

**INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI**  
**PROFORMA FOR NEW COURSE**

1.	Title of the Course	Communication Networks Laboratory
2.	Course Number	EE5292
3.	Status of the Course	Core
4.	Structure of Credits	0-0-3-2
5.	Offered To	PG
6.	New Course/Modification to	New
7.	To be Offered by	Department of Electrical Engineering
8.	To take effect from	July 2019
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	<b>Course Objective:</b> To provide an hands-on experience on applying techniques and methodologies for the purpose of modeling and analysing the performance of Communication Networks.	
12.	<b>Course Content:</b> The following are the list of experiments that will be conducted in this Lab course: 1) Wireless Sensor Network Deployment using Spatial Poisson Process 2) Coverage analysis using the Poisson Boolean model 3) Shortest Path Algorithms: Dijkstra's vs. Bellman-Ford Algorithms 4) Stochastic Shortest Path Algorithm 5) Network Utility Maximization 6) Max-weight Scheduling Algorithm 7) Comparison of Various Scheduling Algorithms 8) Implementation and Comparison of Various Queuing Systems 9) Distributed Function Computation and Distributed Optimization 10) Introduction to SDRs	
13.	Text book(s): 1. Kumar A, Manjunath D and Kuri J, <i>Communication Networking: An Analytical Approach</i> , Elsevier (2004). 2. Srikant R and Ying Lei, <i>Communication Networking: An Optimization, Control, and Stochastic Networks Perspective</i> , Cambridge University Press (2014).	
14.	Reference(s): 1. Kelly F and Yudovina E, <i>Stochastic Networks</i> , Cambridge University Press (2014). 2. Varghese G, <i>Network Algorithmics: An Interdisciplinary Approach to Designing Fast Networked Devices</i> , Morgan Kaufmann (2004). 3. Walrand J and Varaiya P P, <i>High Performance Communication Networks</i> , Elsevier (2004).	