Grading
M.TECH.(Software Engineering)
Scheme of Examination w.e.f. 2016-17
Semester/Year :I / I

S. No.	Subject Code	Subject Name	Maximum Marks Allotted						Hours/ Week			Credit	Total Marks
			Theory			Practical							
			End Sem.	Mid Sem	Quiz, Assignment	End Sem	Lab work	Assignment / Quiz	L	T	P		
1	MTSE101	ADV. DATA BASE MANAGEMENT SYSTEM	100	30	20				3	1		4	150
2	MTSE102	SOFTWARE ENGINEERING	100	30	20				3	1		4	150
3	MTSE103	ADVANCED DATA STRUCTURE & ALGORITHM	100	30	20				3	1		4	150
4	MTSE104	OBJECT ORIENTED TECHNOLOGY	100	30	20				3	1		4	150
5	MTSE105	ELECTIVE I	100	30	20				3	1		4	150
6	MTSE106	SOFTWARE ENGINEERING LAB				50	50				4	2	100
7	MTSE107	OBJECT ORIENTED PROGRAMMING LAB				50	50				4	2	100
8	MTSE108	COMPREHENSIVE VIVA-I				50					4	2	50
		TOTAL	500	150	100	150	100		15	5	12	26	1000

L: Lecture   T:Tutorial   P:Practical

MTSE105 ELECTIVE -I

MTSE-105A   Data warehousing & Mining

MTSE-105B   Information Theory Coding & Cryptography

MTSE-105C   Advanced Computer Architecture

Grading
M.TECH.(Software Engineering)
Scheme of Examination w.e.f. 2016-17
Semester/Year :II / I

S. No.	SUBJECT CODE	SUBJECT NAME	Maximum Marks Allotted						Hours/ Week			Credit	Total Marks
			Theory			Practical							
			End Sem.	Mid Sem	Quiz, Assignment	End Sem	Lab work	Assignment / Quiz	L	T	P		
1	MTSE201	SOFTWARE PROJECT MANAGEMENT	100	30	20				3	1		4	150
2	MTSE202	SOFTWARE QUALITY ASSURANCE	100	30	20				3	1		4	150
3	MTSE203	SOFTWARE ARCHITECTURE	100	30	20				3	1		4	150
4	MTSE204	SOFTWARE VERIFICATION VALIDATION & TESTING	100	30	20				3	1		4	150
5	MTSE205	ELECTIVE II	100	30	20				3	1		4	150
6	MTSE206	SOFTWARE TESTING LAB				50	50				4	2	100
7	MTSE207	PROJECT MANAGEMENT & QUALITY ASSURANCE LAB				50	50				4	2	100
8	MTSE208	COMPREHENSIVE VIVA-II				50					4	2	50
		TOTAL	**500**	**150**	**100**	**150**	**100**		**15**	**5**	**12**	**26**	**1000**

L: Lecture   **T:Tutorial**   **P:Practical**

MTSE205   ELECTIVE-II

MTSE205A   Object Oriented Analysis & Design
MTSE205B   Advanced Computer Networking

Grading
M.TECH.(Software Engineering)
Scheme of Examination w.e.f. **2016-17**
Semester/Year: III / II

S. No.	SUBJECT CODE	SUBJECT NAME	Maximum Marks Allotted						Hours/ Week			Credit	Total Marks
			Theory			Practical			L	T	P		
			End Sem.	Mid Sem	Quiz, Assignment	End Sem	Lab work	Assignment / Quiz					
1	**MTSE301**	DISSERTATION PART-I (LITERATURE REVIEW / PROBLEM FORMULATION/ SYNOPSIS)				100	100				24	12	200
		TOTAL				**100**	**100**				**24**	**12**	**200**

L: Lecture   **T:Tutorial**   **P:Practical**

Grading
M.TECH.(Software Engineering)
Scheme of Examination w.e.f. **2016-17**
Semester/Year: IV / II

