PRINCE OF SONGKLA UNIVERSITY

FACULTY OF ENGINEERING

Midterm Examination: Semester 1 **Academic Year: 2009**

Date: July27, 2009 **Time: 9:00-12:00**

Subject: 225-467 Quality Improvement **Room: R201**

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ทุจริตในการสอบ โทษขั้นต่ำปรับตกในรายวิชานั้นและพักการเรียน 1 ภาคการศึกษา

Instructions:

1. There are 60 points (30%).
2. Books and notes are allowed.
3. A calculator and a dictionary are allowed.
4. Borrowing things from other students is prohibited.

Question No.	Full Score	Score
1	10	
2	5	
3	15	
4	10	
5	10	
6	10	
Total	**60**	

Dr. Runchana Sinthavalai

Instructor

Suppose you are the manager of LUTUS Supermarket *(similar to Tesco Lotus), answer all questions.*

1. ***(10 points)*** Answer both questions;
   (a) Use the dimensions of quality to describe five desirable characteristics of *'car parking'* in your supermarket
   (b) Use the dimensions of quality to describe five desirable characteristics of *'toilet'* in your supermarket

2. ***(5 points)*** Develop the flow chart to describe the activities that the front-cashier performs *(starting from greeting customer until finishing one)*

3. ***(15 points)*** Answer all three questions;

(a) As your position in LUTUS, you would like to introduce the concept of *'Quality is free'* to your colleagues. How can you explain and give examples to your colleagues?

(b) What could be the *top-three costs of internal failure* in your supermarket? Explain why?

(c) If you can suggest, what would be the *top-three costs of prevention* that the supermarket should invest? Explain why?

4. ***(10 points)*** According to the *first ranked internal failure cost*, develop 'fish-bone diagram' to analyze the root causes

5. ***(10 points)*** The supermarket uses three machines to slice meat. The specification range from the output of machine 1 is 16.5 to 19.5 mm, is 22.5 to 26.5 mm for machine 2, and is 28.5 to 33.5 mm for machine 3. The outputs of the machines are distributed around 16.9, 23.7, and 31.8 mm *(means for the data distribution),* respectively, with variances of 2.89, 4.41 and 1.96 mm^2. You have the limited budget to upgrade those machines. Using C_{pk} to prioritize those machines to be upgraded.

6. ***(10 points)*** Answer both questions;
   (a) As your position in LUTUS, you set the strategy for 'cost reduction' and deploy to colleagues setting up the improvement projects. What do you think could be the disadvantages from *'top-down project identification'*? Discuss two issues of disadvantages.
   (b) According to the disadvantages in (a), you will change the approach to *'bottom-up project identification'*, develop the criteria for project selection and their weights. Explain why?