

Bangladesh Open University

BBA Program

Semester: 221 (7th Level)

Course Title: Operations Management

Date: 24 May 2024

Instructions

- Answer all questions in your own handwriting on A4 size white paper.
- Fill-in the cover page of your assignment with care.
- Enclose the photocopy of your ID Card with the assignment (next to the cover page).
- Don't make spiral binding. Instead, make soft binding.
- Submit the assignment to the respective course tutor and ensure his/her signature on your Assignment Acknowledgement Form (see page#4 of Semester Calendar).

Questions

1. (a) Define operations management. Will your definition accommodate both manufacturing and service operations? Explain.
- (b) Describe the operations function's transformation process and provide an example for each element.
- (c) What are three reasons that the study of operations is important?
2. (a) What are the two types of product-based layouts? What are their similarities and differences and their advantages and disadvantages compared with other types of layouts and processes?
- (b) Define the terms *front room* and *back room* and describe the roles these processes play in service operations. What must operations managers take into consideration when setting up these two processes?
- (c) Champion Cooling has just signed a contract to assemble window air conditioners for another company. The list of tasks, including time requirements and immediate predecessors, is given below. Each task may not be shortened. Initially, the plan was to make 300 units in an eight hour day but as the summer months approach. Champion Cooling finds themselves far behind in total production. They wish to reconfigure their production line in order to produce maximum output. What should their task time be?

Task	Time (min)	Predecessor
Bolt compressor to base	5	None
Install coils and lines	6	Bolt compressor to base
Install fan motor	7	Install coils and lines
Install switch and thermostat	5	Install fan motor
Charge system and test	10	Install switch and thermostat
Cosmetic detailing	7	Charge system and test

3.
 - (a) Define theoretical and rated capacity and name four factors that affect a company's capacity. Indicate how each factor impacts rated capacity.
 - (b) Describe the three capacity strategies and the advantages of each.
 - (c) A wise professor crafts a midterm that is beautiful to behold, painful to take, and a chore to grade. The first exam takes almost an hour and a half to grade (89 minutes and 24.7 seconds to be precise) but the second one takes only seventy-six minutes to complete. Realizing that learning effects are at work, the professor looks at his social calendar and spots an important social engagement at this time on the following day, exactly 24 hours from now. How long will it take to grade the third exam? How long will it take to finish grading exams for the entire class of 30 students?

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Semester: 221 (7th Level)**Course Title: Operations Management****Date: 12 July 2024****Instructions**

- Answer the all questions in your own handwriting on A4 size white paper.
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Questions

1. (a) How does production planning differ from production control? What are the key functions of production planning and control?
(b) What are the objectives of a good layout? Discuss any six principles of a good layout?
2. (a) Distinguish between independent demand and dependent demand inventory and provide an example of each from the same company, and same product line.
(b) A catfish bait manufacturer uses a secret blend of ingredients to make their infamous bait. One of these ingredients, we'll call it X for proprietary reasons, is the major component in the mixture. X is ordered in 55 gallon barrels from out of state and is used at the rate of 800 barrels per year. Each order that is placed with the supplier costs \$45 to process. Storage space is at a premium on the manufacturing floor and out in the yard, so their annual cost to hold inventory is \$80 per barrel. The owner's brother-in-law provides transportation services and his record has been less than stellar, so lead time has averaged 6 days with a standard deviation of 3 days. Stopping the process would be disastrous, so the plant manager has set a 99% service level on the reorder point.

Required:

- (i) What is the best order quantity?
- (ii) What is the total cost at this reorder point?
- (iii) What is the reorder point?
- (iv) What is the cost of holding this safety stock?

3. (a) What organizational disciplines are required in order for an organization to successfully run a material requirements planning system?
- (b) There are six jobs that are awaiting processing at a machining center. The jobs are shown in the table with their processing time and scheduled completion time. Schedule the jobs by earliest due date and the critical ratio rule and calculate average lateness for all the jobs. Which scheduling technique performs BEST?

Job	Process Time	Due Time
A	12	25
B	8	32
C	15	40
D	10	15
E	20	27
F	17	46