S. No.	SUBJECT CODE	SUBJECT NAME	Maximum Marks Allotted						Hours/ Week			Credit	Total Marks
			Theory			Practical							
			End Sem.	Mid Sem	Quiz, Assignment	End Sem	Lab work	Assignment / Quiz	L	T	P		
1	**MTSE401**	DISSERTATION PART-II				150	150				24	12	300
		TOTAL				**150**	**150**				**24**	**12**	**300**

L: Lecture   T: Tutorial   P:Practical

MTSE-101 ADVANCE DBMS

Unit 1

DBMS Concepts Introduction, Data models, Entities and attributes, Relationships, E-R diagram. Relational Data models: Domains, Tupples, Attributes, Keys, Relational database, Schemas, Integrity constraints. Relational algebra and relational calculus, Normalization, Normal forms.

Unit 2

Query Processing and Optimization. Distributed databases: Fragmentation, Replication, Location & Fragment transparency, Distributed Query Processing and Optimization.

Unit 3

Object oriented and object relational databases: Specialization, Generalization, Aggregation and Association.

Unit 4

Introduction to Image and Multimedia databases and data structures: Data structure- R tree, K d tree, Quad trees, Content based retrieval: Color Histograms.

Unit 5

Web databases: Accessing databases through web.

Reference Books:

1. R. Elmasri, S. Navathe, Fundamentals of Database System, Benjamin Cummings

2. C.J. Date, An Introduction to Data base Systems, Volume I, Addison Wesly

3. H. F. Korth and A. Silberschatz. Database Concept, TMH

4. Object Oriented databases :Narang, Prentice-Hall of India, New Delhi

5. Rob, Database Systems, Cengage, (Thomson)

6. Pratt, Concepts of DBMS, Cengage.

MTSE-102 SOFTWARE ENGINEERING

Unit : 1

System Engineering : Hierarchy of system engineering, Product engineering, Requirements Engineering, System Modeling, Requirement Analysis, Analysis Principles, Software Prototyping, Software Requirement Specification, Software Engineering Process.

Unit : 2

Analysis Modeling : Elements of Analysis modeling, Data Modeling, Function Modeling and information flow, Behavioral modeling, Mechanics of structured analysis, data dictionary and other classical analysis methods, USE CASE modeling, UML Scenario, activities and class diagram.

Unit :3

Design Concepts and Principles: Design Process, Design Concepts, Effective Modular Design Functional Independence, coupling and cohesion, Software Architectural Design-Data Design Architectural Styles, Mapping Requirements into a Software Architecture, Transform Mapping, Transaction Mapping, User Interface Design, Task Analysis and Modeling, Implementation tools, Design Evaluation, Component Level design.

Unit : 4

Software Testing Techniques & Stragies : White Box Testing, Basis Path Testing, Control Structure Testing Black Box Testing, Graph Based Testing Methods, Equivalence Partitioning, Boundary Value Analysis, Comparison Testing, Orthogonal Array Testing, Strategic Issues, Unit testing, Integration testing, Validation testing, System Testing, Formal Technical Review.

Unit : 5

Software Technical Metrics : Software Quality – McCall's Quality Factors, FURPS, Framework for technical software Metrics, Metrics for the analysis model, function based Metrics, Bang Metric, Metrics for design Model-Architectural Design Metrics, Component Level Design Metrics, Interface Design Metrics, Metrics for source code, Metrics for Testing and Maintenance.

Reference Books

1. R.S.Pressman, "Software Engineering: A Practitioner's Approach", Sixth edition 2006, McGraw-Hill

2. Sommerville, "Software Engineering", Pearson Education

3. Rechard H.Thayer, "Software Engineering & Project Managements", Willey India

4. Mustafa & Khan, "Software Testing-Concepts and Practices", Narosa Pub House.

5. Behforooz & Hudson, "Software Engineering Fundamentals", Oxford Univ. Press.

MTSE-103 ADVANCED DATA STRUCTURES AND ALGORITHM

UNIT 1

INTRODUCTION: Basic concepts of OOPs – Templates – Algorithm Analysis – ADT - List (Singly, Doubly and Circular) Implementation - Array, Pointer, Cursor Implementation

UNIT 2

BASIC DATA STRUCTURES: Stacks and Queues – ADT, Implementation and Applications - Trees – General, Binary, Binary Search, Expression Search, AVL, Splay, B-Trees – Implementations - Tree Traversals.

