Revised: 11/2020

COURSE STRUCTURE

Name of Course: FUNDAMENTALS OF NETWORKING

Course Code: ICT1105

Credit Hours: 4

Prerequisite/co-requisite: None

Summary: This module focuses on fundamental issues in the networking field such as basic networking concepts and standards, types of network, OSI model, transmission medium, networking equipment and protocols.

Course Learning Outcomes:

Upon completing this course, the students will be able to:

CLO1: Explain the concepts of data communications, networking standards, types of networks, OSI model, and IEEE networking specifications. (C2, PLO1)

CLO2: Examine the types of signaling, transmission media, network protocols, network topologies, access methods, and networking hardware for network applications. (C4, PLO2)

CLO3: Display the ability to apply the architectures and technologies for LAN and WAN. (P3, PLO3)

Course Format:

Total Student Learning Time (SLT) (L = Lecture; T = Tutorial; P = Practical; EL= E-Learning)**:**					
Learning Hours				**Independent Learning (hr)**	**Total Student Learning Time (hr)**
L	T	P	EL		
28	0	14	14	104	160

Teaching and Delivery Methods/ Teaching Methodology:

Lectures, Tutorial and Practical/Laboratory work delivered in a combination of blended & independent learning

E-Learning provided by INTI makes learning more accessible and convenient for the students. The blended model utilized by INTI is the integration of E-learning via INTI's Learning Management System and the conventional lecturer-led classroom activities. INTI students are required to access to the online learning materials (additional notes, reading materials, online assessments, discussion forums and etc.), so as to acquire a complete learning process. This also promotes self-directed learning in encouraging INTI students to be independent learners.

Syllabus:

Course Content Outline	CLO*
Introduction to Networking - Types of networks, usage of networks, networking standard organizations, OSI model, applying the OSI model, IEEE networking specifications	1
Transmission Basic and Networking Media - Analog and digital signaling, data modulation, transmission direction, throughput and bandwidth, baseband and broadband, transmission flaws, common media characteristics, coaxial cable, twisted pair cable, fiber-optic cable, physical layer standard, cable installation, wireless transmission – spectrum & characteristics, infrared, wireless LAN	1, 2
Network Protocols and Networking Hardware - Introduction to protocols, TCP/IP, IPX/SPX, NetBIOS, NetBEUI, NIC, repeaters, hubs, bridges, switches, routers, gateways	1, 2
Topologies and Access Methods - Simple physical topologies – bus, ring, star, hybrid physical topologies, backbone networks, logical topologies, switching, Ethernet, token ring, FDDI, 802.11, Bluetooth	1, 2, 3
WAN, Internet Access, and Remote Connectivity - WAN essentials, WAN topologies, PSTN, ISDN, T-Carriers, DSL, 802.16 (WiMAX), remote connectivity, VPN	1, 2, 3

Student Evaluation:

Continuous Assessment		Percentage (%)	CLO
1	Test	20	1
2	Assignment 1	20	3
3	Assignment 2	20	2
Final Assessment		**Percentage (%)**	**CLO**
Final Exam		40	2
Total		**100%**	

Final exam format:
Duration: 2 hours
The students will be required to answer:
Section A: **Answer All**
Section B: **Answer All**

Grading Scale:
A+ (90-100), A (80–89), A- (75-79), B+ (70-74), B (65–69), B- (60–64), C+ (55–59) C (50–54), C- (45–49), D (40–44), F (0–39), RP (Resit Pass) Marks capped at 50, RF (Resit Fail) (0-49)

IMPORTANT NOTE:
STUDENTS ARE REQUIRED TO **"PASS"** BOTH CONTINUOUS AND FINAL ASSESSMENT IN ORDER TO PASS THE SUBJECT

Additional Information: NIL

Main Reference(s) Supporting Course:

1. Jill West, Tamara Dean, Jean Anrews (2019), Network+ Guide to Networks. 8th Edition, Publisher: Course Technology, Cengage Learning Pub. ISBN: 9781337569330

Additional References:

2. Jeffrey S. Beasley, Piyasat Nilkaew (2018), Networking Essentials. 5th Edition, Publisher: Pearson IT Certification. ISBN: 9780789758743

LABORATORY WORK:

Week	Practical Work
1	Install twisted pair cable and RJ-45 connectors
2	Install coaxial cable and BNC connectors
3	Setup straight through cable and crossover cable
4	Configure Network Interface Card
5	Setup simple peer-to-peer network under Windows environment
6	Configure file and printer sharing
7	Configure and control remote desktop