Summer Examinations 2016

ENG300516N

Module title: Lean Manufacturing and Quality Applications
Level: Six
Time allowed: Two hours

Instructions to candidates:

- Enter your student number **not** your name on all answer books.
- Answer **four** out of **five** questions.
- All questions are equally weighted. Where a question has more than one part the division of marks is stated.
- Begin each answer on a separate page; label each page clearly with the number of the question you are answering.
- Neither books nor notes may be taken into the examination.
- The use of electronic calculators of an approved type is permitted.

No. of Pages | 4
---|---
No. of Questions | 5
Answer **four** out of **five** questions.

1. **a.** What are the characteristics of automotive production line layout. Consider the layout of Mini as seen during the Flipped learning sessions. Comment on process layout, inventory and visual management. Explain briefly why the Automotive sector have decided to follow the continuous improvement path.

   (15 marks)

**b.** Draw a simple process map for a process (e.g. making a cup of tea). Identify areas for improvement from the aspect of waste.

   (5 marks)

   (Total: 25 marks)

2. **Kaizen/ Value Added**

   **a.** You have been asked to investigate the implementation of a Kaizen system within the Automotive Sector, Aerospace or Food Industry. Prepare a case to present to your management explaining the meaning of Kaizen.

   Include in your answer explanations of what Kaizen means, where the technique was initially devised and then developed and by whom.

   Explain your strategy for implementing the kaizen system and identify where other Quality Tools could help in this.

   (15 marks)

   **b.** Give a full and detailed explanation of value and non-value added in relation to QCD.

   (10 marks)

   (Total: 25 marks)

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Questions continue overleaf
3. **Poke Yoke/ KPI’s**

   a. Explain what Poke Yoke is and its importance. Also Draw a simple FIFO system for Automotive part delivery to a Production line, example could be taking from Building Cars Live  

      (5 marks)

   b. Design and draw a simple but effecting part checking system to improve QCD  

      (5 marks)

   c. List the DTI KPI measures that can be used to take specific measurements to achieve World Class Manufacturing, and give a brief description on them.  

      (10 marks)

   d. Explain the importance of displaying Data, list some visual ways Data can be displayed, this can be local data or at company specific levels  

      (5 marks)

      (Total: 25 marks)

4. **5S Methodology**

   State the importance of 5s/c as quality tool for identifying waste within an organization and for improving quality.

   a. Present a logical argument for its use by identifying the five areas that this technique concentrates on. Identify in the correct sequence all 5 steps  

      (15 marks)

   b. Use examples to demonstrate how 5S methodology would operate and could be used to reduce mistakes and improve quality.  

      (10 marks)

      (Total: 25 marks)
5. Visual Management

a. Visual Management needs no interpretation in the workplace, an environment where things are obvious from the minute you walk into an area.

(5 marks)

b. You have been asked to introduce a Visual management system for a process.

(5 marks)

c. Identify several (minimum 8) Visual management systems that would improve QCD. Refer to examples seen during both flipped learning and lectures.

(10 marks)

d. List some advantages and disadvantages of visual management (eg notice board information out of date)

(10 marks)

(Total: 25 marks)