UNIT 3

ADVANCED DATA STRUCTURES: Set – Implementation – Basic operations on set – Priority Queue – Implementation - Graphs – Directed Graphs – Shortest Path Problem

- Undirected Graph - Spanning Trees – Graph Traversals

UNIT 4

MEMORY MANAGEMENT : Issues - Managing Equal Sized Blocks - Garbage Collection Algorithms for Equal Sized Blocks - Storage Allocation for Objects with Mixed Sizes - Buddy Systems - Storage Compaction

UNIT 5

SEARCHING, SORTING AND DESIGN TECHNIQUES: Searching Techniques,

Sorting – Internal Sorting – Bubble Sort, Insertion Sort, Quick Sort, Heap Sort, Bin Sort, Radix Sort – External Sorting – Merge Sort, Multi-way Merge Sort, Polyphase Sorting - Design Techniques - Divide and Conquer - Dynamic Programming - Greedy Algorithm – Backtracking - Local Search Algorithms

Reference Books :

1. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C++", Pearson P

2. Aho, Hopcroft, Ullman, "Data Structures and Algorithms", Pearson Education P

3. Drozdek, Data Structures and algorithm in Jawa, Cengage (Thomson)

4. Gilberg, Data structures Using C++, Cengage

5. Horowitz, Sahni, Rajasekaran, "Computer Algorithms", Galgotia,

6. Tanenbaum A.S., Langram Y, Augestien M.J., "Data Structures using C & C++",Prentice Hall of India, 2002

MTSE-104 OBJECT ORIENTED TECHNOLOGY

Unit 1

Overview of object oriented concepts: Need for object oriented programming, characterization of object oriented languages.

Unit 2

Object oriented Design : object structure concepts, methodology for object oriented design (Booch, and chen and chen), Design modelling, system design life cycle.

Unit 3

Object oriented programming : An overview of c++ programming, loops and decisions, structures and functions, objects and classes, Array and pointers, Inheritence, virtual function, files and stream.

Unit 4

Object oriented Databases : Relational v/s object oriented databases, The architecture of OO databases, Query languages for OO databases, Gemstone/O2/orion.

Unit 5

Distributed object oriented systems: Object management group, CORBA.

Reference Books :

1. Object Oriented Analysis and Design, Satzinger, Cengage (Thomson)
2. Object Oriented S/W Development by Mc. Gregor & Sykes DA, Van Nostrand.
2. OOP in C++ by Lafore, Galgotia Pub.
3. The C++ Programming Language by Stroustrup B, Addison Wesely
4. Introduction to OOP by Witt KV, Galgotia Pub.
5. Object Data Management by Cattel R., Addison Wesely
6. Modern Data Base System by Kim W, ACM Press, Addison Wesely
7. OOP by Blaschek G, Springer Verlag
8. An Introduction to Jawa Programming and OOAD, Johnson, Cengage

MTSE 105A DATA WAREHOUSING & MINING

Unit 1

Introduction : Data Mining: Definitions, KDD v/s Data Mining, DBMS v/s Data Mining , DM techniques, Mining problems, Issues and Challenges in DM, DM Application areas.

Unit 2

Association Rules & Clustering Techniques: Introduction, Various association algorithms like A Priori, Partition, Pincer search etc., Generalized association rules. Clustering paradigms; Partitioning algorithms like K-Medioid, CLARA, CLARANS; Hierarchical clustering, DBSCAN, BIRCH, CURE; categorical clustering algorithms, STIRR, ROCK, CACTUS.

Unit 3

Other DM techniques & Web Mining: Application of Neural Network, AI, Fuzzy logic and Genetic algorithm, Decision tree in DM. Web Mining, Web content mining, Web structure Mining, Web Usage Mining.

Unit 4

Temporal and spatial DM: Temporal association rules, Sequence Mining, GSP, SPADE, SPIRIT, and WUM algorithms, Episode Discovery, Event prediction, Time series analysis. Spatial Mining, Spatial Mining tasks, Spatial clustering, Spatial Trends.

