# Scheme of evaluation

<table>
<thead>
<tr>
<th>Subject</th>
<th>Code</th>
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<tr>
<td>MTCSE 1.1</td>
<td>Design and Analysis of Algorithms</td>
<td>4</td>
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<td>4</td>
<td>40</td>
<td>60</td>
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**Elective - I**
1. Pattern Recognition and Image Processing
2. Neural Networks
3. Advanced Computer Architecture

**Elective – II**
1. Middleware Technologies
2. Mobile Computing
3. Software Project Management
Note: Eligibility for admission to this course is B.E./B.Tech. in any branch of Engineering.
UNIT-I
Overview of OOP Principles: Encapsulation, Inheritance, and Polymorphism. Review of C++-Classes and Objects, Class members, Access control, class scope, constructors and destructors, dynamic memory allocation and deallocation (new and delete), Polymorphism-Function overloading, operator overloading, generic programming-function and class templates, Inheritance, run time polymorphism using virtual functions, abstract classes, File I/O and Exception handling.

UNIT-II

UNIT-III
Divide and conquer: General method, applications-Binary search, Quick sort, Merge sort, Strassen’s Matrix Multiplication.

UNIT-IV
Greedy method: General method, applications-Job sequencing with dead lines, 0/1 knapsack problem, Minimum cost spanning trees, Single source shortest path problem.

UNIT-V
Dynamic Programming: General method, applications-Matrix chain multiplication, Optimal binary search trees, 0/1 knapsack problem, All pairs shortest path problem, Traveling sales person problem, Reliability design.

UNIT-VI
Searching and Traversal Techniques: Efficient non-recursive Tree Traversal algorithms, DFS, BFS of Graphs, AND/OR graphs, game trees, Bi-Connected components, Search Trees- Balanced search trees- AVL trees, representation, Operations-insertion, deletion and searching, B-Trees-B-Tree of order m, Operations- insertion, deletion and searching.
UNIT-VII
Backtracking and Branch and Bound: General method (Backtracking), Applications - n-queen problem, sum of subsets problem, graph coloring, Hamiltonian cycles.
General method (Branch and Bound), Applications - Traveling sales person problem, 0/1 knapsack problem-LC Branch and Bound solution, FIFO Branch and Bound solution.

UNIT-VIII
NP-Hard and NP-Complete problems: Basic concepts, non-deterministic algorithms, NP - Hard and NP- Complete classes, Cook’s theorem.

Text Books:

Reference Books:
1. Design and Analysis of algorithms, Aho, Ullman and Hopcroft, Pearson Education.
2. Introduction to the Design and Analysis of Algorithms, A.Levitin, Pearson Education.
5. Fundamentals of Sequential and Parallel Algorithms, K.A.Berman, J. L.Paul, Thomson
UNIT-I:


COMPUTER ARITHMETIC: Addition and subtraction, multiplication Algorithms, Division Algorithms, Floating – point Arithmetic operations. Decimal Arithmetic unit Decimal Arithmetic operations

UNIT-II:

UNIT-III:
MICRO PROGRAMMED CONTROL: Control memory, Address sequencing, microprogram example, design of control unit Hard wired control. Microprogrammed control

UNIT-IV:
PROGRAM AND NETWORK PROPERTIES
Conditions of Parallelism. Program Partitioning and Scheduling, Program flow Mechanism, System Interconnect Architectures.

SCALABILITY AND PERFORMANCE

UNIT-V:
THE MEMORY SYSTEM: Basic concepts semiconductor RAM memories. Read-only memories Cache memories performance considerations, Virtual memories secondary storage. Introduction to RAID.
UNIT-VI:

UNIT-VII:
PIPELINE AND VECTOR PROCESSING:
Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline Vector Processing, Array Processors.

UNIT-VIII:
MULTIPROCESSING
Multiprocessor System Interconnects. Cache Coherence and Synchronization Mechanisms.

