NIIST BHOPAL		NRI INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY BHOPAL	FORM NO	NIIST/A/07
BRANCH	CSE	DEPT NAME: Computer Science and Engg.	REV. NO	0
SEMESTER	VI	COURSE FILE	REV. DT	30/06/2011
NAME OF FACULTY: SANTOSH NAGAR				
SUBJECT: COMPUTER NETWORK		SUBJECT CODE: CS-602		

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5	TUTORIALS/THEORY QUIZ	8
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NIIST BHOPAL		NRI INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY	FORM NO	NIIST/A/01
SESSION	Jan. to June 2022	ACADEMIC CALENDAR	REV. NO	0
SEMESTER	II,IV, VI,VIII		REV. DT	30/06/2011

PARTICULARS	DATES			
	VIII SEM	VI TH SEM	IV TH SEM	II nd SEM
FACULTY INDUCTION PROGRAM	12/12/2022	5/1/2023		
LAST DATE OF SUBMISSION OF FEE AND REGISTRATION	20/1/2023	20/1/2023		
COMMENCEMENT OF SEMESTER	17/12/2022	5/1/2022		
STUDENTS FEEDBACK (Online)	24/01/2023	24/01/2023		
STUDENTS PROJECT/SEMINAR PRESENTATION FIRST	25/2/2023	25/2/2023		
ACADEMIC MONITORING (FIRST) (AT LEAST 2 UNITS SHOULD BE COVERED)	28/01/2023	13/02/2023		
FIRST DISPLAY OF ATTENDANCE (ALL DEFAULTERS SHOULD BE WARNED AND THEIR PARENTS INFORMED)	28/01/2023	13/02/2023		
FIRST SERIES OF MID-SEM EXAM	28/01/2023-01/02/2023	14/02/2023-17/02/2023		
DISPLAY OF MARKS IN THE CLASS ROOM (FIRST MID-SEM EXAM)	3/2/2023	20/2/2023		
DISPLAY OF MARKS ON THE NOTICE BOARD (FIRST MID-SEM EXAM) AND SUBMITTED TO EXAM CELL	4/2/2023	4/2/2023		
REPORT TO PARENTS (Att, Dues and Performance)	4/2/2023	4/2/2023		
NOVIZIO	AS Per Committee Discussion			
ACADEMIC MONITORING (SECOND)	16/3/2023	16/3/2023		
SECOND DISPLAY OF ATTENDANCE (LETTERS SHOULD BE SENT TO PARENTS)	16/3/2023	16/3/2023		
SYLLABUS COVERAGE STATUS BY PRINCIPAL/DIRECTOR	21/03/2023	21/03/2023		
SECOND SERIES OF MID-SEM EXAM/TPO Test/CRT (ONE PAPER PER DAY OF 3 HRS EACH AND PRACTICAL/VIVA CONDUCTION)	23/03/2023 28/03/2023	23/03/2023 28/03/2023		
DISPLAY OF MARKS IN THE CLASS ROOM (SECOND MID-SEM/PUT EXAM)	29/03/2023	29/03/2023		
DISPLAY OF MARKS ON THE NOTICE BOARD (SECOND MID-SEM/PUT EXAM)	1/4/2023	1/4/2023		
END OF TEACHING (As per RGPV)	1/4/2023	1/4/2023		
ACADEMIC CLOSURE	5/4/2023	5/4/2023		
SUBMISSION OF EXAM FORM THROUGH ONLINE	AS Per University Guidelines			
SUBMISSION OF MST & TW TO UNIVERSITY	AS Per University Guidelines			
PRACTICAL / VIVA-VOCE	AS Per University Guidelines			
SEMESTER EXAMINATION (FINAL)	AS Per University Guidelines			

Remark- ***Extra***

Classes must be scheduled after 02nd April to 30th April 2023 in case syllabus is not completed

Academic Audit Schedule

Weekely Audit by HOD

ACADEMIC COMMITTEE (FORTNIGHTLY)

DIRECTOR/PRINCIPAL AUDIT (MONTHLY) All Holidays are for students only ,Holidays for the faculty &staff will be deceleared seperatly

LIST OF HOLIDAYS:

Republic Day : 26/01/2023
Ravi Das Jayanti:05/02/2023,
Mahashivratri :18/02/23,
Holi :07/03/2023, Rangpanchmi:11/03/2023,
Ramnavmi:30/03/2023,
Mahavir Jayanti: 04/04/2023
Good Friday: 07/04/2023
Ambedkar Jyanti:14/04/2023,
Eid ul Fitar:22/04/2023

Prepared by
Principal/Director 14/12/22

Approved by
CHAIRMAN

NIIST, BHOPAL	NRI INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY, BHOPAL	FORM NO	NIIST/A/02
	DEPT NAME: COMPUTER SCIENCE & ENGG.	REV. NO	0
BRANCH: CSE	TIME TABLE	REV. DT	30/06/2011
SEMESTER: VI	w.e.f. 05/01/2023		

SESSION : January to June - 2023 | Room No. S-7 | TG- Mr. Santosh N.

