INFS 612 - Principles and Practices of Communication Networks

Course Description:

Introduces principles of computer networks and applications to Internet. Discusses details of layering, protocols, performance, resource allocation, management, security and other contemporary issues related to networks. Examples of course material are protocols such as HTTP(S), DNS, TCP/IP, RSVP, SNMP, algorithms such as Dijkstra's link state routing; and security measures such as firewalls and encryption, the principles behind them and analysis of performance.

Course Prerequisites*:* INFS 501, INFS 515, INFS 519 and SWE 510

Topics covered:

The topics covered correspond to the textbook chapters. Additional reading materials could be requested.

1. Computer Networks and the Internet
2. Application Layer
3. Transport Layer
4. Network Layer: Data Plane
5. Network Layer: Control Plane
6. Link Layer and LANs
7. Wireless and Mobile Networks
8. Network Security
9. Multimedia Networks

Course Textbook:

COMPUTER NETWORKING: A TOP-DOWN APPROACH, Seventh Edition, James F. Kurose and Keith W. Ross, Pearson, ISBN-13: 978-0-13-359414-0, ISBN-10: 0-13-359414-9.

Instructor: Ahmed Jbara, PhD

Class Meetings: Mondays, 7:20 - 10:00 pm

Location: IN 208 (Innovation Hall)

Office Hours: Mondays 6:00-7:00 PM. Please contact instructor before coming.

Email: AABUJBAR@GMU.EDU

GTA: TBA

Blackboard: All assignments, announcements, discussions, slides will be posted on Blackboard (HTTP://COURSES.GMU.EDU).

Grading Policy

Assignments	25%
Class Participation	10%
Group Project	25%
Individual Presentation	10%
Final Exam	30%

All assignments are to be done individually (honor code in effect) and are to be submitted on time via Blackboard. Email submission not accepted.

Topic selection for individual presentations and group projects has to be coordinated with the instructor. Three students maximum per group project. Topics will be discussed in first class.

Suggested Topics:

- Software Defined Networks
- Network Virtualization
- IoT
- Network Micro Segmentation
- IPv4, IPv6 and IPv10
- Big Data Networking
- Optical Wireless
- Network Security and Forensics
- OT/IT convergence
- OT (ICS/SCADA) Network Security

The **GMU HONOR CODE** is in effect at all times. The Computer Science Department also has an **HONOR CODE POLICY**.