BACHELOR OF TECHNOLOGY IN COMPUTER TECHNOLOGY / INFORMATION TECHNOLOGY

Code & Name	**IBL1 2301: NETWORK DESIGN, INSTALLATION AND CONFIGURATION LABORATORY PRACTICAL**
Prerequisite	ECSI/ECII/ECCI 1204: Computer Networks
Class	SCCI/2019, SCCJ/2019, SCII/2019
Lecturer	Elizabeth
Contact	s.i.c.t.tuk@gmail.com

Purpose of the Course
To equip learners with skills for effective network design models that guarantees less downtime, security and quality of service.

Expected Learning Outcomes
At the end of these course learners will be able to design efficient network models, make good choice of appropriate network devices and design security and proper network management strategies

Course Description

Computer networks: Types of Networks and Network components, OSI Reference Model, Protocols, IP addressing, Subnetting; ***Analyze Network Requirements***: Analyze Business goals, Analyze Technical goals, Characterize existing network, and Characterize network traffic; ***Logical Design***: Design Network Topology, Designing models for Addressing and Naming, Selecting Switching and Routing Protocols, Developing network security strategies, Developing network management strategies; ***Physical Design***: LAN Cabling, LAN Cabling Technologies (Transmission media: Twisted Pair termination, Coaxial cable termination, Fiber Optic cables, termination and splicing demonstration, Wireless access points and configuration;), Selecting switches and routers, Remote Access technologies; ***Testing, Optimizing and Documenting Network Design***: Testing the network design, Ways of testing network design, Developing components of a test plan, Developing Test objectives and Acceptance criteria, Determining type of tests, Resources needed for testing, Optimizing network, Documenting Network design; Installing and configuration of Network devices e.g. printers

Mode of Delivery
Demonstrations, Lab Practicals, individual and group assignments, presentations

Learning Resources
Books, Computers, projectors, practical accessories, Internet, Journals, Software Whiteboard and Markers

Course Assessment

1. Course work (Practical's, Assignments, CATs) 30%
2. Assignments and Presentations 70%

Course Textbooks

1. Priscilla Oppenheimer (2010), **T**op-Down Network Design Isbn-13: 978-1587202834
2. The Art of Network Architecture: Business-Driven Design (Networking Technology) 1st Edition by Russ White and Denise Donohue
3. Network Design Cookbook: Architecting Cisco Networks by Ccie #6778 Thomatis and Michel

Course Journals

1. Network Architecture & Design Articles - Cisco Press
2. Journals of Design Principles & Practices Research Network
3. Journal of Network and Computer Applications - Elsevier

Reference Textbooks

1. Computer Networks, Andrew S. Tanenbaum, 4th Ed
2. Definitive MPLS Network Designs Book by Francois Le Faucheur, Jean-Philippe Vasseur, and Jim Guichard
3. Network Analysis, Architecture, and Design, Third Edition (The Morgan Kaufmann Series in Networking) 3rd Edition by James D. McCabe

Reference Journals

1. International *Journal* of Mobile *Network Design* and Innovation
2. Journal of Computer Science and Technology – *S*pringer
3. Network Security - Journal - Elsevier

Approved by: _____ Signature: _____ Date: _____