

European University Cyprus

School of Sciences

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Spring Semester 2009

CSC404 N – Wireless and Mobile Networks

Course Outline

Objective: To examine the structure and architecture of wireless and mobile networks, systems and applications. The mobility of nodes and end-users has behavioral implications on all layers of the OSI protocol stack from the Data Link up to the Application Layer. Handling and adapting to mobility necessitates the introduction changes in the protocol stack. Emerging applications enabled due to mobility will be investigated too.

COURSE OUTLINE

| Week | Chapter | Description |
|------|---------|--|
| 1,2 | Notes | Introduction: Wireless technology and transmission Fundamentals |
| 3 | 4,5 | Antennas and propagation |
| 4,5 | 3 | Cellular Wireless Networks: Network organization, frequency reuse, handoff strategies, power control |
| 6 | 3 | Cellular Wireless Network - Examples: GSM, GPRS, UMTS, 3G and WiMAX |
| 7 | | Mid Term Test |
| 8,9 | Notes | Satellite Communications and High Altitude Platforms: Classification of satellite orbits, GEO orbit, LEO orbit, MEO orbit, link performance factors, capacity allocation strategies. |

10,13 11 Wireless LANs: Wireless LANs technologies, WLANs applications, the IEEE 802.11 standards and operation, hand-off, fast hand-off. Ad-hoc networks, issues in ad-hoc networks, routing in ad-hoc networks, encryption in ad-hoc networks,

11,12 Easter Holidays

14 Notes BlueTooth techniques: BlueTooth Application Areas, BlueTooth Protocol Architecture, usage models, frequency hopping, BlueTooth audio, BlueTooth Link security.

15 Revision Classes

16,17 Final Examination

GRADING:

Final Examination: 40%
Mid Term Examination: 30%
Class participation : 5%
Assignments : 25%

TEXTBOOKS:

Theodore S. Rappaport, Wireless Communications Principles and Practices, Prentice Hall

William Stallings, Wireless Communications and Networks, Prentice Hall

Yi-Bing Lin, Imrich Chlamtac, Wireless and Mobile Network Architectures, John Wiley & Sons; ISBN: 0471394920

Ellen Kayata Wesel: Wireless Multimedia Communication Networking Video, Voice and Data, Addison-Wesley

K. Pahlavan and P. Krishnamurthy, Principles of Wireless Networks, Prentice Hall

C. Siva Ram Murthy, B.S. Manoj, Adhoc Wireless Networks: Architectures and Protocols, Pearson Education

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PREREQUISITE: CSC322, CSC325