TEXT BOOKS:

REFERENCE:
UNIT-I

UNIT-II
Physical Layer: Guided transmission media – Magnetic media, Twisted Pair, coaxial cable, fiber optics.


UNIT-III
The Medium Access Sub Layer: The channel allocation problem, Multiple access Protocols, Ethernet, Wireless LANs, Broadband Wireless, Bluetooth, Data Link Layer Switching.

UNIT-IV

UNIT-V

UNIT-VI
The Application Layer: DNS-(Domain Name System), Electronic Mail, World Wide Web Multimedia,

UNIT-VII

UNIT-VIII
TEXT BOOKS:


REFERENCE BOOKS:


MTCSE 1.4 OPERATING SYSTEMS

UNIT I:

UNIT II:
Process and CPU Scheduling - Process concepts and scheduling, Operation on processes, Cooperating Processes, Threads, and Interposes Communication Scheduling Criteria, Scheduling Algorithm, Multiple-Processor Scheduling, Real-Time Scheduling.

UNIT III

UNIT IV:

UNIT V:

UNIT VI:
Introduction to Distributed systems: Goals of distributed system, hardware and software concepts, design issues. Communication in Distributed systems: Layered protocols, ATM networks, the Client-Server model, remote procedure call and group communication.

UNIT VII:
Synchronization in Distributed systems: Clock synchronization, Mutual exclusion, E-tech algorithms, the Bully algorithm, a ring algorithm, atomic transactions.

UNIT VIII:
Deadlocks: deadlock in distributed systems, Distributed deadlock prevention, and distributed deadlock detection.

TEXT BOOKS:
2 Distributed Operating System - Andrew. S. Tanenbaum, PHI
REFERENCE BOOKS:

1. Operating System A Design Approach-Crowley,TMH.
3. Pearson Education/PHI
5. Operating Systems, Dhamdhere, TMH
UNIT-I:
**Introduction to Software Engineering:** The evolving role of software, Changing Nature of Software, Software myths.
**A Generic view of process:** Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

UNIT-II:
**Process models:** The waterfall model, Incremental process models, Evolutionary process models, The Unified process.
**Software Requirements:** Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

UNIT-III:
**Requirements engineering process:** Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.
**System models:** Context Models, Behavioral models, Data models, Object models, structured methods.

UNIT-IV:
**Design Engineering:** Design process and Design quality, Design concepts, the design model.
**Creating an architectural design:** software architecture, Data design, Architectural styles and patterns, Architectural Design.

UNIT-V:
**Object-Oriented Design:** Objects and object classes, An Object-Oriented design process, Design evolution.
**Performing User interface design:** Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.

UNIT-VI:
**Testing Strategies:** A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.
**Product metrics:** Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

UNIT-VII:
**Plans for testing:** Snooping for information, Coping with complexity through teaming, Testing plan focus areas , Testing for recoverability , Planning for troubles.
UNIT-VIII:

Preparing for the tests: Software Reuse, Developing good test programs, Data corruption, Tools, Test Execution, Testing with a virtual computer, Simulation and Prototypes, Managing the Test, Customer’s role in testing

TEXT BOOKS:


REFERENCE BOOKS:

UNIT – I:

UNIT – II:

UNIT – III:
Form of Basic SQL Query – Examples of Basic SQL Queries – Introduction to Nested Queries – Correlated Nested Queries Set – Comparison Operators – Aggregative Operators – NULL values – Comparison using Null values – Logical connectivity’s – AND, OR and NOT – Impact on SQL Constructs – Outer Joins – Disallowing NULL values – Complex Integrity Constraints in SQL Triggers and Active Data bases.

UNIT – IV:

UNIT – V:
UNIT – VI:

UNIT – VII:

UNIT – VIII:

TEXT BOOKS:

REFERENCE BOOK:
1. Introduction to Database Systems, C.J.Date Pearson Education
3. Data base Management System, Elmasri Navrate Pearson Education
5. Data base Systems, Connoley Pearson education
UNIT-I

Introduction: Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Major issues in Data Mining, Data Warehouse and OLAP Technology for Data Mining, Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Further Development of Data Cube Technology, From Data Warehousing to Data Mining.

