Course name	**ECE 46300 Introduction to Computer Communication Networks**
Credit and contact hours	(3 cr.) Class 3
Course coordinator's name	Dongsoo S. Kim
Textbook	*Computer Networking: A Top-Down Approach*, 8th Ed., Pearson 2012, ISBN #9780136681557
Course information	ECE 46300 Introduction to Computer Communication Networks (3 cr.) P: ECE 26300 and ECE 30200. Class 3. An introduction to the design and implementation of computer communication networks. The focus is on the concepts and the fundamental design principles that have contributed to the global Internet's success. Topics include: digital transmission, switching and multiplexing, protocols, MAC layer design (Ethernet/802.11), LAN interconnects and switching, congestion/flow/error control, routing, addressing, performance evaluation, internetworking (Internet) including TCP/IP, HTTP, DSN, etc. This course will include one or more project. **Prerequisites/ Co-Requisite** ECE 26400, ECE 30200, or equivalent **Required, Elective, or Selected Elective:** EE Elective, Advanced CE Elective
Goals for the course	Upon successful completion of the course, students should be able to 1. Understand what circuit and packet switching are. [1, 3, 7;1,2,6] 2. Understand what the performance criteria of interest in different networks are. [1, 3, 5, 7;1,2,6] 3. Understand what a protocol is. [1, 3, 7;1, 2, 6] 4. Describe different access technologies. [3, 4, 7;1, 6, 2] 5. Describe different Local Area Networks technologies and the fundamentals of the underlying protocols. [3, 4, 7;1, 2,6] 6. Describe retransmission protocols and TCP. [1, 3, 4, 7;1, 2,6] 7. Understand the basic concepts of routing. [1, 2, 4, 7;1, 6, 2]
List of topics to be covered	1. Introduction: history, evolution of networks, standardization 2. Digital transmission principles and technologies 3. Switching and multiplexing technologies 4. Design of network: the layered approach, its advantages and shortcomings, protocols 5. Performance evaluation and Quality of Service 6. Data link layer: retransmission protocols (go-back n, selective repeat) and their performances,

	7. LAN: Ethernet, FDDI, wireless 8. Internetworking: introduction, naming, addressing 9. Routing: fundamentals, Intra-domain routing (RIP, OSPF), Inter-domain routing (BGP) 10. IP: fragmentation, error handling 11. TCP/IP and UDP 12. The World Wide Web: HTTP 13. Transmission lines (3 classes)
Syllabi approved by	Dongsoo S. Kim
Date of approval	11/30/2021