CDA 6508 Ad Hoc Networks

- **Course Description**

Ad Hoc Networks. Credit 3. A comprehensive approach to fundamentals of ad hoc networks including media access protocols, routing protocols, implementation and communication performance. Prerequisite: Discrete Mathematics, MAD 2104 and Introduction to Data Communications, CDA 4500.

- **Textbook:**

J. Wu, Handbook on Theoretical and Algorithmic Aspects of Sensor, Ad Hoc Wireless, and Peer-to-Peer Networks, CRC Press, 2005.

Classnotes and handouts

- **References:**

S. Basagni, M. Conti, S. Giordando, and I. Stojmenovic, Mobile Ad Hoc Networking, IEEE Press & Wiley Inter-Science, 2004

M. Ilyas, The Handbook of Ad Hoc Wireless Networks, CRC Press, 2002.

I.Stojmenovic, Handbook of Wireless Networks and Mobile Computing, John Wiley & Sons, 2002

C.E.Perkins, Ad Hoc Networking, Addison Wesley, 2001.

D. P. Agrawal and Q.-A. Zeng, Introduction to Wireless and Mobile Systems, Thomson Brooks/Cole, 2003.

- **Instructor:**

Jie Wu, Professor of Computer Science and Engineering, Florida Atlantic University.

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- **Office Hours:**

Tuesday and Thursday: 9:00 am – 11:00 am

- **Goals:**

An understanding of basic of the ad hoc wireless networking. Covers media access, routing, data management, power optimization, transport protocol, and much more. Current and future developments in the field.

- **Prerequisites by Topic:**

1. Basic graph theory
2. Fundamentals of computer networks

- **Topics:**

1. Introduction to Wireless Networks
2. Ad Hoc Wireless Networks and Their Origins
3. Topics in Infrastructured Networks (cellular architecture)
   - Handoffs
   - Location Management (Mobile IP)
   - Channel Assignment
4. Topics in Infrastructurless Networks (MANETs)
   - Wireless Media Access Protocols
   - Ad Hoc Routing Protocols
   - Multicasting and Broadcasting
   - Reliability and QoS
   - Power Optimization
   - Security
5. Applications
   - Sensor Networks and Indoor Wireless Environments
   - Pervasive Computing
   - Peer-to-Peer Networks
6. Sample On-going Projects