

MT-530	Design and Analysis of Experiments
	<p><u>Introduction:</u> Concept of experiment, Planning of experiment, Design of experiment and its terminology, Principles of experimental designs.</p> <p><u>Simple Comparative Experiments:</u> Basic statistical concepts, Sampling and sampling distribution, Inference about the difference in means, Randomized design, Paired comparison designs, Inferences about the variances of Normal distribution.</p> <p><u>Experiment with a single Factor:</u> Analysis of variance (ANOVA), Inference about means after ANOVA, Multiple comparison tests, LSD test, Duncan's test, Tukey's test, Orthogonal contrast test, Transformations, Layout and analysis of completely randomized, Randomized complete block, Latin square and Graeco-Latin square designs, Estimation of missing observations, Relative efficiency of these designs, Fixed effect models, Random and mixed effect models.</p> <p><u>Factorial designs:</u> Factorial experiments within blocks, Nested designs, Nested and crossed designs, Split-plot designs, Linear mixed-effects models.</p> <p><u>Reference Books:</u></p> <ol style="list-style-type: none"> 1. Montgomery D.C, <i>The Design and Analysis of Experiments</i>, 4th Edition, John Wiley & Sons, New York, 2001. 2. Cox C, <i>Experimental Design</i>, 2nd Edition, John Wiley And Sons, USA, 2006. 3. Onyian L.C, <i>Design and Analysis of Experiments Classical</i>, CRC Press, Boca Raton / France, 2008. 4. Kuehl R.O, <i>Design of Experiments: Statistical Principles of Research Design and Analysis</i>, Duxbury, Boston, 2000.