Taguchi Method for Quality Design

Winter 2007

Course Instructor :

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E-Mail: chanky@mail.ncku.edu.tw (with mail title : Taguchi Class ...)

Office Hour： 10:00am - noon, Tuesdays or by appointments

Course Information :

Days and Hours : 9:10am-10:00 am, Tuesdays ; 10:10am-noon, Fridays

Classroom : Room #804, ME building

Textbook : "*Quality Engineering Using Robust Design*" by Madhav S. Phadke, Prentice Hall, 1989.

"穩健設計之品質工程" 黎正中編譯, 台北圖書有限公司 (成大圖書部)

Webpage : http://myweb.ncku.edu.tw/~chanky/Kuei-Yuan%20Chan/Teaching.html

Credit : 3

Grades (100%) :

Attendance and Participation	15%
Homework[1]	25%
Project	30%
Midterm Exam #1	15%
Midterm Exam #2	15%

Course Mission :

Develop fundamental robust design and Taguchi method backgrounds for mechanical engineers. Students are expected to have basic knowledge about probability and statistics including set theory prior to this class.

Projects :

A project will be assigned early in the semester that will investigate a specific topic related to this course. The project is intended for public utilization and be made public in an appropriate form. Projects will be graded regarding their outcomes and their potential for impacting research and education in Taguchi method and quality design.

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[1] Homework Policy : Due on Fridays. Past-due homework is discounted 20% per day

Class Schedules : (subject to changes)

* Holiday

Wk.	Dates Tue.	Dates Fri.	Lecture	Homework	Project
1	2/27	3/2	Syllabus, Project Descriptions; Introductions and Industrial Examples		
2	3/6	**3/9**	General Introductions; Quality Engineering	**HW1**	**Model Parameters**
3	3/13	3/16	Design of Experiment; Factor Effects, ANOVA		
4	3/20	**3/23**	Robust Design Process	**HW2**	**DOE, ANOVA**
5	3/27	3/30	Robust Design Process		
6	4/3*	4/6*	Happy Holidays ~!!		
7	4/10	**4/13**	**Midterm Exam #1**		
8	4/17	4/20	Signal-to-Noise Ratio for Static Problems		
9	4/24	**4/27**	Signal-to-Noise Ratio for Dynamic Problems	**HW3**	**ANOVA, Main Effects**
10	5/1	5/4	Achieving Additivity in Robust Design		
11	5/8	**5/11**	Achieving Additivity in Robust Design; Constructing Orthogonal Arrays	**HW4**	**Prototype via Robust Design Methodology**
12	5/15	5/18	Case Demonstration: Differential Op-Amp		
13	5/22	**5/25**	**Midterm Exam #2**		
14	5/29	6/1	Robust Design of Dynamic Systems		
15	6/5	**6/8**	Case Demonstration: Computer Systems	**HW5**	**Model Revision and Refinements**
16	6/12	6/15	Reliability in Mechanical Design		
17	6/19*	**6/22**	**Project Demonstration**		**Final Report**