Course Title	**DATA COMMUNICATION AND COMPUTER NETWORKS**			
Course Code	**INFT 253**			
Purpose	The purpose of this course is to provide students with theoretical and practical knowledge of data communication and Computer networks with much concentration of the lower layers of the TC/IP architecture			
Objectives	On completion of the course, students will be able to: (i) understand basic concepts of data communications and computer networks (ii) describe different multiplexing techniques (iii) identify various errors in communication (iv) explain various error detection and control techniques in data communication (v) Know various step up of local area networks (vi) manage network operating systems (vii) understand how routing occur on wide area networks (viii) understand some common protocols use on the internet.			
Teaching Methods	Lectures, group discussions, tutorials, practical/laboratory activities, seminars and field trips			
Week No.	**Date**	**Lecture Course**	**Venue**	**Assessment**
1		Introduction to Data Communication and Computer Networks • Communication Networks basic layout		Assignment
2		Introduction to Data Communication and Computer • Network Architecture ✓ TCP/IP Protocol suite ✓ OSI Model		Assignment
3		Fundamentals of Data and Signals		Assignment
4		Conducted and Wireless Media		Assignment
5		Making Connections		Assignment
6		Multiplexing • Frequency division multiplexing • Time Division multiplexing • Wavelength division multiplexing • Code division multiplexing • Comparison multiplexing techniques		Assignment
7		**Mid-Sem Examination**		
8		Errors, Error detection and error control • Noise and Errors • Error detection		Assignment

		✓ Parity check ✓ Arithmetic Checksum		
9		Errors, Error detection and error control • Cyclic Redundancy Checksum • Error control		Assignment
10		Local Area Networks • Primary functions of LAN • Advantages and Disadvantages of LAN • First LAN • A more modern LAN		Assignment
11		Local Area Networks • Switches ✓ Isolating traffic pattern and providing multiple access ✓ Duplex switches ✓ Virtual LAN ✓ Link aggregation ✓ Spanning tree algorithm		Assignment
12		Local Area Networks • Wireless Ethernet • Network Operating System		Assignment
13		Routing • Dijkstra's least-cost algorithm • Flooding • Centralized vs. distributed routing • Adaptive vs. fixed routing • Routing examples		
		Examination (60%)		

Course Instructor: Jacob Mensah

Notice:

- Marks distributions for the semester are indicated below

Activity	**Description**	**Marks**
Attendance	Class attendance	5

Assignment	surprise short quizzes, Practical session.	15
Mid- Sem	Test at the middle of the semester	20
Final Exams	End of semester exams, project work	60
Total		100%

- Punctuality will be observed by both the instructor and the students

Reading Materials

- Larry L. Peterson, Bruce S. Davie (2018), Computer Networks, A Systems Approach, the Morgan Kaufmann Series in Networking, Elsevier Rs
- Stallings, W. (2018); Data and Computer Communications; Pearson India
- Andrew S. Tanenbaum, David J. Wetherall (2020), Computer Networks, MIT Press Ltd, United States
- Behrouz A. Forouzan (2020). Data Communications and Networking 5th Edition, McGraw-Hill Education, ISBN-13: 978-0073376226, ISBN-10: 0073376221
- Behrouz Forouzan (2006). Data Communications and Networking, 4th Edition, McGraw-Hill Science, ISBN-10: 0073250325, ISBN-13: 978-0073250328
- Curt White (2015). Data Communications and Computer Networks: A Business User's Approach 8th Edition, Cengage Learning, ISBN-10: 9781305116634, ISBN-13: 978-1305116634