

UTI 530 (and UBI 532) COURSE INFORMATION

Course Name: UTI 530- Mobile and Distributed Technologies (also UBI 532 Wireless Sensor Networks)

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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 some important problems (such as routing, localization, mac layer design) 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 Concepts and Applications
3. Single Node Architecture
4. Network Architecture
5. TinyOS
6. Routing Layer
7. Medium Access Layer
8. Localization
9. Topology Control

Tentative Grading:

Homeworks (5 homeworks): 40 %

Paper Presentation (1 presentation): 20 %

Final Project (Should be presented): 40 %

Supplementary Materials (Not Full List):

1. Kayhan Erciyes, Distributed Graph Algorithms for Computer Networks, 2014 Springer-Verlag, Berlin, Heidelberg.
2. Dorothea Wagner and Roger Wattenhofer. *Algorithms for Sensor and Ad Hoc Networks: Advanced Lectures*. 2007, Springer-Verlag, Berlin, Heidelberg.
3. Gerard Tel, *Introduction to Distributed Algorithms* (2nd ed.), Cambridge University Press, 2000.
4. C. Siva Ram Murthy, B. S. Manoj, *Ad Hoc Wireless Networks: Architectures and Protocols*. 2004, Prentice Hall.
5. A. Boukerche, *Handbook of Algorithms for Wireless Networking and Mobile Computing*, 2006, Chapman & Hall/CRC.