Module Outline

Semester: 04
From January 2020 to May 2020

DCOMP322
NETWORK ADMINISTRATION

MODULE DETAILS

Course Location	:	Freetown, Sierra Leone
Examiner	:	Sulaiman Kalokoh
Contact details (email)	:	sulaiman.kalokoh@limkokwing.edu.sl
Co-Examiner	:	Oluwatosin
Pre-requisite	:	Introduction to Computer Skills (COMP101), Introduction to Data Communication (COMP105),
Credits Amount	:	3 credits
Classification	:	Major
Contact hours per week	:	3 hours (1hour 30Mins lecture, 30Mins tutorial & 1 hour lab)
No. of weeks	:	13 weeks contact + 1 week non-contact + 1 week Final Project Presentation + 1 week Final Examination
No. of assignments	:	3
No. of written exams	:	1

Prepared by: Sulaiman Kalokoh

Signature :

Approved by: AQA

Signature:

Verified By: Aiah James

Signature:

This document comprises the following:

- Essential Information
- Specific Module Information
- Module Rules & Regulations
- Grades
- Plagiarism
- Module Introduction
- Module Aims & Objectives
- Learning Outcome
- Specific Generic Learning Skills
- Assignment Schedule
- Syllabus + Lecture Outline
- References
- Project Criteria
- Assessment Criteria

Other documents as follows will be issued to you on an ongoing basis throughout the semester:

1. ESSENTIAL INFORMATION

- All modules other than electives are **'significant modules'**.
- As an indicator of workload one credit carries and additional 2 hours of self-study per week. For example, a module worth 3 credits require that the student spends an additional 6 hours per week, either reading, completing the assignment or doing self-directed research for that module.
- Submission of ALL assignment work is compulsory in this module. A student cannot pass this module without having to submit ALL assignment work by the due date or an approved extension of that date.
- All assignments are to be handed on time on the due date. Students will be penalized 10 percent for the first day and 5 percent per day thereafter for late submission (a weekend or a public holiday counts as one day). Late submission, after the date Board of Studies meeting will not be accepted.
- Due dates, compulsory assignment requirements and submission requirements may only be altered with the consent of the majority of students enrolled in this module at the beginning/early in the program.
- Extensions of time for submission of assignment work may be granted if a medical certificate accompanies the application for extension.
- Overseas travel is not an acceptable reason for seeking a change in the examination schedule.
- Only the Head of Faculty can grant approval for extension of submission beyond the assignment deadline.
- Re-submission of work can only receive a 50% maximum pass rate.
- Supplementary exams can only be granted if the level of work is satisfactory **AND** the semester work has been completed.
- Harvard referencing and plagiarism policy will apply on all written assignments.

2. SPECIFIC MODULE INFORMATION

- Attendance rate of 80% is mandatory for passing module at the end of the semester.
- All grades are subject to attendance and participation.
- Absenteeism at any scheduled presentations will result in zero mark for that presentation.
- Visual presentation work in drawn and model form must be the original work of the student.

The attached semester program is subject to change at short notice.

3. MODULE RULES and REGULATIONS

Assessment procedure:

- These rules and regulations are to be read in conjunction with the UNIT AIMS AND OBJECTIVES
- All assignments/projects must be completed and presented for marking by the due date.
- Marks will be deducted for late work and invalid reasons.
- The student in person must deliver all assignments to the lecturer concerned. No other lecturer is allowed to accept students' assignments.
- All tests/examinations are compulsory.
- Students must sit the test/examination on the notified date.
- Students are expected to familiarize themselves with the test/examination timetable.
- Students who miss a test/examination will not be allowed to pass.
- **Students who miss TESTS or ASSIGNMENTS without a genuine reason WILL NOT be allowed to sit for the EXAMINATION, resulting in them repeating the module.**
- **Students must acquire a minimum mark of 40 in the Continuous Assessment (CA) to sit for Final Examination.**
- **Students who have a score of less than 30% in the Final Examination will be required to sit for the Supplementary Examination**.
- Any scheduling of tutorials, both during and after lecture hours, is TOTALLY the responsibility of each student. Appointments are to be proposed, arranged, confirmed, and kept, by each student. Failure to do so in a professional manner may result in penalty of grades. Tutorials WITHOUT appointments will also NOT be entertained.
- Note that every assignment is given an ample time frame for completion. This, together with advanced information pertaining deadlines gives you NO EXCUSE not to submit assignments on time.

