



ENVIRONMENT

DEPARTMENT OF QUALITY AND OPERATIONS MANAGEMENT

<u>PROGRAMME</u>	BTECH: OPERATIONS MANAGEMENT BTECH: MANAGEMENT SERVICES BTECH: QUALITY
<u>MODULE</u>	QUALITY PLANNING AND IMPLEMENTATION IV
<u>CODE</u>	QPI44-1
<u>DATE</u>	25 July 2016
<u>DURATION</u>	3 HOURS (SESSION 1)
<u>TIME</u>	08h00 – 11h00
<u>TOTAL MARKS</u>	100

SUPPLEMENTARY 2016

<u>EXAMINER</u>	MR N MADONSELA
<u>INTERNAL MODERATOR</u>	MS N SUKDEO
<u>EXTERNAL MODERATOR</u>	MR A INDERLAL

<u>NUMBER OF PAGES</u>	3 PAGES including the cover page
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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.

...Cont/

SECTION A

Case study:

Nucor Corporation: Producing Quality Steel by Stressing Sound Management Practices

Nucor Corporation head quartered in Charlotte, North Carolina, is the largest manufacturer of steel and steel products in the United States. The company received a great deal of attention because of its importance of performance in an industry plagued by a multitude of problems, especially in recent years. Since the 1970's Nucor pioneered the minimill concept, which is a method of making steel by melting scrap metal in electric arc furnaces at a fraction of the cost of conventional steelmaking. Nucor is admired for its quality products, its state-of-the-art manufacturing processes, and the industry-leading productivity ratios. It is difficult to find a single reason that explains Nucor's success. Although the company recently made key acquisitions and has modern facilities and equipment, competitors that have the same level of technology do not fare as well. What Nucor does have that is unique is a set of sound management principles and a somewhat novel approach to employee relations. Although Nucor is a \$4.8-billion-per-year company, there are only four management layers between the CEO and frontline employees, and the general managers on the plant floor make the day-to-day decisions. Rank-and-file employees are involved in devising methods to improve operations. The company has a very egalitarian culture. There are no company cars, company planes, assigned parking spaces, hunting lodges, or other indications of status. All the employees wear the same color hard hat (with the exception of maintenance workers and visitors, who must be easily recognizable in case of an emergency), have the same group insurance program, have the same holidays, and have the same vacation plan.

There are other areas in which Nucor is distinct. The company has a well-developed employee incentive plan that aligns the interests of the employees with the interests of the firm. The typical millworker at Nucor receives a base pay that is slightly below the industry standard, but the firm's bonus plan is very generous when the company is doing well. Two distinctive features of Nucor's bonus system are that it is all written down and is totally objective, based on the firm performance criteria. There is no subjectivity involved. If the organization reaches certain performance levels, a bonus will be paid, period. With bonuses figured in, Nucor employees typically lead the steel industry in terms of average pay. Yet the company's total cost per ton of steel produced is lower than that of other integrated producers.

In return for the generous compensation package, Nucor holds its employees to a high standard. Decision making is pushed down to the factory floor in many instances,

requiring mental toughness and continuous education on the part of the company's employees. The company also asks employees to be prompt and fully engaged in their jobs. For example, if an employee is late for work, he or she loses his or her bonus for the day. If the employee is more than 30 minutes late, the bonus is lost for a week. In return for this level of employee commitment, Nucor has not laid off a single employee for lack of work in 20 years. A very unusual indication of what Nucor thinks of its employees is evidenced in the company's annual Report for 2006 (and in many previous years). The name of each of the company's 10,600 employees is written on the front and back cover of the Annual Report. Nucor produces high quality products by stressing sound management techniques. Commenting on this issue in a book about Nucor, Jeffrey L. Roengen wrote, "The amazing thing about Nucor's success is that it is so simple: Give employees a stake in the company's growth; focus on the business at hand; keep red tape and bureaucracy to a minimum." Apparently, this formula has continued to work for Nucor.

QUESTION 1

Discuss Nucor's Management practices that affect its ability to produce high quality products? (30)

QUESTION 2

How does Nucor Maintain team effectiveness? What criteria do they use? (10)

QUESTION 3

Summarise the Nucor's approach toward workforce engagement and motivation. (10)

[50 MARKS]

QUESTION 2

2.1 Briefly explain the eight principles of quality management. (16)

2.2 Describe workforce engagement and the advantages of employee engagement over traditional management practices. (13)

2.3 Summarise the knowledge and management expertise that Green Belts, Black Belts, and Master Belts should have. (9)

2.4 Discuss the role of middle management and the workforce in achieving quality and performance. (12)

[50 MARKS]

[TOTAL MARKS 100]



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