

Semester	Code	Module Title	Credits	C/E/O	GPA/NGPA
7,8	MA4000	Experimental Design and Quality Control	3	E	GPA
Hours/Week		Pre-requisites/Co-requisites	Evaluation (%)		
Lecture	Tute/Lab		CA	WE	
3	0	MA3014	30	70	
Learning Outcomes					
<p>After the successful completion of this course students should be able to</p> <ul style="list-style-type: none"> • Understand and apply quality and reliability techniques • Design experiments using introduced theories • Analyze experimental data and interpret results to determine process quality 					
Syllabus Outline					
<p>Experimental Design Principles of planning and designing comparative experiments; Basic designs: completely randomized design (CRD), randomized complete block design (RCBD), Latin squares, treatment contrasts and mean comparisons; Factorial experiments (2^k and others); confounding and partial confounding in 2^k experiments; split-plot designs; analysis of covariance, Taguchi design</p> <p>Quality Control</p> <ul style="list-style-type: none"> • Introduction to quality control and assurance, specifications of quality. • Principles of Total Quality Control (TQC), Total Process Control (TPC), measurement techniques for quality control, acceptance sampling, control charts (p-chart, R chart, \bar{x} chart) sampling schemes (single, double sequential), Methods of improving control system, quality function • Definitions of reliability, maintainability and availability. • Reliability specifications. 					