

Quality Control , Fall 2020

National Tsing Hua University
Tuesday 10:10 - 12:00 ; Thursday 11:10 - 12:00

Depart. of IEEM

1. Instructor:

Professor Wheyming Song 桑慧敏
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2. TA:

廖宇凡
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Office: 706-1, Engineering Building No.1
Office Hour:

- Mon.-Fri. 14:00 - 16:00

3. Goal:

The goal is to provide a sound understanding of the principles and the basis for modern statistical methods for quality control and improvement.

4. Textbooks & Reference:

1. 桑慧敏 (2022). 一生受用的統計學: 大數據分析之鑰.
總經銷: 清華大學水木書苑
2. Statistical Quality Control, A modern Introduction by Douglas C. Montgomery, seven edi. John Wiley and Sons, Inc. 2013.
3. Youtube, 好好聽FM - 桑慧敏主講: 一葉知秋, 一生受用的數據分析
Youtube:https://www.youtube.com/channel/UCvOr_M6OTNWX3IJ3eXp7DDQ
APP Store (蘋果手機): <https://is.gd/M4coZz>
Google Play (安卓手機): <https://is.gd/lAHQzp>
4. 桑慧敏教授網站
<https://sites.google.com/gapp.nthu.edu.tw/wheyming-song/>

5. Grading:

Homework	20%
Quiz	20%
Midterm	25%
Final	25%
Presentations	10%

Schedule:

Week	Date	Course Content	Quiz	HW
1	09/13 09/15	大數據解析與趣味 Ch1. Modern Quality Management And Improvement Ch2. The DMAIC Problem Process		
2	09/20 09/22	Ch3. Statistical Models Or Quality Control And Improvement Ch4. Statistical Inference In Quality Control And Improvement	Quiz1	HW1
3	09/27 09/29	Ch5. How SPC Works *(Grouping)	Quiz2	HW2
4	10/04 10/06	Ch5. How SPC Works Ch6. Variables Control Charts	Quiz3	HW3
5	10/11 10/13	Ch6. Variables Control Charts	Quiz4	HW4
6	10/18 10/20	Ch7. Attributes Control Charts	Quiz5	HW5
7	10/25 10/27	Ch7. Attributes Control Charts Ch8. Determining Process And Measurement Systems Capability	Quiz6	HW6
8	11/01 11/03	Ch9. Time-Weighted Control Charts (CUSUM chart, EWMA chart)	Quiz7	HW7
9	11/08 11/10	Regression	Quiz8	HW8
10	11/15 11/17	Midterm		
11	11/22 11/24	Ch10.4. Spc With Autocorrelated Process Data (AR, MA, ARMA, ARIMA)	Quiz9	HW9
12	11/29 12/01	Ch13. Basic Experimental Design For Process Improvement (DOE)	Quiz10	HW10
13	12/06 12/08	Ch13. Basic Experimental Design For Process Improvement (ANOVA: One-factor, Two-factor, Three-factor)	Quiz11	HW11
14	12/13 12/15	Ch13. Basic Experimental Design For Process Improvement (2^k , 2^{k-p})	Quiz12	HW12
15	12/20 12/22	Ch14. Process Optimization (RSM)	Quiz13	HW13
16	12/27 12/29	Ch15. Basic Acceptance Sampling Procedures	Quiz14	HW14
17	01/03 01/05	Students' Final Presentation		
18	01/10 01/12	Final Exam		