UNIT-II

Data Preprocessing: Needs Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discretization and Concept Hierarchy Generation, Online Data Storage.

UNIT-III

Data Mining Primitives, Languages, and System Architectures: Data Mining Primitives, Data Mining Query Languages, Designing Graphical User Interfaces Based on a Data Mining Query Language Architectures of Data Mining Systems.

UNIT-IV

Concepts Description: Characterization and Comparison: Data Generalization and Summarization-Based Characterization, Analytical Characterization: Analysis of Attribute Relevance, Mining Class Comparisons: Discriminating between Different Classes, Mining Descriptive Statistical Measures in Large Databases.

UNIT-V

Mining Association Rules in Large Databases: Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining.

UNIT-VI

Classification and Prediction: Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Back propagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods, Prediction, Classifier Accuracy.

UNIT-VII

Cluster Analysis Introduction: Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis.
UNIT-VIII

Mining Complex Types of Data: Multidimensional Analysis and Descriptive Mining of Complex, Data Objects, Mining Spatial Databases, Mining Multimedia Databases, Mining Time-Series and Sequence Data, Mining Text Databases, Mining the World Wide Web.

TEXT BOOKS:

1. Data Mining – Concepts and Techniques - JIAWEI HAN & MICHELINE KAMBER Harcourt India.
2. Data Mining Techniques – ARUN K PUJARI, University Press
3. Building the DataWarehouse- W. H. Inmon, Wiley Dreamtech India Pvt. Ltd..

REFERENCE BOOKS:

2. Data Warehousing Fundamentals – PAULRAJ PONNAIAH WILEY STUDENT EDITION
3. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT EDITION
4. Data Mining Introductory and advanced topics –MARGARET H DUNHAM, PEARSON EDUCATION
Unit I

Unit II
**The 8051 Architecture**: Introduction, 8051 Microcontroller Hardware, Input/Output Ports and Circuits, External Memory, Counter and Timers, Serial data Input/Output, Interrupts. (Chapter 3 from Text Book 2, Ayala)

Unit III
**Basic Assembly Language Programming Concepts**: The Assembly Language Programming Process, Programming Tools and Techniques, Programing the 8051. Data Transfer and Logical Instructions.(Chapters 4, 5 and 6 from Text Book 2, Ayala)

Unit IV
Arithmetic Operations, Decimal Arithmetic, Jump and Call Instructions, Further Details on Interrupts. (Chapter 7 and 8 from Text Book 2, Ayala)

Unit-V
**Applications**: Interfacing with Keyboards, Displays, D/A and A/D Conversions, Multiple Interrupts, Serial Data Communication. (Chapter 10 and 11 from Text Book 2, Ayala)

Unit VI
**Introduction to Real – Time Operating Systems**: Tasks and Task States, Tasks and Data, Semaphores, and Shared Data; Message Queues, Mailboxes and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in an RTOS Environment (Chapter 6 and 7 from Text Book 3, Simon)

Unit VII
**Basic Design Using a Real-Time Operating System**: Principles, Semaphores and Queues, Hard Real-Time Scheduling Considerations, Saving Memory and Power, An example RTOS like uC-OS (Open Source); Embedded Software Development Tools: Host and Target machines, Linker/Locators for Embedded Software, Getting Embedded Software into the Target System; Debugging Techniques: Testing on Host Machine, Using Laboratory Tools, An Example System. (Chapter 8, 9, 10 and 11 from Text Book 3, Simon)
Unit VIII
Introduction to advanced architectures: ARM and SHARC, Processor and memory organization and Instruction level parallelism; Networked embedded systems: Bus protocols, I²C bus and CAN bus; Internet-Enabled Systems, Design Example-Elevator Controller.
(Chapter 8 from Text Book 1, Wolf)

