Kristen’s cookies company essay

Process Flow Diagram Case Questions 1. How long will it take you to fill a rush order? Time taken to fill a rush order= MLT = 6 + 2 + 10 + 5 + 2 + 1 = 26 minutes 2. How many orders can you fill in a night, assuming you are open four hours each night? 4 hours per each night= 4 hours * 60 minutes = 240 minutes Cycle Time= The Duration of the bottleneck = (Setting thermostat and Timer) + (Baking Cookies) = 1 minute + 9 minute = 10 minutes Maximum no of orders we can fill in a night= (No of minutes per night-Duration of First Setup) / Cycle Time + 1 = ((240 – 26) / 10) + 1 = 22.

orders ~ 22 orders Explanation: This is because the first order takes 26 minutes for the first batch of cookies to finish and each subsequent batch takes 10 minutes because it has reached steady state. Thus, we take 4 hours worth of time, minus off 26 minutes for the first batch and then divide by ten to get the number of orders. 3. How much of your own and your roommate’s valuable time will it take to fill each order? Own Time: •Mixing Ingredients6 minutes •Dishing out cookies onto tray2 minutes •Total Time8 minutes Roommate’s Time: •Setting thermostat and timer1 minutes Packing the cookies2 minutes •Collecting payment1 minutes •Total Time4 minutes Explanation: Our group defines valuable time as time that can be used to do other kinds of productive work.

Hence, processes carried out by me, mixing the ingredients and dishing the cookies onto the tray, takes up 8 minutes of my valuable time. This is because I have to be physically present and be doing “ work”. However, only 4 minutes of my roommate’s valuable time is used because the 9 minutes (baking of cookies) and 5 minutes (cooling the cookies) can be used to do

other more productive work. 4. Because your baking trays can hold exactly one dozen cookies, you will produce and sell cookies by the dozen.

Should you give any discount for people who order two dozen cookies, three dozen cookies, or more? If so, how much? Will it take you any longer to fill a two-dozen cookie order than a one-dozen cookie order? It depends whether the two-dozen cookie order and three-dozen cookie orders are of the same flavor or different ones. However, we assume that orders that are more than one-dozen cookies are of the same flavor. This is because if the orders are of more than one-dozen cookies but of different flavours, ach batch will come out exactly 26 minutes later because we have to re-mix the ingredients again. Given that the orders of more than one-dozen cookies are of the same flavor, we should give a discount. Our discount is based on how much of our valuable time identified in part (c) that we have used in the process of baking the cookies.

Both my roommate and I have decided to value our own time at $10/hr. My TimeRoommate’s TimeTotal Time One-dozen cookies8412 Two-dozen cookies10717 Three-dozen cookies121022 Therefore, we decided that we will offer the discount based on the amount of time it saves us. We will be using this formula to offer the discount rate tn Discount Rate = n*p + tn n*p + n*t Wheren= number of boxes p= cost price of 1 box of cookies tn= time-value of money used to make n boxes of cookies t= time-value of money used to make 1 boxes of cookies Therefore, our final discounted rate would be Percentage Reduction (%)Old Price (per box)New Price (per box) One-dozen cookies0$2. 70$2. 70 Two-dozen cookies21. 48$2.

70$2. 12 Three-dozen cookies28. 88$2. 70$1. 92 5.

How many food processors and baking trays will you need? We will need 1 food processor and 6 baking trays. This is because even if we increase the number of food processors, the bottleneck is still the oven and this will only cause an excess on the number of cooking trays. Although we can make do with 3 baking trays, our group chose to have 6 baking trays in the event that one of the baking trays becomes damaged. 6. Are there any changes you can make in your production plans that will allow you to make better cookies or more cookies in less time or at lower cost? For example, is there a bottleneck operation in your production process that you can expand cheaply? What is the effect of adding another oven? How much would you be willing to pay to rent an additional oven? Assuming •1 order, only 1 dozen cookie •Second order comes in while person is making first batch Assuming that we add another oven, the cycle time of the ovens would be 5 minutes.

