

Course Title	Wireless Adhoc Networks
Course Code	CP203
Course Credit	Theory :04
	Practical :01
	Tutorial :00
	Credits :05
Course Objective	
<p>At the end of the course, students will be able to:</p> <ul style="list-style-type: none"> • Recognize needs of different set of MAC, routing and transport protocols for wireless computer networks compared to wired networks. • Understand and Compare different types of MAC, Routing and Transport protocols for Ad hoc Networks. • Analyze performance of MANET Routing Protocols under different mobility patterns. • Identify different methods for energy saving in a mobile device. • Identify future research directions. 	

Detailed Syllabus		
Sr. No.	Name of chapter & details	Hours Allotted
Section – I		
1.	Wireless Network Mobile Communication: Past, Present, and Future - Bluetooth – IrDA – HomeRF - 802.11 - 802.16 – Hotspots - Mesh Networking - Wireless Internet - Ad Hoc Networks	5
2.	MAC Layer Protocols for Ad Hoc Wireless Networks Important Issues and Need – Classification – MAC Protocols: Multiple-Channel, Energy-Efficient	5
3.	Routing Protocols for Ad Hoc Wireless Networks Basics – Design Issues – Classification – Proactive Routing Protocols - Reactive Routing Protocols - Hybrid Routing Protocols	9
4.	Multicast Routing Protocols for Mobile Ad Hoc Networks Issues – Classification – MAODV – Mesh Based Protocols – SRMP – Multicast with QoS and Energy-Efficient - Application-Dependent Multicast Routing	9

Section – II

5.	Transport Protocols for Ad Hoc Networks Challenges – Design Goals – Performance Comparison - Ad Hoc Transport Protocols – ACTP	7
6.	QoS in Ad Hoc Networks & Energy Management Issues and Challenges – Classification - Energy-Efficient Routing Protocol - Transmission Power Management Schemes - Transmission Power Control – Variants of AODV	8
7.	Mobility Models for Multihop Wireless Networks & Application Models – Patterns - Cross-Layer Design Issues - Applications and Recent Developments in Ad Hoc Networks	6
8.	Issues and Challenges Time synchronization – Localization - Resource Allocation - Data Management	7

Instructional Method and Pedagogy:

- Lectures will be conducted with the aid of multi-media projector, blackboard, OHP etc. Assignments based on course contents will be given to the students at the end of each unit/topic and will be evaluated at regular interval
- Minimum five experiments shall be there in the laboratory related to course contents
- Minimum six tutorials which includes solution of minimum five computer programs in each head

Reference Books

- Saha Misra, Wireless Communications and Networks, 3G and beyond, TMH.
- Asoke K Talukder and Roopa R Yavagal, Mobile Computing Technology, Application and Service Creation, Tata McGraw Hill
- Raj Pandya , Mobile and Personal Communication Systems and Services, PHI
- Kaveh Pahlavan and Prashant Krishnamurthy, Principle of wireless Networks, PHI
- Theodore S. Rappaport, Wireless Communication Principles and Practice, PHI
- Yi-Bing Lin and Imrich Chlamtac, Wireless and Mobile Network Architectures, WILEY
- Raj Kamal, Mobile Computing, Oxford Press

Instructional Method and Pedagogy:

- Lectures will be conducted with the aid of multi-media projector, blackboard, OHP etc. Assignments based on course contents will be given to the students at the end of each unit/topic and will be evaluated at regular interval
- Minimum five experiments shall be there in the laboratory related to course contents
- Minimum six tutorials which includes solution of minimum five computer programs in each head

Reference Books

Additional Resources

- <http://www.3gpp.org>
- <http://www.3gpp2.org>
- <http://www.vicomsoft.com/learning-center/wireless-networking/>
- NPTEL video lectures of Wireless Communications course of Electronics & Communication Engineering by Prof. Ranjan Bose, IIT Delhi



SYLLABUS