UNITED INTERNATIONAL UNIVERSITY
Department of Computer Science and Engineering (CSE)
Course Syllabus

Part A: Introduction

1	**Course Title**	Computer Networks Lab
2	**Course Code**	CSE 3712
3	**Pre-requisites**	Structured Programming Language Lab (CSI 122)
4	**Course Type**	Core Course
5	**Credit Hours**	1.00
6	**Contact Hours**	2.5 Hours/Week
7	**Semester**	6th
8	**Total Marks**	100
9	**Course Instructor's Information**	Azim Uddin Chowdhury (AUC) E-mail: azim@admin.uiu.ac.bd Phone: 01741125920 Office: Cisco Networking Academy Office, Room # 537A (5th Floor), UIU
10	**Course Rationale**	This course has been designed to provide hands-on experience on various communication protocols. Analyze the structure and formats of TCP/IP layer protocols using network tools such as Wireshark and network simulators.
11	**Course Objectives**	The objectives of this course are: ● To familiarize with the practical approach of various network communication protocols. ● To understand the basic concept of Local Area Network (LAN). ● Designing of real-world network topologies. ● Implementation of static and dynamic routing and redistribute them among each other. ● Able to design and implement various network application such as data transmission between client and server, file transfer, real-time multimedia transmission, as well as access control, virtual LAN, network address translation.

Part B: Content of the Course

12 Course Contents (approved by UGC) Laboratory work based on CSE 3711

13 Course Outcomes (COs)

COs	Description
CO1	**Identify** and **explain** the functions of common networking devices and **compile** the device configuration commands to construct a typical computer network consisting of LAN, WAN and Wireless LAN.
CO2	**Demonstrate** the understanding of IP addressing and subnetting, and the fundamentals of IP routing.
CO3	**Use** networking tools to observe and **analyze** behaviors of networking protocols in a layered architecture.
CO4	**Demonstrate** the knowledge of computer network programming, such as socket programming.
CO5	**Design** and implement a Computer Network based on a real-life scenario as a term project using Packet Tracer.
CO6	**Demonstrate** oral and written communication skills and increase ability to be effective team members.

14 Mapping of COs and Program outcomes

COs	Program Outcomes (POs)											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	C											
CO2	C											
CO3	C											
CO4	C											
CO5			C									
CO6									A	A		

15 Mapping COs with Teaching-Learning and Assessment Strategy

Class/ Week	Topics/Assignments	Course Outcomes (COs)	Reading Reference	Teaching-Learning Strategies	Assessment Strategies
1	Introduction to Network Lab, Understanding TCP-IP Configuration	CO1	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam
2	Introduction to Packet Tracer, building a single-segment Network, Protocol analysis using OSI/TCP-IP layering models	CO3	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam
3	IP Addressing and Subnetting, Basic Router Configuration	CO1, CO2	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam

4	**Internetworking:** Static/Default Routing	CO2	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam
5	**Internetworking:** Dynamic Routing – RIP, OSPF	CO2	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam
6	Dynamic Host Configuration Protocol (DHCP) Introduction to Wireshark (Packet Capture & Traffic Analysis)	CO1, CO3	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam
7	**MID EXAM**				
8	Packet-level Firewalls – Access Control Lists (ACLs)	CO1, CO2	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam **Group formation & Term Project Assignment**
9	Configuring Basic Switch Settings Introduction VLAN and Inter-VLAN Routing	CO1, CO2	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam
10	Network Address Translation (NAT) – Connecting to an ISP (Internet)	CO1, CO2	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam Term Project Update
11	Introduction to Socket Programming	CO4	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam
12	Basic Security - Cryptography	CO1, CO3	Lab Manual	Lecture/ Laboratory exercise	Assignments/Lab Report/Exam
13	Term Project Presentation / Demonstration	CO5, CO6	-	-	Group Presentation, Final Report Submission
14	**FINAL EXAM**				

Part C: Assessment and Evaluation Methods

Assessment Strategy	Assessment Types	Marks
Formative Assessment	Attendance	10%
	Class Performance	20%
	Assignments	5%
	Report/Viva	5%
	Project	10%
	Mid Exam	20%
	Final Exam	30%

Grading System

Letter Grade	Marks %	Grade Point	Letter Grade	Marks%	Grade Point
A (Plain)	90-100	4.00	C+ (Plus)	70-73	2.33
A- (Minus)	86-89	3.67	C (Plain)	66-69	2.00
B+ (Plus)	82-85	3.33	C- (Minus)	62-65	1.67
B (Plain)	78-81	3.00	D+ (Plus)	58-61	1.33
B- (Minus)	74-77	2.67	D (Plain)	55-57	1.00
			F (Fail)	<55	0.00

Part D: Learning Resources

Text Book	None. Materials will be provided in the form of a lab manual.
LMS URL	

Appendix-1: Program outcomes

POs	Program Outcomes
PO1	An ability to apply knowledge of mathematics, science, and engineering
PO2	An ability to identify, formulate, and solve engineering problems
PO3	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
PO4	An ability to design and conduct experiments, as well as to analyze and interpret data
PO5	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
PO6	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
PO7	A knowledge of contemporary issues
PO8	An understanding of professional and ethical responsibility
PO9	An ability to function on multidisciplinary teams
PO10	An ability to communicate effectively
PO11	Project Management and Finance
PO12	A recognition of the need for, and an ability to engage in life-long learning