

**MASENO UNIVERSITY**

**SCHOOL OF COMPUTING AND INFORMATICS**

**DEPARTMENT OF INFORMATION TECHNOLOGY**

# **AUTOMATED TIMETABLING SYSTEM**

**CIT 409: IT PROJECT I**

**PROJECT PROPOSAL SUBMITTED TO THE SCHOOL OF COMPUTING AND INFORMATICS IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

**MASENO UNIVERSITY**

**P.O. BOX PRIVATE BAG**

**MASENO, KENYA**

**JANUARY, 2023**

# **DECLARATION**

I the undersigned do hereby declare that this project proposal is my original work and where there's work or contributions of other individuals, it has been duly acknowledged and relevant citations are given. To the best of my knowledge, no material herein has been previously presented to any other academic institution for examination, award of a degree, or any other award(s).

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**KATUMO BENSON MAKAU Date**

**Admission No. CIT/00046/019**

**Supervisor**

I hereby certify that this project proposal was presented for examination with my approval as the university-appointed supervisor.

Supervisor’s Name: **Dr. MUHAMBE T. MUKISA**

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# DEDICATION

I dedicate this proposal first and foremost to Almighty God who has been there since the beginning to this far. Special dedication also to my supportive parents/guardians and friends who have shown total support and compassion towards my achievements. Again, I want to dedicate this proposal to my supervisor Dr. Muhambe Mukisa and his fellow lecturers for their progressive impact on knowledge.

# ACKNOWLEDGMENT

This automated timetabling system would not have been possible without the support and help of many people. First and foremost I would like to thank the entire Information Technology department for providing valuable guidance for my degree program from the start to this far. Additionally, I would like to recognize and thank my project supervisor Dr. Muhambe Mukisa for dedicating his time throughout the semester to keep me on track and provide clarity when things seemed to be difficult for me. Finally, I would like to thank my colleagues for their great contributions to this project proposal.

# ABSTRACT

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# CHAPTER ONE: INTRODUCTION

## 1.1 Background Information

Over the recent past, there has been an increase in course offerings and enrollment surges in institutions of higher learning. This has raised the demand for more facilities for academic institutions. This has proven that the ability to work within the set constraints of time, facilities, and resources is the greatest asset of any learning institution. Therefore, problems relating to timetabling vary between different institutions depending on the constraints at hand. In most schools, timetables are manually designed by lecturers, an activity that requires them to set aside a week for that task. This manual way of timetabling is prone to human errors and is difficult to meet all the requirements.

Due to the inherent challenges, timetabling is still done manually. For example, for each semester, schools are forced to redo the timetables, thus making the task repetitive, tedious, and painful. This has however presented the need to have an automated timetabling system. Failure to have the timetabling problems addressed would lead to schedules with a maximum number of disputes that fail to meet several side restrictions, allocated time, and rooms within the restricted period (Henry, 2021). Therefore, it is within this context that the proposed timetabling system needs to assess and fill the gap by designing and implementing the proposed system to help manage the learning activities at Maseno University.

## 1.2 Problem Statement

Management of learning activities is a complex venture in institutions of higher learning. Lecture venues and laboratories are essential but scarce resources. Scheduling a class requires one to consider the nature of the class, the number of students, the time of the day, and whether or not the unit is common across different programs. Manual designing of timetables thus is a complex and time-consuming affair, which contributes to the loss of valuable time not to forget the complaints from both students and lecturers over errors in the timetables.

## 1.3 Study Objectives

### 1.3.1 Overall/Main Objective

* To develop a web-based automated timetabling management system for Maseno University.

### 1.3.2 Specific Research Objectives

1. To identify the required modules of the automated timetabling system.
2. To design an automated timetabling system prototype.
3. To code the designed automated timetabling system prototype.
4. To test the developed prototype.

## 1.4 Research Questions

1. What modules are needed for the implementation of this timetabling system?
2. What is the appropriate and suitable design for this system?
3. What implementation approach will be appropriate for this system?
4. What system testing and validation techniques will be suitable for this system?

## 1.5 Significance

The automation of timetabling activities at Maseno University will ensure the smooth management of learning activities and save time for both lecturers and students. It will ensure that lectures don't collide and lecturers aren't assigned two classes at the same time. It will also ensure that lecture halls are utilized well.

## 1.6 Limitations

1. The design and methodology selected to implement this system would be time-consuming.
2. The evaluation/testing of this system would not be ideal depending on the environment.

## 1.7 Assumptions

1. We assume that the system to be developed would run effectively on the laptops of the users of this system.
2. We assume that the entire process of developing this system would be cost-effective.
3. We also assume that this system would be integrated with the existing systems.

# REFERENCES

Henry, &. P. (2021, May 06). International Journal of Educational Research and Information Science. *Design and Implementation of a Web-Based Timetable system for Higher Education Institutions*.

# APPENDICES

## GANTT CHART

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **WEEKS**  **Deliverables** | WEEK  1 | WEEK  2 | WEEK 3 | WEEK 4 | WEEK 5 | WEEK 6 | WEEK  7 | WEEK  8 | WEEK  9 | WEEK  10 |
| Build a Gantt Chart |  | |  |  |  |  |  |  |  |  |
| Chapter One |  |  |  | |  |  |  |  |  |  |
| Chapter Two |  |  |  |  |  | |  |  |  |  |
| Chapter Three |  |  |  |  |  |  |  | |  |  |
| Final Copy and Presentation |  |  |  |  |  |  |  |  |  | |