

IE375 Spring 2020

Comments on Final Exam

General:

I believe overall, I am satisfied with the results. Nevertheless, the dispersion of grades is not small, meaning that there are a lot of students who were not successful in the exam.

Two general comments:

- 1) Understand the question. Computations, models, and so on were used in the questions to clarify those. When you are implementing these models, note that you need to understand what to do.
- 2) As IE's your main difference from other disciplines is your knowledge of specific tools. If you insist not to learn those (like modeling) you will have no additional value of becoming an IE.

	Exam
Average	51.98
Std. Dev.	22.30
MAX	96
MIN	5

Range	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Freq.	2	3	5	6	6	3	14	6	3	1

Question 1:

The key issue in the formulation is to realize that there are two stages in production. Hence you need to make sure that you represent the relation in your model. The solution handed in to you is the simplest structure you have. A few of you have formulated the problem in a bit different way which is also correct.

Those of you who didn't receive full grade must understand that when you actually solve this model using any LP software your answers will be incorrect.

Those of you who received a grade in 0-8 region without a "serious" reason should question their presence in the IE department. Abstract modeling capability differs us from most other engineering fields and is one of our main strongholds compared to other smart people (educated or non-educated) – without it you would not look like an IE.

	Q1
Average	22.43
Std. Dev.	16.04
MAX	40
MIN	0

Range	0-8	9-16	17-24	25-32	33-40
Freq.	16	1	3	13	16

Question2:

I wanted to make sure that you understand what the constraints actually mean. I was disappointed in the outcome as this was the question turned out to have the lowest success percentage.

	Q2
Average	2.96
Std. Dev.	4.09
MAX	10
MIN	0

Range	0-2	3-4	5-6	7-8	9-10
Freq.	35	1	1	0	12

Question 3:

I actually have generated those numbers in the problem consistently using a given set of orders. Note that the step that I have performed to ask you a question is something that you will do yourself after observing that you can model the scheduling problem as given in the case. Another step that you didn't see is the assignment of jobs to workers in Mode 1). This is actually a parallel machine scheduling problem with non-identical machines. We have not seen how to solve that problem in this course and hence I gave you a solution that you will be able to use. One last comment on this problem: You need to always remember the context. In this case, you need to realize that there are two workers and hence overtime is not necessarily going to be the same for each of those workers. For the second part, you have to understand how to compute the makespan.

	Q3
Average	13.92
Std. Dev.	6.33
MAX	25
MIN	0

Range	0-5	6-10	11-15	16-20	21-25
Freq.	6	7	15	14	7

Question 4:

Straightforward, once you use similar units for the terms in the formula.

	Q4
Average	5.59
Std. Dev.	3.72
MAX	10
MIN	0

Range	0-2	3-4	5-6	7-8	9-10
Freq.	17	2	4	11	15

Question 5:

Straightforward, once you know what fill rate is and how to compute lead-time demand distribution mean and variance.

	Q5
Average	7.08
Std. Dev.	4.96
MAX	15
MIN	0

Range	0-3	4-6	7-9	10-12	13-15
Freq.	13	8	8	14	6