



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY SPECIAL / SUPPLEMENTARY
EXAMINATIONS
2021 / 2022 ACADEMIC YEAR**

FOURTH YEAR SECOND SEMESTER EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF SCIENCE
IN**

**CIVIL AND STRUCTURAL ENGINEERING
MECHANICAL AND INDUSTRIA ENGINEERING
ELECTRICAL AND TELECOMMUNICATIONS ENGINEERING**

COURSE CODE: ECC 406

COURSE TITLE: ENGINEERING MANAGEMENT

DATE: 7TH OCTOBER 2022

TIME: 3 – 5 P.M

INSTRUCTIONS:

1. This paper contains TWO Sections
2. Answer **ALL** questions in section I and any **TWO** from section II
3. Marks for each question are indicated in the parenthesis.
4. It is in the best interest of the candidate to write legibly
5. Examination duration is **2 Hours**

MMST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

SECTION I: ANSWER ALL QUESTIONS (30 MARKS)

- a) Define Total Quality Management (TQM) and briefly discuss any four of its primary elements (8 marks)
- b) Why is it important to set organizational objectives (8 marks)
- c) An Engineering manufacturing firm has three options to choose from for the future operations. Option 1 is complete automation of the processes. This option has a 50% probability of generating Kshs 2 million and 50% chance of losing Kshs. 500,000. The second option is the manual assembly option with a 60% probability of making Kshs 1.5 million and 30% chance of losing Kshs. 200,000. The third option is outsourcing with 60% probability of earning Kshs. 1 million and 40% chance of Kshs. 500,000. If complete automation is successful, the company will be able to produce product A with 80% probability of earning Kshs. 1.5 million and 20% chance of losing Kshs. 20,000. If the manual option is successful, the company will produce product B with 95% probability of making Kshs. 1.5million and 5% chance of losing Kshs. 800,000. If outsourcing is successful, the company will produce product C with 70% probability of earning Kshs. 1.5million and 30% chance of losing Kshs. 700,000. Determine the option and product the manufacturing company should consider for development. (14 marks)

SECTION II: ANSWER ANY TWO QUESTIONS (40 MARKS)

- 1 (a) Assume an asset costs Kshs. 10 Million with a salvage value of Kshs. 100,000 and a 10-year life. Calculate the book value of the asset at the end of years 4, 6 and 8 (5 marks)

(b) What is labour productivity and how is it determined in an organization (7 marks)

(c) state and explain any four strategies that can be used in an organization to deal with resistance to change (8 marks)
2. (a) Growth strategies are example of corporate strategies that can be used when a business seeks to expand. Name and briefly discuss any four types of growth strategies that can be used giving relevant examples in each case. (12 marks)

(b) Assume that a company has procured a robotic system and after 15 years of usage its value is estimated to be Kshs 8,000,000. The annual compound interest rate is estimated to be 5%. Calculate the present worth of the robotic system (4 marks)

(c) Decision trees are used to handle sequential problems. State and briefly describe any four advantages of using decision trees (4 marks)

3. (a) Cost benefit analysis is one of methods used in quality assessment in organizations. Describe it, mentioning its purpose, when its used, how it is used and its key benefits (12 marks)

(b) Change takes place all around for individuals and organizations. For organizations, there are forces that push the need for change. State and briefly describe any four such forces (8 marks)

