

Semester	<b>THREE</b>
Paper Number	<b>HSTGE3032T &amp; HSTGE3032P</b>
Paper Title	<b>Introductory Probability</b>
No. of Credits	<b>6</b>
Theory/Composite	<b>Composite</b>
No. of periods assigned	Th: 4 Pr: 2
Module	Single
Course description/objective	<p><i>At the end of the course a student should</i></p> <ul style="list-style-type: none"> <li>○ Have the basic concepts of objective probability.</li> <li>○ Have a clear idea of a random variable.</li> <li>○ Know the basic probability distributions.</li> <li>○</li> <li>○ Have an idea of convergence in probability and in law.</li> </ul>
Syllabus	<p><b>UNIT 1:</b> Random experiments, sample space, events and algebra of events. Classical definition of probability, theorems regarding union and intersections of events (no derivation required). Conditional probability, theorem on conditional probability. Independence of events. Frequency definition of probability. [15L]</p> <p><b>UNIT 2:</b> Random Variable and its probability distribution, cumulative distribution function, probability mass function, probability density function, moment and quantile measure of central tendency, dispersion, skewness, kurtosis (concepts only). [12L]</p> <p><b>UNIT 3:</b> <i>Univariate Distributions:</i> Binomial, Poisson, Hypergeometric, Geometric, Rectangular, Normal, Exponential, Gamma, Beta. [17L]</p> <p><b>UNIT 4:</b> Convergence in Probability, Almost sure convergence, Chebyshev's inequality, weak law of large numbers, De-Moivre Laplace and Lindeberg Levy Central Limit Theorem (Statement and application). [8L]</p>
List of Practical	<ol style="list-style-type: none"> <li>1. Fitting of Binomial distribution.</li> <li>2. Fitting of Poisson distribution.</li> <li>3. Fitting of Normal distribution.</li> <li>4. Problems based on Binomial distribution.</li> <li>5. Problems based on Poisson distribution.</li> <li>6. Problems based on Normal distribution.</li> </ol>
Reading/ Reference list	1. Goon A.M., Gupta M.K. and Dasgupta B. (2002):

	Fundamentals of Statistics, Vol. I, 8th Edn. The World Press, Kolkata. 2. Hogg and Craig: Introduction to Mathematical Statistics. 3. S.M. Ross : A First Course in Probability.	
Evaluation	<b>Theory</b> CIA: 10 End-Sem: 50 Total: 60	<b>Practical</b> CIA: 10 End Sem: 30 Total: 40
Paper Structure for End Sem Theory	Short questions (5 marks each)	Long questions (15 marks each)
	4 out of 6	2 out of 3