SLIIT Discover Your Future	DEPARTMENT OF INFORMATION TECHNOLOGY FACULTY OF COMPUTING

MODULE OUTLINE			
Module Name	**Computer Networks**		
Module Code	IT2050	Version No.	2017 - 1
Year/Level	2	Semester	1
Credit Points	4		
Pre-requisites	None		
Co-requisites	None		
Methods of Delivery	Lectures (Face-to-face) Tutorials Labs	2 Hours/Week 1 Hours/Week 2 Hours/Week	
Course Web Site	http://courseweb.sliit.lk/		
Date of Original Approval	February, 2017		
Date of Next Review	February, 2022		

MODULE DESCRIPTION		
Introduction	This module covers the routing and switching theory and configurations and TCP /IP Operations	
Learning Outcomes	At the end of the module student will be able to:	
	LO1:	Configure routers and switches for a small to medium scale network.
	LO2:	Identify the design techniques of implementing Local Area and Wide Area networks.
	LO3:	Identify the operation of IP, TCP, UDP and a range of widely used protocols in the TCP/IP protocol suite.
	LO4:	Apply Access Control Lists and basic security configurations on network devices
	LO5:	Demonstrate the knowledge of the operation of Spanning Tree Protocol and VLANs and apply configurations on network devices

Assessment Criteria	Continuous Assessments			
	• Midterm Examination	20	%	LO1, LO2
	• Practical Tests / Assignments	20	%	LO1, LO2, LO4
	End Semester Assessment			
	• Final Examination	60	%	LO1-LO5
	TOTAL	100	%	
Estimated Student Workload	Contact Hours			
	• Lecture	26 hours		
	• Tutorial	13 hours		
	• Laboratory	26 hours		
	Time Allocated for Assessments			
	• Continuous Assessments	03 hours		
	• Final Examination	03 hours		
	Reading and Independent Study	129 hours		
	TOTAL	200 hours		
Module Requirement	To pass this module, students need to obtain a pass mark in both "Continuous Assessments" and "End of the Semester Examination" components which would result in an overall mark that would qualify for a "C" grade or above			
Primary References	1. Behrouz A. Forouzan, *TCP/IP Protocol suit*, 4th Edition, McGraw-Hill Higher Education, 2010.			
	2. William Stallings, *Data & Computer Communications*, 8th Edition, Pearson Education, 2007.			

CONTENTS OF THE MODULE	
Topic	**Learning Outcomes covered**
1. Overview of configurations • Introduction • Command Line Interface (CLI) • User configuration modes • Memory • Managing Configuration files	**LO1-LO2**
2. Addressing • Overview • Public IP Addresses and Private IP Addresses • IP special addresses • Sub netting (Classless Addressing) • Variable Length Subnet Masking (VLSM) addressing	**LO1-LO2**

3. Routing and Routing Protocols • Direct and indirect Delivery • Routing strategies • Routing Methods used in Adaptive Routing • Routing Table Update methods • Features of routing protocols • Routing algorithms (Bellman-Ford & Dijkstras) • Routing Information Protocol (RIP)	**LO1-LO2**
4. Internet Protocol (IP 4 and 6) • Overview • Features • IP header • IP Fragmentation • IP options	**LO3**
5. Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) • Introduction • TCP connection process • Problems related to data transfer • Communication between TCP layer and Application layer • Port numbers • TCP header fields • TCP segment • TCP Timers • Error Control and Flow Control • TCP Options • TCP state Transition Diagram • User Datagram Protocol (UDP)	**LO3**
6. Local Area Networks • LAN Frames • Fast Ethernet and Gigabit Ethernet • LAN Standards • Transparent Bridges • Switches • Internal Switching Paths • Configuration of Switches	**LO1-LO2**
7. Spanning Tree, VLAN and Trunking • Spanning Tree Protocol • Virtual LANs • VLAN and Trunking Configuration	**LO5**
8. Access Control List Security • Standard Access Control Lists • Standard IP Access Control List Configuration • Extended IP Access Control Lists	**LO4**
9. Network Security • Introduction • Firewalls	**LO4**

• Firewall Functions • Protocol Filtering • Intrusion Detection System (IDS)	
10. Configure and Verify IP Addresses • Configuration Commands • IP Naming Commands and Telnet • Telnet and Suspend • Default Routes and the IP classless Command	**LO1-LO5**

GENERIC INFORMATION
Any type of plagiarism is not allowed. Plagiarism: Academic honesty is crucial to a student's credibility and self-esteem, and ultimately reflects the values and morals of the Institute as whole. A student may work together with one or a group of students discussing assignment content, identifying relevant references, and debating issues relevant to the subject. Plagiarism occurs when the work of another person, or persons, is used and presented as one's own. ----------End of Module Outline----------