INDIAN INSTITUTE OF INFORMATION TECHNOLOGY
DESIGN AND MANUFACTURING (IIITD&M) KANCHEEPURAM

INTRODUCTION OF NEW COURSE

Course Title	Probabilistic Engineering Design	Course No (will be assigned)				
		Structure (LTPC)	3	0	0	3
Offered for	UG/PG/PhD	Status	Core ☐		Elective ▪	
Faculty (Not more than two)	Dr Sreekumar M / Dr Shalu M A	Type	New ☐		Modification ▪	
Pre-requisite	COT	To take effect from	Jan 2011			
Submission date		Date of approval by AAC				
Objectives	To impart knowledge on making reliable decisions with the consideration of uncertainty associated with design variables/parameters and simulation models.					
Contents of the course (With approximate break up of hours)	Probability: Review of basic probability, discrete and continuous distributions Monte Carlo Simulation Probabilistic Design Concepts: Failure Mode and Effect Analysis, Quality function deployment, Taguchi Method for design of experiments -Design for product life cycle. Robust and Optimum Design: Performance variation due to variation in design parameters, human properties and environmental conditions, optimum design concepts. Design for Reliability and Maintainability: Reliability, availability and maintainability; distribution of failure and repair times; determination of MTBF and MTTR, reliability models; system reliability determination; factor of safety and reliability, preventive maintenance and replacement, total productive maintenance. Reliability analysis of Mechanical, electrical and electronic Systems.					
Text and References	**References:** 1. Douglas. C. Montgomery, Applied Probability and Statistics for Engineers, John Willey, 2006. 2. J. Antony, Design of experiments for Engineers and Scientists, Butterworth-Heinemann, 2004. 3. James. N. Siddall, Probabilistic Engineering Design, CRC Press, 1983. 4. Dhillon, Engineering Maintainability – How to design for reliability and easy maintenance, PHI, 2008. 5. Charles E Ebling, An Introduction to Reliability and Maintainability Engineering, Tata- McGraw Hill, 2000					