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開課班級：食品碩士學程一A

授課老師：陳和賢

學分數：2

課程大綱：

本課程是完全英語授課。主要是要引入有別於傳統統計方法之實驗設計課程。目的是要解決農食品加工廠之產品開發與製程最佳化。本課程實驗設計是以介紹田口品質工程為核心，希望學生學習田口方法，進行研究實驗設計已獲得最佳因子組合，以最適研發成本與最短研發時間，達到產品最適化。課程內容包括規劃實驗設計、設計實驗架構、執行實驗與分析實驗結果。主要內容包括因子與水準選擇、品質特性量測、直交表、信號雜訊比、反應圖、ANOVA分析、驗證實驗、案例討論等。

outline:

This course is taught in English. The aim of this course is to introduce an alternative approach, apart from other statistical applications, for students to learn how to solving on-line quality improvement and process optimization of products in industrial workplace, especially in agri-food industry. This course focuses on the technique, Taguchi quality engineering, in which it is to serve in demonstrating a tool to facilitate a product development in terms of cost and time-effective. The framework of such systematic approach is laid out in a logical order so that students in the class can understand completely and insure students have implemented the operation of the technique properly. The overview of the Taguchi method teaching in the class includes planning the experiment, designing the experiment, conducting the experiment and analyzing the experiment. Essential topics cover selecting factors and levels, measurement of the quality characteristics, orthogonal arrays, signal-to-noise ratio, response graph, analysis of variance (ANOVA), confirmation test for the optimal set, and Taguchi case studies.

教學型態：

課堂教學

成績考核方式：

平時成績:10%

期中考:45%

期末考:45%

其它:%

本科目教學目標：

教導學生學習非傳統統計方法的實驗設計

參考書目：

A Primer on the Taguchi Method, Ranjit Roy, 1990, Society of Manufacturing Engineering



課程進度表：

週次	起訖月日	授課單元(內容)	備註
第1週	9.13~9.20	Introduction Course overview	8日正式上課。8~12日課程加退選，轉學(系)生、復學生及延修生選課，雙主修、輔系申請，12日申辦抵免學分截止日
第2週	9.20~9.27	中秋節(放假)	
第3週	9.27~10.04	Design of Experiments Taguchi approach & its application	28日(日)孔子誕辰紀念日/教師節(放假),29日(一)補假
第4週	10.04~10.11	Performance Evaluation Definitaiton & measurement quality	29日成績優異提前畢業者提出申請截止日
第5週	10.11~10.18	Othogonal Arrays Experiments with multiple factors	6日(一)中秋節(放假)，10日(五)國慶日(放假)
第6週	10.18~10.25	Othogonal Arrays Two-level factors	14日學生宿舍安全輔導暨複合式防災疏散演練。18日多益測驗
第7週	10.25~11.01	Othogonal Arrays Three- and four level factors	24日(五)補假，25日(六)光復暨古寧頭大捷日(放假)。
第8週	11.01~11.08	Othogonal Arrays	30日校課程委員會
第9週	11.08~11.15	Mid-term exam Students who attend this class will make an oral presentation. The PPT preparation is based on the two published papers (similar topics) and to demonstrate how you apply Taguchi method to your future work. Time schedule will be a 15-min presentation and 5 min for Q & A.;	3~9日期中考試
第10週	11.15~11.22	Factor Interaction Forms of interaction	13日教務會議,16日教師期中成績上網登錄截止日
第11週	11.22~11.29	School's Anniversary Celebration	
第12週	11.29~12.06	Strategies for Robust Design Experimental strategy for robust design	24~28體育運動週。24日校園路跑。27日運動大會夜間開幕，28日運動大會活動，29日101週年校慶活動日，照常上班
第13週	12.06~12.13	S/N Ratios Signal-to -Noise ratios & caculation	
第14週	12.13~12.20	Multiple Criteria of Evaluations Analysis of multiple objectives	12日申請停修課程截止日
第15週	12.20~12.27	Computer Lab. Computer software practice	
第16週	12.27~1.03	Computer Lab. Computer software practice	22日校務會議。25日行憲紀念日(放假)
第17週	1.03~1.10	case study and presentation	1日(四)開國紀念日(放假)



第18週	1.10~1.17	case study and presentation	5~11日期末考試，10~11日 學生退宿
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