MAHENDRA ENGINEERING COLLEGE (Autonomous)-Syllabus						R 2015
DEPARTMENT:	SCIENCE & HUMANITIES			Programme Code & Name		MAT& MATHEMATICS
SEMESTER-IV						
COURSE CODE	COURSE NAME	HOURS/WEEK			CREDIT	MAXIMUM MARKS
	STATISTICS AND QUEUEING MODELS (Common to CSE & IT)	L	T	P	C	100
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Objective(s)	The objective is to develop analytical capability and to impart knowledge in probability concepts and Queueing theory and their applications in Engineering and Technology. Be exposed to basic characteristic features of a queueing system and acquire skills in analyzing queueing models.					
UNIT-I	RANDOM VARIABLES					(12 Hrs)
Discrete and continuous random variables – Mathematical Expectation - Moments - Moment generating functions and their properties. Binomial, Poisson , Uniform and Normal distributions.						
UNIT-II	TWO DIMENSIONAL RANDOM VARIABLES					(12 Hrs)
Joint distributions - Marginal and conditional distributions – Covariance - Correlation and Linear regression - Central limit theorem(for identically independent random variables).						
UNIT-III	MARKOV PROCESSES AND MARKOV CHAINS					(12 Hrs)
Classification - Stationary process - Markov process - Markov chains – Transition Probabilities - Limiting distributions-Poisson process						
UNIT-IV	QUEUEING THEORY					(12 Hrs)
Characteristics of Queueing Models - Steady state results: (M / M / 1) : (FIFO / ∞ /∞), (M / M / 1) : (FIFO / N /∞), (M / M / C) : (FIFO / ∞ /∞),(M / M / C) : (FIFO / N /∞) models.						
UNIT-V	NON-MARKOVIAN QUEUES AND QUEUE NETWORKS					(12 Hrs)
M/G/1 queue- Pollaczek- Khintchine formula, Series queues- open and closed networks						
Total hours to be taught						(60 Hrs)
Text book :						
1.	Veerarajan.T, Probability, Statistics and Random Processes" Revised Edition, Tata McGraw Hill, (2014).					
2.	K.Gunavathi, K. Thilagavathi, P.Kandasamy, " Probability and Queueing Theory", S.Chand & Company Ltd. 2010.					