1.	Title of the course	Probabilistic Graphical Models
2.	Course number	EE525L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To EE5040/12
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 decision theory in Bayesian networks under uncertainty. To introduce learning in the presence of latent variables and estimation of structure and parameters of graphical models.	
10.	**Course Content:** Introduction to graphical models, Bayesian network representation, undirected graphical models, local probabilistic models, template-based representations, Gaussian network models, exponential family, exact inference: variable elimination, exact inference: clique trees, inference as optimization, particle-based approximate inference, map inference, inference in hybrid networks, inference in temporal models, learning graphical models, parameter estimation, structure learning in Bayesian networks, partially observed data, learning undirected models, causality, utilities and decisions, structured decision problems.	
11.	**Textbook(s):** 1. Koller D and Friedman N, *Probabilistic Graphical Models*, 1st Edition, MIT Press (2012).	
12.	**Reference(s):** 1. Barber D, *Bayesian Reasoning and Machine Learning*, 1st Edition, Cambridge University Press (2012). 2. Jordan I M, *Learning in Graphical Models*, 1st Edition, MIT Press (2008).	