The new bottleneck for the entire process would now be that of mixing the ingredients and dishing the cookies onto the tray, a process which takes 8 minutes for 1 batch of cookies. New cycle time= 8 minutes Maximum no of orders we can fill in a night= (No of minutes per night-Duration of First Setup) / Cycle Time + 1 = ((240 – 26) / 8) + 1 = 27. 75 orders ~ 27 ordersTherefore, we would only be willing to pay at the most, (27-22) orders worth of rent, which = 5 * (2. 00 + 0. 70) = $13.

50 per day. Problems for further thought 1. What happens if you are trying to do this by yourself without a roommate? Looking at the diagram, from time (23 to 25), I will be involved in the packing of cookies for the first batch.

However, I will also be involved in the mixing of ingredients for the third batch. It is not possible for me to be able to do two jobs at the same time; therefore either the third batch of cookies will be delayed or the third order cannot be fulfilled. .

Should you offer special rates for rush orders? Suppose you have just put a tray of cookies into the oven and someone calls up with a “ crash priority” order for a dozen cookies of a different flavor. Can you fill the priority order while still fulfilling the order for the cookies that are in the oven? If not, how much of a premium should you charge for filling the rush order? Assume there is no queue when the “ crash priority” order arrives. We define the “ crash priority” order as the order would only take 26 minutes from being placed to the end of payment. The tray of cookies already in the oven will take 9 minutes to bake.

Since the “ crash priority” ordered for a different flavor, I need 8 minutes to wash out mixing bowl, add ingredients, and mix them in the food processor and dish out them onto a tray. But I have to wait one more minute in order to bake this “ crash priority” order. The MLT for it will be 27 minutes which is different from our definition of “ crash priority” order. Hence I can’t fill the priority order while still fulfilling the order for the cookies that are already in the oven.

In order to fill the priority order, I have to save the one minute which spends on waiting for oven. The cookies that are already in the oven will be thrown away. To make up my cost, I will double charge the rush order which is $2. 7*2=$5. 4. 3.

When should you promise delivery? How can you look quickly at your order board (list of pending orders) and tell a caller when his or her order will be ready? How much of a safety margin for timing should you allow? Assumption: Customer only orders a dozen of cookies per order Our team has ome out with a formula to calculate the collection time for the caller to collect his or her order. Collection time = (number of queue * CT) + MLT + completion time for the current 1st batch This formula will only apply if there IS a queue when an order is placed. An order that is in the oven is not considered a queue. If there is no queue when an order is placed, we will tell the caller to collect the cookies 1 hour from the time he called. For example: I am fulfilling an order at 7pm. A caller called at 7.

20pm to make an order. The first batch of cookies will finish at 7. 26pm and there are 3 queues in line. By using the formula, we can easily calculate the total waiting time where number of queue is 3, Cycle Time and MLT is 10 and 26 minutes respectively. Thus, the total waiting time will be 56 minutes. By adding 56 minutes to 7.

26pm, we can tell safely to the caller to collect his / her order at 8. 22pm. The reason is because the 3 dozens of cookies in queue will finish at 30 minutes later which is 7. 56pm. The new order will complete at 8.

06pm. Therefore we have an extra of 16 minutes to spare off in case there is “ a” rush order in between. The safety margin that we allow is 16 minutes. How we derive this value is by subtracting CT from MLT. The reason why the safety margin is not 10 minutes is because we need to have an ample buffer

time in case something cropped up in between. Therefore, our team feels that 16 minutes is the decent time to have as our safety margin.

5. Your product must be made to order because each order is potentially unique. If you decide to sell standard cookies instead, how should you change the production system? The order-taking process? If we are going to sell standard cookies instead, we will change to Assemble-to-order process. Consider the efficiency and the quality of cookies, the washing bowl and mixing ingredients step and fill tray step (27 trays) will be moved to other time when is out of business hours, let’s say the morning of each day.

So after the order came, we can do run the process as before without mixing and filling part. The process shows as following: With Assemble-to-order process, the MLT is getting shorter. So we can handle more orders every day. Maximum no of orders we can fill in a night= (No of minutes per night-Duration of First Setup) / Cycle Time + 1 = ((240 – (26-8)) / 10) + 1 = 23. 2 orders ~ 23 orders