DAY	9:45 am - 10:45 am	10:45 am - 11:45 am	11:45 am - 12:45 pm	12:45 pm - 1:25 pm	1:25 pm - 2:25 pm	2:25 pm - 3:25 pm	3:25 pm - 4:25 pm
	I	II	III		IV	V	VI
MONDAY	CS606 LAB (B1) / CS 605 LAB (B2) AP/AS		CS 602 SN	LUNCH	CS 601 LAB (B1) / CS 608 LAB (B2) VP / MS		CS 601 VP
TUESDAY	CS606 LAB (B1) / CS 605 LAB (B2) AP/AS		CS 601 VP		CS 602 SN	CS 604 AS	CS 603 MS
WEDNESDAY	CS 602 LAB (B1) / CS 608 LAB (B2) SN / NG		CS 604 AS		CS606 LAB (B1) / CS 605 LAB (B2) AP/AS		TNP
THURSDAY	CS606 LAB (B2) / CS 605 LAB (B1) AP/VP		CS 603 MS		CS 602 LAB (B1) / CS 608 LAB (B2) SN / NG		TNP
FRIDAY	CS606 LAB (B2) / CS 605 LAB (B1) AP/VP		CS 604 AS		CS 601 LAB (B2) / CS 608 LAB (B1) VP / NG		CS 601 VP
SATURDAY	CS 603 MS	CS 602 SN	TG/LIB		CS 604 AS	CS 603 MS	TNP

SUB CODE	SUB ABB.	SUBJECT NAME	FACULTY NAME	FCULTY CODE
CS601	ML	MACHINE LEARNING	Prof. Vaibhav Patel	VP
CS602	CN	COMPUTER NETWORKS	Prof. Santosh Nagar	SN
CS603	CD	DEPARTMENTAL ELECTIVE	Prof. Mahendra Sahare	MS
CS604	PM	OPEN ELECTIVE	Prof. Anurag Shrivastava	AS
CS605	DAL	DATA ANALYTICS LAB	Prof. V. Patel / Prof. A.Shrivastava	VP/AS
CS606	SDL	SKILL DEVELOPMENT LAB	Prof. Anil Prajapati	AP
CS608	MP	MINOR PROJECT - II	Prof. Nitesh Kumar Gupta	NG

Reviewed by : (HOD) 02/12/22

Approved by : (Principal/Director)

Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal

New Scheme of Examination as per AICTE Flexible Curricula

Bachelor of Technology (B.Tech.) Computer Science and Engineering/ Computer Engineering/Computer Science & Technology] (w.e.f. Jan, 2020)

VI Semester

S.No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory			Practical						
				End Sem.	Mid Sem. Exam.	Quiz/ Assignment	End Sem	Term work / Lab Work & Sessional		L	T	P	
1.	CS601	DC	Machine Learning	70	20	10	30	20	150	2	1	2	4
2.	CS602	DC	Computer Networks	70	20	10	30	20	150	2	1	2	4
3.	CS603	DE	Departmental Elective	70	20	10	-	-	100	4	-	0	4
4.	CS604	OE	Open Elective	70	20	10	-	-	100	4	-	0	4
5.	CS605	D Lab	Data Analytics Lab	-	-	-	30	20	50	-	-	6	3
6.	CS606	O/E Lab	Skill Development Lab	-	-	-	30	20	50	-	-	6	3
7.	CS607	IN	Internship-III	To be completed anytime during Fifth/Sixth semester. Its evaluation/credit to be added in Seventh Semester.									
8.	CS608	P	Minor Project II	-	-	-	-	50	50	-	-	4	2
9.	Additional Credits#	*#Additional credits can be earned through successful completion of credit based MOOC's Courses available on SWAYAM platform (MHRD) at respective UG level.*											
			Total	280	80	40	120	130	650	12	2	20	24

Departmental Electives	Open Electives
603 (A) Advanced Computer Architecture	604(A) Knowledge Management
603 (B) Computer Graphics & Visualization	604(B) Project Management
603 (C) Compiler Design	604 (C) Rural Technology & Community Development

1 Hr Lecture	1 Hr Tutorial	2 Hr Practical
1 Credit	1 Credit	1 Credit

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Computer Science and Engineering, VI-Semester

CS602 Computer Networks

Course Outcomes: After completion of the course students will be able to

1. Characterize and appreciate computer networks from the view point of components and from the view point of services
2. Display good understanding of the flow of a protocol in general and a network protocol in particular
3. Model a problem or situation in terms of layering concept and map it to the TCI/IP stack
4. Select the most suitable Application Layer protocol (such as HTTP, FTP, SMTP, DNS, Bit torrent) as per the requirements of the network application and work with available tools to demonstrate the working of these protocols.
5. Design a Reliable Data Transfer Protocol and incrementally develop solutions for the requirements of Transport Layer
6. Describe the essential principles of Network Layers and use IP addressing to create subnets for any specific requirements

Unit –I

Computer Network: Definitions, goals, components, Architecture, Classifications & Types. Layered Architecture: Protocol hierarchy, Design Issues, Interfaces and Services, Connection Oriented & Connectionless Services, Service primitives, Design issues & its functionality. ISO-OSI Reference Model: Principle, Model, Descriptions of various layers and its comparison with TCP/IP. Principals of physical layer: Media, Bandwidth, Data rate and Modulations

Unit-II

Data Link Layer: Need, Services Provided, Framing, Flow Control, Error control. Data Link Layer Protocol: Elementary &Sliding Window protocol: 1-bit, Go-Back-N, Selective Repeat, Hybrid ARQ. Protocol verification: Finite State Machine Models & Petri net models. ARP/RARP/GARP

Unit-III

MAC Sub layer: MAC Addressing, Binary Exponential Back-off (BEB) Algorithm, Distributed Random Access Schemes/Contention Schemes: for Data Services (ALOHA and Slotted-ALOHA), for Local-Area Networks (CSMA, CSMA/CD, CSMA/CA), Collision Free Protocols: Basic Bit Map, BRAP, Binary Count Down, MLMA Limited Contention Protocols: Adaptive Tree Walk, Performance Measuring Metrics. IEEE Standards 802 series & their variant.

