



SECOND-YEAR DIPLOMA COMPUTER ENGINEERING SYLLABUS

Semester: 4TH

Course Code: 002204402

Type of Course: PCC-LC-10

Course Name: Computer Networks LAB

Course Prerequisites: Basic knowledge of computer networks

COURSE OBJECTIVE(S):

In every organisation, establishing, commissioning (making operational) and maintaining secure computer networks has become one of the essential jobs of a diploma computer engineer. This course is therefore designed to help the computer engineering diploma holders to develop this competency.

TEACHING & EXAMINATION SCHEME:

Teaching Scheme (Hrs/Week)				Examination Scheme					
Theory	Tutorial	Practical	Credit	SEE		CA			Total
				Th	Pr	MSE	PLE	LA	
0	0	2	1	00	25	00	00	25	50

Th: Theory; Pr: Practical; FA: Final Assessment; CAT: Continuous Assessment Theory; CAP: Continuous Assessment Practical;

*TOTAL Practical Hours: No. of Practical Hrs/Week*15 = 30*

LIST OF PRACTICALS: *(sample for 2 hrs/week)*15 weeks*

Sr. No.	Content	Unit No.	Time Duration
1	Connect computer using given topology with wired media. Assume six devices are rearranged, if in: a)bus topology b)ring topology c)star topology d)mesh topology Find out number of cables (links), ports needed in each device and total number of ports needed in entire network for each of above stated topology.	1	4
2	Study about OSI model network Layers.	2	2
3	Prepare and Test Straight UTP Cable and Cross UTP Cable.	3	2
4	Study and Test various Network devices available at Department/Institute. (Repeater, Hub, Switch, Bridge, Router and Gateway).	3	4
5	Determine whether following IPv4 address are valid or invalid. If valid IPv4 address then find class, Network and Host ID of anIPv4 address. If invalid IPv4 address then write reason for the same.	4	4



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	a)1.4.5.5 c)111.56.045.78 e)130.45.151.154 g)221.34.7.8.20	b)75.45.301.14 d)192.226.12.11 f)11100010.23.14.67 h)240.230.220.89																		
6	Subnet the IP address 216.21.5.0 in to30 hosts in each subnet.		4	2																
7	Determine Class and Network Address for given IPv4 address and subnet mask. <table border="1"><thead><tr><th>IPv4 address</th><th>Subnet Mask</th><th>Class</th><th>Subnet</th></tr></thead><tbody><tr><td>172.16.2.10</td><td>255.255.255.0</td><td></td><td></td></tr><tr><td>10.6.24.20</td><td>255.255.240.0</td><td></td><td></td></tr><tr><td>10.30.36.12</td><td>255.255.255.0</td><td></td><td></td></tr></tbody></table>		IPv4 address	Subnet Mask	Class	Subnet	172.16.2.10	255.255.255.0			10.6.24.20	255.255.240.0			10.30.36.12	255.255.255.0			4	2
IPv4 address	Subnet Mask	Class	Subnet																	
172.16.2.10	255.255.255.0																			
10.6.24.20	255.255.240.0																			
10.30.36.12	255.255.255.0																			
8	Identify valid IPv6 addresses and if in valid IPv6 address then write reason for the same: a)2001:db8: 3333:4444:5555 :6666:7777:8888 b):: c)225.1.4.2 d)2001:db8:: e): :1234:5678 f)2001:db8::1234: 5678 g)2001:0db8:0001:0000:0000:0ab9:C0A8:0102 h)fe80:2030:31:24		4	4																
9	Study of firewall in providing network security.		5	2																
10	Run basic utilities and network commands : ipconfig, ping, tracert, netstat, pathping, route.		5	4																
			TOTAL	30																

Text Book(s):

Title of the Book	Author(s)	Publication
Computer Networks	SUNIL S.SHAH	ATUL PRAKASHAN

Reference Book(s):

Title of the Book	Author(s)	Publication
Computer Networks	Andrew ST annebaum & DavidJWetherall	Pearson, 2012
Information Technology Today	S.Jaiswal	Galgotia Publications
Computer Networks	Bhushan Trivedi	OxfordUniversityPress,2013
Data Communication&	Forouzen	Tata Mc Graw Hill



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Networking,		
Data & Computer Communication	Williams Stallings	Prentice Hall of India

Web Material Link(s):

- a) <http://cpuburst.com/ganttcharts.html>
- b) <https://www.tutorialspoint.com>
- c) www.w3schools.com
- d) <https://nptel.ac.in/courses/106106144>
- e) <https://nptel.ac.in/courses/106105214>
- f) <https://nptel.ac.in/courses/106102132>
- g) <https://nptel.ac.in/courses/106106091>

Equivalent/Corresponding Course on NPTEL (SWAYAM):

NPTEL course on

https://onlinecourses.nptel.ac.in/noc21_cs02/preview

<https://nptel.ac.in/courses/106/105/106105151/>

PRACTICAL EVALUATION:

Sr. No.	Activity	Marks	Weightage
1	Semester End Examination (External Practical)	30	60%
2	Continuous Assessment Practical (CAP)	20	40%
	Semester End Examination (External Practical)		
1(a)	Lab Experiment/Exercise		30%
1(b)	Viva-voce		20%
1(c)	Certified Record		10%
	Continuous Assessment Practical (CAP)		
2(a)	Day to day Laboratory Work & Attendance		15%
2(b)	Submission of Laboratory Work/Journal		10%
2(c)	Exam		15%

* For 4 Credit Subjects

1 Credit = 25 Marks

Theory: 3 Credits = 75 Marks

Practicals: 1 Credit = 25 Marks

SEE Evaluation will be of 100 marks and converted to 50 Marks (75 Th + 25 Pr)

CA Evaluation will be of 100 Marks and converted to 50 Marks. (75 Th + 25 Pr)

Distribution of Marks for Theory Evaluation as per Bloom's Taxonomy Level:

Level	Remember	Understand	Apply	Analyse	Evaluate	Create
% Weightage	20%	20%	10%	10%	-	20%



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COURSE OUTCOMES:

CO1	Connection of computer using topologies.
CO2	OSI model network layers.
CO3	Select proper transmission media network devices.
CO4	Network and host ID IPv4,IPv6
CO5	Firewall in network security