Text Books:

3. An Embedded Software Primer, David E. Simon, Pearson Education.

Reference Books:

1. Embedding system building blocks, Labrosse, via CMP publishers.
2. Embedded Systems, Raj Kamal, TMH.
3. Micro Controllers, Ajay V Deshmukhi, TMH.
5. Microcontrollers, Raj kamal, Pearson Education.
UNIT-I
Introduction:
Attacks, Services and Mechanisms, Security attacks, Security services, A Model for Internetwork security.
Classical Techniques:

UNIT-II
Modern Techniques:
Symplified DES, Block Cipher Principles, Data Encryption standard, Strength of DES, Differential and Linear Cryptanalysis, Block Cipher Design Principles and Modes of operations.
Algorithms:

UNIT-III
Conventional Encryption:
Placement of Encryption function, Traffic confidentiality, Key distribution, Random Number Generation.
Public Key Cryptography:
Principles, RSA Algorithm, Key Management, Diffie-Hellman Key exchange, Elliptic Curve Cryptography.

UNIT-IV
Number theory:
Prime and Relatively prime numbers, Modular arithmetic, Fermat’s and Euler’s theorems, Testing for primality, Euclid’s Algorithm, the Chinese remainder theorem, Discrete logarithms.
Message authentication and Hash functions:
Authentication requirements and functions, Message Authentication, Hash functions, Security of Hash functions and MACs.

UNIT-V
Hash and Mac Algorithms:
MD File, Message digest Algorithm, Secure Hash Algorithm, RIPEMD-160, HMAC.
Digital signatures and Authentication protocols:
Digital signatures, Authentication Protocols, Digital signature standards.

UNIT-VI
Authentication Applications:
Kerberos, X.509 directory Authentication service.
Electronic Mail Security:
Pretty Good Privacy, S/MIME.

UNIT-VII
IP Security:
Overview, Architecture, Authentication, Encapsulating Security Payload, Combining security Associations, Key Management.
Web Security:
UNIT-VIII
Intruders, Viruses and Worms:
Intruders, Viruses and Related threats.
Fire Walls:
Fire wall Design Principles, Trusted systems.

Text Books:

Reference Books:
1. Fundamentals of Network Security by Eric Maiwald (Dreamtech press)
UNIT-I:

**Introduction to UML:** Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle.

UNIT-II:

**Basic Structural Modeling:** Classes, Relationships, common Mechanisms, and diagrams.

**Advanced Structural Modeling:** Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.

UNIT-III

**Class & Object Diagrams:** Terms, concepts, modeling techniques for Class & Object Diagrams.

UNIT- IV:

**Basic Behavioral Modeling-I:** Interactions, Interaction diagrams.

UNIT-V:

**Basic Behavioral Modeling-II:** Use cases, Use case Diagrams, Activity Diagrams.

UNIT-VI:

**Advanced Behavioral Modeling:** Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

UNIT-VII:

**Architectural Modeling:** Component, Deployment, Component diagrams and Deployment diagrams.

UNIT-VIII:

**Case Study:** The Unified Library application
TEXT BOOKS:

2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt. Ltd.

REFERENCE BOOKS:

UNIT-I
Introduction: Machine perception, pattern recognition example, pattern recognition systems, the design cycle, learning and adaptation (Text book-1, p.nos: 1-17).

UNIT-II

UNIT-III

UNIT-IV

UNIT-V
Pattern recognition using discrete hidden Markov models:
Discrete-time Markov process, Extensions to hidden Markov models, three basic problems of HMMs, types of HMMs

UNIT-VI
Continuous hidden Markov models:
Continuous observation densities, multiple mixtures per state, speech recognition applications.
UNIT-VII
Digital image fundamentals:
Introduction, an image model, sampling and quantization, basic relationships between pixels, image geometry

Image enhancement:
Background, enhancement by point processing histogram processing, spatial filtering, introduction to image transforms, image enhancement in frequency domain.

