features – UI implementation – Touch frameworks – Data persistence using Core Data and SQLite – Location aware applications using Core Location and Map Kit – Integrating calendar and address book with social media application – Using Wifi - iPhone marketplace.

Total Hours: 45

REFERENCES:
COURSE OBJECTIVES:
- To understand the components of the social network
- To model and visualize the social network
- To mine the users in the social network
- To understand the evolution of the social network
- To mine the interest of the user

INTENDED OUTCOMES:
- Basic terminology of social network analysis
- SNA data management (adjacency matrices, edge lists, etc.)
- Data sources for SNA
- Actor-based measures (e.g. degree, centrality measures)
- Network-based measures (e.g. centralization, degree of clustering, average path length)
- Methods for detecting network clusters and communities
- Bipartite networks

UNIT I  INTRODUCTION

UNIT II  MODELING AND VISUALIZATION

UNIT III  MINING COMMUNITIES
Aggregating and reasoning with social network data, Advanced Representations - Extracting evolution of Web Community from a Series of Web Archive - Detecting Communities in Social Networks - Evaluating Communities – Core Methods for Community Detection
& Mining - Applications of Community Mining Algorithms - Node Classification in Social Networks.

UNIT IV EVOLUTION

UNIT V TEXT AND OPINION MINING
Text Mining in Social Networks -Opinion extraction – Sentiment classification and clustering - Temporal sentiment analysis - Irony detection in opinion mining - Wish analysis - Product review mining – Review Classification – Tracking sentiments towards topics over time

REFERENCES
COURSE OBJECTIVES:

- To understand the fundamentals of ontologies. To know about the Semantic Web and the different languages used in the context of semantic web.
- To learn the methodologies used for ontology learning for semantic web.
- To know about ontology management and tools used for Ontology annotation.
- To comprehend the role of semantics in web services and to discuss some of the security issues.

INTENDED OUTCOMES:

- Describe the motivations for, and effectiveness of, inference techniques in the implementation of distributed knowledge-based systems.
- Critically assess the adequacy of relevant standards (WSDL, RDF, OWL, etc) as a basis for building practical systems.
- Demonstrate an understanding of how the architecture and design of distributed knowledge-based systems interacts with wider social and technological developments.

UNIT I  INTRODUCTION


UNIT II  LANGUAGES FOR SEMANTIC WEB AND ONTOLOGIES


UNIT III  ONTOLOGY LEARNING FOR SEMANTIC WEB

UNIT IV  ONTOLOGY MANAGEMENT AND TOOLS


UNIT V APPLICATIONS

Web Services – Semantic Web Services - Case Study for specific domain – Security issues

TOTAL: 45 PERIODS

REFERENCES:


VALUE ADDED COURSES
COURSE OBJECTIVES:
- Create shapes with vector drawing tools.
- Use key frames to animate positions of elements on a stage.
- Sync character facial expressions to dialogue.
- Incorporate audio for timing

INTENDED OUTCOMES:
- Exhibit an understanding of the process of designing and creating animated content for digital delivery
- Demonstrate in-depth knowledge of the Flash software and interface by developing 2D design and animation for projects and assignments
- Apply understanding of the animation process in course projects
- Work with storyboards as they apply to animation intended for internet delivery and distribution

UNIT – I


UNIT – II

Working with Text ; Considering Typography – Text Field Type in Flash – The Text Tool and the Property Inspector – Font Export and Display – Font Symbols and Shared Font Libraries – Modifying Text.

Modifying Graphics : Sampling and Switching Fills and Strokes – Transforming Gradients and Bitmap Fills – Gradient Transform used for Lighting Effects – Applying Modify Shape Menu commands – Free Transform Commands and Options – Modifying Item Types – Working with Drawing Objects and Combine Object Commands – Working with Compound Shapes


Timeline Animation : Basic Methods of Flash Animation – Frame –by– Frame Animation – Modifying Multiframe Sequences – Using Tweens for Animation – Integrating Multiple Animation Sequences

REFERENCES:

1. Ranjan Parekh, Principles Of Multimedia TMH 2007
3. Robert Reinhardt and Snow Dowd Macromedia Flash 8 Bible Wiley India Edition 2006
5. Alex Michael, Animating with Flash MX: Professional Creative Animation TechniquesCRC Press 2012
6. Alex Michael Animating with Flash 8: Creative Animation Techniques CRC Press 2006
COURSE OBJECTIVES:

- Basic Android Development tools such as Eclipse, DDMS, Drawables, Listeners, and so on.
- How to use various Layouts and Widgets in Android Applications.
- How to create interactive applications in android with multiple activities including audio, video and notifications.
- How to create applications using SQLite database.
- How to publish your App on Google Play.

INTENDED OUTCOMES:

- Define the main characteristics and functionality of Android devices
- Reproduce the installation of the Android Eclipse SKD
- Define the Android user interface
- Use decision-making controls
- Define lists and arrays
- Implement audio in Android apps
- Develop Android app

UNIT-I

UNIT- II

REFERENCES:

COURSE OBJECTIVES:

- the basic concepts of ERP systems for manufacturing or service companies, and the differences among MRP, MRP II, and ERP systems;
- thinking in ERP systems: the principles of ERP systems, their major components, and the relationships among these components;
- in-depth knowledge of major ERP components, including material requirements planning, master production scheduling, and capacity requirements planning;
- Knowledge of typical ERP systems, and the advantages and limitations of implementing such systems.

INTENDED OUTCOMES:

- examine systematically the planning mechanisms in an enterprise, and identify all components in an ERP system and the relationships among the components;
- understand production planning in an ERP system, and systematically develop plans for an enterprise;
- use methods to determine the correct purchasing quantity and right time to buy an item, and apply these methods to material management;
- understand the difficulties of a manufacturing execution system, select a suitable performance measure for different objectives, and apply priority rules to shop floor control.

UNIT I INTRODUCTION


UNIT II ERP IMPLEMENTATION

REFERENCES:

4. Mahadeo Jaiswal and Ganesh Vanapalli, ERP Macmillan India, 2009