

# 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

[Print](#)