INTERNATIONAL UNIVERSITY OF EAST AFRICA
'Learning to Succeed'

FACULTY OF BUSINESS MANAGEMENT

END OF SEMESTER EXAMINATIONS - APRIL 2025

PROGRAMME: MBA
YEAR/SEM: YEAR 2/SEMESTER 1
COURSE CODE: MBA 851
NAME: ADVANCED OPERATIONS MANAGEMENT

DATE:
TIME:

INSTRUCTIONS TO CANDIDATES:

SECTION A

Answer Any One Question

Question 1:

Case Study - Product Design and Innovation

TechNova Inc., a leading technology company, is planning to launch a new product, the SmartWatch 2.0, which will include advanced features such as health monitoring, voice assistant integration, and longer battery life. The company needs to design the product and the manufacturing process to ensure the product is innovative, cost-effective, and meets customer expectations.

a). Discuss the key principles of product design that TechNova should consider when developing the SmartWatch 2.0. How should the company balance functionality, aesthetics, and cost in the design process?

b). Describe how TechNova can utilize the concept of design for manufacturability (DFM) to ensure smooth production processes and cost efficiency. Provide examples of potential design challenges and solutions.

Question 2:

Case Study on Facility Layout and Project Management
NCR Corporation is a service-oriented organization specializing in custom-built software solutions. Over the past year, ABC has experienced an increase in the number of projects, but this has led to challenges in managing project timelines, resources, and overall workflow. The company is considering re-designing its facility layout and implementing improved project management practices to address these challenges.

Currently, the company’s office is divided into departments that work in silos, with little collaboration between teams. This has resulted in communication breakdowns and inefficiencies in project delivery. Furthermore, the company is expanding and needs to accommodate

the growing number of employees and customers.

Questions:

a) Evaluate NCR Corporation’s current facility layout and identify potential improvements for better workflow (15 Marks)

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b) Recommend a more efficient layout NCR’s office space that encourages collaboration and improves productivity. (10 marks)

SECTION B

Answer any THREE Questions

Question 1:

a) Explain the key differences between batch production and continuous production systems. What are the advantages and disadvantages of each in terms of cost, efficiency, and flexibility? (12 marks)

b) A company is currently operating a batch production system and is considering switching to a continuous production system. What factors should the company consider when making this decision? Discuss how this change will impact the overall operations. (13 Marks)

Question 2:

a) Discuss the key challenges faced by operations managers in managing production scheduling in a high-mix, low-volume production environment. What strategies can be implemented to overcome these challenges? (15 Marks)

b) Explain the role of lean manufacturing in improving production processes. How can a company implement lean principles to reduce waste and improve efficiency in a manufacturing plant? (10 marks)

Question 3:

a) What are the main factors that influence the location decisions of a manufacturing firm? Discuss how these factors impact both short-term and long-term operational success. (13 Marks)

b) A company is considering expanding its operations internationally. What are the potential advantages and disadvantages of choosing an overseas location, and how should these factors impact the company’s decision? (13 Marks)

Question 4:

a) What are the key objectives of facility layout planning, and how does an efficient layout contribute to overall operational performance? (10 Marks)

b) Suppose you are tasked with redesigning a warehouse layout to optimise storage and distribution. What key factors would you

consider in the layout design, and how would you ensure the design supports operational goals? (15 Marks)

Question 5:

a) Discuss the principles of facility or plant location (5 Marks)

b) Explain the factors that an organization must consider when selecting a location for a new facility. (12 Marks)

b) Discuss the role of globalization in location decisions. How can organizations balance local market needs with global supply chain efficiency? (8 marks)

Question 6:

a) Explain the role of project management in operations management, particularly in the context of new product or service design and implementation. What key project management tools are most useful for operations managers in this process? (10 Marks)

b) Discuss the challenges in managing the timeline, budget, and scope of a project for a new product launch? (15 Marks)

Question 7:

a) Write short notes on the following:

i. Design for production (3 marks)
ii. Design for distribution (3 marks)
iii. Design for use (3 marks)

b) Product design aims to create a product with excellent functional utility and sales appeal at an acceptable cost within a reasonable time. In line with performance and functionality, What are the objectives of product and service design (10 marks)

c) Several functions in organisations are getting to be strategic, product design being one of them. If that is the case, how does product design contribute to achieving the overall organisation’s strategic functions? (6 marks)

Question 8:

a) Define process design and explain its role in improving operational efficiency. How does the choice of process type (e.g., job shop, batch, assembly line, continuous flow) affect the overall performance of an organization? (12 marks)
b) Analyze the key factors to consider when designing a process for a new product or service. Discuss how process design impacts cost, quality, flexibility, and lead time. (13 marks)

Question 9:

a) Discuss the importance of product and service design in achieving competitive advantage in today's market. Explain how effective design can influence customer satisfaction and operational efficiency. (12 marks)
b) Describe the different stages involved in the product/service design process. How can companies incorporate sustainability into product and service design, and what are the benefits of doing so? (13 marks)

Question 10:

a. How does operations management in the service industry differ from operations management in manufacturing? Discuss the key characteristics and challenges faced in service operations. (12 Marks)

b. A service company is looking to improve its customer satisfaction through operational improvements. What strategies can the company implement to streamline service delivery and enhance the customer experience? (13 Marks)

Question 11:

a. Describe the key stages of the product development life cycle. How can an effective design process lead to competitive advantage? (12 Marks)

b. How can quality function deployment (QFD) be integrated into the product design process? Provide an example of how QFD could improve product quality and customer satisfaction. (13 Marks)

Question 12:

a. What are the key objectives of facility layout planning, and how does an efficient layout contribute to overall operational

performance? (12 Marks)

b. Discuss the differences between process-oriented and product-oriented layout types. In which situations would each type be most beneficial, and why? (13 Marks)