Unit-IV

Network Layer: Need, Services Provided , Design issues, Routing algorithms: Least Cost Routing algorithm, Dijkstra's algorithm, Bellman-ford algorithm, Hierarchical Routing, Broadcast Routing, Multicast Routing. IP Addresses, Header format, Packet forwarding, Fragmentation and reassembly, ICMP, Comparative study of IPv4 & IPv6



Unit-V

Transport Layer: Design Issues, UDP: Header Format, Per-Segment Checksum, Carrying Unicast/Multicast Real-Time Traffic, TCP: Connection Management, Reliability of Data Transfers, TCP Flow Control, TCP Congestion Control, TCP Header Format, TCP Timer Management.Application Layer: WWW and HTTP, FTP, SSH, Email (SMTP, MIME, IMAP), DNS, Network Management (SNMP).

References:

1.Andrew S. Tanenbaum, David J. Wetherall, "Computer Networks" Pearson Education.
2 Douglas E Comer, "Internetworking WithTcp/Ip Principles, Protocols, And Architecture - Volume I" 6th Edition,Pearson Education
3.DimitriBertsekas, Robert Gallager, "Data Networks", PHI Publication, Second Edition.
4.KavehPahlavan, Prashant Krishnamurthy, "Networking Fundamentals", Wiley Publication.
5.Uyless Black, "Computer Networks", PHI Publication, Second Edition.
6.Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, "Computer Networks: An Open Source Approach", McGraw Hill.

List of Experiments:

1. Study of Different Type of LAN& Network Equipments.
2. Study and Verification of standard Network topologies i.e. Star, Bus, Ring etc.
3. LAN installations and Configurations.
4. Write a program to implement various types of error correcting techniques.
5. Write a program to Implement various types of framing methods.
6. Study of Tool Command Language (TCL).
7. Study and Installation of Standard Network Simulator: N.S-2, N.S3.OpNet,QualNetetc .
8. Study & Installation of ONE (Opportunistic Network Environment) Simulator for High Mobility Networks .
9. Configure 802.11 WLAN.
10. Implement &Simulate various types of routing algorithm.
11. Study & Simulation of MAC Protocols like Aloha, CSMA, CSMA/CD and CSMA/CA using Standard Network Simulators.
12. Study of Application layer protocols-DNS, HTTP, HTTPS, FTP and TelNet.



NIIST BHOPAL	NRI INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY DEPARTMENT NAME: COMPUTER SCIENCE & ENGINEERING	FORM NO	NIIST/A/08
BRANCH: CSE	LECTURE PLAN	REV. NO	0
SEMESTER: VI		REV. DT	30/06/2011

NAME OF THE FACULTY: Prof Santosh Nagar

SUBJECT/CODE : Computer Network SUBJECT CODE : CS-602

Course Objectives:

OBJECTIVE -1	Characterize and appreciate computer networks from the view point of components and from the view point of services
OBJECTIVE -2	Display good understanding of the flow of a protocol in general and a network protocol in particular
OBJECTIVE -3	Model a problem or situation in terms of layering concept and map it to the TCI/IP stack
OBJECTIVE -4	Select the most suitable Application Layer protocol (such as HTTP, FTP, SMTP, DNS, Bit torrent)
OBJECTIVE -5	Describe the essential principles of Network Layers and use IP addressing to create subnets for any specific requirements

Course outcome:

After successful completion of course, students will be able to:

- CO1: Illustrate network services, protocol and its architecture.
- CO2: Examine flow and error control protocols of data link layer as well as MAC layer protocol.
- CO3: Compare different routing strategies and network layer protocol.
- CO4: Distinguish Transport layer, presentation layer, session layer protocol
- CO5: Examine various application layer protocols

L.N	UNIT NO.	DETAILS OF LECTURES PLANNED	PLANNED DATE	ACTUAL DATE	NO. OF STUDENTS PRESEN	REF	REMARKS
1	I	Computer Network: Definitions, goals	05/01/23	05/1/2023	29		
2	I	Components, Architecture, Classifications &	07/01/23	09/01/223	29		
3	I	Layered Architecture: Protocol hierarchy	09/01/23	11/01/23	23		
4	I	TUTORIAL-1	09/01/23	11/01/23	23		
5	I	Design Issues, Interfaces and Services	10/10/23	14/01/23	05		
6	I	Connection Oriented & Connectionless Servi	14/01/23	16/01/23	26		
7	I	Service primitives, Design issues & its functic	16/01/23	16/01/23	26		
8	I	TUTORIAL-2	17/01/23	16/10/23	26		
9	I	ISOOSI Reference Model: Principle, Model	17/01/23	28/01/23	07		
10	I	Descriptions of various layers and its compar	21/01/23	21/01/23	07		
11	II	Principals of physical layer: Media Bandwidth	23/01/23	23/01/23	32		
12	II	TUTORIAL-3	30/01/23	23/01/23	32		
13	II	Data Link Layer: Need, Services Provided	31/01/23	25/01/23	15		
14	II	Framing, Flow Control, Error control	04/02/23	31/01/23	20		
15	II	Data Link Layer Protocol: Elementary &Slidin	6/02/23	06/2/23	53		
16	II	TUTORIAL-4	06/02/23	06/2/23	53		



