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## Class exercise for assessing abilities and providing a structure for a course

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# Pre/Post Assessment of Abilities for IMSE 440/840

Name: \_\_\_\_\_

## IMSE 440/840 What Would you Do?

Imagine my hiring you to do a project for my company, Fly-By-Night Manufacturing – a company that makes portable radios. You meet Brad, my production manager, and he tells you that due to incredible customer demand, we need your engineering expertise to improve the production on the R3Blue assembly line from 5000 radios per day to 9000.

A radio consists of three major components – a top plastic molding, a bottom plastic modeling and an electronic assembly (each is produced by other lines and delivered separately to this assembly line). At the R3Blue assembly line, the first step has a production operator take a top molding from a box, a bottom molding from a different box, and an electronic assembly from a storage rack. The operator placed the electronic assembly between the top and bottom moldings and snaps the case close. The operator places the assembled radio on a continuously moving conveyor where it moves to an automated testing station. When radios leave the testing station, *defective* radios are routed offline to a different operator who adjust the radio and send it back to the testing station. If a radio is *good*, it is conveyed to a packing station. At this station, an operator packages a radio into a box. The packaged radio is then conveyed to a final station in which 10 packaged radios are boxed together for shipping. From here, a box of radios is sent to the shipping dock.

**[1] In terms of better understanding *the operation and what happens on the R3Blue assembly line*, what are 5 questions you would ask Brad? That is, what questions do have about the operation of this assembly line? Once done, indicate the top 2 questions you would want to ask.**

Question #	Question
(a)	
(b)	
(c)	
(d)	
(e)	

[2] In terms of better understanding *how you would help me with this project*, what are 3 questions you would ask me and Brad? That is, what questions do have about your doing this project?

Question #	Question
(a)	
(b)	
(c)	

[3] List 3 additional questions (not necessarily related to the operation of the line or how you would help him) you would ask me and Brad. That is, what else do you think it important to know?

Question #	Question
(a)	
(b)	
(c)	

[4] List some of the key data you will need to analysis the R3Blue assembly line:

Number	Data
(a)	
(b)	
(c)	
(d)	
(e)	
(f)	
(g)	
(h)	

- [5] Suppose the data is “raw” (that is, it is simply a table of observed processing times collected by a summer intern). What are you going to do with it?**
- [6] What are you going to do if there is no data? What data is most likely to not have been collected?**
- [7] Knowing very little about this system, what does your gut tell you about being able to achieve the improvement in production. Why?**
- [8] What date will you be done with your analysis? (assume you start September 1st and as expected, there is no production data collected for this system)**
- [9] What is the estimated project cost? That is, what do you think you are going to charge me for your analysis? (assume you have graduated and are a professional engineering consultant)**