



# FACULTY OF ENGINEERING AND BUILT ENVIRONMENT

## DEPARTMENT OF QUALITY AND OPERATIONS MANAGEMENT

### MAIN EXAMINATION 2016

<b><u>PROGRAMME</u></b>	BTECH: QUALITY
<b><u>MODULE</u></b>	CONTINUAL QUALITY IMPROVEMENT IV
<b><u>CODE</u></b>	CQI 44-2
<b><u>DATE</u></b>	23 NOVEMBER 2016
<b><u>DURATION</u></b>	3 HOURS
<b><u>TIME</u></b>	12:30 -15:30
<b><u>TOTAL MARKS</u></b>	100

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<b><u>ASSESSOR</u></b>	MR N MADONSELA
<b><u>INTERNAL MODERATOR</u></b>	DR N SUKDEO
<b><u>EXTERNAL MODERATOR</u></b>	MR A INDERLAL

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<b><u>NUMBER OF PAGES</u></b>	3 PAGES
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#### **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.

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## **CASE STUDY**

### **ESSLINGER HOSPITAL**

The Esslinger Hospital is a 1,578 bed general hospital located in a medium-sized city in California. As one of the three major hospitals in the city, Esslinger is recognized as providing fine health care. In recent years, the three hospitals (all of which are private) have felt increased competitive pressure on both cost and quality. The hospital administration is quite aware of the total quality management programs that some hospitals have adopted. Tom Howland, the CEO, formed a management group to study the applicability of TQM to the hospital. The group consisted of administrators from the medical, nursing, laboratory, clinical support, and various business areas. The head of Quality Assurance, June Snow, helped to gather information about TQM activities versus QA activities. Esslinger has long practiced the "quality assurance" activities mandated by the Joint Commission for Accreditation of Hospitals and Health Care Organization. This quality assurance has centered on monitoring and auditing both clinical and other aspects of hospital care. When problems are identified, immediate action is taken, but there is a lack of follow-through to search for causes and thus the same problems often occur again. After meeting biweekly for two months, the study group recommended that executive management and middle management be given training in quality management. Upper management received a two day overview course; middle management was provided more detail during a four day course.

In both cases, management learned about the three quality processes, process management, problem-solving tools, quality measurement, empowerment, quality teams, reward and recognition, and other topics. As a result of this training, there was a consensus that the quality assurance activities were quite effective as a "quality control" process on characteristics considered important from a regulatory viewpoint. But these activities were not achieving a sufficient level of "quality improvement" by diagnosing and removing causes of deficiencies (the trilogy diagram helped people to understand the distinction between control and improvement). The group decided to collect quality measurement data to help plan an improvement process. Data were collected on 27 characteristics. (The data consisted of both existing QA data and new data particularly aimed at customer-focused characteristics). Examples of quality measurements were:

1. Timelines of delivering emergency medication to the floor (e.g., an intensive care unit). Desired time--under 15 minutes; typical time--90 minutes.
2. Patient waiting time in the emergency room for assignment to a floor, a bed, operating room, etc. Desired time—under 30 minutes; typical time--three hours.
3. Loss of X-rays and other test results (information not in patient's file jacket). Usually the test has to be repeated resulting in both delays and extra costs. The cost of lost X-rays and other test results was calculated as \$205, 000 for one year.

This data, typical and sobering, gave a strong impetus to move ahead with quality improvement.

## **QUESTION 1**

- 1.1 Based on the case study, problems are identified at Esslinger hospital and immediate action is taken. However, there is a lack of follow-through to search for causes and thus the same problems often occur again.
- a) This case describes quality improvement as an important technique for diagnosing and removing causes of deficiencies tool of quality. Do you believe that causes of deficiencies should be removed? Why or why not? (13)
- b) Could you recommend to the CEO to gain management's approval for quality improvement program? (8)
- 1.2 Explain the reasons for estimating the cost of poor quality to the CEO? Make your answer as substantive as possible (10)
- 1.3 What method should be instituted to achieve high customer loyalty and how? (19)
- 1.4 How would you summarise the principles that can help Esslinger hospital to develop an effective measurements for quality? (20)

**[70 MARKS]**

## **QUESTION 2 [THEORY]**

- 2.1 How would you show your understanding of what is critical to control? (10)
- 2.2 Suppose you are the head of quality department, what are the methods for improving the reliability during design would you apply? (20)

**[30 MARKS]**

**[TOTAL MARKS 100]**