



L J INSTITUTES OF ENGINEERING & TECHNOLOGY

INFORMATION TECHNOLOGY DEPT

SYLLABUS FOR FIRST MID SEM EXAM

SEM-8

SUB NAME	SYLLABUS CONTENT	FACULTY SIGN
DAA	<p><b>Basics of Algorithms and Mathematics:</b> What is an algorithm?, Mathematics for Algorithmic Sets, Functions and Relations, Vectors and Matrices, Linear Inequalities and Linear Equations.</p> <p><b>Analysis of Algorithm:</b> The efficient algorithm, Average and worst case analysis, Elementary operation, Asymptotic Notation, Analyzing control statement, Amortized analysis, Sorting Algorithm, Binary Tree Search.</p> <p><b>Divide and Conquer Algorithm:</b> Introduction, Multiplying large Integers Problem, Problem Solving using divide and conquer algorithm - Binary Search, Sorting (Merge Sort, Quick Sort), Matrix Multiplication, Exponential.</p> <p><b>Greedy Algorithm:</b> General Characteristics of greedy algorithms, Problem solving using Greedy Algorithm - Activity selection problem, Elements of Greedy Strategy, Minimum Spanning trees (Kruskal's algorithm, Prim's algorithm), Graphs: Shortest paths, The Knapsack Problem, Job Scheduling Problem</p>	
ACN	<p><b>Optical Networking</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Introduction to Optical Networking</li> <li><input type="checkbox"/> SONET / SDH Standard</li> <li><input type="checkbox"/> DWDM</li> </ul> <p><b>ATM: The WAN Protocol</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Introducing ATM Technology</li> <li><input type="checkbox"/> Introducing Faces of ATM</li> <li><input type="checkbox"/> Explaining the basic concepts of ATM Networking</li> <li><input type="checkbox"/> Exploring the B-ISDN reference model</li> <li><input type="checkbox"/> Explaining the Physical Layer</li> <li><input type="checkbox"/> Explaining the ATM Layer</li> <li><input type="checkbox"/> Explaining the ATM Adaptation Layer</li> <li><input type="checkbox"/> Exploring ATM Physical interface</li> <li><input type="checkbox"/> Choosing an Appropriate ATM Public Service</li> </ul> <p><b>Packet Switching Protocols</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Introduction to Packet Switching</li> <li><input type="checkbox"/> Introduction to Virtual Circuit Packet Switching</li> <li><input type="checkbox"/> Introduction to X.25</li> </ul>	

	<ul style="list-style-type: none"> <li><input type="checkbox"/> Introducing switched multimegabit data service</li> <li><b>Protocols and Interfaces in Upper Layers of TCP/IP</b></li> <li><input type="checkbox"/> Introducing TCP/IP suite</li> <li><input type="checkbox"/> Explaining Network Layer Protocols</li> <li><input type="checkbox"/> Explaining Transport Layer Protocol</li> <li><input type="checkbox"/> Explaining Application Layer Protocol</li> <li><b>Routing in the Internet</b></li> <li><input type="checkbox"/> Introduction to Intra-domain and inter-domain routings</li> <li><input type="checkbox"/> Unicast Routing Protocols</li> <li><input type="checkbox"/> Multicast Routing Protocols</li> <li><b>Other Routing Techniques</b></li> <li><input type="checkbox"/> Introduction to traffic Engineering</li> <li><input type="checkbox"/> IP over ATM</li> <li><input type="checkbox"/> Multiprotocol Label Switching</li> <li><input type="checkbox"/> Storage Area Network</li> </ul>	
DC	<p><b>Introduction To Data Compression</b> The Audience, Why C?, Which C?, Keeping Score, The Structure</p> <p><b>The Data Compression Lexicon, With A History</b> The Two Kingdoms, Data Compression = Modeling + Coding, The Dawn Age, Coding An Improvement Modeling, Statistical Modeling, Ziv &amp; Lempel LZ77 LZ78, Lossy Compression, Programs to Know</p> <p><b>The Dawn Age: Minimum Redundancy Coding</b> The Sahnnon-Fano Algorithm, The Huffman Algorithm, Huffman in C, BITIO.C, A Reminder about Prototypes, MAIN-C.C &amp; MAIN-E.C, MAIN-C.C, ERRHAND.C, Into the Huffman Code, Counting the Symbols, Saving the Counts, Building the Tree, Using the Tree</p> <p><b>A Significant Improvement: Adaptive Huffman Coding</b> Adaptive Coding, Updating the Huffman Tree, What swapping Does, The Algorithm, An Enhancement, The Escape Code, The Overflow Bonus, A Rescaling Bonus, The Code, Initialization of the Array, The Compress Main Program, The Expand Main Program, Encoding the Symbol, Decoding The Symbol</p> <p><b>Huffman One Better: Arithmetic Coding</b> Difficulties, Arithmetic Coding: A Step Forward, Practical Matters, A Complication, Decoding, Where's the Beef</p> <p><b>Dictionary-Based Compression</b> An Example, Static vs. Adaptive, Adaptive Methods, A Representative Example, Israeli Roots, History, ARC: The Father of MS-DOS Dictionary Compression, Dictionary Compression, Danger Ahead-Patents, Conclusion</p>	

Prepared By: Jignesh Vania