UNIT VIII
Image Segmentation and Edge Detection: Region Operations, Crack Edge Detection, Edge Following, Gradient operators, Compass and laplace operators. Threshold detection methods, optimal thresholding, multispectral thresholding, thresholding in hierarchical data structures; edge based image segmentation- edge image thresholding, edge relaxation, border tracing, border detection,

Text Books:

Reference Books:
UNIT I
INTRODUCTION - what is a neural network? Human Brain, Models of a Neuron, Neural networks viewed as Directed Graphs, Network Architectures, Knowledge Representation, Artificial Intelligence and Neural Networks (p. no’s 1 –49)

UNIT II
LEARNING PROCESS – Error Correction learning, Memory based learning, Hebbian learning, Competitive, Boltzmann learning, Credit Assignment Problem, Memory, Adaption, Statistical nature of the learning process, (p. no’s 50 –116)

UNIT III
SINGLE LAYER PERCEPTRONS – Adaptive filtering problem, Unconstrained Organization Techniques, Linear least square filters, least mean square algorithm, learning curves, Learning rate annealing techniques, perceptron –convergence theorem, Relation between perceptron and Bayes classifier for a Gaussian Environment (p. no’s 117 –155)

UNIT IV
MULTILAYER PERCEPTRON – Back propagation algorithm XOR problem, Heuristics, Output representation and decision rule, Computer experiment, feature detection, (p. no’s 156 –201)

UNIT V
BACK PROPAGATION - back propagation and differentiation, Hessian matrix, Generalization, Cross validation, Network pruning Techniques, Virtues and limitations of back propagation learning, Accelerated convergence, supervised learning. (p. no’s 202 – 234)

UNIT VI
SELF ORGANIZATION MAPS – Two basic feature mapping models, Self organization map, SOM algorithm, properties of feature map, computer simulations, learning vector quantization, Adaptive patter classification (p. no’s 443 –469, 9.1 –9.8 )

UNIT VII
NEURO DYNAMICS – Dynamical systems, stability of equilibrium states, attractors, neurodynamical models, manipulation of attractors as a recurrent network paradigm (p. no’s 664 –680, 14.1 –14.6 )
UNIT VIII
HOPFIELD MODELS – Hopfield models, computer experiment I (p. no’s 680-701, 14.7 –14.8 )

TEXT BOOKS:


REFERENCE BOOKS

1. Artificial neural networks - B.Vegnanarayana Prentice Hall of India P Ltd 2005
2. Neural networks in Computer intelligence, Li Min Fu TMH 2003
UNIT-I
Fundamentals of Computer design- Technology trends- cost- measuring and reporting performance quantitative principles of computer design.

UNIT-II
Instruction set principles and examples- classifying instruction set- memory addressing-type and size of operands- addressing modes for signal processing-operations in the instruction set- instructions for control flow- encoding an instruction set.-the role of compiler

UNIT- III:
Instruction level parallelism (ILP)- over coming data hazards- reducing branch costs – high performance instruction delivery- hardware based speculation- limitation of ILP

UNIT-IV
ILP software approach- compiler techniques- static branch protection- VLIW approach-H.W support for more ILP at compile time- H.W verses S.W solutions

UNIT- V
Memory hierarchy design- cache performance- reducing cache misses penalty and miss rate – virtual memory- protection and examples of VM.

UNIT-VI
Multiprocessors and thread level parallelism- symmetric shared memory architectures- distributed shared memory- Synchronization- multi threading.

UNIT-VII
Storage systems- Types – Buses - RAID- errors and failures- bench marking a storage device- designing a I/O system.

UNIT-VIII
Inter connection networks and clusters- interconnection network media – practical issues in interconnecting networks- examples – clusters- designing a cluster

Text Book:

Reference:
MTCSE 2.6.1 MIDDLEWARE TECHNOLOGIES (ELECTIVE – II)

UNIT-I:
**Introduction to client server computing:** Evolution of corporate computing models from centralized to distributed computing, client server models. Benefits of client server computing, pitfalls of client server programming.

