

Module code	TF-4306		
Module Title	Network Programming		
Degree/Diploma	Bachelor of Engineering (Information Communication Systems)		
Type of Module	Major Option		
Modular Credits	2	Total student workload	4 hours/week
		Contact hours	2 hours/week
Prerequisite	None		
Anti-requisite	SS-2205 Computer Networks		
Aims			
The aim of this module is to introduce to students how different network hardware communicate using standard software protocol suit, TCP/IP using client/server communications. Students will be introduced to the concept of sockets, network troubleshooting, management and debugging.			
Learning Outcomes:			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	20%	<ul style="list-style-type: none"> - comprehend client/server communications with an example of Day Time Client/Server, Concurrent Client/Server, Error Handling and Port Numbers - comprehend programs to establish client server communications 	
Middle order :	40%	<ul style="list-style-type: none"> - investigate elementary TCP, UDP, IPV4, IPV6 sockets – connect, bind, listen, accept, fork - carry out experiments using basic sockets 	
Higher order:	40%	<ul style="list-style-type: none"> - justify Domain Name system and display different services running on ports like FTP, Telnet, HTTP, SSH, etc. - describe protocols and services in written communications 	
Module Contents			
<ul style="list-style-type: none"> - Day Time Client/Server, Client/Server example in text, Error Handling, Port Numbers - Sockets Address structures, value –Elementary TCP sockets – Socket, connect, bind, listen, accept, fork and exec function - Introduction UDP Echo server function, lost datagram, summary of UDP example, Lack of flow control with UDP, determining outgoing interface with UDP - Name and address conversion, Domain Name System, functions for setting up Domain name system - I/O functions, Select function, Batch input, shutdown function, Poll function, TCP Echo server, Socket states, Generic socket option, IPV6 socket option, ICMPV6 socket option 			
Assessment	Formative assessment	Monthly online multiple choice and submitted programs will be used to evaluate their learning	
	Summative assessment	Examination: 40% Coursework: 60% <ul style="list-style-type: none"> - 2 class tests (15% each) - 2 individual laboratory assignments (15% each) 	