Unit 5

Data Mining of Image and Video : A case study. Image and Video representation techniques, feature extraction, motion analysis, content based image and video retrieval, clustering and association paradigm, knowledge discovery.

Reference Books :

1. Data Mining Techniques ; Arun K.Pujari ; University Press.

2. Data Mining; Adriaans & Zantinge; Pearson education.

3. Mastering Data Mining; Berry Linoff; Wiley.

4. Data Mining; Dunham; Pearson education.

5. Text Mining Applications, Konchandy, Cengage

MTSE-105B INFORMATION THEORY, CODING AND CRYPTOGRAPHY

Unit 1

Information Theory, Probability and Channel: Introduction, Information Measures, Review probability theory, Random variables, Processes, Mutual Information, Entropy, Uncertainty, Shannon's theorem, redundancy, Huffman Coding, Discrete random Variable. Gaussian random variables, Bounds on tail probabilities.

Unit 2

Stochastic Processes: Statistical independence, Bernoulli Process, Poisson Process, Renewal Process, Random Incidence, Markov Modulated Bernoulli Process, Irreducible Finite Chains with Aperiodic States, Discrete-Time Birth-Death Processes, Markov property, Finite Markov Chains, Continuous time Markov chain, Hidden Markov Model.

Unit 3

Error Control Coding: Channel Coding: Linear Block Codes: Introduction, Matrix description, Decoding, Equivalent codes, Parity check matrix, Syndrome decoding, Perfect codes Hamming Codes ,Optimal linear codes ,.Maximum distance separable (MDS) codes. Cyclic Codes: Introduction, generation, Polynomials, division algorithm, Matrix description of cyclic codes, burst error correction, Fire Codes, Golay Codes, and CRC Codes. BCH Codes: Introduction, Primitive elements, Minimal polynomials, Generator Polynomials in terms of Minimal Polynomials, Decoding of BCH codes.

Unit 4

Coding for Secure Communications: Review of Cryptography, Introduction, Encryption techniques and algorithms, DES, IDEA , RC Ciphers ,RSA Algorithm ,Diffi-Hellman, PGP, Chaos Functions, Cryptanalysis, Perfect security, Unicity distance, Diffusion and confusion, McEliece Cryptosystem

Unit 5

Advance Coding Techniques: Reed-Solomon codes, space time codes, concatenated codes, turbo coding and LDPC codes (In details), Nested Codes, block (in Details), Convolutional channel coding: Introduction, Linear convolutional codes, Transfer function representation & distance properties, Decoding convolutional codes(Soft-decision MLSE, Hard-decision MLSE),The Viterbi algorithm for MLSE, Performance of convolutional code decoders, Soft & Hard decision decoding performance, Viterbi algorithm implementation issues: RSSE, trellis truncation, cost normalization, Sequential decoding: Stack, Fano, feedback decision decoding, Techniques for constructing more complex convolutional codes with both soft and hard decoding.

References:
1. Rajan Bose "Information Theory, Coding and Cryptography", TMH, 2002.
2. Kishor S. Trivedi "Probability and Statistics with Reliability, Queuing and Computer Science Applications", Wiley India, Second Edition.
3. J.C.Moreira, P.G. Farrell "Essentials of Error-Control Coding", Willey Student Edition
4. San Ling and Chaoping "Coding Theory: A first Course", Cambridge University Press, 2004.
5. G A Jones J M Jones, "Information and Coding Theory", Springer Verlag, 2004.
6. Cole, "Network Security", Bible, Wiley INDIA, Second Addition
7. Proakis and Masoud, "Digital Communication" ,McGraw-Hill ,2008

MTSE-105C ADVANCED COMPUTER ARCHITECTURE

UNIT 1

Flynn's and Handler's Classification of parallel computing structures. Pipelined and Vector Processors.

UNIT 2

Data and control hazards and method to resolve them. SIMD multiprocessor structures. I

UNIT 3

Interconnection networks, Parallel Algorithms for array processors, Search algorithms, MIMD multiprocessor systems,

UNIT 4

Scheduling and load balancing in multiprocessor systems, Multiprocessing control and algorithms.