17	II	1-bit, Go-Back-N, Selective Repeat, Hybrid AI	7/02/23	07/2/23	36.		
18	II	Protocol verification: Finite State Machine M	11/02/23	11/2/23	12		
19	II	Petri net models ARP/RARP/GARP	13/02/23	13/2/23	47		
20	II	TUTORIAL-5	14/02/23	14/2/23.	-		
21	II	MAC Sub layer: MAC Addressing, (BEB) Algor	18/02/23	20/02/23	22		
22	III	Distributed Random Access Schemes/Conten	20/02/23	21/2/23	08		
23	III	ALOHA and SlottedALOHA CSMA, CSMA/CD,	21/02/23	22/2/23	09		
24	III	TUTORIAL-6	25/02/23	24/2/23	12		
25	III	Collision Free Protocols: Basic Bit Map, BRAP	25/02/23	24/2/23	12		
26	III	MLMA Limited Contention Protocols:	27/02/23	27/2/23	36.		
27	III	Adaptive Tree Walk, Performance Measuring	28/02/23	28/2/23	40		
28	III	TUTORIAL-7	04/03/23	28/2/23	40		
29	III	Network Layer: Need, Services Provided	6/03/23	01/3/23	34		
30	IV	Design issues, Routing algorithms ·	07/03/23	11/03/23	02		
31	IV	Least Cost Routing algorithm, Dijkstra's algor	11/03/23	13/3/23	12		
32	IV	TUTORIAL-8	13/03/23	13/3/23	12		
33	IV	Bellman-ford algorithm, Hierarchical Routing	14/03/23	14/03/23	25		
34	IV	Broadcast Routing, Multicast Routing IP Addr	18/03/23	15/03/23	25		
35	IV	Packet forwarding, Fragmentation and reasse	20/03/23	17/03/23	31		
36	IV	TUTORIAL-9	20/03/23	17/03/23	31		
37	IV	ICMP Comparative study of IPv4 & IPv6	21/03/23	20/3/23	39		
38	IV	Transport Layer: Design Issues	25/03/23	22/03/23	24 -	2.	25/03/23 24/03/23
39	V	UDP: Header Format	27/03/23	29/03/23	34 -		
40	V	TUTORIAL-10	28/03/23	28/03/23	20		
41	V	Per-Segment Checksum, Carrying Unicast/Mu	01/04/23	31/03/23	10 -		
42	V	Real-Time Traffic, TCP: Connection Managem	3/04/23	01/4/23	04		
43	V	Reliability of Data Transfers, TCP Flow Contro	04/04/23	03/04/23	29 -		
44	V	TUTORIAL-11	08/04/23	04/04/23	17		
45	V	TCP Congestion Control, TCP Header Format	08/04/23	05/04/23	27.		
46	V	TCP Timer Management.Application Layer	10/04/23	11/04/23	09		
47	V	WWW and HTTP, FTP, SSH, Email	11/04/23	11/04/23	0 0		
48	V	TUTORIAL-12	15/04/23	12/4/23	0 12		
49	V	SMTP, MIME, IMAP	15/04/23	13/4/23	04	-	
50	V	DNS, Network Management (SNMP)	17/04/23	13/4/23	04		
51	V	Documenting the behavior of software eleme	18/04/23	13/4/23	04		
52	V	TUTORIAL-13	22/04/23	15/4/23	19+4=23		
53	V	Software systems, documentation	24/04/23	15/04/23	19+4=23		
54	V	Package using a seven-part template	25/04/23	15/04/23	19+4=23		
55	V	Tutorial -XIII	28/04/23				

Reference Books

Andrew S. Tanenbaum, David J. Wetherall, "Computer Networks" Pearson Education .

Uyless Black, "Computer Networks", PHI Publication, Second Edition

DimitriBertsekas, Robert Gallager, "Data Networks", PHI Publication, Second Edition

PREPARED BY

REVIEWED BY

APPROVED BY

PRINCIPAL

Institute of Information Science & Technology * BHOPAL * HOD C.S.E.

NIIST BHOPAL		NRI INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY DEPT NAME: COMPUTER SCIENCE AND ENGG. LIST OF TUTORIAL	FORM NO	NIIST/A/17
BRANCH	CSE		REV. NO	0
SESSION	JAN-JUNE 23		REV. DT	30/06/2011

NAME OF THE FACULTY:

SUBJECTNAME: Computer Network SUBJECT CODE : -CS-602

LIST OF TUTORIAL

TUTORIAL-1

What is the Computer network ?

What are the fundamental components of network ?

TUTORIAL-2

Explain data frame ?

Define networking scope and limitations

TUTORIAL-3

Define data link layer ?

What is a icmp models ?

TUTORIAL-4

What is the difference between osi and tcp ?

Mention the basic difference between tcp and udp ?

TUTORIAL-5

Explain activation functions

What is the backpropagation?

TUTORIAL-6

What is csma?

Mention applications of telnet ?

TUTORIAL-7

What are the functions used to read tuning hyper parameters?

List available regularization ?

TUTORIAL-8

What is Convolutional neural network?

What is dimension reductions?

TUTORIAL-9

What is CNN?

What are the application layer protocol ?

TUTORIAL-10

What is Recurrent neural network?

Mention some examples of presentation layer

TUTORIAL-11

What is the importance of the IP ?

Explain the types Data communication ?

TUTORIAL-12

What is go back n q ?

Define half duplex

TUTORIAL-13

What is the application of networking ?

What is the select approch in data link layer ?

NRI Institute of Information Science & Technology BHOPAL HOD C.S.E.

NIIST BHOPAL	NRI INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY BHOPAL	FORM NO	NIIST/A/16
BRANCH: CSE	DEPT NAME: Computer Science and Engg.	REV. NO	0
SEMESTER: VI	LIST OF ASSIGNMENTS	REV. DT	30/06/2011

NAME OF FACULTY: SANTOSH NAGAR

SUBJECT:COMPUTER NETWORK SUBJECT CODE: CS -602

ASSIGNMENT - 1

Q.1 components, Architecture, Classifications
Q.2 Layered Architecture of Computer network
Q.3 ISO OSI Reference Model
Q.4 ConnectionOriented & Connectionless Services
Q.5 TCP/IP

ASSIGNMENT - 2

Q.1 Data LinkLayer Protocol
Q.2 1-bit, Go-Back-N, Selective Repeat
Q.3 ARP/RARP/GARP
Q.4 Computer Network Intrusion
Q.5 Finite State Machine Models

ASSIGNMENT - 3

Q.1 MAC Addressing
Q.2 ALOHA and SlottedALOHA
Q.3 CSMA, CSMA/CD, CSMA/CA
Q.4 BRAP, Binary Count Down

ASSIGNMENT - 4

Q.1 Routing algorithms
Q.2 Dijkstra's algorithm
Q.3 Bellman-ford algorithm
Q.4 Comparative study of IPv4 & IPv6

ASSIGNMENT - 5

Q.1 UDP
Q.2 Unicast/Multicast Real-Time Traffic
Q.3 WWW and HTTP
Q.4 SMTP, MIME, IMAP

NRI Institute of Information Science & Technology HOD C.S.E. BHOPAL

https://www.rgpvonline.com

Total No. of Questions : 8] *[Total No. of Printed Pages : 3*

Roll No .....

