



FACULTY OF ENGINEERING AND BUILT ENVIRONMENT

DEPARTMENT OF QUALITY AND OPERATIONS MANAGEMENT

SUPPLEMENTARY EXAM

<u>PROGRAMME</u>	BTECH: QUALITY
<u>MODULE</u>	CONTINUAL QUALITY IMPROVEMENT IV
<u>CODE</u>	CQI 44-2
<u>DATE</u>	06 JANUARY 2020
<u>DURATION</u>	3 HOURS
<u>TIME</u>	08:00 – 11:00
<u>TOTAL MARKS</u>	100

<u>ASSESSOR</u>	MR B. JAVANI
<u>INTERNAL MODERATOR</u>	DR N. SUKDEO
<u>EXTERNAL MODERATOR</u>	PROF K. RAMDASS

<u>NUMBER OF PAGES</u>	3 PAGES
-------------------------------	---------

INSTRUCTIONS TO CANDIDATES:

- Please answer all questions.
- Calculators are allowed
- Question papers must not be handed in.
- This is a closed book assessment.
- Read the questions carefully and answer only what is asked.
- Number your answers clearly.
- Write neatly and legibly.
- Structure your answers by using appropriate headings and sub-headings.
- The general University of Johannesburg policies, procedures and rules pertaining to written exam apply.

...Cont/

CASE STUDY

The Festal Case

You are quality manager for Festal, a commercial foundry. The company makes castings to customer order. The product is mostly sand castings. Festal has the usual departmental setup for production: pattern shop, core room, moulding, and cleaning. You are responsible for materials control, process surveillance, final inspection, and the test laboratory.

Recently, the sales manager returned from a field trip. He reported the loss of two customers, one an important account, due to poor quality porous and hard castings. When this was discussed in the general manager's office, both you and the plant manager had some explaining to do.

One of the questions which came up was that of the quality attitude of the work force and supervisors. This produced divergent views among the managers:

- a. The Plant Manager: The workers couldn't care less. We have had to be strict on issuing warnings and applying penalties.
- b. The Personnel Manager: I get a lot of feedback that we don't maintain our tools, processes, and instruments. The workers say they have quit telling their supervisors about these problems because nothing is done about them.
- c. The Purchasing Agent: Someone came in here last month trying to sell a poster service for stimulating people to do a better-quality job. The salesperson claimed that the companies have gotten wonderful results by using the service.
- d. The Marketing Manager: These fellows should be made to realise that, if we can't sell the product, they won't have jobs. Why don't we show them the customers' rejects or the customers' letters saying we have lost the account, along with telling them how many people will be out of a job because of poor quality.
- e. The Controller: You pay less money when people produce less. Why not pay less money when their quality is poor? If incentives work for quantity, they should work for quality.
- f. The Engineering Manager: We need to error proof the process so that human error does not enter into it. If we had the appropriation, we could provide automatic controls for many steps that are now up to human judgment and mistake.

QUESTION 1 [CASE STUDY]

- 1.1 Explain how one would apply the quality control based on Juran's Trilogy to improve overall performance of Festal? (15)
- 1.2 The Festal case study requires one to introduce managing for quality.
- a) Explain what is meant by managing for quality. (4)
 - b) Outline how Festal can use the systematic approach to managing quality. (12)
- 1.3 There are four important reasons why an organization cannot survive very long without the medicinal renewing effects of continual breakthrough. Outline how these will assist Festal in attaining superior performance. (12)
- 1.4 Juran's RCCA approach is an effective method for identifying and addressing the root cause of sporadic problems in products and processes. Outline how Festal would use the Juran's Root Cause Corrective Action (RCCA) six major steps of problem solving to address issues outlined in the case study. (24)

[67 MARKS]

QUESTION 2 [THEORY]

- 2.1 Dav Industries intends to undertake benchmarking. Discuss how the Juran's 7-step Benchmarking Cycle would assist Dav Industries to attain superior performance. (21)
- 2.2 Explain how standing in the marketplace will assist in telling the size of the quality issue and areas demanding attention within Dav Industries. (12)

[33 MARKS]

[TOTAL MARKS 100]