

**Faculty of Engineering
Prince of Songkla University**

Midterm Examination : Semester 1
Date : JULY 30 , 2012
Subject : 225-561 Design for Manufacturing

Academic Year 2012 (2555)
Time : 09:00 – 12:00
Room : S201

ทุจริตในการสอบ โทษขั้นต่ำ ปรับตกในวิชาที่ทุจริตนั้น
และพักการเรียน 1 ภาคการศึกษา

Name.....Std.ID.....

Instructions

1. There are 4 questions for a total of 80 points.
2. Answer the questions in these exam sheets.
3. Calculators and all materials are allowed to use.

1	20	
2	30	
3	15	
4	15	
Total	80	

Supapan Chaiprapat



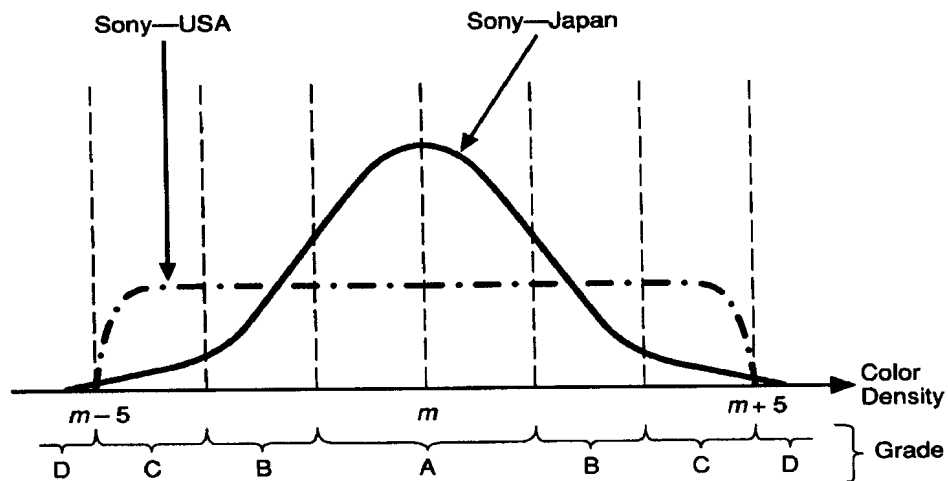
Name.....Std. ID.....

1. (20 points) According to six phases of product development: planning, concept development, system-level design, detail design, testing and refinement, and production ramp-up, give outputs of each phase by using a cellphone design project as a case study.

Development Phase	Output
Planning	
Concept Development	
System-level Design	
Detail Design	
Testing and Refinement	
Production Ramp-up	

Name.....Std. ID.....

2. (30 points) This figure shows distributions of color density of SONY TV sets made in Japan and US. If an acceptable color density range is 100 ± 25 dpi,
- Compare loss in quality between TV sets made by manufacturers in both countries. Explain in detail.
 - Cost of rework is \$1000 when the density is 120 dpi. What would it cost when a TV set with a color density of 110 dpi is shipped to a customer?
 - If cost of a rejected TV set when it is out of tolerance is \$1500, how would the tolerance range be changed, while keeping the nominal density the same?
 - Although quality loss is minimized when a product specification is around the target value, tolerance being too tight is not always recommended. Discuss why.



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Name.....Std. ID.....

3. (15 points) As the statement, "QFD can shorten the phase of product or service design", what do you consider to be the issues underlying this statement? Summarize your answer in no more than 15 lines.



Name.....Std. ID.....

4. (15 points) As the statement, "FMEA can prevent the product recall" what do you consider to be the underlying issues of this statement? Explain and give an example. Summarize your answer in no more than 15 lines.