CS 3622: Fundamentals of Data Communications

3 Credit Hours

Prerequisite: A grade of "B" or better in both CSE 1322 and CSE 1322L.

An introduction on the fundamentals and underlying theory of data communication networks, their architecture, principles of operations and performance analyses. Topics include OSI reference model and standards, communication codes, network protocol concepts, synchronous and asynchronous transmission methods, line coding, signaling, effects of bandwidth and noise, digital and analog modulation, interfacing, error/flow/media-access control, switching and routing methods, and network topologies. Other areas studied are Local area networks (LANs), Wide area networks (WANs), Wireless networks, Fiber optic networks, internetworking technologies, and an introduction to the Internet, TCP/IP, cryptography and network security.

CS 3626: Cryptography

3 Credit Hours

Prerequisite: MATH 2345 or CSE 2300

Concurrent: CS 3305

The course covers both mathematical and practical foundations of cryptography. Topics include basic number theory for cryptography, conversion of text, and implementation using a programming language. The course includes historical cryptography, symmetric cryptography, asymmetric cryptography, hash functions, and well-known attack strategies with countermeasures. Exercises cover programming of simple cryptography in a programming language.

CS 3642: Artificial Intelligence

3 Credit Hours

Prerequisite: CS 3305

The primary objective of this course is to provide a introduction to the basic principles and applications of Artificial Intelligence. It covers the basic areas of artificial intelligence including problem solving, knowledge representation, reasoning, decision making, planning, perception and action, and learning -- and their applications. Students will design and implement key components of intelligent agents of modern complexity and evaluate their performance. Students are expected to develop familiarity with current research problems, research methods, and the research literature in AI.