Department of Computer Science

Course Outline: Semester 1 2020/21

Course Name: Computer Networks

Course code: CSI 374

Lecturer Information

Name: Dr Trust Mapoka

Office Location: Block 247 Office 267

Email: mapokat@ub.ac.bw

Office hours (Thursday 9-1pm)

Course code: CSI 374: Course name: Computer Networks
Faculty: Computer Science
Semester 1 2021/2022 Course Calendar weekly schedule

Week	**Lecture**	**Summary of**	**Laboratory**
Week 1 13th -17th September	Overview of course and Lab	Course Introduction	No Lab
Week 2 20th – 24th September	Basic Concepts of Computer Networks,	Basic Concepts, Network Protocols and Communications, Components of Computer Networks	No Lab
Week 3 27th - 1st October	Classification of Computer Networks	Classify computer networks, Network Topology And solved questions	No Lab
Week 4 4th – 8th October	Addressing in Computer Networks	Basics of Addressing, Basics of MAC addressing Basics of Port Addressing Basic Network commands.	Lab start Cisco Packet Tracer- Introduction
Week 5 11th – 15th October	Switching and Layering techniques in Computer Networks	Switching, Layering basics, TCP/IP Protocol suite OSI reference model.	Lab continues Deep dive in to Cisco Packet tracer examples Lab exercises
Week 6 18th – 22rd October	Basics of Network devices	Basics of Switch Router, Bridge, etc Solving questions	Lab Exercises examples
Week 7 25th – 29th October	Basics of Physical layer and Media	Understand principles of physical layer, Data and signals, Line configurations	Lab exercises continues
Test 1 week 7	**Test 1 week**	**Test 1 week**	**In lab sessions**
Week 8 1st – 5th November	Basic Concepts of Data Link layer Basic Concepts of Multiple Access Protocols Basic Concepts of Ethernet and IEEE standards	Link layer services, Random Access Protocols, Checksum, Cyclic Redundancy Check, Network performance, Latency, Bandwidth Delay Product, Round Trip time, Flow Control, ARQ,	No Lab

	Basic Spanning Tree protocol	Sliding Iwndow Protocol, Controlled access Protocols, Channelization protocols Ethernet, WiFi, Bluetooth and stack, VLAN, Spanning tree protocol, Broadcast storm, rendundacy	
Week 9 8th -12th November	Basic Concepts of Logical Addressing & Subnetting Basic Concepts of Logical Addressing & Subnetting	IPv4 Address, Classful Addressing, IPv4 Unicast, Broadcast, Multicast Classful Addressing Solved Questions. Public and Private IP Addresses, Subnetting, Subnet masking (Variable and Fixed). Network Address Transalation (NAT), IPv6 concept and configurations.	Lab on classful Addressing Lab exercises Cisco Packet Tracer
Week 10 15th -19th November	Basic Concepts of Network Layer Protocols	Address Resolution Protocol (ARP), ARP Practical View, DHCP and Practical view, ICMP (Internet Protocol), TTL, IPv4 Fragmentation, IGMP.	Lab on ARP Lab exercise
Week 11 22nd - 26th November	Basic Concepts of Routing Protocols	Basics of routing, Static and Dynamic Routing, Distance Vector Routing, Routing Information Protocol (RIP), Link state Routing, Dijkstra's Aligorithm OSPF, Border gateway Protocol (BGP)	Lab RIP Lab exercise

Test 2 week 11	**Test 2 week 11**	**Test 2 week 11**	**During lab sessions**
Week 12 29th – 3rd December	Basic Concepts of Transport layer Basic Concepts of Application layer and Security Computer Networks- Concluding remarks	Transport layer overview, Port numbers, UDP, TCP, QoS Application layer overview, DNS concept, SNMP, HTTP and HTTPs, Email protocols, Network security, cryptography. ALL topics	Lab DNS practical overview
Week 13 6th – 10th December	Revision	Revision	Revision
Week 14 13th – 17th December	**EXAM(Test 3) Week 14**	**EXAM Week 14**	**During Lab sessions**

NB: And remember to: Always bring your student ID to the class, tests and examinations.

Academic regulations (all available on Kitsiso < http://www.ub.bw/document/>)
STUDENTS MUST ADHERE TO:

- **the UB Academic Honesty policy**
- **UB Examination regulations must be upheld all the time, even in class tests including lab and lecturer time.**
- ***USE OF CELLPHONE NOT PERMITED & ANY INAPPROPRIATE STUDENT BEHAVIOUR WILL BE REPORTED TO UB DISCUPLINARTY COMMITTEE WITHOUT FAIL*!!!**
- ***ALL STUDENTS MUST AT ALL TIMES ENSURE THAT THEY ARE CORRECTLY REGISTRED ON ASAS & ALL THEIR ASSESSMENT GRADES ARE ON ASAS!!***

NB: COVID 19 PANDEMIC IS REAL & THERE IS NO CURE. ADHERE TO ALL COVID 19 PROTOCOLS AT ALL TIMES.