



# **NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**

## **FACULTY OF INDUSTRIAL TECHNOLOGY**

### **DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING**

#### **Master of Engineering in Manufacturing Systems/Engineering and Operations Management**

#### **OPERATIONS MANAGEMENT**

**TIE 6134**

**First Semester Main Examination Paper  
December 2014**

This examination paper consists of 3 pages

**Time Allowed:** 3 hours

**Total Marks:** 100

**Special Requirements:** None

**Examiner's Name:** Eng. William M. Goriwondo

#### **INSTRUCTIONS**

1. Answer any five (5) Questions.
2. Each question carries 20 marks
3. Use of calculators is permissible

#### **MARK ALLOCATION**

<b>QUESTION</b>	<b>MARKS</b>
1.	20
2.	20
3.	20
4.	20
5.	20
6.	20
7.	20
<b>TOTAL</b>	<b>100</b>

### Question 1

- a) Explain why People are the most significant factor in dealing with the 5P's (Product, Plant, Processes, Programs and People) of Operations Management. [5]
- b) Discuss the significance of the three levels of Decision Making in organisations. [9]
- c) The revised view of Operations Management considers the environment. Explain the role of Operations Managers in this view. [6]

### Question 2

- a) Describe the basic Characteristics of a Production / Operations System. [5]
- b) Discuss the Specific Functions of Operations Management in an organisation of your choice. [15]

### Question 3

- a) Explain how the Strategic Operations Mix affects Business growth. [15]
- b) A company reviewing its Strategic Implications establishes that three of its performance objectives are in conflict in a particular market segment. Detail how you would advise the company to resolve this problem. [5]

### Question 4

- a) Discuss the role of Forecasting in Supply Chain Management. [2]
- b) Briefly describe Manufacturing Resources Planning (MRP II) and indicate how it relates to Materials Requirements Planning (MRP). [8]
- c) Contrast Planned order receipts and Scheduled receipts. [4]
- d) Briefly define or explain each of the following terms :
  - i) Master Production Schedule, [2]
  - ii) Bill of Materials, [2]
  - iii) Gross Requirements. [2]

### Question 5

- a) Explain with an appropriate example, how a Materials Requirements Planning (MRP) system works. [10]
- b) Discuss the benefits and challenges associated with implementation of an Enterprise Resources Planning (ERP) system. [10]

### Question 6

Using the National University of Science and Technology (NUST) as an example, describe the major steps the University would use in developing a Strategic Capacity Plan for the next 10 years. [20]

### Question 7

- a) What are the major features of Value Stream Mapping (VSM)? [3]
- b) Explain “Necessary but Non-Value Added” activities using examples in a manufacturing plan. [3]
- c) Show how the original Seven Wastes as identified in Just In Time (JIT) can be minimised in a typical manufacturing plant. [14]

**End of Examination**