Reference Books:

1. Advance Computer Architecture, parthsarthy, Cengage (Thomson)

2. Computer Architecture and Organisation- John Hays, Mc.Graw-Hill.

3. Computer Architecture and Parallel Processing- Hwang And Briggs, TMH.

MTSE-201 SOFTWARE PROJECT MANAGEMENT

Unit-I
Introduction to Software project Management: Software projects, Contract management and technical project management, Activities covered by software project management, key objectives of effective management, plans, methods & methodologies, problems associated with software projects management control.

Unit-II
Project Planning: Business Planning: Determining objectives; forecasting demand for product proposal writing requirement analysis, legal issues; Technical Planning: Lifecycle models, types of plans, plan documentation methods: PERT & CPM, Gantt charts, work breakdown structures. Standards, planning for risk management and control Capacity planning.

Unit-III
Software Estimation Techniques: Expert judgment, estimating by analogy, Albrecht function point analysis, COSMIC Full Function Points, COCOMO-a patrametric model.
Risk Identification, Risk Assessment, Risk Planning & Risk Management, Evaluating risks to the schedule, Critical chain concepts.
Unit-IV
Monitoring & Control: Creating the framework, collecting the data, Visualizing progress, Cost monitoring, Earned value analysis, Prioritizing monitoring, Change control. Managing people & organizing teams: Team organization, recruiting and staffing, Technical leadership, avoiding obsolescence training.

Unit-V
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)

References:

1. Bob Hughes and Mike Cotterell, Software Project Management, Tata McGraw- Hill Edition.
2. Thayer , Software Engineering Project Management ,2ed ,wiley India
3. Conway , Software Project Management ,Wiley India
4. Pankaj Jalote, Software Project Management in practice Pearson Education.

MTSE-202 SOFTWARE QUALITY ASSURANCE

Unit-I
Software Quality Assurance Framework and Standards: Concept of Software quality Software, Software Quality Attributes, Software Quality Assurance And Components of Software Quality Assurance, Software Quality Assurance Plan: Steps to develop and implement a Software Quality Assurance Plan Quality Standards: ISO 9000 and Companion ISO Standards, CMM, CMMI, PCMM, Malcolm Balridge, 3 Sigma, 6 Sigma.

Unit-II
Quality Assurance: Quality Assurance as dealing with defects, Defects Prevention Techniques: Education & training, Formal methods. Defect reduction: Inspection –Direct fault detection and removal, testing –Failure observation and risk identification. Defect Containment: Software fault tolerance and safety assurance and failure containment.

Unit-III
Software Quality Assurance Metrics and Measurement: Software Quality Metrics, Product Quality metrics, ¬Process Quality Metrics, Metrics for Software Maintenance, Examples of Metric Programs, Software Quality metrics methodology, Establish quality requirements, Identify Software quality metrics, Implement the software quality metrics, analyze software metrics results, and validate the software quality metrics, Software quality indicators, Fundamentals in Measurement theory.

Unit-IV
Software Testing: Functional vs, Structural testing, Test planning and preparation, Test executions, Result Checking and measurement, Test Automation.
Testing techniques: Adaptation, specialization and Integration, Case Study: Hierarchical web Testing. Process Improvement: Process Classification, Process Measurement, Process Analysis and Modeling, Formal Verification & Specification, Fault tolerance and failure containment.

Unit-V
Quantifiable Quality Improvement : QA monitoring and measurement , Analysis and follow up actions , Implementations, Integration and tool support , Models for Quality Assessment ,Generalized and product specific models .Risk Identification for quantifiable quality improvement :Traditional statistical analysis techniques, New techniques for risk identification Software Reliability Engineering: Reliability Analysis Using IDRMs(Input Domain Reliability Model) & SRGMs(Software Reliability Growth Model) , TBRMs(Tree based reliability model) for reliability analysis and improvement .

