

ANNA UNIVERSITY, CHENNAI

AFFILIATED INSTITUTIONS

R - 2009

CURRICULUM I SEMESTER (FULL TIME)

M.TECH. INFORMATION TECHNOLOGY

SEMESTER I

SL. NO	COURSE CODE	COURSE TITLE	L	T	P	C
THEORY						
1	MA9219	Operations Research	3	1	0	4
2	CS9212	Data Structures and algorithms	3	0	0	3
3	CS9211	Computer Architecture	3	0	0	3
4	CS9213	Computer Networks and Management	3	0	0	3
5	IT9211	Software Engineering	3	0	0	3
PRACTICAL						
6	CS9215	Data Structures Laboratory	0	0	3	2
7	CS9216	Networking Laboratory	0	0	3	2
TOTAL			15	1	6	20

UNIT III TCP AND ATM CONGESTION CONTROL 10
TCP Flow control – TCP Congestion Control – Retransmission – Timer Management – Exponential RTO backoff – KARN's Algorithm – Window management – Performance of TCP over ATM. Traffic and Congestion control in ATM – Requirements – Attributes – Traffic Management Frame work, Traffic Control – ABR traffic Management – ABR rate control, RM cell formats, ABR Capacity allocations – GFR traffic management.

UNIT IV INTEGRATED AND DIFFERENTIATED SERVICES 9
Integrated Services Architecture – Approach, Components, Services- Queuing Discipline, FQ, PS, BRFQ, GPS, WFQ – Random Early Detection, Differentiated Services.

UNIT V PROTOCOLS FOR QoS SUPPORT 8
RSVP – Goals & Characteristics, Data Flow, RSVP operations, Protocol Mechanisms – Multiprotocol Label Switching – Operations, Label Stacking, Protocol details – RTP – Protocol Architecture, Data Transfer Protocol, RTCP.

TOTAL : 45 PERIODS

TEXT BOOKS:

1. William Stallings, "HIGH SPEED NETWORKS AND INTERNET", Pearson Education, Second Edition, 2002.

REFERENCES:

1. Warland & Pravin Varaiya, "HIGH PERFORMANCE COMMUNICATION NETWORKS", Jean Harcourt Asia Pvt. Ltd., II Edition, 2001.
2. Irvan Pepelnjk, Jim Guichard and Jeff Apcar, "MPLS and VPN architecture", Cisco Press, Volume 1 and 2, 2003.

**IT9211 SOFTWARE ENGINEERING L T P C
3 0 0 3**

UNIT I 9
Definition – systems approach – modeling the process and lifecycle – meaning of process – software process models – tools and techniques – practical process modeling – information systems – planning and managing the project – tracking project – project personnel – effort estimation – risk management – project plan – process models and project management

UNIT II 9
Capturing the requirements – requirements process – requirements elicitation – types – characteristics – modeling notations – specification languages – prototyping – documentation – validation and verification – measures – specification techniques – designing the system – decomposition and modularity – architectural styles and strategies – issues – characteristics – improvement techniques – design evaluation, validation – documentation

UNIT III **8**
Considering objects – object orientation – OO development – use cases – representing OO – OO system design – program design – OO measurement – writing programs – standards – procedures – guidelines – documentation – programming process

UNIT IV **9**
Testing the program – faults – failures – issues – unit testing – Integration testing – testing OO systems – test planning – automated testing tools - testing the system – principles – function testing – performance testing – reliability, availability and maintainability – acceptance testing – installation testing – automated system testing – test documentation – testing safety critical systems – delivering the system – training – documentation

UNIT V **10**
System maintenance – the changing system – nature of maintenance – problems – measuring maintenance characteristics – techniques and tools – software rejuvenation – evaluation approaches – selection – assessment vs. prediction - evaluating products, processes and resources – improving predictions, products, processes and resources – guidelines – decision making in software engineering – licensing – certification and ethics

TOTAL:45 PERIODS

TEXT BOOKS:

1. Shari Lawrence Pfleeger, Joanne M. Atlee, Software Engineering: Theory and Practice, Prentice Hall, 2006

REFERENCES:

1. Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli, Fundamentals of Software Engineering, Prentice Hall, 2002

TOTAL:45 PERIODS

CS9215

DATA STRUCTURES LABORATORY

L T P C
0 0 3 2

1. Min Heap
2. Deaps
3. Leftist Heap
4. AVL Tree
5. B-Tree
6. Tries
7. Quick Sort
8. Convex hull
9. 0/1 Knapsack using Dynamic Programming
10. Graph coloring using backtracking

TOTAL:45 PERIODS

1. Socket Programming
 - a. TCP Sockets
 - b. UDP Sockets
 - c. Applications using Sockets
2. Simulation of Sliding Window Protocol
3. Simulation of Routing Protocols
4. Development of applications such as DNS/ HTTP/ E – mail/ Multi - user Chat
5. Simulation of Network Management Protocols
6. Study of Network Simulator Packages – such as opnet, ns2, etc.

TOTAL:45 PERIODS