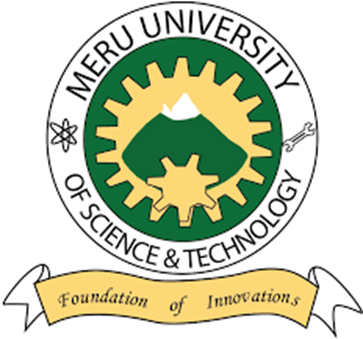
**A REPORT SUBMITTED ON INDURSTRIAL ATTACHMENT AT ACCADEMY OF MAISHA MAZURI SECONDARY TO MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY IN PARTIAL FULFILLMENT FOR THE AWARD OF DEGREE IN BACHELOR OF SCIENCE IN MATHEMATICS.**



### **INDUSTRIAL ATTACHMENT REPORT**

#### **Name:** ALBANUS MUINDE

#### **Registration Number:** SC208\108213\21

#### **Course:** BACHELOR OF SCIENCE IN MATHEMATICS

#### **Institution:** MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

#### **Attachment Institution:** ACADEMY OF MAISHA MAZURI

**Attachment Period:** 13 th May 2024 to 08th July 2024

# Acknowledgments

On behalf of the company, and myself I would like to extend a heartfelt thank you to the Academy of Maisha Mazuri for allocating me to undertake my industrial attachment at this company. A special word of appreciation goes to some of the staff that offered me directions throughout my stay in the special department such as the bakery and the educational division. They also provided me with recommendations and guidance on areas in which I needed to gain mass practical experience and training. I would also like to thank my lecturers at Meru University of Science and Technology for their steady support and encouragement throughout my study program, which made me, appreciate how to apply the theoretical concepts that I have learned a real-life situations. Last of all, I would like to express my gratefulness to my fellow students, especially to the members of the mathematics club who make my teaching grueling but so enjoyable. This aspect of them meant that the success of my attachment was boosted by their desire to learn and participate.

# Abstract

The following is an industrial attachment report, which will focus on describing the industrial attachment activities that were undertaken at the Academy of Maisha Mazuri from the period 13th May 2024 to 8th July 2024. The attachment concentrates on two primary areas: production analysis in its bakery unit and its educational instructions in mathematics and computer studies. For the next one and a half years, I was involved in the production of buns and bread where I used to study different factors regarding their feasibility. Other overload responsibilities include; teaching responsibilities, which involved teaching of form one students, form four students, and managing the mathematics club. The report provides insight into the areas of difficulty, the problem-solving tactics explored, and strategies recommended for improvement in the future. There is a lot that I learned there that made a positive impact on my professional endeavors, especially regarding both the educational and business worlds.

# Declaration

#### I, ALBANUS MUINDE, declare that this Industrial attachment report is my original work and has not been submitted to any other institution or organization for any academic or professional certification. This report contains information that is a reflection of experiences obtained during the period of the Industrial attachment at ACADEMY OF MAISHA MAZURI.

#### Student's Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Signature (Student): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Supervisor's Name: **NICHOLAS LUBUSIA**

#### Institution's Name: **ACADEMY of MAISHA MAZURI SECONDARY**

#### Lecturer's Name: **DR MURIUNGI**

#### Institution's Name: **MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY**

# Dedication

#### To my parents, I dedicate this report as a way of expressing my gratitude for all the support that they have always given me while I was studying. I have always felt motivated to try to accomplish those goals because of the belief that has bee ,.n placed in me. I also dedicate this work to my lecturers at Meru University of Science and Technology whose support and encouragement have played a big role in my academic and professional development. Finally, I would like to take my time to acknowledge all the students and staff of the Academy of Maisha Mazuri for their support and assistance in making this attachment wonderful.

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# 1. Introduction

This report summarizes my industrial attachment experience at the ACADEMY OF MAISHA MAZURI, conducted from 13th May 2024 to 08th July 2024. Being a student pursuing BACHELOR OF SCIENCE IN MATHEMATICS at MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY, my attachment encompassed quite several activities targeted at baking operations, teaching mathematics and computer studies, and analyzing the profitability of production processes concerning the Bakery's operational activities.

# 1.1 History and Background of Academy of Maisha Mazuri.

# The Academy of Maisha Mazuri was established in 2018 as a school and community center, thus the institution is still young. However, due to its tender age, the academy has well transformed itself into a center for excellence in delivering quality education and also a ground for developing skills in entrepreneurship among the students. Indeed, within the framework of the six years since the start of its work, it has gained a well-deserved popularity as a university focused on students’ academic achievement and their personal growth.

