NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERIG

COURSE PLAN – PART I			
Name of the programme and specialization	**M.TECH COMMUNICATION SYSTEM**		
Course Title	**HGH SPEED COMMUNICATION NETWORKS**		
Course Code	EC613	**No. of Credits**	3
Course Code of Pre-requisite subject(s)	-------		
Session	**July 2020**	**Section (if, applicable)**	----
Name of Faculty	Dr. B. Malarkodi	**Department**	ECE
Official Email	malark@nitt.edu	**Telephone No.**	9894768765
Name of Course Coordinator(s) (if, applicable**)**	------		
Official E-mail		**Telephone No.**	
Course Type	**Elective course**		

Syllabus (approved in BoS)

The need for a protocol architecture, The TCP/IP protocol architecture, Internetworking, Packet switching networks, Frame relay networks, Asynchronous Transfer mode(ATM) protocol architecture, High speed LANs.

Application of queuing theory to the analysis of performance of communication networks, Transport layer services-Principles of Reliable data transfer, Congestion control and flow control mechanism

.Virtual circuits and datagrams, Router architecture, Forwarding and addressing in the internet, Interior routing protocols, Exterior routing protocols and multicast

.IEEE 802.11 architecture and services, medium access control and physical layer, Wi-Fi protected access, IEEE 802.15 protocol architecture, Blue tooth and Personal Area Networks.

Quality of service in IP networks, Integrated and differentiated services, Protocols for QOS support-Resource reservation protocol, Multiprotocol label switching, Real time transport protocol

Text Books

1.W.Stallings,"High speed networks and internets" 2ndedition, Pearson education, 2002.2.W. Stallings,"Wireless communication and networks"2ndedition, Pearson publication, 2013.3.J.F.Kurose and K.W.Ross", Computer networking" 3rd edition, Pearson education,2005

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COURSE OBJECTIVES
The main objective of this course is to impart the students a thorough ex posure to the various high speed networking technologies and to analyse the methods adopted for performance modeling , traffic management and routing

MAPPING OF COs with POs	

Course Outcomes	**Programme Outcomes (PO)** (Enter Numbers only**)**
1. Compare and analyse the fundamental principles of various high-speed communication networks and their protocol architectures	**1**
2. Examine the performance modelling, congestion control issues and traffic management in IP networks	**5**
3. Compare and analyse the various routing protocols in IP networks	**4**
4. Study of various wireless LAN standards, Blue tooth and high data rate personal area networks	**10, 11**
5. Examine the quality of service protocols in IP networks	**10, 11**

COURSE PLAN – PART II
COURSE OVERVIEW
The aim of this course is to introduce the students the layered protoco architecture of communication networks and their services.
COURSE TEACHING AND LEARNING ACTIVITIES **(** Add more rows)

S.No.	**Week/Contact Hours**	**Topic**	**Mode of Delivery (ONLINE MS TEAM)**
1.	1	Introduction on Computer Networks, Classification, mode of Transmission, Switching, reference model of protocol architecture	PPT
2.	2	The need for a layered protocol architecture, TCP/IP protocol architecture, TCP and UDP header formats, IPv4 and IPv6 header formats and comparison	PPT
3.	3	IP addressing, Internetworking, Packet switching networks, X.25 and frame relay networks	PPT
4.	4, 5	ATM protocol architecture, High speed LAN	PPT
5.	6	Introduction to queueing theory, Modeling of a single server queue, Queueing parameters	PPT

6.	7, 8	M/M/I, M/G/I and M/D/I queues Single server and multi-server queues, Effects of congestion, congestion control, The need for flow and error Control, link Control Mechanism	, PPT
7.	9	TCP connection management and reliable data transfer	PPT
8.	10, 11	Virtual circuits and datagram, Router architecture, addressing, Interior routing Protocols, exterior routing protocols, multicast routing.	PPT
9.	12, 13	Introduction to wireless LAN, Applications, Services, Protocol architecture, Blue tooth and PANs protocol architecture and standards	PPT
10.	14, 15, 16	Quality of service in IP networks, Integrated and differentiated services Protocols for QOS support: RSVP, MPLS and RTP	PPT

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	ASSESSMENT 1 Descriptive Type Examination (1 1/2 Units)	Will be decided in CCM	60 Minutes	25
2	ASSESSMENT 2 Descriptive Type Examination (1 1/2 Units)		60 Minutes	25
CPA	Compensation Assessment*			
5	SEMINAR / ASSIGNMENT			20
6	Final Assessment *			30

*mandatory; refer to guidelines on page 4

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

1. Direct feedback from the students by having face-to-face meeting individually and as the class as a whole
2. Feedback from the students during the class committee meetings.

COURSE POLICY (including compensation assessment to be specified)

All the students are expected to do their work. The taking information by means of copying homework assignments, or looking or attempting to look at another student's paper during

examination is considered dishonest.

Also preventing or hampering other students from pursuing their academic activities is also considered as academic dishonest.

Any evidence of such academic dishonesty will result in the loss of all marks on that assignment or exam.

1. Students opting for plagiarism during exams will e summarily sent out and awarded zero marks for that exam.
2. Students honestly producing original work will be rewarded with better marks.
3. Students not having 75% minimum attendance at the end of the semester will have to repeat the course. Students who do not maintain 75% attendance between the assessments without any valid reason will be warned the first time and will be stopped from the future assessments if they persist in abstaining from classes.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

➤ 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.

ACADEMIC DISHONESTY & PLAGIARISM

➤ 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.

➤ The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION, IF ANY

- **Students may fix appointments for detailed discussion by sending email to malark@nitt.edu two days prior to the desired appointments date with the topic to discuss. The students must come prepared for the discussion with through background preparation.**
- **Minor doubts will be clarified after the contact hours without any prior appointment.**

FOR APPROVAL

Course Faculty _____   **CC- Chairperson** _____ **HOD** _____

Guidelines

a) The number of assessments for any theory course shall range from 4 to 6.

b) Every theory course shall have a final assessment on the entire syllabus with at least 30% weightage.

c) One compensation assessment for absentees in assessments (other than final assessment) is mandatory. Only genuine cases of absence shall be considered.

d) The passing minimum shall be as per the regulations.

B.Tech. Admitted in				P.G.
2018	**2017**	**2016**	**2015**	
35% or (Class average/2) whichever is greater.		(Peak/3) or (Class Average/2) whichever is lower		40%

e) Attendance policy and the policy on academic dishonesty & plagiarism by students are uniform for all the courses.

f) Absolute grading policy shall be incorporated if the number of students per course is less than 10.

g) Necessary care shall be taken to ensure that the course plan is reasonable and is objective.