

GURU TEGH BAHADUR INSTITUTE OF TECHNOLOGY

Code No.: **ETEC-406**

Paper: **Ad Hoc and Sensor Networks**

Branches: ECE

Semester: 8th

TOPICS	Number of Lectures
Issues in Ad Hoc Wireless Networks. Ad Hoc Wireless Internet.	1
MAC Protocols for Ad Hoc Wireless Networks	1
Introduction, Issues in Designing a MAC Protocol for Ad Hoc Wireless Networks.	1
Design Goals of a MAC Protocol for Ad Hoc Wireless Networks	1
Classifications of MAC Protocols. Contention-Based Protocols. Contention-Based Protocols with Reservation Mechanisms	1
Contention-Based MAC Protocols with Scheduling Mechanisms	1
MAC Protocols in Directional Antennas. Other MAC Protocols	1
Routing Protocols for Ad Hoc Wireless Networks. Introduction to Routing algorithm, Issues in Designing a Routing Protocol for Ad Hoc Wireless Networks	2
Classifications of Routing Protocols. Table-Driven Routing Protocols. On-Demand Routing Protocols. Hybrid Routing Protocols. Routing Protocols with Efficient Flooding Mechanisms.	2
Hierarchical Routing Protocols. Power-Aware Routing Protocols.	1
Introduction. Issues in Designing a Transport Layer Protocol for Ad Hoc Wireless Networks. Design Goals of a Transport Layer Protocol for Ad Hoc Wireless Networks.	2
Classification of Transport Layer Solutions. TCP Over Ad Hoc Wireless Networks. Other Transport Layer Protocols for Ad Hoc Wireless Networks.	2
Security in Ad Hoc Wireless Networks. Network Security Requirements. Issues and Challenges in Security Provisioning	2
Network Security Attacks. Key Management. Secure Routing in Ad Hoc Wireless Networks	2
1st Sessional Exam	
Sensor Network Architecture. Data Dissemination. Data Gathering. MAC Protocols for Sensor Networks	2
Location Discovery. Quality of a Sensor Network. Evolving Standards. Other Issues.	2
Introduction. Next-Generation Hybrid Wireless Architectures. Routing in Hybrid Wireless Networks.	3
Pricing in Multi-Hop Wireless Networks. Power Control Schemes in Hybrid Wireless Networks. Load Balancing in Hybrid	1
Wireless Geolocation System Architecture. Technologies for Wireless Geolocation.	1
Geolocation Standards for E-911 Services. Performance Measures for	2

Geolocation Systems. Questions. Problems.	
Recent Advances in Wireless Networks: Introduction. Ultra-Wide-Band Radio Communication. Wireless Fidelity Systems.	1
Optical Wireless Networks.	2
The Multimode 802.11 -IEEE 802.11a/b/g. The Meghadoot Architecture,	3
introduction to vehicular sensor networks.	2

Text Books:

[T1] Siva Ram Murthy, C. and Manoj,B. S., Adhoc Wireless Networks Architectures and Protocols, Prentice Hall, PTR, (2004) 2nd ed.

[T2] Perkins, Charles E., Ad hoc Networking, Addison Wesley, (2000) 3rd ed.

Reference Books

[R1] Toh, C. K., Ad hoc Mobile Wireless Networks Protocols and Systems, Prentice Hall, PTR, (2001) 3rd Edition.

[R2] Pahlavan, Kaveh., Krishnamoorthy, Prashant., Principles of Wireless Networks, - A united approach - Pearson Education, (2002) 2nd ed.

[R3] Wang X. and Poor H.V., Wireless Communication Systems, Pearson education, (2004) 3rd ed.

[R4] Schiller Jochen., Mobile Communications, Person Education – 2003, 2nd ed.

[R5] Carlos De Morais Cordeiro and Dharam P Agrawal, “Adhoc and Sensor Networks- Theory & Applications”, 2nd Ed, Cambridge Univ Press India Ltd