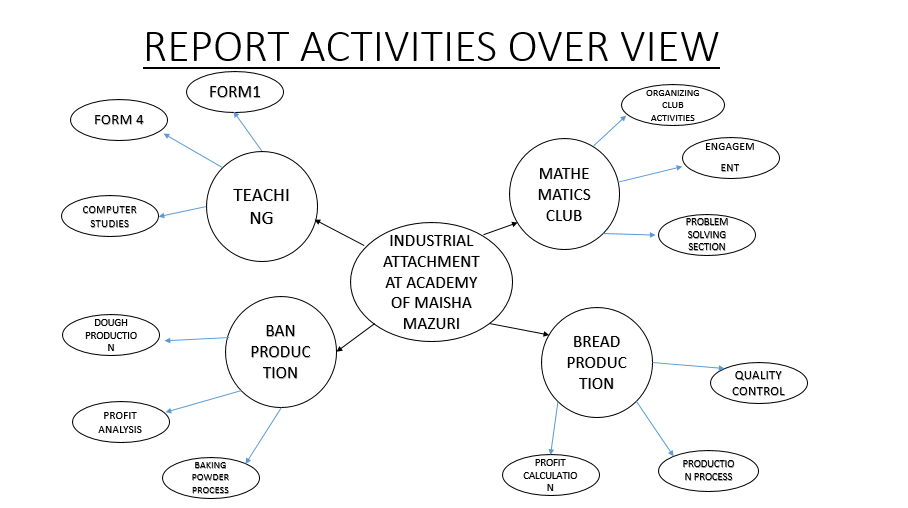
# Of all the several projects with which the academy has arrived in the market, it has developed a novelty known as a bakery. On one hand, it provides the school and its students with fresh bread and buns On the other hand it is a business investment whereby the institution makes some little extra bucks. This is among the experiences and learning techniques practiced at the academy where students get to learn business techniques armed with entrepreneurial skills. The practice of applying business literacy into the education system, the bakery project is a way of giving students practical experiences and helping the school in its financial development.

# This approach of learning with innovation brings the Academy of Maisha Mazuri as a reference model for other institutions since it provides the gap of practice upon the completion of the course.

# 2. Objectives

The reasons why I opted for this industrial attachment are therefore as follows: The main objectives of this industrial attachment were twofold, that is to improve my knowledge base and practical experience. Firstly, I aimed to get practical experience in the sphere of bakery products, especially, buns and bread. They needed to appreciate all segments of the production process including purchasing raw materials, mixing dough, and many others up to the baking and packing processes. Through studying these processes, I wanted to find out how the organization could optimize the processes and become more profitable. Secondly, the attachment was a way of improving on teaching styles which I found favorable for me. When teaching mathematics and computer studies, I aimed to find ways in which I could create better relations with as many students as I could to find out how best I could teach them to understand what I was teaching as well as how attentively they could listen to me and grasp knowledge. Further, I was expected to form a mathematics club whereby my role was to go further in increasing students’ interest in mathematics by solving problems in groups and online analysis. In totality, these objectives were to ensure that the knowledge gaps between learning and practicing what is learned in practice direction when I will advance in my professional practice.

# 3. Activities Undertaken



## 3.1 Bun Production and Profit Analysis

For the first six weeks of my attachment, I was closely involved with buns, these are three buns in a set sold to secondary school students at Ksh 15 per set. The first activity that I contributed to in this process was mixing the ingredients in a correct ratio to prepare a desired type of dough. I also supervised the baking process to take note of the various aspect like the temperature of the oven and the time taken to bake which is very important to come up with the right product. Apart from the managerial production aspect, I used the following approach to analyze general and specific profits obtainable from sales proceeds from bakery products like flour, sugar, and yeast. With this measure, I was able to find segments where expenses could be cut without affecting the quality of the buns negatively. For example, suggested to increase the amount of raw materials used and reduce the time needed for baking to reduce the fuel consumption level. The profit analysis showed that there profits obtained from the sale of buns as Ksh 750 per day, this indicates that this business venture is viable in the academy.

