University of Zambia
Department of Library and Information Science

ICT 4010: Data and Communication Networks
Course Outline - 2023

Course Overview

Computer networks are essential in modern societies. It is therefore important that ICT students learn about these networks. This course enables students to understand, design and configure various computer networks.

Course Lecturer

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Course Goals

At the end of this course, the student should be able to:

- Explain the concepts of computer networks
- Explain types of computer networks
- Explain data transmission media
- Demonstrate an understanding of internet protocols
- Setup a computer network

Course Resources

Lecture materials and assignments will be available online on Moodle
http://moodle.unza.zm

Prescribed Books

- Forouzan, B.A. (2006). *TCP/IP Protocol Suite 3rd Ed*. Beijing. Higher Education Press.
- Reid, A and Lorenz, J. (2008). *Working at a Small-to Medium Business or ISP: CCNA Discovery Learning Guide.* Indianapolis. CISCO Press.
- Wilkins, R.S. (2012). *Designing for CISCO Internetwork Solutions (DESGN): Foundation Learning Guide 3rd ed*. New Delhi: Pearson.

Course Administration

Term 1 Timetable
Lecture Sessions: TBA
Tutorial Sessions: TBA

Term 2 Timetable
Lecture Sessions: TBA
Tutorial Sessions: TBA

Course Content

The course content is organized into 8 categories which will each include 1 or more topics. The following topics will be covered within Term 1 and 2:

Term 1

Types of Computer Networks

- Introduction to Computer Networks
- Network Topologies
- Types of Computer Networks

OSI Model

- OSI Model and OSI Layers
- TCP/IP Layers

Internet Protocol (IP) Addressing

- Subnets and IP Addressing
- Examples of Subnetting

Data Transmission Media and Network Devices

- Data Transmission Media
- Cable Characteristics
- Switches and Routers
- Metropolitan Area Networks (MANs)
- Wide Area Networks (WANs)

Term 2

Data Transmission Media and Ethernet

- Ethernet, Fast Ethernet and Gigabit Ethernet
- Network Ports

Wireless Network Fundamentals

- Wireless Network Fundamentals

Network and Cyber Security

- Network and Cyber Security
- VPNs and Network Address Translation

Network Monitoring and Management

- SNMP and Network Management

Course Assessment

Your final mark is based on a combination of the continuous assessment mark (CA) and the final examination at a ratio of **60:40** respectively:

- **2 tests** contributing **30%**
- **2 assignments** contributing **30%**
- **Final exam** contributing **40%**

Plagiarism (cheating)**:** A **zero** (0) mark will be awarded for plagiarized work. Additionally, plagiarism offences can instigate further disciplinary procedures.

Medicals: A valid medical certificate must be produced to qualify for a make-up test.