Internet Routing Protocols

- **Catalog Data:**

  Internet Routing Protocol. Credit 3. A comprehensive approach to fundmentals of routing algorithms and internet, IETF (Internet Engineering Task Force) standard, multicast IP and mobile IP. Prerequisite: Discrete Mathematics, MAD 2104 and Introduction to Data Communications, CDA 4500.

- **Textbook:**

  Christian Huitema, Routing in the Internet, 2nd Edition, Prentice Hall PTR, 2000.

- **Reference:**

  Charles E. Perkins, Ad Hoc networking, Addison Wesley, 2001.

  Thomas A. Maufer, Deploying IP Multicast in the Enterprise, Prentice Hall, 1998.

  Martha E. Steenstrup, Routing in Communications Networks, Prentice Hall, 1995.

- **Instructor:**

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

- **Goals:**

  An understanding of basic routing protocols in internet and its extensions in wireless and mobile computing. Current and future developments in the field.

- **Prerequisites by Topic**:

  1. Basic graph theory
  2. Fundamentals of computer networks

- **Topics**

  1. Internet architecture
  2. Internet routing: IP address, routers, and routing tables
  3. Theoretical foundations
  4. Link state algorithms vs. distance vector algorithms
  5. Interior routing protocols: RIP and OSPF
     (RIP: Routing Information Protocol, OSPF: Open Shortest Path First)
  6. Exterior routing protocols: BGP
     (BGP: Border Gateway Protocol)
  7. Reliable and optimal routing protocols
  8. IP multicast: MOSPF and CBT
     (MOSPF: Multicast OSPF, CBT: Core-Based Tree)
  9. Next generation IP protocols: IPv6
  10. Routing in Ad Hoc wireless networks: unicasting and multicasting
  11. Future directions