CS-602 (GS)

B.Tech., VI Semester

Examination, May 2022

Grading System (GS)

Computer Networks

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
किन्हीं पाँच प्रश्नों को हल कीजिए।

ii) All questions carry equal marks.
सभी प्रश्नों के समान अंक हैं।

iii) All parts of each question to be attempted at one place.
प्रत्येक प्रश्न के सभी भाग एक ही स्थान पर लिखें।

iv) In case of any doubt or dispute the English version question should be treated as final.
किसी भी प्रकार के संदेह अथवा विवाद की स्थिति में अंग्रेजी भाषा के प्रश्न को अंतिम माना जायेगा।

1. a) Explain the OSI model stating its importance in network architectures. 7
OSI मॉडल को नेटवर्क आर्किटेक्चर में रखते हुए उसका महत्व समझाइए।

b) What is the principal difference between connectionless and connection oriented communication? 7
कनेक्शन रहित और कनेक्शन उन्मुख संचार के बीच मुख्य अंतर क्या है?

https://www.rgpvonline.com

2. a) Explain data link layer address with examples. 7
उदाहरणों के साथ डेटा लिंक लेयर एड्रेस बताइए।

b) A radio station is using 14.44 kbps channel for message transmission and the sending message packets are 100 bits long. Calculate the maximum throughput for the channel using slotted aloha. 7
संदेश प्रसारण के लिए एक रेडियो स्टेशन 14.44 केबीपीएस चैनल का उपयोग कर रहा है और संदेश भेजने वाले पैकेट 100 बिट लम्बे हैं। स्लॉटेड अलोहा का उपयोग करके चैनल के लिए अधिकतम थ्रूपुट की गणना करें।

3. a) Describe the stop and wait flow control technique. 7
स्टॉप और प्रतीक्षा के प्रवाह नियंत्रण तकनीक की व्याख्या कीजिये।

b) What is subnet mask? Explain different classes of IP address. 7
सबनेट मास्क क्या है? आईपी पते के विभिन्न वर्गों की व्याख्या करें।

4. a) Describe Go Back N and Selective Repeat protocol. 7
गो बैक एन और सेलेक्टिव रिपीट प्रोटोकॉल का वर्णन करें।

b) What is bit and byte stuffing? Explain with example. 7
बिट और बाइट स्टफिंग क्या है? उदाहरण सहित स्पष्ट कीजिए।

5. a) Explain the connection establishment and connection release in Transport protocols. 7
ट्रांसपोर्ट प्रोटोकॉल में कनेक्शन स्थापना और कनेक्शन रिलीज के बारे में बताइए।

b) Describe the Frame Relay Protocol Architecture and explain the functions of each one. 7
फ्रेम रिले प्रोटोकॉल आर्किटेक्चर का वर्णन करें और प्रत्येक के कार्यों की व्याख्या करें।

https://www.rgpvonline.com

6. a) Discuss Internet services standards for TCP/IP and the process of standardization for RFCS and TCP/IP. 7
टीसीपी/आईपी के लिए इंटरनेट सेवाओं के मानकों और आरएफसीएस और टीसीपी/आईपी के लिए मानकीकरण की प्रक्रिया पर चर्चा करें।

   b) Explain Distance Vector routing with example. 7
उदाहरण के साथ दूरी वेक्टर रूटिंग की व्याख्या करें।

7. a) Explain routing and congestion control. 7
रूटिंग और कंजेशन कंट्रोल को समझाइए।

   b) Differentiate various broadband network local loop technologies stating their properties. 7
विभिन्न ब्रॉडबैंड नेटवर्क स्थानीय लूप प्रौद्योगिकियों को उनके गुणों को बताते हुए अन्तर करें।

8. Explain the following terms with example: 14
   i) FDDI
   ii) ARP
   iii) ICMP
   iv) UDP

उदाहरण के साथ निम्नलिखित शब्दों को समझाइए।
   i) एफडीडीआई
   ii) एआरपी
   iii) आईसीएमपी
   iv) यूडीपी



******

Semester III

Branch : Computer Science and Engg.

SUBJECT:Computer Network

SUBJECT CODE: CS-602

List of PPT's

Sr. No.	Topic
1	Merits and demerits of OSI Model
2	OSI Vs TCP/IP
3	ICMP, IP, VOIP Protocol
4	CSMA CSMA CD
5	MAC Layer
6	Data link layer protocol
7	simplex duplex half duplex



Semester : VI
SUBJECT: Computer Network

Branch :Branch : Computer Science and Engg.
SUBJECT CODE: CS -602

ANY OTHER TEACHING AID/MATERIAL

Sr. No.	TEACHING AID/MATERIAL
1	LCD Projector
2	OH Projector
3	Blackboard and White board



LATEST TECHNOLOGY/ LEARNING BEYOND SYLLABUS

Sr. No.	LATEST TECHNOLOGY/ LEARNING BEYOND SYLLABUS
1	ADVANCE Computer Network
2	Different type of attack in network
3	INTRUSION DETECTION SYSTEM
4	Machine learning technque in network



NIIST BHOPAL		NRI INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY BHOPAL	FORM NO	NIIST/A/07 A
BRANCH	CSE	DEPT NAME: Computer Science and Engg.	REV. NO	0
SEMESTER		LAB FILE Session : Jan to June - 2023	REV. DT	30/06/2011
NAME OF FACULTY:				
SUBJECT:		SUBJECT CODE:		

CONTENT

Sr. No.	Particulars	Page No.
1	ACADEMIC CALENDAR	1
2	LAB TIME TABLE	2
3	SCHEME & SYLLABUS	3,4,5
4	LAB PLAN	6
5	LIST OF EXPERIMENTS	7
6	LAB MANUALS (IN SOFT AND HARD COPY)	-
7	PRACTICAL QUIZ	-

NRI Institute of Information Science & Technology ★ BHOPAL ★ HOD C.S.E.