References:
1. Tian , Software Quality Engineering ,Wiley IndiaPub
2. Limaye , Software Quality Assurance , TMH Pub.
3. Pressman , Software Engineering ,TMH Pub
4. Galin , Software Quality Assurance, Pearson Edu.
5. Musa , Software Reliabilty Engineering , TMH Pub
6. Wieczorek, Software Quality , Springer

MTSE-203 SOFTWARE ARCHITECTURE

UNIT - I
Software Architecture terms: Component, Relationship, View, Architectural Styles, Type of IT Architecture, Frameworks, Patterns, Methodologies, Processes, Functional and Non-functional Properties of Software Architectures.

UNIT - II
Designing Architecture: Quality Architecture, Architecture Life Style, Reconstructing Software Architecture, Service Oriented Architecture, Service Oriented Analysis and Design, Trends in SOA, Enterprise Wide SOA and Application.

UNIT – III
Architectural Styles: Pipes and Filters, Data Abstraction and Object-Orientation, Event-Based, Implicit Invocation, Layered Systems, Repositories, Interpreters, Process Control, Heterogeneous Architectures.

UNIT – IV
Formal Models and specifications: Formalizing the architecture of a Specific system, formalizing an architectural style and architectural design space, Requirements for Architecture – Description languages Tools for architectural design: Universal connector language, automated support for architectural design, observations about environments for architectural design.

UNIT-V
Analyzing Architecture: Architecture Tradeoff Analysis Method (ATAM), Cost Benefit Analysis Methods (CBAM), Case Studies: Key word in Context, The World Wide Web a case study in interoperability, Instrumentation software, cruise control, Mobile Robotics .Three Vignettes in Mixed style.

References:
1. Shankar Kambhampaty, Service Oriented Architecture, Wiley India
2. Buschmann ,Pattern oriented Software Architecture Vol 1. ,Wiley India
3. Len Bass, Paul Clements, Rick Kazman, Software Architecture in Practice, Pearson Edu.
4. Shaw , Software Architecture , PHI

MTSE-204 SOFTWARE VERIFICATION VALIDATION AND TESTING

UNIT-1
Software Testing Fundamentals –Testing objectives, Testing lifecycles, Test cases, human error, testing and debugging, general principles of testing, test metrics, Agile methodology and Its Impact on Testing, Verification and Validation. Failure, Error, Fault, and Defect

UNIT-2
Testing Approaches - Static testing, structured group examination static analysis, Control flow and data flow Testing, Determining Metrics, Dynamic Testing, Black Box testing, equivalence Class partitioning, Boundary Value Analysis, state transition test, cause effect graphing and decision table technique and used case testing and Advanced black box and white box testing, Gray box testing, intuitive and Experience based

UNIT –3
Software Reliability-Reliability models, Reliability measures, verification and validation planning, Top down versus bottom up Testing Functional Vs Structured Testing, mutation testing, Test planning and Management, Testing process, Maturity Models.

UNIT –4
Types of Testing- Concept of Unit Testing, Domain testing, Concept of Integration Testing. System testing acceptance testing, Alpha &Beta testing, Installation Testing, Usability Testing, Regression testing, Performance testing, Load testing, Stress testing, Security testing, Gorilla testing, Syntax Based Testing .

UNIT-5
System Tests- Functionality Tests ,Robustness Tests, Interoperability Tests, Scalability Tests, Documentation Tests, Testing Tools-Automation of Test execution, Requirement Tracker, WinRunner, Load Runner, Test Director, Test Process , Test Plans ,

References:
1. Naik,Software Testing and Quality Assurance, Wiley India pub.
2. Limaye , Software Testing , TMH Pub
3. Ammann & Offutt , Introduction To Software Testing , Cambridge Univ Press
4. K.v.k.k.prasad, Software testing concepts Tools, Dreamtech press

MTSE-205 A OBJECT ORIENTED ANALYSIS & DESIGN

Unit-I
Object Oriented Modeling: Characteristics Object Oriented Model, An Object Model, Benefits of OO Modeling, Introduction to OOAD tools, Object Oriented Analysis, Differences between Structured Analysis and Object Oriented Analysis. Analysis Techniques. UML: Introduction. Object Model Notations, Modeling using class diagrams, Interaction diagram, Use case modeling

Unit-II
System Design: Breaking into Subsystems, Concurrency Identification, management of data store, controlling events between Objects, Handling Boundary Conditions.

