UNIVERSITI KUALA LUMPUR
KAMPUS CAWANGAN MALAYSIAN SPANISH INSTITUTE

FINAL EXAMINATION

OCTOBER 2025 SEMESTER

COURSE CODE	:	SFB35203 (V2)
COURSE TITLE	:	MANUFACTURING SYSTEM
PROGRAMME NAME	:	BACHELOR OF ENGINEERING TECHNOLOGY (HONS) IN MANUFACTURING (AUTOMOTIVE)
DATE	:	27 JANUARY 2026
TIME	:	9:00AM - 12:00PM
DURATION	:	3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of ONE sections.
4. Section A consist of five questions. Answer FOUR (4) questions only.
5. Please write your answer on the answer booklet provided.
6. Please answer all questions in English only.
7. Refer to the attached Formula/ Appendies. ☐ *Tick if applicable*

THERE ARE 6 PAGES OF QUESTIONS INCLUDING THIS PAGE

SECTION A (Total: 100 marks)

Answer FOUR (4) questions.

Please use the answer booklet provided.

Question 1

Manufacturing drives Malaysia's economic growth, boosts employment, fosters innovation, enhances exports, and strengthens technological capabilities for national development.

(a) Discuss **Three** (3) core technological elements of manufacturing and their interrelation in producing a finished product.
(IEA Attributes: SK4, SP1)

(6 marks)

(b) Analyse **Three** (3) major contributions of manufacturing industry in the Malaysian economy.
(IEA Attributes: SK4, SP1)

(9 marks)

(c) Discuss **Three** (3) reasons for the importance of manufacturing strategy in a manufacturing company
(IEA Attributes: SK4, SP1)

(6 marks)

(d) Examine **Two** (2) detrimental consequences that the industrial sector may encounter if it is unable to effectively implement and maintain manufacturing support systems.
(IEA Attributes: SK4, SP1)

(4 marks)

Question 2

Facility layout refers to the understanding of how facilities are organized and arranged within a factory layout system. It is important to arrange the physical facilities under the appropriate type of layout to achieve high productivity and efficiency

(a) Differentiate **Four (4)** components between process-based and product-based layouts.

(8 marks)

(b) Critically analyze THREE (3) advantages for each process-based production layout
SK4, SP1

(9 marks)

(c) As a process engineer, Analyze **Four** (4) significant impacts that may arise from an improperly arranged layout
SK1, SP4

(8 marks)

Question 3

Nowadays, lean and agile manufacturing can be seen as fundamental to achieving a company's competitive advantage and survival during economic uncertainty.

(a) Differentiate **Three (3)** principles between the concept of lean manufacturing. (SK4, SP1)

(8 marks)

(b) Discuss **Three (3)** Waste in production from the perspective of lean manufacturing. (SK4, SP1)

(6 marks)

(c) Critically assess **Three** (3) challenges and limitations faced by organizations when transitioning from traditional manufacturing systems to lean manufacturing, especially in highly customized or low-volume production sectors. (SK4, SP2)

(6 marks)

(d) Analyze how the implementation of Lean Manufacturing principles can influence the integration of Industry 4.0 technologies, particularly in enhancing production flexibility and real-time decision-making. (SK4, SP2)

(5 marks)

Question 4

Artificial Intelligence (AI) and robotics have undeniably emerged as integral components within contemporary manufacturing support systems, revolutionizing the industrial landscape through unprecedented advancements in efficiency, precision, and flexibility.

(a) As an engineer at Kampungku Semiconductor Sdn Bhd, discuss **Three** (3) ways artificial intelligence (AI) and robotics contribute to enhancing efficiency in modern manufacturing systems.

(9 marks)

(b) Analyze **Three (3)** impacts of robotics on manufacturing precision and product quality in industrial operations.

(6 marks)

(c) Discuss **Three (3)** how AI integration promotes operational flexibility within contemporary manufacturing environments.

(6 marks)

(d) Compare **Two** (2) differences between traditional manufacturing support systems with AI-driven systems in terms of productivity and adaptability.

(4 marks)

Question 5

Sustainable manufacturing system integrates eco-friendly practices, conserves resources, reduces emissions, enhances efficiency, and supports long-term economic and environmental resilience.

(a) Discuss **Three** (3) benefits of implementing green manufacturing practices in the Automotive industry
(IEA Attributes: SK4, SP1)

(6 marks)

(b) Examine the **Three (3)** strategies by which sustainable manufacturing techniques impact operational cost reductions and resource efficiency.

(6 marks)

(c) Discuss **Three** (3) roles of technological innovation in advancing sustainable manufacturing practices globally.

(6 marks)

(d) Discuss **Four** (4) the challenges faced by industries in implementing sustainable manufacturing practices effectively.
(IEA Attributes: SK4, SP1)

(7 marks)

END OF EXAMINATION PAPER