CDA 6508 Ad Hoc Networks

- **Catalog Data:**

  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:**

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

- **References:**

  M. Ilyas, The Handbook of Ad Hoc Wireless Networks, CRC Press, 2003.

  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.

  Room 401, Science and Engineering Building, $\times$ 73491, jie@cse.fau.edu

- **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

- **Grading Policy**

  4 homework assignments (20%)

  1 term project (30%)

  2 tests (midterm and final) (50%)

- **Office Hours**: Tuesdays & Thursdays, 9:00 am - 11:00 am.

- **Topics**

1. Introduction to Wireless Networks
2. Ad Hoc Wireless Networks and Their Origins
3. Topics in Infrastructured Networks (celluar 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