University of Computer Studies, Yangon
B.C.Sc./B.C.Tech.

CST-303	**: Computer Networking**	**Second Semester**
Text book	: Computer Networking (A Top-Down Approach) (6th Edition); James F. Kurose and Keith W. Ross	
Period	: **45** periods for 15 weeks (4 periods/week)	

Course Description

This module introduces students to computer networks and concentrates on building a firm foundation for understanding Data Communications and Computer Networks. It is based around the OSI Reference Model that deals with the major issues in the three (Link layer, Network layer and Transport layer) layers of the model. Students are also introduced to the areas of Network Security and Mobile Communications. This module provides the student with fundamental knowledge of the various aspects of computer networking and enables students to appreciate recent developments in the area.

Course Objectives

- Understand the principles of computer networks
- Understand the construction of modern networks
- Study the principles of the popular network protocol suit —— TCP/IP
- Learn how to use the network and the popular networked applications
- Study the basic knowledge of Link layer, Network layer and Transport layer.

Assessment Plan for the Course

Paper Exam:	60%
Attendance:	10%
Test/ Quiz:	10%
Lab:	10%
Lab Assessment:	10%

Tentative Lecture Plan

No.	Chapter		Page	Detail lecture Plan
	Chapter 1	**Computer Network and the Internet**	**1-60**	
1.	1.1	What is the Internet	2-9	
2.	1.2	The Network Edge	9-22	
3.	1.3	The Network Core	22-35	
4.	1.4	Delay, Loss, and Throughput in Packet-Switched Networks	35-47	
5.	1.5	Protocol Layers and Their Service Models	47-55	
6.	1.6	Networks Under Attack	55-60	
	Chapter 5	**The Link Layer: Links, Access Networks, and LANs**	**433-495**	
7.	5.1	Introduction to the Link Layer	434-438	
8.	5.2	Error-Detection and -Correction Techniques	438-445	
9.	5.3	Multiple Access Links and Protocols	445-460	
10.	5.4	Switched Local Area Networks	461-486	
11.	5.5	Link Virtualization: A Network as a Link Layer	486-490	
12.	5.6	Data Center Networking	490-495	
	Chapter 4	**The Network Layer**	**305-412**	
13.	4.1	Review Questions		
14.	4.2	Virtual Circuit and Datagram Networks	313-320	
15.	4.3	What's Inside a Router?	320-331	
16.	4.4	The Internet Protocol (IP): Forwarding and Addressing in the Internet	331-362	Detail: IP addressing **Reference: [1], [2]** Overview: 4.4.5
17.	4.5	Routing Algorithms	363-383	4.5.3 Overview
18.	4.6	Routing in the Internet	383-396	

19.	4.7	Broadcast and Multicast Routing	396-412	
	Chapter 3	**Transport Layer**	**184-269**	
20.	3.1	Introduction and Transport-Layer Services	186-191	
21.	3.2	Multiplexing and Demultiplexing	191-198	
22.	3.3	Connectionless Transport: UDP	198-204	
23.	3.4	Principles of Reliable Data Transfer	204-230	
24.	3.5	Connection-Oriented Transport: TCP	230-258	
25.	3.6	Principles of Congestion Control	258-269	

No.	**Lab**	**Description**
1.	Lab 1	Configuring IPv4 Static and Default Route
2.	Lab 2	DNS Configuration
3.	Lab 3	ARP
4.	Lab 4	DHCP Server on a Router
	Lab Assessment I	
5.	Lab 3	Dynamic Routing: Configuring Basic EIGRP for IPv4
6.	Lab 4	Dynamic Routing: Configuring Basic Single-Area OSPFv2
7.	Lab 5	Dynamic Routing: Configuring Basic BGP
8.	Lab 6	Wireshark Lab
	Lab Assessment II	