

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
PROFORMA FOR NEW COURSE

1.	Title of the Course	Advanced Computer Networks
2.	Course Number	CS5021
3.	Status of the Course	Elective
4.	Structure of Credits	3-0-0-3
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Dr. B. Venkataramana & Dr. V. Mahendran
8.	To take effect from	July 2018
9.	Prerequisite	CS3200, CoT
10.	Whether approved by the Program	Yes
11.	Course Objective: To understand the advanced topics in the computer networks, with more emphasis on the Internet architecture. To analyse the performance of different network functionalities.	
12.	<p>Course Content:</p> <p>Resource management: Congestion and flow control mechanisms, congestion avoidance mechanisms, scheduling algorithms, active queue management techniques, and queueing disciplines.</p> <p>Routing: Router internals and architecture, routing in IP networks, Inter- and Intra-domain routing, Border Gateway Protocols, router scheduling and architecture, approaches to achieve reliable, scalable, and secure routing.</p> <p>Internet: IP lookup algorithms, IP multicasting including group management membership, and multicast routing protocols. Internet service models such as QoS, Multiprotocol label switching, VoIP.</p> <p>Link layer: Multiple access technologies with emphasis on wireless networks.</p> <p>Recent network architectures: Software defined networks, content delivery networks, network virtualisation.</p>	
13.	<p>Text book:</p> <ol style="list-style-type: none"> 1. Deep Medhi and Karthik Ramasamy, <i>Network Routing Algorithms, Protocols, and Architectures</i>, Morgan Kaufmann, (2017) 2. R. Srikant, <i>The Mathematics of Internet Congestion Control</i>, Springer, (2004) 3. Peterson and Davie, <i>Computer Networks: A Systems Approach</i>, Morgan Kaufmann, (2011) 	
14.	<p>References:</p> <ol style="list-style-type: none"> 1. Anurag Kumar and D. Manjunath, <i>Communication Networking: An Analytical Approach</i>, Elsevier, (2004) 2. Sam Halabi, <i>Internet Routing Architectures</i>, CISCO Press, (2000) 	