

1.	Title of the course	5G and Beyond Communication Laboratory
2.	Course number	EE570P
3.	Structure of credits (L-T-P-C)	0-0-3-2
4.	New course/modification to	New
5.	To be offered by	Electrical Engineering
6.	Proposed by	Sarvendranath Rimalapudi
7.	Prerequisite	CoT
8.	Course Objective(s): To practice the designing and analyzing the performance of 5G and beyond communication systems.	
9.	Course Content: 5G channel modeling and waveform generation; Channel estimation for 5G communication systems; Throughput estimation of multiple antenna based 5G system; Multicarrier transmission for wideband 5G channels; 5G sensor network deployment using spatial Poisson process; Performance comparison of shortest-path algorithms; Max-weight scheduling algorithm; Distributed function computation and distributed optimization; Digital modulation using software-defined radio; Transmission of 5G waveform using software-defined radio.	
10.	Textbook(s): 1. Dahlman E, Parkvall S and Skold J, 5G NR: The Next Generation Wireless Access Technology, Elsevier Science (2020). 2. Kumar A, Manjunath D and Kuri J, Communication Networking: An Analytical Approach, Elsevier (2004).	
11.	Reference(s): 1. Cox C, An Introduction to 5G: The New Radio, 5G Network and Beyond, Wiley (2020). 2. Kelly F and Yudovina E, Stochastic Networks, Cambridge University Press (2014).	