

**THE TECHNICAL UNIVERSITY OF KENYA**

**Faculty of Applied Science and Technology**

**School of Computing and Information Technology**

**Department of Computer Science and technology**

**TUK eTimetable**

*A project submitted in partial fulfillment of the requirements for the degree of*

*Bachelor of technology in**{****Communication and Computer Networks****}*

by:

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Project Title Suggestion: TUK eTimetable: A Web-based system for improved access to school timetable.

CHAPTER ONE: INTRODUCTION

**Background**

School timetabling is way of distributing resources such as teachers and classrooms over a fixed period of time ( Hakan A, 2015) Time table scheduling has been a human requirement since they thought of managing their time effectively. Timetabling is the allocation of given resources to objects in space-time domain to satisfy a set of desirable objectives as nearly as possible. Particularly, the university timetabling problem for classes or lectures can be viewed as fixing in time and space a sequence of meetings between lecturers and students, while simultaneously satisfying a number of essential conditions or constraints. The timetabling problem concerns virtually every educational institution, be it primary school, high school, or university and thus requires to be solved effectively.

**Existing systems**

The current timetable is bulky and complex, taking several days or weeks of iterative repair after feedback from lecturers and subsequent reprinting. The final timetable is usually pinned on a noticeboard where students and lecturers access it. Viewing the lectures for one instructor can be very challenging because of the complexity of the timetable.

**Proposed system**

The proposed eTimetable will be a web-based system that is expected to produce significantly better and neater timetable than those that are currently in use and will take a considerably shorter time to view and update. The application will provide an easy, time-saving way for lecturers and students to view lecture timetables for individual lecturers and specific classes.

**Statement of The Problem**

Academic Institutions (Schools, Colleges, Universities, etc.) are the regular users of such time tables. They need to schedule their courses to meet the need of current duration and facilities that are available to them. These timetables are usually large and complex and often time consuming to view specific lecturer’s classes. Therefore, students and lecturers find it challenging to view their classes on the complex timetable. It is on this basis that this research proposes a web-based online system to facilitate easy access to the school timetable. The system will rely on an online database that is regularly updated by an administrator.

**Objectives of the study.**

**General objectives**

The main aim of this study is to develop a web-based system that facilitates improved access to school timetable.

**Specific Objectives**

The specific objectives of the study are:

1. To review existing school timetable in order to determine the structure, content, scope, users, inputs and various ways in which students and staff use the timetable.
2. To design a Web-based eTimetable system
3. To implement the Web-based eTimetable system
4. To test and validate the Web-based system.

**Research Questions**

In order to accomplish this research, we seek to answer the following research questions

1. What is the format of the current school timetable that is used by students and lecturers?
2. How can ICTs be used to simplify the access to the school timetable in TUK?

**Outputs from the research**

1. A detailed report of current timetable: structure, content, scope, users, inputs and various ways in which students and staff use the timetable
2. A database schema of the system to represent the foundational architecture of the timetable
3. Wireframes for the system
4. A web based system
   1. developed using a web framework (e.g. Lavarel, Code Igniter, bootstrap css, or any other or a combination)
   2. Functionalities:( staff login page, Notices section, Lecturers’ timetable, class timetable)
5. Results of validation through input of a timetable from one of the schools at TU-K (E.g. school of computing and information technologies)

**Justification**

The primary beneficiaries of the eTimetable will students and lecturers who rely heavily on the timetable for their daily activities. These people require an organized and neat timetable that is accessible to them even when they are not in the school compound. TUK eTimetable will offer its users with the ability to easily view only the section of the timetable that is useful to them.

**Scope of the proposed system**

This project proposes to cover its study only on tackling the technical university of Kenya school of computing timetabling problem and will not consider exam scheduling.

**Assumptions**

This study assumed lecturers and students have access to 2G and 3G mobile technology and that they all own at least a smart phone or personal computer to access the internet.

**References**

1. T. B. Cooper and J. H. Kingston (1993), The solution of real instances of the timetabling  
   problem. The Computer Journal, 36(7):645-653.
2. Costa. A (1994), tabu search algorithm for computing an operational timetable. European  
   Journal of Operational Research, 76:98-110.
3. H. A. (2015). School Timetabling in Theory and Practice (Doctoral dissertation, UMEA UNIVERSITET) [Abstract].