## 3.2 Bread Production and Profit Analysis

During the seventh and eighth weeks, I had plans for the production of bread and the average bread produced by the academy was 50 loaves daily each at a cost of Ksh 60. Just like in the case of the bun manufacturing process, my involvement here was in providing the concept but the process analysis that was required here was slightly deeper because of the larger numbers in addition to the different manufacturing methods. I learned how the dough is prepared whereby it is mixed and then fermented, baked, and then cooled. Special focus was paid to the standardization of bread quality, because small differences here can cost important customer portions and, therefore, the level of organizational profit. However, apart from assessing the production process, I undertook the cost of raw materials, cost of personnel, cost of water, and power among others. From this analysis, one was able to arrive at the net profit per loaf which was found to be Ksh 20 thus a total of Ksh 1, 000 per day. From my observations, I recommended changes that could be implemented to the production line for instance changes in inventory management and utilization of baking equipment. These recommendations were targeted at growing the profitability while at the same time ensuring that the quality of bread produced was not compromised at all.

## 3.3 Teaching Mathematics and Computer Studies

Teaching was one of the parts of the attachment, where I was supposed to teach form one and form four students mathematics and computer studies respectively. In the initial six weeks, I imparted basic arithmetic skills as well as elementary computing lessons to the form one student. This entailed developing lesson plans which were both interesting and easy to understand knowing that there were students who had different grasping abilities. My strategy entailed the repetition of previously learned skills alongside the illustration of complex content through the development of real-life models. In the past two weeks, I changed to teaching form IV students normally taught in advance topics including Locus and three-dimensional geometry. These topics are relevant to enable students to prepare for their final examinations and to achieve this, I adopted problem-solving sessions and group discussions among others to ensure that the students understood all the topics that appealed to them. In computer studies, I engaged them in the understanding of simple programming paradigms and the use of tools relevant to their academic and career advancement. This teaching experience was beneficial in improving my communication skills together with developing a mini understanding of the fulfilling or difficult experiences expected when teaching at different levels in an institution.

## 3.4 Organizing the Mathematics Club

Apart from my teaching responsibilities, I was also given the responsibility of forming and coordinating the mathematics club in the academy. The objective of the club was to introduce students to the more complex aspects of mathematics that were not taught in class and foster in the students a fascination for the subject. Firstly, selecting out students; who had a keen interest in Mathematics; and offered myself to get them to join the club. The club attracted more students into the fold such that within eight weeks, the number of students who were registered in the club was 15 but towards the end, it had 50 students. Every week we concentrated on various aspects of mathematics which included problem-solving, puzzles and games, logic, and others such as the use of algebra and Geometry. I conducted group discourses and brainstorming activities and these had a positive impact on enhancing the performance of the students on the matters of mathematics as well as the concept of team spirit among the members. Thus, I offered competitive aspects, for instance, quizzes and math games that the students liked and contributed to enhancing the club’s non-trivial atmosphere. Evidence of a positive outcome of this club was apparent and manifested in the manner in which Students displayed a newfound interest in the subject of Mathematics and many called for membership even after my stay at their school.

# 4. Challenges Faced

Initially, during my attachment to the Academy of Maisha Mazuri, I had to face a couple of challenges that tested my level of adaptability and problem-solving. The first amongst them was trying to juggle between my work at the bakery and my teaching tenure. Both these demanding roles called for attention to minute details and high levels of engagement-something that requires careful planning or prioritizing. The main hardship when it came to working at the bakery was to always guarantee the quality of baked goods, taking into consideration many ingredients of dubious quality along with ovens that did not always behave as wanted. There were instances of dough quality compromised by inadequate respect for ingredient ratios that resulted in less-than-satisfactory final products. Another challenge was motivating students to participate actively in the mathematics club. First, there was a total lack of enthusiasm, which meant that I had to get creative in how to make the club more relevant and exciting to them. For instance, adapting teaching to the various learning styles and capabilities, but in category form one class, the spread of understanding was quite vast. It meant that overcoming these challenges needed a combination of perseverance, creativity, and readiness for continuous learning and adaptation.

# 5. Solutions to the challenges faced

While on attachment at the Academy of Maisha Mazuri, several issues arose which called for an analysis and proper staging of….The following are some of the challenges that I met during my industrial attachment: Below are the solutions I implemented or proposed to address these issues: Below are the solutions I implemented or proposed to address these issues:

Managing time between bakery analysis and teaching commitments. Time Management between

## 5.1 Bakery Analysis and Teaching Commitments:

**Solution:** I came up with a well-planned schedule where some time allocations were set aside for teaching purposes, and others for the analysis of the bakery. That means all the tasks were looked at and covered according to their importance and/or the urgency of the task extent. Further, any free time in between the baking was used to write lesson plans, and mark assignments among other tasks, thus efficiency in the scale.

