National Institute of Technology Meghalaya
An Institute of National Importance

CURRICULUM

Programme	**Bachelor of Technology in Computer Science and Engineering**	Year of Regulation	**2019-20**
Department	**Computer Science and Engineering**	Semester	**V**

Course Code	Course Name	Credit Structure				Marks Distribution		
		L	T	P	C	Continuous Evaluation	Quiz / Viva	Total
CS 355	**Computer Networks Lab**	0	0	2	1	70	30	100

Course Objectives	To develop the student's ability to understand the basic concept of networking, packet switching and circuit switching etc.	Course Outcomes	CO1	Able to understand the brief of internet and also the concept of circuit switching and packet switching.
	To develop the student's ability to understand the application layer of the network model along with the ability to perform socket programming.		CO2	Able to understand the purpose of application layer and various application layer protocols such as DNS, FTP, SMTP.
	To provide the students with some knowledge and analysis skills associated with transport layer protocols TCP and UDP.		CO3	Able to understand various transport layer protocol like UDP, TCP, and various mechanisms to control TCP congestion.
	To develop the student's ability to understand the network layer of network model like IPv4 addressing NAT etc.		CO4	Able understand the IPV4 addressing and forwarding mechanism and solve relevant problems.

No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	CO1	2	0	0	0	0	1	0	2	0	0	0	2	1	1	1
2	CO2	2	2	2	1	2	0	0	2	0	2	0	1	2	2	1
3	CO3	3	2	2	3	0	0	2	1	0	1	1	1	2	1	1
4	CO4	1	1	0	1	0	0	0	2	1	1	0	2	3	1	3

Suggested List of Experiments

No.	Content	Hours	COs
I	Assignment on Error Detection using Single Parity Check	02	CO1
II	Assignment on Error Detection using CRC	02	CO1
III	Assignment on Error Detection using Checksum	02	CO1
IV	Assignment on UDP Socket Programming – UDP Echo	02	CO2, CO3, CO4
V	Assignment on TCP Socket Programming – Client and Server both in same machine	02	CO2, CO3, CO4
VI	Assignment on TCP Socket Programming – Client and Server in different machines	02	CO2, CO3, CO4
VII	Assignment on TCP Socket Programming – Students' Database	02	CO2, CO3, CO4
VIII	Assignment on TCP Socket Programming – English Dictionary	02	CO2, CO3, CO4
IX	Assignment on TCP Socket Programming – Involving Files	02	CO2, CO3, CO4
X	Assignment on TCP Socket Programming – Upload and Download	02	CO2, CO3, CO4
	Total Hours	**20**	

Essential Readings

1. J. F. Kurose, K. W. Ross, "Computer Networking: A Top-Down Approach", Pearson Publication, 6th Edition, 2013.

2. B. Forouzan, "Data Communication and Networks", McGraw-Hill Publication, 5th Edition, 2012.

3. A. S. Tanenbaum, D. J. Wetherall, "Computer Networks", Pearson Publication, 5th Edition, 2011.

Supplementary Readings

1. W. Stalling, "Data and Computer Communications", Pearson Publication, 8th Edition, 2007.

2. L. L. Peterson, B. S. Davie, "Computer Networks: A Systems Approach", Morgan Kaufmann Publishers, 5th Edition, 2012.

3. A. L. Garcia and I. Widjaja, "Communication Networks Fundamental Concepts and Key Architectures", Tata McGraw-Hill Publication, 2nd Edition, 2004.