

<b>Module code</b>	TF-4306		
<b>Module Title</b>	Network Programming		
<b>Degree/Diploma</b>	Bachelor of Engineering (Information Communication Systems)		
<b>Type of Module</b>	Major Option		
<b>Modular Credits</b>	2	<b>Total student Workload</b>	4 hours/week
		<b>Contact hours</b>	2 hours/week
<b>Prerequisite</b>	None		
<b>Anti-requisite</b>			
<b>Aims</b>			
To instruct students on how to configure a router and a switch for basic functionality; and describe the architecture, components, and operations of routers and switches in a small network.			
<b>Learning Outcomes</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order:	10%	<ul style="list-style-type: none"> <li>- understand the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced</li> <li>- comprehend programs to establish client-server communications</li> </ul>	
Middle order:	10%	<ul style="list-style-type: none"> <li>- configure and identify the static routing and default routing (RIP and RIPng)</li> <li>- configure and identify an Open Shortest Path First (OSPF) network</li> </ul>	
Higher order:	80%	<ul style="list-style-type: none"> <li>- create and troubleshoot access control lists (ACLs) for IPv4 networks</li> <li>- perform and troubleshoot Dynamic Host Configuration Protocol (DHCP) for IPv4 and IPv6 networks</li> <li>- perform and troubleshoot Network Address Translation (NAT) operations</li> </ul>	
<b>Module Contents</b>			
<ul style="list-style-type: none"> <li>- Explain network technologies and how devices access local and remote networks</li> <li>- Describe router hardware</li> <li>- Explain how switching operates in a small to medium-sized business network</li> <li>- Design an IPv4 and IPv6 addressing scheme to provide network connectivity for a small to medium-sized business network</li> <li>- To configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, STP, and VTP in both IPv4 and IPv6 networks</li> <li>- Understand and describe the purpose, nature, and operations of a router, routing tables, and the route lookup process</li> <li>- Understand and describe how VLANs create logically separate networks and how routing occurs between them</li> <li>- Understand and describe dynamic routing protocols, distance vector routing protocols, and link-state routing protocols</li> </ul>			
<b>Assessment</b>	Formative assessment	Monthly online MCQ tests will be used to test and to give feedback for their learning	
	Summative assessment	Examination: 0% Coursework: 100% <ul style="list-style-type: none"> <li>- 1 assignment (20%)</li> <li>- 2 laboratory tests (30% each)</li> <li>- 1 class test (20%)</li> </ul>	