COURSE DETAIL

COMMUNICATION AND NETWORK ENGINEERING
Country South Africa
Host Institution University of Cape Town
Program(s) University of Cape Town
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Electrical Engineering Computer Science
UCEAP Course Number 110
UCEAP Course Suffix
UCEAP Official Title COMMUNICATION AND NETWORK ENGINEERING
UCEAP Transcript Title COMM & NETWORK ENGR
UCEAP Quarter Units 5.50
UCEAP Semester Units 3.70

Course Description

This course develops the understanding of Computer Networks and the Internet: Internet, network edge, network core, network performance metrics, protocol layers and service models, LAN topology, Physical media, OSI reference model and TCP/IP reference model, network standardization, computer network attacks and prevention, history of computer networking and the Internet. Application and Transport Layers: Principle of network applications, socket programming, transport layer services, multiplexing/demultiplexing, connectionless transport, connection-oriented transport (TCP), TCP congestion control and performance issues. Network Layer: Network layer design issues, forwarding and routing, virtual circuit and datagram networks, router architecture, Internet protocol, routing algorithms, routing the Internet, integrated and differentiated services. Data Link Layer: Data link design issues, error detection and correction, multiple access links and protocols, switched local area networks, IEEE 802 family, link virtualization, MPLS, data center networking. Physical Layer: Baseband systems, formatting textual data, formatting analogue information, sources of corruption, pulse code modulation, quantization, baseband modulation and demodulation/detection, inter-symbol interference, equalization, bandpass modulation and demodulation/detection amplitude. Emerging Communication Networks: Fundamentals of mobile networks, fundamentals of smart grid communication networks.

Language(s) of Instruction
English

Host Institution Course Number
EEE3093S

Host Institution Course Title
COMMUNICATION AND NETWORK ENGINEERING

Host Institution Campus
University of Cape Town

Host Institution Faculty

Engineering and the Built Environment

Host Institution Degree

Host Institution Department
Electrical Engineering

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