

**NATIONAL INSTITUTE OF TECHNOLOGY,
TIRUCHIRAPPALLI**

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

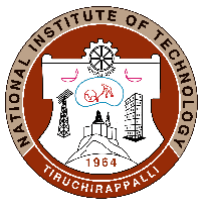
COURSE PLAN – PART I			
Name of the programme and specialization	B.TECH. (CSE)		
Course Title	COMPUTER NETWORKS		
Course Code	CSPC53	No. of Credits	3
Course Code of Pre-requisite subject(s)			
Session	JULY 2021	Section (if, applicable)	A
Name of Faculty	Dr. S. Mary Saira Bhanu	Department	CSE
Official Email	msb@nitt.edu	Telephone No.	9442970006
Name of Course Coordinator(s) (if, applicable)	Not Applicable		
Official E-mail		Telephone No.	
Course Type (please tick appropriately)	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
Syllabus (approved in Senate)			
<p>UNIT I Introduction to computer networks: Network Component and Categories - Topologies - Transmission Media - Reference Models: ISO/OSI Model and TCP/IP Model.</p> <p>UNIT II Physical Layer: Digital and Analog Signals - Periodic Analog Signals - Transmission Impairments - Digital data transmission techniques - Analog data transmission techniques - Multiplexing and Spread Spectrum.</p> <p>UNIT III Data Link Layer: Error Detection and Correction - Parity - LRC - CRC - Hamming Code - Flow Control and Error Control - Stop and wait - ARQ - Sliding window - HDLC - Multiple Access Protocols - CSMA - CSMA/CD and CSMA/CA - IEEE 802.3 Ethernet.</p> <p>UNIT IV Network Layer: Packet Switching and Datagram approach - IP Addressing methods - Subnetting - Routing - Distance Vector Routing - RIP - Link State Routing - OSPF - BGP - Multicast Routing - MOSPF - DVMRP - Broadcast Routing.</p> <p>UNIT V Transport Layer: Transport Services - UDP - TCP - Congestion Control - Quality of Services (QOS) – Application Layer: Domain Name Space (DNS) - Electronic Mail - WWW - Cryptography Techniques.</p> <p>Text Books 1. Andrew S. Tanenbaum, David J. Wetherall, “ Computer Networks”, Fifth Edition, Prentice Hall, 2011. 2. Behrouz A. Foruzan , “ Data Communication and Networking”, Fifth Edition, Science Engineering & Math Publications, 2013.</p> <p>Reference Books 1. ,W. Stallings, “ Data and Computer Communication”, Tenth Edition, Pearson Education, 2014.</p>			



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COURSE OBJECTIVES	
<ul style="list-style-type: none"> • To provide insight about fundamental concepts and reference models (OSI and TCP/IP) and its functionalists • To gain comprehensive knowledge about the principles, protocols, and significance of Layers in OSI and TCP/IP • To know the implementation of various protocols and cryptography techniques 	
MAPPING OF COs with POs	
Course Outcomes	Programme Outcomes (PO) (Enter Numbers only)
1. Gain insight about basic network theory and layered communication architectures	PO1, PO8, PO10
2. Propose algorithms at the appropriate layer for any communication network task	PO2, PO4
3. Provide solutions to various problems in network theory	PO2, PO6
4. Conceptualize and design a network stack	PO1, PO5, PO7, PO9, PO12

COURSE PLAN – PART II			
COURSE OVERVIEW			
<p>This course enables the students to know the importance of Computer Networks and understand how the various layers are designed and implemented. This course focuses on the design of Physical layer, Data Link layer, Network layer, Transport layer and Application layer. It also deals with an overview of cryptography techniques.</p>			
COURSE TEACHING AND LEARNING ACTIVITIES			(Add more rows)
S.No.	Week	Topic	Mode of Delivery
1	1	Introduction to computer networks, Goals and uses of Computer Network, Network Components, Network Hardware and Software	ONLINE PPT
2	2	Topologies - Transmission Media	ONLINE PPT
3	3	Reference Models: ISO/OSI Model and TCP/IP Model.	ONLINE PPT
4	4	Physical Layer: Digital and Analog Signals - Periodic Analog Signals -	ONLINE PPT



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5	5	Transmission Impairments - Digital data transmission techniques - Analog data transmission techniques	ONLINE PPT
6	6	Multiplexing and Spread Spectrum. Data Link Layer: Sublayers - Functions	ONLINE PPT
7	7	Error Detection and Correction - Parity - LRC - CRC - Hamming Code	ONLINE PPT
8	8	Flow Control and Error Control - Stop and wait - ARQ - Sliding window - HDLC	ONLINE PPT
9	9	Multiple Access Protocols - CSMA - CSMA/CD and CSMA/CA - IEEE 802.3 Ethernet. Network Layer: Packet Switching and Datagram approach	ONLINE PPT
10	10	IP Addressing methods - Subnetting Routing - Distance Vector Routing - RIP - Link State Routing - OSPF - BGP -	ONLINE PPT
11	11	Multicast Routing - MOSPF - DVMRP - Broadcast Routing- Transport Layer: Transport Services	ONLINE PPT
12	12	UDP - TCP - Congestion Control - Quality of Services (QOS)	ONLINE PPT
13	13	Application Layer: Domain Name Space (DNS) - Electronic Mail	ONLINE PPT
14	14	WWW - Cryptography Techniques	ONLINE PPT

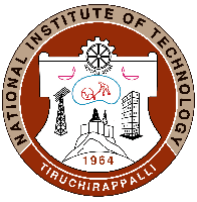
COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Written Test	As per Academic Schedule	1 hour	20
2	Written Assignment	October Third Week		15
3	Written Test	As per Academic Schedule	1 hour	20
4	Programming Assignemnt	November Second Week		15



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CPA	Compensation Assessment*	As per Academic Schedule	1 hour	20
4	Final Assessment *	As per Academic Schedule	2 hours	30
COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)				
Student Feedback Form collected at the end of the semester through MIS				
COURSE POLICY (including compensation assessment to be specified)				
Students should not be absent for assessments. If the reason for absence is genuine, the student can appear for compensation assessment. The medical certificate/on duty certificate should be submitted within one week after rejoining. The portions for the compensation assessment will be Assessment 1 and Assessment 3 portions.				
<u>ATTENDANCE POLICY</u> (A uniform attendance policy as specified below shall be followed)				
<ul style="list-style-type: none"> ➤ At least 75% attendance in each course is mandatory. ➤ A maximum of 10% shall be allowed under On Duty (OD) category. ➤ Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade. 				
<u>ACADEMIC DISHONESTY & PLAGIARISM</u>				
<ul style="list-style-type: none"> ➤ Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty. ➤ Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark. ➤ The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office. <p>The above policy against academic dishonesty shall be applicable for all the programmes.</p>				
ADDITIONAL INFORMATION				
FOR APPROVAL				



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<i>A. M. S. Khan</i> Course Faculty _____	<i>C. N. S. Kumar</i> CC-Chairperson _____	<i>J. S. Kumar</i> HOD _____
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