CSCE 4753 Computer Networks (3 credits), Elective

Catalog Description: This course is an introductory course on computer networks. Using the Internet as a vehicle, this course introduces the underlying concepts and principles of modern computer networks, with emphasis on protocols, architectures, and implementation issues. **Prerequisites:** INEG 2313 Applied Probability and Statistics for Engineers I. Students cannot receive credit for both CSCE 4753 Computer Networks and CSCE 5773 Computer Networks.

Textbook/required material: James F. Kurose and Keith W. Ross, *Computer Networking: A Top-down Approach*, 7th ed., Hoboken, New Jersey: Pearson, 2017. (Note that you may use the 6th edition.)

Goals: The goal of the class is for students to understand the application, transport, network, link, and physical layers of a computer network.

Topics covered:
- Computer Networks and the Internet Introduction.
- Client/server model, socket programming, and popular Internet application-layer protocols such as HTTP, SMTP, and DNS.
- Principles of reliable data transfer and the two transport-layer protocols TCP and UDP.
- Principles of datagram and virtual circuit packet networks, routing algorithms, IPv4, and IPv6.
- Principles of different types of multiple access protocols, Ethernet, bridges, and switches.

Grading
Course grades will be determined by these weights:

Homework:	10%
Quizzes:	40%
Exam 1:	25%
Final:	25%

The final class grade will be assigned according to the 10-point scale shown below. The grades may or may not be curved.

A	90 – 100%
B	80 – 89.9%
C	70 – 79.9%
D	60 – 69.9%
F	< 60%

Homework
All assignments will be given with a strict deadline, and students are required to submit their assignments on or before the deadline. Homework will be collected at the start of the class on the due date, and late submissions will not be accepted. In case of extenuating circumstances, students are advised to contact the professor as soon as practical. You are encouraged to discuss the course and the assignments with each other; however, your exams and homework should be your own work.

Attendance
Attendance will be taken. Attendance will be used as a deciding factor when the final average is between grades. For example, if you have an average of 89.5 and you have attended a high percentage of the classes it may be rounded up to an "A". If you have an average of 89.5 and you have attended a small percentage of the classes it will probably still be a "B".

Academic Dishonesty Policy
As a core part of its mission, the University of Arkansas provides students with the opportunity to further their educational goals through programs of study and research in an environment that promotes freedom of inquiry and academic responsibility. Accomplishing this mission is only possible when intellectual honesty and individual integrity prevail. Each University of Arkansas student is required to be familiar with and abide by the University's 'Academic Integrity Policy' at honesty.uark.edu/policy. Students with questions about how these policies apply to a particular course or assignment should immediately contact their instructor.

Class/laboratory schedule: Meets either 3 times a week for 50 minutes or 2 times a week for 1 hour 15 minutes for 15 weeks.

Relationship of course to Computer Engineering Student Outcomes:
- CE1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- CE6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

Relationship of course to Computer Science Student Outcomes:
- CS1. An ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- CS6. An ability to apply computer science theory and software development fundamentals to produce computing-based solutions.

Relationship of course to Computer Science Topics:
- T1. Techniques, skills, and tools necessary for computing practice
- T2. Principles and practices for secure computing
- T8. Networking and communication

Prepared by: Dale Thompson   **Date**: August 18, 2018