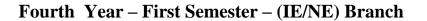
University of Technology

Computer Engineering Department

Academic Year 2023 - 2024





Code	Wireless Sensor Networks	2 Hours/Week	2 Units	l
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Contents of Syllabus Introduction to sensor networks: WSN Nodes and Their Characteristics, Characteristics of WSNs, WSN Applications: Military Applications, Environmental Applications, Health Applications, Home Applications, Industrial Applications			
		Factors Influencing WSN Design: Hardware Constraints, Fault Tolerance, Scalability Production Costs, WSN Topology, Transmission Media, Power Consumption	
		WSN Architecture and Protocol Stack: Physical Layer, Data Link Layer, Network Layer, Transport Layer, Application Layer	
Physical Layer: Physical Layer Technologies, Overview of RF Wireless Communication, Channel Coding (Error Control Coding), Modulation, Wireless Channel Effects, PHY Layer Standards			
Medium Access Control: Challenges for MAC, CSMA Mechanism, Contention-Based Medium Access, Reservation-Based Medium Access, Hybrid Medium Access			
Network Layer: Data-centric and Flat-Architecture Protocols, Hierarchical Protocols, Geographical Routing Protocols			
Time Synchronization: Challenges for Time Synchronization, Network Time Protocol, Timing-Sync Protocol for Sensor Networks (TPSN)			
Wireless Multimedia Sensor Networks			
Wireless Underwater Sensor Networks	2		

Textbook:

- 1. Wireless Sensor Networks Concepts, Applications, Experimentation and Analysis, Hossam Mahmoud Ahmad Fahmy, 2016
- 2. Wireless Sensor Networks A Networking Perspective, Jun Zheng, Abbas Jamalipour 2009