Object Design: Object Design Steps, Designing a Solution, Choosing Algorithms & data structures, Defining Classes and delegation of responsibilities to methods, Inheritance Adjustment, Association, Object Representation, Design Optimization, Design Documentation

Unit-III
Object Modeling: Advance Modeling Concepts, Multiple Inheritance, Generalization as an Extension, Generalization as a Restriction, Metadata, and Constraints.
Dynamic Modeling: Events, State and State Diagram, Advance Concepts in Dynamic Modeling, Concurrency.
Functional Modeling: Functional Models, Data Flow Diagrams, Features of a DFD, Design flaws in DFD, Relationship between Object, Dynamic, and Functional Models

Unit-IV
Implementation Modeling: Fine –tuning classes, Fine –tuning Generalization, Realizing Associations, Testing, OO languages ,Implementation Structure ,Implementing Functionality , Relational Database Schema for Object Modes, Object Classes to Database Tables, Mapping Associations to Tables, Mapping Generalizations to Tables, Interfacing to Database , Object Mapping with Databases .

Unit-V
Design of object oriented system: Entity, interfaces, control, persistence, system classes. Design Relationships: Object Oriented design Process: Use case Model, Modeling Classes Interaction, UML Design and implementation: software Implementation, Component and deployment Diagram. Case Study: Warehouse Management System, Telecom, Managing Object-Oriented Software Engineering Object-Oriented Methods.

References:
1. Rambaugh , Object Oriented Modeling and Design with UML , Pearson Edu.
2. Simon Bennett, Steve McRobb and Ray Farmer, Object Oriented system Analysis and Design Using UML, TMH
3. Docherty , Object Oriented Analysis & Design with UML , Wiley India
4. Ivar Jacobson, Patrik Jonsson: ,Object – Oriented Software Engineering ,Pearson.Edu

MTSE-205B ADVANCED COMPUTER NETWORKING

UNIT 1
Review of Networking and O.S. Fundamentals, ISO-OSI Model, different layers and their functions, LAN, MAN, WAN, Communication media & principles IEEE standards etc.

UNIT 2
Internetworking with TCP/IP, Basic concepts, Principles, Protocols and Architecture, Address handling Internet protocols and protocol layering. DNS, Applications: TEL- NET, RLOGN , FTP, TFTP, NFS, SMTP, POPL, IMAP, MIME, HTTP,STTP,DHCP, VOIP, SNMP.

UNIT 3
Introduction to Router, Configuring a Router, Interior & Exterior Routing, RIP, Distance Vector Routing, OSPF, BGP, Uni-cast, Multicast and Broadcast. Multicast routing protocols: DVMRP, MOSPF, CBT, PIM, MBONE, EIGRP, CIDR, Multicast Trees, Comparative study of IPv6 and IPv4.

UNIT 4
VPN addressing and routing, VPN Host management, ATM Concepts, Services Architecture, Equipments and Implementation

UNIT 5
Introduction to wireless transmission and medium access control, wireless LAN: IEEE 802.11, Hipher LAN , Bluetooth Mobile Network and Transport layer, WAP GSM and CDMA: Network architecture and management

Reference Books:
1. Computer Networks: Tanenbaum.
2. Internetworking with TCP/IP: Comer.
3. Data Communications, Computer Networks and Open Systems: Hallsall.
4. Data Communications, Stalling.
5. Mobile Communication: Schiller, Pearson Education
6. Computer Communications and network Technology, Gallo, Cengage (Thomson)
7. Wireless and Mobile Network Architecture: Yi Bing Lin, Wiley
8. ATM Network: Kasara, TMH
9. TCP/IP protocol Suite, Forouzan ,TMH

References:
1. Rambaugh , Object Oriented Modeling and Design with UML , Pearson Edu.
2. Simon Bennett, Steve McRobb and Ray Farmer, Object Oriented system Analysis and Design Using UML, TMH