1.	Title of the course	Fundamentals of Multiple Antenna Wireless Communications
2.	Course number	EE537L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To EE5044/16
6.	To be offered by	Department of Electrical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	CoT
9.	**Course Objective(s):** To introduce communication theory and signal processing fundamentals of Multiple-Input Multiple-Output (MIMO) wireless communication.	
10.	**Course Content:** Capacity analysis: deterministic multiple antenna system, ergodic capacity, outage capacity and outage probability; Space-time codes: design criteria, orthogonal and quasi-orthogonal design of codes, diversity and multiplexing gain tradeoff; Receiver design for multiple antenna systems; Multiuser communication with multiple antennas; Applications of multiple antennas in current and future technologies.	
11.	**Textbook(s):** 1. Clerckx B and Oestges C, *MIMO Wireless Networks*, 2nd Edition, Academic Press (2013). 2. Tse D and Viswanath P, *Fundamentals of Wireless Communication*, 1st Edition, Cambridge University Press (2006).	
12.	**Reference(s):** 1. Jafarkhani H, *Space-Time Coding: Theory and Practice*, 1st Edition, Cambridge University Press (2010). 2. Goldsmith A, *Wireless Communications*, 1st Edition, Cambridge University Press (2005). 3. Proakis J and Salehi M, *Digital Communications*, 5th Edition, McGraw Hill (2008).	