NIIST, BHOPAL	NRI INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY, BHOPAL	FORM NO	NIIST/A/02
	DEPT NAME: COMPUTER SCIENCE & ENGG.	REV. NO	0
BRANCH: CSE	TIME TABLE	REV. DT	30/06/2011
SEMESTER: VI	w.e.f. 05/01/2023		

SESSION : January to June - 2023 | Room No. S-7 | TG- Mr. Santosh N.

DAY	9:45 am - 10:45 am	10:45 am - 11:45 am	11:45 am - 12:45 pm	12:45 pm - 1:25 pm	1:25 pm - 2:25 pm	2:25 pm - 3:25 pm	3:25 pm - 4:25 pm
	I	II	III		IV	V	VI
MONDAY	CS606 LAB (B1) / CS 605 LAB (B2) AP/AS		CS 602 SN	LUNCH	CS 601 LAB (B1) / CS 608 LAB (B2) VP / MS		CS 601 VP
TUESDAY	CS606 LAB (B1) / CS 605 LAB (B2) AP/AS		CS 601 VP		CS 602 SN	CS 604 AS	CS 603 MS
WEDNESDAY	CS 602 LAB (B1) / CS 608 LAB (B2) SN / NG		CS 604 AS		CS606 LAB (B1) / CS 605 LAB (B2) AP/AS		TNP
THURSDAY	CS606 LAB (B2) / CS 605 LAB (B1) AP/VP		CS 603 MS		CS 602 LAB (B1) / CS 608 LAB (B2) SN / NG		TNP
FRIDAY	CS606 LAB (B2) / CS 605 LAB (B1) AP/VP		CS 604 AS		CS 601 LAB (B2) / CS 608 LAB (B1) VP / NG		CS 601 VP
SATURDAY	CS 603 MS	CS 602 SN	TG/LIB		CS 604 AS	CS 603 MS	TNP

SUB CODE	SUB ABB.	SUBJECT NAME	FACULTY NAME	FCULTY CODE
CS601	ML	MACHINE LEARNING	Prof. Vaibhav Patel	VP
CS602	CN	COMPUTER NETWORKS	Prof. Santosh Nagar	SN
CS603	CD	DEPARTMENTAL ELECTIVE	Prof. Mahendra Sahare	MS
CS604	PM	OPEN ELECTIVE	Prof. Anurag Shrivastava	AS
CS605	DAL	DATA ANALYTICS LAB	Prof. V. Patel / Prof. A.Shrivastava	VP/AS
CS606	SDL	SKILL DEVELOPMENT LAB	Prof. Anil Prajapati	AP
CS608	MP	MINOR PROJECT - II	Prof. Nitesh Kumar Gupta	NG

Reviewed by : (HOD) 29/12/22

Approved by : (Principal/Director)

Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal

New Scheme of Examination as per AICTE Flexible Curricula

Bachelor of Technology (B.Tech.) Computer Science and Engineering/ Computer Engineering/Computer Science & Technology]

(w.e.f. Jan, 2020)

VI Semester

S.No.	Subject Code	Category	Subject Name	Maximum Marks Allotted					Total Marks	Contact Hours per week			Total Credits
				Theory			Practical						
				End Sem.	Mid Sem. Exam.	Quiz/ Assignment	End Sem	Term work Lab Work & Sessional		L	T	P	
1.	CS601	DC	Machine Learning	70	20	10	30	20	150	2	1	2	4
2.	CS602	DC	Computer Networks	70	20	10	30	20	150	2	1	2	4
3.	CS603	DE	Departmental Elective	70	20	10	-	-	100	4	-	0	4
4.	CS604	OE	Open Elective	70	20	10	-	-	100	4	-	0	4
5.	CS605	D Lab	Data Analytics Lab	-	-	-	30	20	50	-	-	6	3
6.	CS606	O/E Lab	Skill Development Lab	-	-	-	30	20	50	-	-	6	3
7.	CS607	IN	Internship-III	To be completed anytime during Fifth/Sixth semester. Its evaluation/credit to be added in Seventh Semester.									
8.	CS608	P	Minor Project II	-	-	-	-	50	50	-	-	4	2
9.	Additional Credits#	*#Additional credits can be earned through successful completion of credit based MOOC's Courses available on SWAYAM platform (MHRD) at respective UG level.*											
			Total	280	80	40	120	130	650	12	2	20	24

Departmental Electives	Open Electives
603 (A) Advanced Computer Architecture	604(A) Knowledge Management
603 (B) Computer Graphics & Visualization	604(B) Project Management
603 (C) Compiler Design	604 (C) Rural Technology & Community Development

1 Hr Lecture	1 Hr Tutorial	2 Hr Practical
1 Credit	1 Credit	1 Credit

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

New Scheme Based On AICTE Flexible Curricula

Computer Science and Engineering, VI-Semester

CS602 Computer Networks

Course Outcomes: After completion of the course students will be able to

1. Characterize and appreciate computer networks from the view point of components and from the view point of services
2. Display good understanding of the flow of a protocol in general and a network protocol in particular
3. Model a problem or situation in terms of layering concept and map it to the TCI/IP stack
4. Select the most suitable Application Layer protocol (such as HTTP, FTP, SMTP, DNS, Bit torrent) as per the requirements of the network application and work with available tools to demonstrate the working of these protocols.
5. Design a Reliable Data Transfer Protocol and incrementally develop solutions for the requirements of Transport Layer
6. Describe the essential principles of Network Layers and use IP addressing to create subnets for any specific requirements

