PROF. NEERAJ KUMAR GOYAL
Department of Multidisciplinary
IIT Kharagpur

INTENDED AUDIENCE : UG/PG Students from all engineering branches

INDUSTRY SUPPORT : Industries where safety and high performance is a concern, like nuclear, railways, defence etc.

COURSE OUTLINE :

Every engineer should be aware of customer needs expressed in terms of reliability requirements. A successful product/system need to translate these requirements and ensure that the reliability requirements are met. It is essential to understand terms and how they are evaluated. At present most products need to provide reliability information along with functions. This course will help students to know this important aspect and way to address these requirements.

ABOUT INSTRUCTOR :

Prof. Neeraj Kumar Goyal received PhD degree in year 2006 from IIT Kharagpur in Reliability Engineering. He received the Bachelor of Engineering (HONS) degree in Electronics and Communications Engineering from MREC Jaipur, Rajasthan, India in 2000. He has served as an Executive in M/s Secure Meters Ltd., Udaipur from July 2000 to July 2001. He is serving IIT Kharagpur as faculty member since 2006 and currently serving as Associate Professor in Subir Chowdhury School of Quality and Reliability. He has guided approx. 46 M Tech, 2 MS, 8 PhD. He has published three books published Wiley and Springer. He has published more than 46 international journal and 15 international conference papers. He is actively engaged in providing research and consultancy services in the area of reliability and safety engineering to various organizations like DRDO, NPCIL, Secure Meters, Vodaphone, L&T, John Deere, ISRO, IGCAR, Railways etc. He is regularly organizing short term courses in the area of reliability engineering for industry professionals

COURSE PLAN :
Week 1: Introduction and Definitions
Week 2: Reliability Estimation (Non-Parametric)
Week 3: Failure rates such as constant, increasing and decreasing hazard rates.
Week 4: System Reliability Modeling: Series, parallel, series-parallel, and k-out-of-m modeling.
Week 5: Markov Modeling: standby, shared systems etc.
Week 6: Maintainability Analysis
Week 7: Availability Analysis
Week 8: Concepts of probabilistic safety and risk