

MOI UNIVERSITY
SCHOOL OF INFORMATION SCIENCES
DEPARTMENT OF INFORMATION TECHNOLOGY

Course Code : **INF460E (IT Group)**
 Course Title : **Network Design and Administration**
 Lecture Hours : **Tuesday 11:00 14:00 Thursday 10:00 12:00** Venue : **LR3**
 Consultation Time : **Mondays 3:00 5:00** Venue : **Office E**

Lecturer: **Mr. Nicholas Kiget** (MScIT-MMUST, PGDE-K.U., BSc-Computer Science-JKUAT)
 Cell Phone Contact : **+254721246397** Mail: **kigetn@gmail.com**

PREREQUISITE COURSES

- ❖ INF 360: Computer Networks

PURPOSE

This course is designed to provide the learner with knowledge and skills in planning, design, implementation and management of networks.

OBJECTIVES

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

- Explain the network requirements for a computer network
- Demonstrate the physical and logical design of computer networks
- Demonstrate the working of various networking components
- Demonstrate the configuration, deployment and monitoring of servers (DHCP, DNS, Mail, proxy)
- Demonstrate tools and software used in monitoring and troubleshooting networks.

COURSE CONTENT

WEEK	TOPIC	SUB TOPIC
1	Overview of network operating system (NOS)	- Installation of operating system – Windows / Linux - File systems of OS Overview of functions of operating systems
2	NOS core technologies and administration.	- Installation and configuration. - Configuration of hostnames, IP addresses, nameservers, other basic settings
3	IP addressing system and sub-netting.	- Classes of IPv4 - Assignment of IPs - Private / reserved IPs - NIC IP binding ASSIGNMENT 1
4	Design and implementation of Enterprise LAN	- Critical components of a LAN - Critical servers in a LAN - WAN / WLAN - LAN technical requirements (budgets, staffing
5	CAT 1	
6	DHCP server	- Overview of DHCP – dhcpd - Installation and Configurations

WEEK	TOPIC	SUB TOPIC
7	Proxy server	- Overview of proxy server - squid - Installation - Configurations ASSIGNMENT 2
8	DNS server	- Overview of DNS server - How it works - Basic configurations
9	Network management and trouble shooting	- LAN / WAN management tools - Troubleshooting tools - LAN / Bandwidth monitoring tools
10	CAT 2	
11	Protocols	- Switching protocols - Routing protocols
12	Firewall	- Overview - Design and implementation
13	Emerging issues in network design and administration	
14	END OF SEMESTER EXAMINATION	

TEACHING AND LEARNING METHODOLOGIES

- Lectures
- Class/ Group Discussions
- Practicals
- Case studies
- Assignments

MODE OF EVALUATION

Assignments, Tests, practical exercises ----- 30 %
Written / Main Exam----- 70 %

REFERENCES:

1. Operating System Concepts with Java (8th edition) by Abraham Silberschatz, Peter Galvin
2. *Computer Networks*, 3rd edition, by Andrew Tanenbaum, Prentice Hall, ISBN 0-13-349945-6
3. *UNIX and Linux System Administration Handbook, 4th Ed.*, by Nemeth, Snyder, Hein and Whaley (Prentice Hall, 2010)
4. *The Practice of System and Network Administration, 2nd Ed.*, by Limoncelli, Hogan and Chalup (Addison Wesley, 2007).

N. Kiget 30/08/2018

Lecturer: Name/Date/Sign

COD: Name/Sign/Date