



Meru University of Science and Technology
School of Computing and Informatics
Department of Computer Science

Course Title: DATA COMMUNICATION AND NETWORKS-UPDATED

Course Code: CIT 3152

Year of study: ONE **Semester:** TWO

Pre-requisite CIT 3117

Purpose of the Course

This unit of study prepares gives an in depth understanding in the areas of data communications and networking.

Expected Learning Outcomes

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

- a) Explain fundamental principles of data communications and networks.
- b) Describe current networking technologies, services and solutions.
- c) Relate data communication with computer networks.

Week 1	Introduction to Data communication & networks	<ul style="list-style-type: none"> • Data Communications Concepts • DTEs, DCEs. Interfaces, standard codes.
Week 2	CAT 1	Introduction cit 3152 and 3117 computer networks
Week 3	Transmission medium	<ul style="list-style-type: none"> • Transmission modes • Categories of cables <ul style="list-style-type: none"> ✓ Guided ✓ Advantages and disadvantages
Week 4	Transmission medium	<ul style="list-style-type: none"> • Categories of Cables <ul style="list-style-type: none"> ✓ Unguided
Week 5	Standards in telecommunication	<ul style="list-style-type: none"> • Examples & Reasons for standards • ISO model
Week 6	Standards in telecommunication	<ul style="list-style-type: none"> • TCP/IP • Structure and functionality • LANS <ul style="list-style-type: none"> ✓ Advantages
Week 7	Standards in telecommunication	<ul style="list-style-type: none"> • LANS <ul style="list-style-type: none"> ✓ Topologies ✓ Examples of LAN protocols
Week 8	CAT 2	
WEEK 9	Internetworking.	<ul style="list-style-type: none"> • Networking equipment's • IP addressing: <ul style="list-style-type: none"> ✓ classes, public vs private, ✓ static vs dynamic,
WEEK 10		

WEEK 10	Wireless Telecommunication: INDIVIDUAL ASSIGNMENT (Take away CAT) submission	<ul style="list-style-type: none"> cellular and CDMA, GSM/TDMA/GPRS; Wi – Fi. TCP over MPLS. Multimedia Communications QoS: Performance and quality issues. Multiplexing
WEEK 11	End to End Communication	<ul style="list-style-type: none"> Packet switching Circuit switching networks.
WEEK 12	Voice digitization and Carrier systems Voice over IP (VOIP). GROUP WORK PRESENTATIONS/SUBMISSION	<ul style="list-style-type: none"> Carrier Systems ✓ DS0 – DS3 SONET and ISDN VPNs. ISPs
Week 13	Access and security issues. Revision	Security breaches
WEEK 14 &15	EXAMINATION	

LECTURER: DOROTHY M. KALUI

Mobile : 0717544508 or 0784661850 (NOT TWIN SIM)

Consultation Hrs : Fridays 8.30 am – 4.00 pm

Mode of delivery

Lectures, and individual and group assignments (no practical)

Instructional Materials

Overhead projector and laptop, handouts, white boards,

Course Assessment

Type	Weighting (%)
Examination	70%
Continuous Assessment (Sit in CAT)s , individual Assignment(take away Cat) and group assignment)	30%
Total	100%

Core Reading Material

1. Jerry FitzGerald, Alan Dennis (2005). Business Data Communications and Networking (8th Edition). John Wiley & Sons, Inc. ISBN: 0-471-65924-X. YES SHELVES
2. Victor Olifer, Ukerna (2005). Computer Networks: Principles, Technologies and Protocols for Network Design. John Wiley & Sons, Inc. ISBN: 0470869828

Recommended reference material

1. James F. Kurose and Keith W. Ross (2002). Computer Networking: A Top-Down Approach Featuring the Internet(2nd Ed.) Addison-Wesley. ISBN: 0201976994.
2. Alberto Leon-Garcia and Indra Widjaja (2000). Communication Networks: Fundamental Concepts and Key Architectures. McGraw-Hill. ISBN: 0-07-242349-8.