4. GRADES

In the assessment of all student works, the grading system is standardized for all subjects in all programmes. The grading system used is as follows;

Marks	Grade	Grade Points	Description
80 – 100	A	4.00	Pass with Distinction
75 – 79	A-	3.67	
70 – 74	B+	3.33	Pass with Merit
65 – 69	B	3.00	
60 – 64	B-	2.67	
55 – 59	C+	2.33	Pass
50 – 54	C	2.00	
45 – 49	C-	1.67	
40 – 44	D	1.00	
0 – 39	F	0.00	Fail
	S	0.00	Pending Supplementary Assessment
	DNC	0.00	Did not complete
	GNS	0.00	Grade Not Submit
	EXP	-	Exempted
	DEF	-	Deferred

5. PLAGIARISM, COPYRIGHT, PATENTS, AND OWNERSHIP OF WORK: STUDENT MAJOR PROJECT, THESES & WORKS

See LIMKOKWING, HIGH FLYERS HANDOUT, pg. 5.

6. MODULE INTRODUCTION

This course is to introduce computer practical principles in general concepts to the students and equip them with the techniques of manipulating computer networks and to provide a clear picture of the way networks work from hardware technology up through the most popular network application in general computing.

7. MODULE AIMS AND OBJECTIVES

Even if you're an absolute beginner student in this module will enable you to create future proof and manipulating computer networks that not only look great in all modern computers, but are also accessible to wide variety of audiences across a range of platforms on everyday computers to those accessing the latest emerging networks and communication devices

8. LEARNING OUTCOME

At the end of this course, students will be able to:

1. Familiarization with computer network hardware and its concept
2. Define concepts, and computer network principles;
3. Build practical lab scenarios using Packet Tracer 6.0.1 version with a range of simple to advance tools;
4. Use network application and network ready for wired and wireless communication;
5. Basic networks troubleshooting techniques
6. Investigate different types of networks
7. Build a range of practical network scenarios suited for industry works;
8. Identify network design and implement appropriate research strategies and evaluate source
9. Enhance career potential as Network administrator and Network Engineer

9. SPECIFIC GENERIC LEARNING SKILLS

The students will be able to apply technical skills to produce a coherent and accurate work; use these skills to become successful IT skilled.

10. MARKING AND ASSESSMENT CRITERIA

ASSIGNMENT DESCRIPTION	**ISSUE DATE**	DUE DATE	**%**
LAB EXERCISE 1	WEEK 5		10%
LAB EXERCISE 2	WEEK 9		10%
CLASS TEST	WEEK 7		20%
MAJOR PROJECT DESIGN SUBMISSION	WEEK 3	WEEK 12	20%
CLASS ATTENDANCE	Week 1	Week 14	5%
FINAL EXAMINATION		WEEK 15&16	35%
		TOTAL	100%

11. DCOMP322 SYLLABUS + LECTURE OUTLINE:

Week: **1**

LECTURE 1: **TECHNOLOGY BEHIND THE NETWORKS AND INTERNETWORKING INTRODUCTION TO COMPUTER NETWORKS**

Lecture Synopsis: Course Overview: Introduction to the module and explanation of administrative arrangements (Plagiarisms), submission and deadlines

- Distribution of Module outline for COMP310

1.1 Introduction to Networking

1.1 Network infrastructure
1.2 Types of networks
1.3 Classification of network
1.4 ISP, LAN, WAN
1.5 Network Topologies
1.6 Tools Identification

Handout: ***Module Outline***

Week: **2**

LECTURE 2: **PHYSICAL LAYER NETWORKING**

Lecture Synopsis:

2.0 Physical layer protocol & services
2.1 Transmission Media (Guided & Unguided media)
2.2 Cabling

Practical Practical Network Scenario 1

Week: **3**

LECTURE 3: **IP ADDRESSING AND FORMATS IP SUBNETTING**

Lecture Synopsis:

Major Project Brief (To be submitted on Week 12)

Lecture Synopsis:

3.0 Introduction to IP addressing
3.1 Hardware & Logical addressing
3.2 Classless Inter-domain routing (CIDR)
3.3 Subnet & Broadcast address
3.4 Subnetting
3.5 Private Vs Public address

Practical Practical Network Scenario 2

Major project brief

Week: **4**

LECTURE 4: LAN, SWITCHES, BRIDGES

Lecture Synopsis:
4.0 Introduction to LAN, Switches & Bridges
4.1 LAN Standards
4.2 LAN Configuration
4.3 Switch Configuration
4.4 Virtual LANS (VLANS)
4.5 Creating & Configuring VLANS