Unit –I

Computer Network: Definitions, goals, components, Architecture, Classifications & Types. Layered Architecture: Protocol hierarchy, Design Issues, Interfaces and Services, Connection Oriented & Connectionless Services, Service primitives, Design issues & its functionality. ISO-OSI Reference Model: Principle, Model, Descriptions of various layers and its comparison with TCP/IP. Principals of physical layer: Media, Bandwidth, Data rate and Modulations

Unit-II

Data Link Layer: Need, Services Provided, Framing, Flow Control, Error control. Data Link Layer Protocol: Elementary &Sliding Window protocol: 1-bit, Go-Back-N, Selective Repeat, Hybrid ARQ. Protocol verification: Finite State Machine Models & Petri net models. ARP/RARP/GARP

Unit-III

MAC Sub layer: MAC Addressing, Binary Exponential Back-off (BEB) Algorithm, Distributed Random Access Schemes/Contention Schemes: for Data Services (ALOHA and Slotted-ALOHA), for Local-Area Networks (CSMA, CSMA/CD, CSMA/CA), Collision Free Protocols: Basic Bit Map, BRAP, Binary Count Down, MLMA Limited Contention Protocols: Adaptive Tree Walk, Performance Measuring Metrics. IEEE Standards 802 series & their variant.

Unit-IV

Network Layer: Need, Services Provided , Design issues, Routing algorithms: Least Cost Routing algorithm, Dijkstra's algorithm, Bellman-ford algorithm, Hierarchical Routing, Broadcast Routing, Multicast Routing. IP Addresses, Header format, Packet forwarding, Fragmentation and reassembly, ICMP, Comparative study of IPv4 & IPv6



Unit-V

Transport Layer: Design Issues, UDP: Header Format, Per-Segment Checksum, Carrying Unicast/Multicast Real-Time Traffic, TCP: Connection Management, Reliability of Data Transfers, TCP Flow Control, TCP Congestion Control, TCP Header Format, TCP Timer Management.Application Layer: WWW and HTTP, FTP, SSH, Email (SMTP, MIME, IMAP), DNS, Network Management (SNMP).

References:

1.Andrew S. Tanenbaum, David J. Wetherall, "Computer Networks" Pearson Education.

2 Douglas E Comer, "Internetworking WithTcp/Ip Principles, Protocols, And Architecture - Volume I" 6th Edition,Pearson Education

3.DimitriBertsekas, Robert Gallager, "Data Networks", PHI Publication, Second Edition.

4.KavehPahlavan, Prashant Krishnamurthy, "Networking Fundamentals", Wiley Publication.

5.Uyless Black, "Computer Networks", PHI Publication, Second Edition.

6.Ying-Dar Lin, Ren-Hung Hwang, Fred Baker, "Computer Networks: An Open Source Approach", McGraw Hill.

List of Experiments:

1. Study of Different Type of LAN& Network Equipments.
2. Study and Verification of standard Network topologies i.e. Star, Bus, Ring etc.
3. LAN installations and Configurations.
4. Write a program to implement various types of error correcting techniques.
5. Write a program to Implement various types of framing methods.
6. Study of Tool Command Language (TCL).
7. Study and Installation of Standard Network Simulator: N.S-2, N.S3.OpNet,QualNetetc .
8. Study & Installation of ONE (Opportunistic Network Environment) Simulator for High Mobility Networks .
9. Configure 802.11 WLAN.
10. Implement &Simulate various types of routing algorithm.
11. Study & Simulation of MAC Protocols like Aloha, CSMA, CSMA/CD and CSMA/CA using Standard Network Simulators.
12. Study of Application layer protocols-DNS, HTTP, HTTPS, FTP and TelNet.



		NRI INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY DEPT NAME: COMPUTER SCIENCE AND ENGINEERING	FORM NO	NRIIT/A/09
BRANCH	CSE	LAB PLAN	REV. NO	0
SEMESTER	VI		REV. DT	30/06/2011

NAME OF THE FACULTY: Prof. Sanjeev Sharma SUBJECT/CODE : Computer Network / 6 CS 602

SN	EXPERIMENTS	PLANNED DATE	ACTUAL DATE	NO. OF STUDENTS PRESENT	REMARKS
1	Study of Different Type of LAN& Network Equipments	11/01	11/01	17	
2	Study and Verification of standard Network topologies i.e. Star, Bus, Ring etc.	17/01	18/01	20	
3	LAN installations and Configurations.	18/01	19/01	11	
4	Write a program to implement various types of error correcting technique	19/01	24/01	15	
5	Write a program to Implement various types of framing methods	25/01	01/02	15	
6	Study of Tool Command Language (TCL)	01/02	09/2	22	
7	Study and Installation of Standard Network Simulator: N.S-2, N . S 3 . OpNet , QualNetete .	02/02	28/02	24	
8	Study & Installation of ONE (Opportunistic Network Environment) Simulator for High Mobility	08/2	13/02	05	P_1+P_2
9	Configure 802.11 WLAN	09/2	20/2	19	P_1+P_2
10	Implement &Simulate various types of routing algorithm	15/2	27/03	28	P+P
11	Study & Simulation of MAC Protocols like Aloha, CSMA, CSMA/CD and CSMA/CA using Standard	22/02	03/4	24	P+P
12	Study of Application layer protocols-DNS, HTTP, HTTPS, FTP and TelNet.	23/02	05/4	03/4	



