1.	Title of the course	Bayesian Statistics
2.	Course number	MA606L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To MA6029/7
6.	To be offered by	Department of Mathematics and Statistics
7.	To take effect from	July 2022
8.	Prerequisite	CoT
9.	**Course Objective(s):** To introduce the topic of Bayesian techniques for statistical inferences. To study suitable classes of prior and posterior distributions and their large sample properties as theory and certain algorithms like Expectation Maximization, Metropolis-Hastings Algorithm for application of the theory on real data analysis.	
10.	**Course Content:** Introduction to Bayesian Inference and Decision Theory, Utility, Prior, Rational Preference, Coherence, Classes of Priors, Posterior Loss and model Robustness, Limit and Asymptotic Expansion of Posterior Distribution, Choice of Priors for Low-Dimensional Parameters, Jeffrey's Prior, Conjugate Priors and Mixtures, Hypothesis Testing, Model Selection, Expectation Maximization (EM) Algorithm, Markov Chain Monte Carlo (MCMC), Metropolis-Hastings Algorithm, Gibbs Sampling, High Dimensional Problems, Hierarchical Priors	
11.	**Textbook(s):** 1. Ghosh J K, Delampady M, and Samanta T, *An Introduction to Bayesian Analysis: Theory and Methods*, Springer (2006).	
12.	**Reference(s):** 1. Berger J O, *Statistical Decision Theory and Bayesian Analysis*, Springer (1985).	