BICT 8023
LAN and High Speed Technology

MODULE DETAILS

Course Location	:	Freetown, Sierra Leone
Examiner	:	Sulaiman Kalokoh
Contact details (email)	:	Kalokoh.sulaiman@gmail.com
Co-Examiner	:	
Pre-requisite	:	LAN and High Speed Technologies (BICT8023)
Program Name	:	Bachelor in Information and Communication Technology (BICT)
Credits Amount	:	3 credits
Classification	:	Core
Contact hours per week	:	3 hours (1 hour lecture + 2 hours lab)
No. of weeks	:	11 weeks contact + 1 non-contact week +1 mid-term test + 1 week major project presentation + 1 week final examination
No. of tutorials	:	8
No. of written exams	:	2
No. of practical exams	:	0

Prepared by: Sulaiman kalokoh	Approved by: AQA
Signature :	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
- Syllabus + Lecture Outline
- References
- Assignment Schedule
- Assessment Criteria
- Specific Criteria

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

- Handouts for Tutorials
- Submission Requirements + Guidelines

1.0 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.

2.0 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.

3.0 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.

4.0 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

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

See LIMKOKWING, HIGH FLYERS HANDOUT, pg. 6.

6.0 MODULE INTRODUCTION

Several emerging high speed networking technologies offer solutions to network application demands for the next decade and threaten to largely obsolete current "first generation" LAN implementations with new, more cost/effective developments.

This module will provides a systematic introduction to emerging high speed network technologies and provides a framework for planning a migration to these new architectures, identifying where the new technology can be used to selectively enhance performance of business networks.

Emerging Network Technologies; High Speed LAN and WAN Solutions is recommended to anyone interested in the rapidly paced developments and technological change that is overtaking computer networks, impacting the spectrum of configurations from LAN through MAN to WAN architectures:

7.0 MODULE AIMS AND OBJECTIVES

The objectives of this module are:
This module will provide answers to questions about existing and developmental high speed network technologies and deliver insight into appropriate applications of the technology by:

• developing a systematic, detailed view of available and promised technologies considering and explaining the relative strengths and weaknesses of each presenting an applications-oriented view of where each technology makes sense showing you how your organization can benefit from planning to selectively adopt high speed network technology
• suggesting areas where caution must be blended with optimism in planning to deploy this class of technology

8.0   LEARNING OUTCOME

At the end of the module, students are expected to acquire the following skills:

• Discuss the various concepts of LAN and High Speed Technologies.
• Discuss keeping their corporate networks current with new developments, or advise in this area.
• Discuss professionals anxious to maintain their essential familiarity with the changing technological landscape of networked business computing.

9.0 SPECIFIC GENERIC LEARNING SKILLS

The students will be able to apply technical skills to produce a coherent and accurate network with emerging LAN and High Speed Technologies; use these skills to become successful IT professionals.

10.0   UNIT SYLLABUS + LECTURE OUTLINE:

Week: 1
CHAPTER 1:   INTRODUCTION
Lecture Synopsis:
1.0 LAN Technology; Traditions and Directions
1.1 Network Timing and Control Concepts
1.2 Overview of Call Control Options
1.3 Network Traffic Characteristics
1.4 Overview; High Speed LAN Technologies

Handout: *tutorial 1*
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Week: 2
CHAPTER 3:   TRENDS IN IT WHICH DEMAND NEW SOLUTIONS
Lecture Synopsis:
        2.0 Client/Server Computing Issues
        2.1 Intranet/Web Application Support
        2.2 Multimedia and Video Conferencing Applications
        2.3 Graphics-Intensive Networked Applications
        2.4 Application Profile; How The Technology is Used

Handout: tutorial 2
Issue Date: Individual Assignment
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Week: 3
CHAPTER 3:   LIMITATIONS OF FIRST GENERATION LANS AND WANS
Lecture Synopsis:
3.0 Conventional Bridged/Routed Connectivity
3.1 Conventional Capacity Mitigation Strategies
3.4 Technology Scalability Concepts
3.5 Half Duplex vs. Full Duplex LAN Operation
3.6 Strategies For Dealing With A Saturated LAN

