

UTI 530 COURSE INFORMATION

Course Name: UTI 530- Mobile and Distributed Technologies

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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. Introduction to Mobile and Distributed Technologies
2. Wireless Sensor Network Concept and Applications
3. Single Node Architecture
4. Network Architecture
5. TinyOS
6. Routing Layer
7. Medium Access Layer
8. Physical Layer
9. Localization
10. Topology Control
11. Time Synchronization

Tentative Grading:

Homeworks (5 homeworks): 40 %

Final Project (Should be presented): 60 %

If a student requests, the grade of the final project will be replaced with the grade of the complementary exam (Complementary exam will be re-presentation of the final project).

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.