Optimizing production inefficiencies (e. g., Poor quality dough ): Optimizing production inefficiencies (e. g., Poor quality dough ):

Given some dough quality inconsistencies, I mentioned that the possible option was to formulate and implement a standard form for dough preparation.

This called for the development of a recipe that was as specific as possible down to the measurements and the steps necessary to produce a shoot of similar quality every time the meringue was made. I also suggested in the case of seniority, the training of the bakery staff to remind them constantly about the procedures to follow, therefore improving the quality of dough produced with little wastage. Motivating students in active participation in the mathematics club:

## 5.2 Motivating students to actively participate in the mathematics club:

**Solution:** In trying to ensure that more students in the class joined the mathematics club, it was vital to try and seek ways through which the learning could be more fun-filled, hence, introducing some of the following: Math puzzles, quizzes, and competitive games.

I also applied examples of real-life situations where I employed problems in mathematics to evoke curiosity among the students.

# 6. Lessons Learned

The industrial attachment to the Academy of Maizza Mazuri was an in-depth learning experience that gave insight into the educational and production sectors. Among these, one important thing that I learned was the importance of quality control in any production process. Ensuring the same quality of buns and bread that were in production was not only crucial for consumer satisfaction but also profitability. This experience taught me how even the minute adjustments to production, like ingredient ratio or baking time, really can make all the difference in the world. Later, while teaching, I realized that communication is a big part of teaching. I needed to change my methodology since not all students would learn at the same pace, using visual aids and interactive sessions and also actually showing examples of something a little too hard to understand. In addition, the experience of organizing a mathematics club reaffirmed that the encouragement of students to be constantly curious and to take on challenges is a very important aspect of the learning environment. The other thing that was also important from this experience was teamwork and collaboration both inside and outside the classroom as part of an effective learning process.

# 7. Recommendations

Recommendations to enhance the operations within the Academy of Maisha Mazuri, based on my experiences during this industrial attachment are as follows: Firstly, standardization of the dough-making process in the bakery for the maintenance of quality in the baked items. This should be done by the application of appropriate measurement equipment with strict observance of recipe specifications. Secondly, there should be continuous review and sourcing for ingredients to achieve cost-effective suppliers without compromising the quality. Teaching: I strongly recommend adopting a more differentiated instruction approach, especially for the lower classes, as their learning needs are very diverse. It would be appropriate to have more visual aids combined with practical activities and personalized learning plans. In this direction, inter-school competitions and guest speakers or professionals in the mathematical field are suggested for the mathematics club. It should be made more participation, and it shall be done so that the kids get awareness of the practical approach to mathematics. Finally, I would recommend that the Academy invest in further training for personnel regarding current teaching methodologies and quality verification processes during production as a means for constantly enhancing overall educational and operational standards.

# 8. Conclusion

Conclusion The attachment that I undertook with the Academy of Maisha Mazuri was an attachment that had loads of experience as a result of incorporating academic and practical exposure. The opportunity to engage both in teaching and the analysis of production has been an avenue for me to apply the theoretical concepts I have learned in my studies to real situations. Skilled and insightful knowledge about quality control at production, effective teaching strategies, and the importance of a collaborative learning environment that I acquired from this experience will surely serve as assets in my future career. Setbacks during attachment allowed me to develop resilience and adaptability, while successes achieved worked to reinforce confidence in my abilities. This attachment has gone a long way in contributing to my personal and professional maturation process, and I have no doubt that the knowledge and experience gained in the course of the attachment will later prove influential in shaping my future endeavors.

# 9. APPENDIX

## Appendix A: Processed Data on Burger Buns

• Daily average production: 150 buns

• Price per chapati: K

• Sales per bun: Ksh 15

• Total daily revenue: (Ksh 15 - Ksh 10) \* 150 = Ksh 750

## Appendix B: Production Data of Bread

• Typical daily production: 50 loaves

• Price per loaf: Ksh 40

• Consumer price per loaf: Ksh 60

• Net per day profit: (Ksh 60 - Ksh 40) \* 50 = Ksh 1000

## Appendix C: Math Club Activity

• Week 1: 15

• Week 2: 20

• Week 3: 25

• Week 4: 30

• Week 5: 35

• Week 6: 40

• Week 7: 45

• Week 8: 50