ITE4004	Wireless Mobile Networking	L	T	P	J	C
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Pre-requisite	**ITE3001**	**Syllabus version**				
		1.0				

Course Objectives:

- To learn about different types of wireless and mobile systems
- To understand the various layers in wireless network
- To have in-depth knowledge in routing protocols

Expected Course Outcome:

1) Demonstrate knowledge of the fundamentals of wireless, mobile and next generation networks
2) Design and implement adhoc wireless networks
3) Design and choose appropriate MAC protocols for Adhoc networks
4) Design and choose appropriate routing protocols for Adhoc networks based on their need
5) Design transport layer protocols for adhoc networks and and provide QoS for wireless networks
6) Develop applications using Wireless and Mobile Networking
7) Comprehend the need of QoS in wireless and mobile networks
8) Design, implement and evaluate the various protocols and architectures of wireless and mobile networks

Student Learning Outcomes (SLO):	**6, 17**
[6]	Having an ability to design a component or a product applying all the relevant standards and with realistic constraints
[17]	Having an ability to use techniques, skills and modern engineering tools necessary for engineering practice

Module:1	**Introduction**	**6 hours**

Fundamentals of wireless and mobile systems - IEEE 802.11 - Wireless LAN's, PAN's.

Module:2	**Wireless WAN's and MAN's**	**6 hours**

Cellular concept and architecture, UMTS, 2G/3G Versus LTE, Next Generation Mobile Networks.–Wireless Internet.

Module:3	**Ad hoc wireless networks**	**6 hours**

Sensor networks – Challenges and Constraints – Node architecture – Layered and cluster architecture - Mesh networks.

Module:4	**Mac Protocols**	**6 hours**
Issues in designing MAC Protocol and goals –Classification –Contention based- Contention based with reservation- Contention based with scheduling.		
Module:5	**Routing Protocols**	**6 hours**
Introduction - Issues of routing protocol - Classification - DSDV, WRP, CSGR, DSR, AODV, TORA, ZRP, OLSR, HSRP, PAR, Secure routing in ad hoc networks.		
Module:6	**Transport Layer Protocols**	**6 hours**
Issues in designing transport layer protocols for ad hoc networks— Classification – TCP over ad hoc networks.		
Module:7	**QoS for Wireless Networks**	**6 hours**
Issues and challenges in providing the QoS in wireless networks –Energy Management.		
Module:8	**Contemporary issues:**	**3 hours**
	Total Lecture hours:	**45 hours**

Text Book

1.	C. Siva Ram Murthy, B. S. Manoj, Ad Hoc Wireless Networks – Architecture and Protocols, Pearson Education, 2010.

Reference Books

1.	Asoke K. Talukder, Roopa R.Yavagal, Mobile Computing-Technology, Applications and Service Creation, Tata McGraw Hill, 2010
2.	Waltenegus Dargie, Christian Poellabauer, Fundamentals of wireless sensor Networks - theory and practice, John Wiley & Sons, 2010.
3.	Ian F. Akyildiz, Mehmet Can Vuran, Wireless Sensor Networks, John Wiley & Sons, 2010.

Recommended by Board of Studies	05-03-2016		
Approved by Academic Council	No. 40	Date	18-03-2016