Practical: Practical Network Scenario 3

Week: 5

LECTURE 5: WIRELESS LAN

Lecture Synopsis:
5.0 Introduction to Wireless-LAN (WLAN)
5.1 WLAN configuration
5.2 Technology behind WLAN
5.3 WLAN Security

Practical: Practical Network Scenario 4

Lab Exercise #1

Week: **6**

LECTURE 6: WAN AND ROUTERS

Lecture Synopsis:
6.0 Introduction to WAN & Routers
6.1 Technology behind WAN
6.2 WAN configuration
6.3 Router configuration
6.4 DHCP setup (Configuration**)**

Practicals: Practical Network Lab Scenario 5

Week: **7**

MID-SEMESTER CLASS TEST

Week: **8**

NON-CONTACT WEEK

Week: **9**

LECTURE 7: INTRODUCTION TO IPv6

Lecture Synopsis:
7.0 IP Address Planning
7.1 Shortening IPv6 Addresses
7.2 Enabling ipv6 routing and manually configuring ip addresses
7.3 configure and verify stateful DHCPv6

Practicals: *Practical Network Lab Scenario 6*

Week: **10**

LECTURE 8: NETWORK SETUP, NETWORKING PROTOCOLS ROUTER LANs AND WANs

Lecture Synopsis:
8.0 Protocol Architecture
8.1 Types of network protocol
8.2 Connect & configuring network routers on trunking
8.3 Connect & configuring Hub/Switch/Routers
8.4 Connecting & configuring Network Servers
8.5 Connecting & configuring IP-Phones
8.6 Connecting & configuring Network Printers

Exercise: Practical Network Lab Scenario 7

Week: **11**

LECTURE 9: NETWORK ADMINISTRATION, NETWORK DOCUMENTATION NETWORK TROUBLESHOOTING & NETWORK SECURITY

Lecture Synopsis:
9.0 Network administrator
9.1 Documenting the Network
9.2 Managing the network users
9.3 Software Tools for network administrators
9.4 Network Security

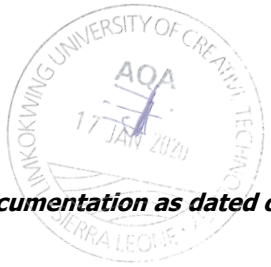
Practicals
9.5 Install a specific network Protocol
9.6 Create Network users
9.7 Add users to appropriate groups
9.8 Configure access to shared resources

Week: **12**

LECTURE 10: INSTALL AND CONFIGURE A SERVER OPERATING SYSTEM AND NETWORK SECURITY

Lecture Synopsis:

10.1 Install a specific server operating system
10.2 Ensure correct communication with clients on the network
10.3 Create Network Users
10.4 Add Users to appropriate workgroups
10.5 Hardening Your Network
11.6 Securing Your Users



Practicals: Practical Network Lab Scenario 8

Students are expected to submit Major Project Documentation as dated on Major Project Brief

Week: **13**

MAJOR PROJECT & DOCUMENT SUBMISSION (HARDCOPY AND SOFTCOPY)
MAJOR PROJECT INDIVIDUAL PRESENTATION & EXHIBITION BRIEFING

Week: **14**

REVIEW WEEK.

Week: **15**

FINAL EXAMINATION WEEK

Week: **16**

FINAL EXAMINATION WEEK

12. REFERENCE

Prescribed texts (Main Reading):

Ulysses Black (2011), Introduction to Computer Networks: Concepts and Techniques Enhanced Edition.
James F Kurose, Keith W Ross, Computer Networking: A Top-down Approach Featuring the Internet, 3rd Edition, Addison Wesley, 2005
Natalie Omar, Victor Olifer, Computer Networks: Principles, Technologies & Protocols for Network Design, John Wiley, 2004
Andrew S. Tanenbaum, Computer Networks, 4th Edition, Prentice Hall, 2002 E Ramos, A Schroeder & A Beheler, Computer Networking Concepts, Macmillan, 2001
Jerry Fitzgerald & Alan Dennis, Business Data Communication And Networking, 8th Edition, John Wiley & Sons, 2005
Behrouz A. Forouzan, Data Communications and Networking, 4TH Edition, McGraw-Hill, 2004
Natalia Olifer & Victor Olifer, Compter Networks: Principles, Technologies and Protocols for Network Design, John Wiley & Sons, 2006

Reading List:

Gill Waters (2010), Computer Communication Networks. Course Technology. CISCO – CCNA Discovery World Wide Web (WEB)

13. PROJECT CRITERIA

Each assignment and project will be handed out with the assignment/project brief and will vary, depending on the teaching and learning objectives of the specific assignment.