Handout: tutorial 3
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Week: 4
CHAPTER 5:   EXTENDING HUB ARCHITECTURES
Lecture Synopsis:
4.0 Intelligent and Switching Hubs
4.1 Store-and-Forward vs. Cut-Through Switching
4.2 Switching vs. Routing Feature Comparison
4.3 Virtual LANs; Concepts and Features
4.5 Comparison; Layer 2 vs. Layer 3 Switched VLANs
Handout: *tutorial 4*
Due date: *Individual Assignment*

Issue Date: Major Assignment
Week: 5

CHAPTER 5: HIGH SPEED DESKTOP TECHNOLOGIES
5.0 100 Base-T (Fast Ethernet) Features
5.1 Switched 100 Base-T Configurations
5.2 100VG-AnyLAN and Isochronous Ethernet
5.3 Gigabit Ethernet
5.4 25 Mbps Desktop ATM

Week: 6
CHAPTER 6: Metropolitan Area Network Technologies
6.0 The MAN as An Extended High Speed LAN
6.1 The Fiber Distributed Data Interface (FDDI)
6.2 Functions of Layered Elements of FDDI
6.3 FDDI Configurations -- Design Considerations
6.4 Synchronous and/or Switched FDDI
6.5 Distributed Queue - Dual Bus (DQDB) MANs

Week: 7
Class Test

Week: 8
SEMESTER BREAK

Week: 9
CHAPTER 7:   FRAME RELAY WAN INTERNETWORKING
Lecture Synopsis:
7.0 Comparison of Packet Switching Technologies
7.1 ISDN Standards - The Source of Frame Relay
7.2 Congestion Control & Throughput Dependencies
7.3 Call Control; X.25 Compared With Frame Relay
7.4 Frame Relay Network Operating Features

Handout: tutorial 5

Week: 10
CHAPTER 8:   CELL RELAY AND ATM INTERNETWORKING
Lecture Synopsis:
8.0 Broadband ISDN; Heritage of Cell Relay and ATM
8.1 ATM Features, Adaptation Layers & Cell Structure
8.2 Virtual Path, Switching and Traffic Shaping
8.3 ATM Classes of Service and Traffic Partitioning
8.4 ATM vs. Router-Based Connectivity
8.5 ATM: MPOA and PNNI Sub-Specifications

Handout: tutorial 6

Week: 11
CHAPTER 9:   OTHER HIGH SPEED TECHNOLOGIES TO WATCH

Lecture Synopsis: 9
9.0 Fibre Channel; Concepts and Topologies
9.1 HIPPI; Parallel and Serial
9.2 Manhattan Street Network
9.3 High Speed Wireless Technologies and Standards

Handout: tutorial 7

Week: 12
CHAPTER 10:   INFORMATION SECURITY, PRIVACY, ETHICAL ISSUES IN INFORMATION SYSTEMS
        Lecture Synopsis:
10.0 Definition of Convergence
10.1 The Information Highway Infrastructure
10.2 Switched Multi-Megabit Data Service
10.3 SMDS Network Configuration Illustration
10.4 SMDS Applications and Extensions

Handout: tutorial 8

Week: 13
Due date: MAJOR PROJECT PRESENTATION

Week: 14
Revision

Week: 15 & 16
**FINAL EXAMINATION WEEK**

11.0 REFERENCES

Books (Main Reading):

- High Speed LAN Technology Handbook by Dhiman D. Chowdhury
    - High-Speed Wireless ATM and LANs by Benny Bing

12.0 ASSIGNMENT SCHEDULE

Assignment Schedule	Issue date	Due date	%
Individual Assignment	week 2	week 4	15%
Exercise	week 5	week 5	10%
Mid Term Test	week 7	week 7	15%
Major Project	Week 2	week 13	20%
Final Examination	week 15	week 16	35%
Attendance & Submission	week 1	week 14	5%
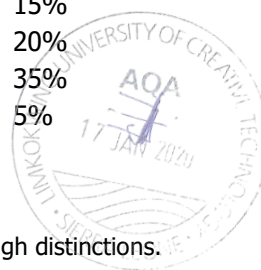
13.0 ASSESSMENT CRITERIA
Process of grading and criteria used to determine the grades, passes and high distinctions.

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.

14.0 SPECIFIC CRITERIA

- Each assignment will be handed out with the 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.