NIIST BHOPAL		NRI INSTITUTE OF INFORMATION SCIENCE & TECHNOLOGY DEPARTMENT NAME: COMPUTER SCIENCE AND ENGINEERING LIST OF EXPERIMENTS	FORM NO	NIIST/A/10
BRANCH	CSE		REV. NO	0
SEMESTER	VI		REV. DT	30/06/2011

SUBJECT NAME: COMPUTER NETWORK SUBJECT CODE: CS 602 CS

1	Study of Different Type of LAN& Network Equipments.
2	Study and Verification of standard Network topologies i.e. Star, Bus, Ring etc.
3	LAN installations and Configurations.
4	Write a program to implement various types of error correcting technique
5	Write a program to Implement various types of framing methods.
6	Study of Tool Command Language (TCL).
7	Study and Installation of Standard Network Simulator: N.S-2, N . S 3 . OpNet , QualNetetc .
8	Study & Installation of ONE (Opportunistic Network Environment) Simulator for High Mobility Networks .
9	Configure 802.11 WLAN
10	Implement &Simulate various types of routing algorithm
11	Study & Simulation of MAC Protocols like Aloha, CSMA, CSMA/CD and CSMA/CA using Standard Network Simulators.
12	Study of Application layer protocols-DNS, HTTP, HTTPS, FTP and TelNet.





...STITUTE OF INFORMATION SCEINCE & TECH...OLOGY, BHOPAL
TIME TABLE –MIDSEM-I EXAM SEP – 2022 (SEMESTER – VII)
THEORY EXAM

SEMESTER/ BRANCH	07-SEP-22	08-SEP-22	9-SEP-22
TIME	10:00AM- 12:00PM	10:00AM- 12:00PM	10:00AM- 12:00PM
CE-VII	CE 701 Geotechnical Engg	702 (B) Environmental Engg-II	703 (C) Integrated Waste Management
CS-VII	CS 701 Software Architectures	702 (D) Big Data	703(B) Data Mining and Warehousing
EC VII	EC701 VLSI Design	702(A) Microwave Engg	703(A) Cellular Mobile Communication
EX-VII	EX-701 Power System Protection	EX-702(C) High Voltage Engineering	EX-703(B) Energy Audit & Management
EE-VII	EE-701 Electrical Drives	EE-702 (A) High Voltage Engineering	EE-703(A) Utilization of Electrical Energy
ME VII	ME 701 Heat and Mass Transfer	702 (C) Power Plant Engineering	703 (D) Reliability Engineering

- Classes will be scheduled after 12:00 PM. Follow the Academic time table
- Also schedule the Major project presentations and get submitted the progress report

DIRECTOR
NIIST BHOPAL (0115)

DIRECTOR

NRI GROUP OF INSTITUTIONS, BHOPAL

Mark Seen

First/ Second / Third - Theory Sessional/Practical Examination

Class/Year	: III year	Branch	: CSE
Name of Subject	: Computer Network	Date	: 15/02/2023
Subject Code	: CS602	Max. Marks	:
Exam Roll No.	: 0115CS201051	Time	:

No. of Suppliments used : .....

Signature of Invigilator / Internal Examiner	Marks Obtain						Signature of Valuer / External Examiner
	Q. 1	Q. 2	Q. 3	Q. 4	Q. 5	Total	
	1	02	1	1	1	06	

06/20

Go

Answer No. +2

Connection oriented → Connection oriented

Computer Networking

data link layer connected

data organized to Linux,

OST, and operating system

data connection TCP/IP oriented of

Programm connection

oriented.

NRI GROUP OF INSTITUTIONS, BHOPAL

First/ Second / Third - Theory Sessional/Practical Examination

Class/Year : Sakshee Lokhande
Branch : CSE
Name of Subject : Computer Network
Date : 18/04/2023
Subject Code : CS-602
Max. Marks :
Exam Roll No. : 0511CS201012
Time :
No. of Supplements used :

Signature of Invigilator / Internal Examiner	Marks Obtain						Signature of Valuer / External Examiner
	Q. 1	Q. 2	Q. 3	Q. 4	Q. 5	Total	
	2	2	2	1	0	7	

Answer of Question no:-1

Difference Ipv4 and Ipv6

Ipv4	Ipv6
1) Ipv4 is a network services protocol	IPv6 is a architecture of Computer network

Name Divya Jain | Year 3rd

Subject Computer Network LAB | Class B.Tech (CSE)

Semester 6th | Roll No. 0115CS201023

INDEX

S.No.	Experiment Description	Experiment Date	Submission Date	Remarks/Signature
			06/02/23	
1.	Study of diff. types of LAN, network equipment & system.	18/1/23	18/1/23	R A
			06/02/23	
2.	Study and verification of standard network topologies i.e, Ring, Star, Bus etc.	18/1/23	18/1/23	R
3.	LAN installations and their configurations	19/1/23	19/1/23	A
4.	To implement various type of error correcting etc.	24/1/23	24/1/23	A
5.	Write a prog. to implement various type of F.M.	25/1/23	25/1/23	R
6.	Study and install of NS --	27/2/23	27/2/23	R
7.	Study app. layer Prot. FTP---	28/2/23	28/2/23	A
8.	What is an address	13/3/23	13/3/23	
9.	How it different. --	[illegible]	[illegible]	

Name: Divya Jain
Subject: Computer Network
Semester: 6th
Year: 3rd
Class: B.Tech (CSE).
Roll No.: 0115CS201033

INDEX

S.No.	Experiment Description	Experiment Date	Submission Date	Remarks/Signature
01.	Assignment No:- 01	11/2/23	13/2/23	15/2/23 A
02.	Assignment No - 02	20/3/23	20/3/23	A
03.	Assignment No - 03	24/3/23	24/3/23	A
04.	Assignment No - 04	08/4/23	08/4/23	A
05.	Assignment No - 05	15/4/23	18/4/23	A