

Module 2: Telecommunication Networks and Services

Stage	1						
Semester	1						
Module Title	Telecommunication Networks and Services						
Module Number	2						
Module Status	Mandatory						
Module ECTS Credits	5						
Module NFQ level	9						
Pre-Requisite Module Titles	None						
Co-Requisite Module Titles	None						
Capstone Module?	No						
List of Module Teaching Personnel	Dr. Faheem Bukhatwa						
Contact Hours				Non-contact Hours			Total Effort (hours)
36				36			72
Lecture	Practical	Tutorial	Seminar	Assignment	Placement	Independent Work	
24		12		12		24	
Allocation of Marks (Within the Module)							
	Continuous Assessment	Project	Practical	Final Examination	Total		
Percentage Contribution	40			60	100%		

Intended Module Learning Outcomes

On successful completion of this module the learner will be able to:

1. describe the underlying principles in modern day communication systems
2. evaluate and implement the wide area network technologies currently available
3. critically analyse a corporate network and make recommendations for change
4. write a technical report and/or programs to implement the protocols used in network communication systems

Module Objectives

This module aims to provide you with an understanding of the issues involved in the design and analysis of telecommunication networks, as well as a knowledge of such systems in terms of physical implementation, protocols, routing algorithms, management, software interfaces, and applications. The course also focusses on high speed telecommunication networks.

Module Curriculum

Review of Fundamentals of Telecommunication Networking

Data communications, Error control, compression, encryption
Data link protocols, Protocol design, Specification, Verification

Routing and Congestion

Analysis and evaluation of protocols and protocol design implemented on existing WANs and communication systems.

High Speed Networks

Basic concepts of ATM, The ATM protocols: physical layer to ATM adaptation layer, ATM switching architecture: queuing, routing, multistage Building ATM LANs and WANs

Telecommunication Network Management

SNMP, TMN, OSI management.

Telecommunication Services

The Web Services Architecture, services, policies, components and relationships.

Reading Lists and other learning materials

Recommended Reading

Data and Computer Communications	Stallings, W	Prentice-Hall	2010
Computer Networks	Tanenbaum, A	Prentice-Hall	2010
ATM: Theory and Application	McDysan, D. E. Spohn, D. L	McGraw Hill	1995
Introduction to IP and ATM, Design and performance	Pitts J. M. Schormans J. A.	John Wiley & Sons	2001

Secondary Reading

Additional reading as recommended by lecturer, appropriate to topic and to each learner's area of research.

Module Learning Environment

Lectures and tutorials are carried out in class rooms / lecture halls or labs in the College.

Library

All learners have access to an extensive range of physical and electronic (remotely accessible) library resources. The library monitors and updates its resources on an on-going basis, in line with the College's Library Acquisition Policy. Lecturers update reading lists for this course on an annual basis as is the norm with all courses run by Griffith College.

Module Teaching and Learning Strategy

Learners are taught using a combination of lectures and tutorials.

Module Assessment Strategy

Element No.	Weighting	Type	Description	Learning Outcomes Assessed
1.	10%	Tutorials	This will involve a series of tutorials given on weekly basis. They aim at enhancing the understanding of concepts and ideas.	1,2
2.	10%	Assignment	This will involve a programming work or producing a written technical paper format report.	2,3,4
3.	20%	Test	This will happen during the second half of the semester. This will cover most of the topics involved during the course.	1,2,3
4.	60%	Examination	End of module examination	1,2,3