Each student will receive a completed assessment sheet back with their marks, thereby giving student feedback on each set criterion and the project as a whole.

All submission must be made directly to the lecturer-in-charge.

14. ASSESSMENT CRITERIA

Process of grading and criteria used to determine the grades, passes and high distinctions.

80-100, A, Publishable, Outstanding Work. Assignment is of sufficient substance and style to be submitted to a referred journal for publication or public presentation. Superior understanding of the subject matter. Evidence of original thinking and an extensive knowledge base. Careful, concise, critical analysis with a clear and well-argued hypothesis based on the material. Shows a capacity to analyze, synthesize, and evaluate material. Shows a grasp of all the scholarly issues involved. Shows evidence of learning being extended beyond the initial learning situation. Clear thesis and conclusion. Well-researched and documented. Stylistically flawless.

75-79, A-, Excellent. Solid understanding of the subject matter. Good analysis and some critical reasoning. Reasonable understanding of relevant issues and familiarity with the material. Demonstrates a solid understanding of the relationship or connections among the basic concepts. Needs to be more concise or precise in details and more careful in forming arguments. Stylistically sound.

70-74, B+, Good. Generally accurate account of the subject matter with acceptable analysis and some critical reasoning. Some interaction with relevant material. Demonstrates some understanding of the relationship or connection among the basic concepts. Needs more precision and attention to details and greater precision in the use of arguments. Some careless stylistic errors.

65-69, B, Fine. Generally accurate description of the subject matter and an adequate grasp of the critical issues and ideas involved. Demonstrates rudimentary understanding of the relationship or connection among the basic concepts. Needs more attention to detail and better use of arguments. Some careless stylistic errors.

60-64, B-, Average. Acceptable treatment of the subject matter. Demonstrates an understanding of the basic facts, vocabulary, details, and elemental concepts. Shows an ability to deal with simple issues arising out of the material. Needs to explore the subject matter more fully and formulate ideas more clearly. Closer attention should be given to stylistic elements including sentence structure and paragraph organization.

55-59, C+, Adequate. Generally acceptable treatment of the subject matter and issues. Demonstrates an awareness of the basic facts, vocabulary, details, and elemental concepts. Impressionistic or vague at points. Shows that the learning experience was profitable. Lacks clarity in formulating the issues and shows little or no evidence of critical reflection on the issues or data. Closer attention should be given to grammar, spelling, and punctuation.

50-54, C, Minimally Acceptable. Adequate understanding and treatment of the data and issues, but imprecise, impressionistic or vague. Lacks clarity in expressing the issues and shows no evidence of critical reflection on the issues or data. Major problems related to issues of style.

45-49, C-, Low. Lack in understanding and treatment of the data and issues, failed to show ability to analyse or in expressing the issues.

40-44, D, Very Low. Does not carry evidence of understanding to the overall objectives of the assessment. Miscarried the intended analysis, information, and data.

0-39, F, Inadequate. Sloppy, imprecise or careless discussion of the material with little or no evidence of critical reflection. Stylistically flawed.

S Grade, In the case of a student who is granted supplementary work/s submission by the faculty, a grade S should be entered. An S grade is an interim grade until the supplementary work/s is/are submitted and assessed at the earliest possible timeframe. After a student has passed the supplementary work/s, the student shall be awarded with a normal grade. This is limited to 'C' band.

DNC (Did Not Complete), In the case of a student who has registered, is on a class list, has attended some classes, but has not submitted any work, a grade of DNC should be entered. A 0.00 grade point is attached to this grade.

GNS (Grade Not Submitted), In the case of an emergency or unforeseen circumstances and grade/s is/are yet to be submitted at time of Senate e.g. waiting for Internship to be completed, a GNS should be entered.

DEF (Deferred), In the case of a student who has registered, is on a class list, but has decided to drop the module after the approved dropped date i.e. Week 4, a grade of DEF should be entered. There is no grade point attached to this grade.

EXP (Exempted), Refer to Section Exemption of Modules or Advance Standing and Credit Transfer in Academic Quality Assurance Manual.