

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: 2

Mechanical Engineering (Advanced Manufacturing Systems)

Subject Name: **Design and Analysis of Experiments (Interdisciplinary Elective II)**

Subject code: **1725009**

Sr_No	Content
1.	Introduction to the role of experimental design; basic statistical concepts; sampling and sampling distribution
2.	Testing of hypotheses about differences in means- randomized designs and paired comparison designs; testing of hypotheses about variances.
3.	Analysis of variance (ANOVA) –one-way classification ANOVA; analysis of fixed effects model; comparison of individual treatment means; the random effects model; the randomized complete block design
4.	Factorial design of experiments; two-factor factorial design-fixed effects and random effects model
5.	General factorial design; analysis of 2k factorial designs; Conforming in the 2k factorial design in 2p block; Fractional replication of the 2k factorial design
6.	Regression analysis- Simple and multiple linear regression and hypothesis testing; response surface methodology-the method of steepness ascent: response surface designs for first-order and second-order models. Evolutionary operation (EVOP)

Text Book:

1. “Design and analysis of experiments” by D.C. Montgomery, 7th edition John Wiley and sons, NewYork

Reference Books:

1. Das. M.M. and Giri N.C. :- Design and Analysis of Experiments.
2. Fisher R.A. :- Design of Experiments.
3. Dean Voss :- Design and Analysis of Experiments