

## UBI 532 COURSE INFORMATION

**Course Name:** UBI 532- Mobile Ad hoc Networks and Wireless Sensor Networks

**Instructor:** Assist. Prof. Dr. Orhan Dagdeviren

### ***Aim and Content:***

- This course aims to teach the fundamental as well as advanced concepts of mobile ad hoc networks and wireless sensor networks.
- We will cover the whole protocol stack from physical layer to application layer by considering the design issues under the limitations of mobility, limited battery, wireless transmission capability, environmental effects and current technological constraints.
- Both theoretical and practical aspects of the topics will be introduced.

**Course Book:** Protocols and Architectures for Wireless Sensor Networks, Holger Karl, Andreas Willig, John Wiley & Sons, 2007.

### ***List of Topics:***

1. Wireless Sensor Network Concept and Applications
2. Single Node Architecture
3. Network Architecture
4. Physical Layer
5. Medium Access Layer
6. Link Layer
7. Naming Issues
8. Time Synchronization
9. Localization
10. Topology Control
11. Id-Centric Networking
12. Content-based Networking
13. Transport Protocols

### ***Tentative Grading:***

Midterm: 20 %

Final: 30 %

Homeworks (4-5): 20 %

Project: 30 %

### ***Supplementary Materials (Not Full List):***

1. Dorothea Wagner and Roger Wattenhofer. *Algorithms for Sensor and Ad Hoc Networks: Advanced Lectures*. 2007, Springer-Verlag, Berlin, Heidelberg.
2. Gerard Tel, *Introduction to Distributed Algorithms* (2nd ed.), Cambridge University Press, 2000.
3. C. Siva Ram Murthy, B. S. Manoj, *Ad Hoc Wireless Networks: Architectures and Protocols*. 2004, Prentice Hall.
4. A. Boukerche, *Handbook of Algorithms for Wireless Networking and Mobile Computing*, 2006, Chapman & Hall/CRC.