UNIT-II:
**CORBA with Java:** Review of Java concept like RMI, RMI API, JDBC. Client/Server CORBA-style, The object web: CORBA with Java.

UNIT III:
**Introducing C# and the .NET Platform:** Understanding .NET Assemblies; Object – Oriented Programming with C#; Callback Interfaces, Delegates, and Events.

UNIT IV:
**Building c# applications:** Type Reflection, Late Binding, and Attribute-Based Programming; Object Serialization and the .NET Remoting Layer; Data Access with ADO.NET; XML Web Services.

UNIT-V:
**Core CORBA / Java:** Two types of Client/Server invocations-static, dynamic. The static CORBA, first CORBA program, ORBlets with Applets, Dynamic CORBA-The portable count, the dynamic count multi count.

UNIT-VI:
**Existential CORBA:** CORBA initialization protocol, CORBa activation services, CORBAIDL mapping CORBA java-to-IDL mapping, The introspective CORBA/Java object.

UNIT-VII:
**Java Bean Component Model:** Events, properties, persistency, Intrespection of beans, CORBA Beans

UNIT-VIII:
**EJBs and CORBA:** Object transaction monitors CORBA OTM’s, EJB and CORBA OTM’s, EJB container frame work, Session and Entity Beans, The EJB client/server development Process The EJB container protocol, support for transaction EJB packaging EJB design Guidelines.
**Text Books:**


3. C# and the .NET Platform Andrew Troelsen, Apress Wiley-dreamtech, India Pvt Ltd

**Reference: Books:**

1. Distributed Computing, Principles and applications, M.L. Liu, Pearson Education
3. Client/Server Computing D T Dewire, TMH.
4. IBM Websphere Starter Kit Ron Ben Natan Ori Sasson, TMh, New Delhi
6. C# Preciesely Peter Sestoft and Henrik I. Hansen, Prentice Hall of India
7. Intoduction to C# Using .NET Pearson Education
8. C# How to program, Pearson Education
UNIT- I
Introduction to Mobile Communications and Computing:
Mobile Computing (MC): Introduction to MC, novel applications, limitations, and architecture
GSM: Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, and New data services.

UNIT- II
(Wireless) Medium Access Control: Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, CDMA.

UNIT- III
Mobile Network Layer: Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations), Dynamic Host Configuration Protocol (DHCP).

UNIT- IV
Mobile Transport Layer: Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP.

UNIT- V
Database Issues: Hoarding techniques, caching invalidation mechanisms, client server computing with adaptation, power-aware and context-aware computing, transactional models, query processing, recovery, and quality of service issues.

UNIT- VI
Data Dissemination: Communications asymmetry, classification of new data delivery mechanisms, push-based mechanisms, pull-based mechanisms, hybrid mechanisms, selective tuning (indexing) techniques.

UNIT- VII
Mobile Ad hoc Networks (MANETs): Overview, Properties of a MANET, spectrum of MANET applications, routing and various routing algorithms, security in MANETs.
UNIT- VIII

Protocols and Tools: Wireless Application Protocol-WAP. (Introduction, protocol architecture, and treatment of protocols of all layers), Bluetooth (User scenarios, physical layer, MAC layer, networking, security, link management) and J2ME.

Text Books:


Reference Books:


UNIT - I

UNIT - II

UNIT – III
The old way and the new: The principles of conventional software engineering, principles of modern software management, transitioning to an iterative process. Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases.

UNIT-IV
Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts. Model based software architectures: A Management perspective and technical perspective.

UNIT – V

UNIT – VI

UNIT-VII
UNIT – VIII
Future Software Project Management : Modern Project Profiles Next generation
Software economics, modern Process transitions.
Case Study : The Command Center Processing and Display System- Replacement(CCPDS-R)

Text Book :


Reference Books :
