



QUALITY DESIGN AND CONTROL

PROF. PRADIP KUMAR RAY

Department of Management Studies
IIT Kharagpur

TYPE OF COURSE : Rerun | Elective | UG / PG

COURSE DURATION : 12 weeks (24 Jan' 22 - 15 Apr' 22)

EXAM DATE : 24 Apr 2022

INTENDED AUDIENCE : Management, Industrial Engineering, Mechanical Engineering, Production Engineering and related disciplines.

INDUSTRIES APPLICABLE TO : Tata Steel, Tata Motors, L&T, Linde and similar such manufacturing and service organizations including IT companies

COURSE OUTLINE :

The objective of the course is to introduce basic concepts and statistical methods employed for assurance of quality in products, processes and systems in an industrial environment (manufacturing and service organizations), such as Management and Control of Quality and Quality System, Statistical Process Control, Process Capability Analysis, Acceptance Sampling, Process Capability Analysis, Design for Reliability, Robust Design and Taguchi Method for Quality Improvement.

Such a comprehensive course is required to be offered by Mechanical Engineering, Industrial Engineering, Manufacturing/Production Engineering and related departments at undergraduate level and by Management/Business schools at the postgraduate level in any renowned university or educational institute in India and abroad. It is essential that the students studying in these disciplines at UG and PG levels should enroll themselves in this course.

ABOUT INSTRUCTOR :

Prof. Pradip Kumar Ray is presently a Professor in the Department of Industrial and Systems Engineering, Indian Institute of Technology (IIT), Kharagpur, India. He served as the Head of the Department during September, 2006 to August, 2009. A mechanical engineering graduate (IIST, Shibpur) with MTech degree and PhD in industrial engineering (IIT Kharagpur), Professor Ray has about more than thirty-six years of diversified experience - eight years in industry and more than twenty-eight years of teaching and research experience at IIT Kharagpur. He has served as a visiting professor at several institutions abroad and is trained in Japan on Production Management/JIT-based Manufacturing.

COURSE PLAN :

Week 1: History and Evolution of Quality Control and Management

Week 2: Management of Quality-I

Week 3: Management of Quality-II

Week 4: Statistical Process Control-I

Week 5: Statistical Process Control-II

Week 6: Process Capability Analysis

Week 7: Acceptance Sampling-I

Week 8: Acceptance Sampling-II

Week 9: Design for Reliability-I

Week 10: Design for Reliability-II

Week 11: Quality by Experimental Design

Week 12: Robust Design and Taguchi Method