Course number and name: CS 06410: Data Communications and Networking

Credits and contact hours: 3 credits / 3 contact hours

Instructor’s or course coordinator’s name: Andrea F. Lobo


Specific course information

Catalog description: Students will explore topics in mobile application development. This course covers the various mobile operating systems, mobile development tools, and all that is needed to create mobile applications, using programming languages appropriate for the mobile platform being studied. Students will gain an advanced understanding of mobile application development and have an exciting opportunity to write and publish feature-rich mobile applications.

Prerequisites: Permission of the instructor or sufficient programming background

Type of Course: ☒ Selected Elective

Specific goals for the course

1. The student will understand layered architectures.
2. The student will model the performance of network components or systems.
3. The student will understand the operation of important application, transport and network layer protocols.
4. The student will describe some basic security issues.

Required List of Topics to be covered

1. Networking models (OSI and IP)
2. Network media (wired, optical, and wireless)
3. Network Architectures and topologies (PAN, LAN/WAN, DMZ, Enclaves, VLAN, NAT, subnetting, supernetting)
4. Common Network Devices and their role in the network. (Routers, Switches, Hosts, VPNs, Firewalls)
5. Network Protocols introduction (IP, TCP, UDP, ICMP)
6. Network Services and protocols introduction (DNS, NTP, VLAN, etc.)
7. Network Applications and protocols introduction (SMTP, HTTP, VoIP, SSH, etc.)
8. Use of basic network administration tools
9. Overview of Network Security Issues
10. Network switching (Ethernet)
   a. ARP and RARP
11. IPv4 suite
   a. IPv4 Addressing
12. IPv6 Suite
   a. IPv6 Addressing
13. Routing in IPv4 and v6
   a. Routing tables and metrics
14. Network Naming
   a. DNS
   b. NetBIOS
15. Layered services design