

## NETW C7030: Data Communications

Module Details	
Module Code:	NETW C7030
Full Title:	Data Communications <b>APPROVED</b>
Valid From:	Semester 1 - 2019/20 ( June 2019 )
Language of Instruction:	English
Duration:	1 Semester
Credits:	5
Module Owner::	Amanda Clancy
Departments:	Unknown
Module Description:	Students completing this module will have a knowledge of Data Communications Fundamentals and will have the ability to differentiate between different communication techniques and mechanisms. Students will recognize the difference between Digital and Analog signalling, explain the OSI Model and analyze Communication systems.

Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	Module Learning Outcome Description
MLO1	Discuss and explain Data Communication Fundamentals
MLO2	Describe the difference between various data communication techniques
MLO3	Explain the fundamentals of digital and analogue signalling, Encoding and Modulation
MLO4	Evaluate performance and transmission media impairments
MLO5	Examine the principles of Error Correction and Error Detection
Pre-requisite learning	
<p><b>Module Recommendations</b>  <i>This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named DkIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).</i></p>	
No recommendations listed	

<b>Module Indicative Content</b>
<b>OSI Model and Transmission Media</b> Describe and explain the OSI Model and data communication at each layer. Examine the characteristics of guided and unguided transmission media.
<b>Data and Signals</b> Investigating Signal types explaining the difference between Analogue and Digital Signals
<b>Signal Modulation and Encoding Techniques</b> Encoding Techniques such as AM/FM/QAM/ASK/FSK/PSK and Pulse Code Modulation
<b>Data Impairments and Errors</b> Examine mechanisms for dealing with Error Control and examining noise and impairments on a signal. Comparing the Nyquist and Shannon theorems for data capacity and why impairments occur on a communication channel. Explain the difference between terms such as latency, jitter and packet loss.
<b>Data Multiplexing</b> Data Multiplexing in the Time Domain and Frequency Domain

## Module Assessment

<b>Assessment Breakdown</b>	<b>%</b>
Course Work	30.00%
Final Examination	70.00%

<b>Module Special Regulation</b>

### Assessments

#### Full Time

<b>Course Work</b>			
<b>Assessment Type</b>	Continuous Assessment	<b>% of Total Mark</b>	30
<b>Marks Out Of</b>	0	<b>Pass Mark</b>	0
<b>Timing</b>	Week 12	<b>Learning Outcome</b>	2,3,4,5
<b>Duration in minutes</b>	0		
<b>Assessment Description</b> The assessment criteria for continuous assessments will focus on the students' understanding of Data Communications. Students complete a project to analyse traffic on a Wireless network and inspect the packets to understand how traffic travels around a network.			

No Project

No Practical

<b>Final Examination</b>			
<b>Assessment Type</b>	Formal Exam	<b>% of Total Mark</b>	70
<b>Marks Out Of</b>	0	<b>Pass Mark</b>	0
<b>Timing</b>	End-of-Semester	<b>Learning Outcome</b>	1,2,3,4,5
<b>Duration in minutes</b>	0		
<b>Assessment Description</b> End-of-Year Final Examination			

#### Part Time

<b>Course Work</b>			
<b>Assessment Type</b>	Continuous Assessment	<b>% of Total Mark</b>	30
<b>Marks Out Of</b>	0	<b>Pass Mark</b>	0
<b>Timing</b>	Week 12	<b>Learning Outcome</b>	2,4,5
<b>Duration in minutes</b>	0		
<b>Assessment Description</b> Project work carried out throughout the semester			

No Project

No Practical

Final Examination			
<b>Assessment Type</b>	Formal Exam	<b>% of Total Mark</b>	70
<b>Marks Out Of</b>	0	<b>Pass Mark</b>	0
<b>Timing</b>	End-of-Semester	<b>Learning Outcome</b>	1,2,3,4,5
<b>Duration in minutes</b>	0		
<b>Assessment Description</b>			
The assessment criteria for continuous assessments will focus on the students' understanding of Data Communications			
Reassessment Requirement			
<b>Reattendance</b>			
<i>The assessment of this module is inextricably linked to the delivery. Therefore reassessment on this module will require the student to reattend (i.e. retake) the module in its entirety.</i>			

**Module Workload**

<b>Workload: Full Time</b>					
<i>Workload Type</i>	<i>Contact Type</i>	<i>Workload Description</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>	<i>Hours</i>
Lecture	Contact	The lecture will be used to delivery the theory.	Every Week	2.00	2
Practical	Contact	Practicals will be used to consolidate the learning..	Every Week	2.00	2
Directed Reading	Non Contact	No Description	Every Week	2.00	2
Independent Study	Non Contact	No Description	Every Week	2.00	2
Total Weekly Learner Workload					8.00
Total Weekly Contact Hours					4.00

<b>Workload: Part Time</b>					
<i>Workload Type</i>	<i>Contact Type</i>	<i>Workload Description</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>	<i>Hours</i>
Lecture	Contact	The lecture will be used to delivery the theory.	Every Week	2.00	2
Practical	Contact	Practicals will be used to consolidate the learning.	Every Week	2.00	2
Independent Study	Non Contact	No Description	Every Week	2.00	2
Directed Reading	Non Contact	No Description	Every Week	2.00	2
Total Weekly Learner Workload					8.00
Total Weekly Contact Hours					4.00

## Module Resources

### *Recommended Book Resources*

Kurose, James F., Ross, Keith W.. (2016), Computer Networking: A Top Down Approach featuring the Internet., 7th. Prentice-Hall, [ISBN: 9781292153599].  
Stallings, William. (2013), Data and Computer Communications, 10th. Prentice Hall, [ISBN: 9781292014388].  
Behrouz A Forouzan ,. (2013), Data Communications and Networking, 5th. McGraw-Hill, [ISBN: 13 9780073376].

*This module does not have any article/paper resources*

### *Other Resources*

[website], Cisco Inc.. Home Page,  
<http://www.cisco.com>

[website], TechRepublic,  
<http://www.techrepublic.com>