COMP 5340, Network Quality Assurance and Simulation

Credit hours: 3 lecture
Contact hours: 3 lecture

Catalog Description: Theoretical and practical aspects of network simulation and quality assurance.

Prerequisites: COMP 4320 or ELEC 5220
Corequisites: None

Required Course (WIRS – network specialization) Selected Elective Course (CSCI, SWEN)

Instructor or Course Coordinator: Dr. Saad Biaz

Required Textbook
None required

Reference Materials
Selected current conference and journal articles

Course Outcomes
The student will be able to
• understand how, why, and when to use a simulation.
• develop a simulation of a computer network.
• demonstrate practical knowledge of computer networking.
• understand the role of verification and validation.
• demonstrate an ability to perform verification and validation in the context of a computer network.

Topics Covered
• Introduction to network quality and simulation (3 hours)
• Fundamentals of simulation, randomness, statistical inference (6 hours)
• System modeling (6 hours)
• Distributed systems (3 hours)
• V&V of simulation models (6 hours)
• Resolution in simulation (3 hours)
• Abstraction in multi-level simulation (3 hours)
• Simulation security (4 hours)
• Environments and languages (2 hours)
• Distributed simulation (5 hours)
• Time warp algorithms (2 hours)
• Exams (2 hours)

Course Requirements
• Homework Assignments (40%)
• Exams (60%)

Syllabus prepared: Spring 2016