



Course Title: Adhoc & Sensor Based Networks
Course Code: ECE752
Credit Units: 4
Course Level: PG

L	T	P/ S	SW/F W	TOTAL CREDIT UNITS
3	1	0	0	4

Course Objectives: This course deals with the comprehensive knowledge of various techniques in mobile networks/Adhoc networks and sensor based networks. The objective of this course is to facilitate the understanding of Infrastructure less networks and their importance in the future directions for wireless communications

Prerequisites: Digital Communication

Course contents/Syllabus:

	Weightage (%)
Module I AD HOC Wireless	25%
<ul style="list-style-type: none">• Introduction,• Mobile Ad Hoc Networks,• Technologies for Ad Hoc Network,• Issues in Ad hoc wireless Networks• IEEE 802.11 Architecture and protocols.• Protocol for AD HOC Wireless Networks.• Issues and classification of MAC protocol,• other MAC protocols,• Dynamic Source Routing (DBR),• Adhoc Distance Vector (AoDV) routing,• Routing Protocols, Multicasting Routing issues	
Module II: Transport layer & Security protocols	25%
<ul style="list-style-type: none">• Issues in designing transport layer protocols,	

<ul style="list-style-type: none"> • TCP over Ad Hoc Wireless Networks, • Network Security Attacks, <p>Key management.</p>	
Module III: Wire Sensor Networks	25%
<ul style="list-style-type: none"> • Basic Sensor Network Architectural Elements, • Applications of Sensor Networks, • Comparison with Ad Hoc Wireless Networks, • Challenges and Hurdles. • Architecture of WSNs Hardware components, • Operating systems and execution environments, • some examples of sensor nodes, • Network Architecture, • Sensor networks scenarios, • Optimization goals and figures of merit • Design principles for WSNs. 	
Module IV: Communication Protocols	25%
<ul style="list-style-type: none"> • Physical Layer and Transceiver design considerations in WSNs, • Fundamentals of (wireless) MAC protocol, • Address and name management in wireless sensor networks, • Localization and positioning Routing protocols Data Dissemination and Gathering, • Routing Challenges and Design Issues in Wireless, • Routing Strategies in Wireless Sensor Networks, • QoS in wireless sensor networks, 	

Student Learning Outcomes:

- Students will be able to describe an adhoc network and analyze various technologies associated with it.
- Students will be able to analyze various transport layer and analyze various protocols associated with it.
- Students will apply this knowledge to analyze adhoc & sensor based networks and compute various parameters associated with it..

Pedagogy for Course Delivery:

The class will be taught using theory and other computer aided methods. In addition to class room teaching various assignments and tutorials will be carried out, The course instructor will spend considerable time in understanding the concept of innovation and make students understand and realize the practicality of the course

Assessment/ Examination Scheme:

Theory L/T (%)	Lab/Practical/Studio (%)	Total
100%	NA	100%

Theory Assessment (L&T):					
Continuous Assessment/Internal Assessment					End Term Examination
Components (Drop down)	Mid-Term Exam	Assignment	Viva	Attendance	
Weightage (%)	10%	7%	8%	5%	70%

Text & References

- Ad HOC Wireless Networks: Architectures & Protocols by C Siva Ram Murty & BS Manoj 2nd Ed, Pearson Education.
- Adleshein & Gupta, "Fundamentals of Mobile and Pervasive Computing, TMH, 2005
- Handbook of Ad Hoc wireless network, By Mohamed Illayas, CRC press
- Protocols and Architectures for Wireless Sensor Networks, By Holger Karl, John Wiley & Sons.
- Wireless Sensor Networks Technology, Protocols, and applications by Kazem Sohraby, Daniel Minoli, Taieb Znati, John Wiley & Sons.