

Sub.	Course Description – توصيف مقرر دراسي	الموضوع	 كليات المعرفة ALMAAREFA COLLEGES
Date		التاريخ	

Course Code & No	IE 301		رقم المقرر ورمزه
Course Name	Design of experiment		اسم المقرر
Credit Hours	3 (3+1+1)		عدد الساعات المعتمدة
Pre-requisite	STAT 103		المتطلب السابق

General Description	توصيف عام
Introduction to design of experiments and its applications in industry; Hypothesis testing; Analysis of variance; Residual analysis; Block design; Randomized complete and incomplete designs; Two and multi factor factorial design; Introduction to response surface methodology.	

Course Objectives	أهداف المقرر
<p>The course aims to develop a well-designed experiment in various engineering applications</p> <p>By the end of the course, each student should be able to</p> <ol style="list-style-type: none"> 1. Recognize design and statistical analysis for the experimental design 2. Plan, design and conduct experiments efficiently and effectively, 3. Analyze the resulting data to obtain objective conclusions. 	

Course Outlines	مفردات المقرر
<ul style="list-style-type: none"> • Introduction to the analysis of variance (ANOVA) • More about ANOVA; multiple comparisons, residuals and model adequacy checking; check model assumptions, the Box-Cox method. • Choice of sample size in designed experiments, dispersion versus location effects. • The randomized complete block design (RCBD). • RCBDs, Latin squares, etc. • Introduction to factorial designs • 2^k factorial designs; blocking and confounding • $2k-p$ fractional factorial designs • Response surface methods and designs • Random factors in experiments • Nested designs • Split-plot designs. 	

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References	المراجع
<p>Required Textbooks Experimental design, R.E. Kirk Brooks/Col., Belmont,CA, latest edition</p> <p>Essential References Materials Design Analysis, G. Keppel, Prentice-Hall Inc., latest edition</p>	