

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 Course Details

<https://www.uct.ac.za/sites/default/files/media/documents/uct-handbook-07a-2025...>

Host Institution Campus

University of Cape Town

Host Institution Faculty

Engineering and the Built Environment

Host Institution Degree**Host Institution Department**

Electrical Engineering

Course Last Reviewed

2025-2026

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