



**BUSITEMA
UNIVERSITY**
Pursuing Excellence

**FACULTY OF ENGINEERING
DEPARTMENT OF CHEMICAL AND PROCESS ENGINEERING
FINAL YEAR PROJECT REPORT**

MAIN TITLE

**INVESTIGATION OF OPTIMUM TEMPERATURE REQUIRED FOR ACCELERATED
DOMESTIC WASTEWATER TREATMENT PROCESS**

BY

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SUBSYSTEM 2

**EFFECT OF TEMPERATURE ON THE COD AND BOD REMOVAL RATE DURING
BIOLOGICAL WASTEWATER TREATMENT PROCESS USING AEROBIC DIGESTER**

BY

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A final year project report submitted to the department of chemical and process engineering in partial fulfillment of the requirement for the award of a Bachelor of Science degree in agro-processing engineering of Busitema University

ABSTRACT

The purpose of this study is to investigate the optimum temperature required for accelerated BOD and COD removal during biological treatment process of domestic wastewater (grey water and black water). Results from the digestion tank showed 75.7% and 80.8% as the maximum BOD₅ and COD removal efficiency respectively at a temperature of 30⁰C. The daily BOD and COD removed were observed to fall gradually as the concentration of organic matter reduced. For both samples, the BOD and COD removed were observed to increase very slightly after three days at a temperature of 30⁰C and this meant that at this temperature, most of the organic matter is removed by the microorganisms in less than 5 days. Further processing of the system effluent is recommended as it did not meet the quality standards specified by the national water and sewage cooperation and World Health Organisation.

DECLARATION

I **MWAITA ANTHONY** declare that this final year project proposal report is a result of my own efforts and tremendous work during the research period and has never been submitted to Busitema University or any other institution of higher learning for any academic award.

NAME: **MWAITA ANTHONY**

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APPROVAL

This is to certify that this report was written under the guidance of my supervisor on the topic “*effect of temperature on COD and BOD removal rate during biological wastewater treatment process using aerobic digester*” and is now ready for submission to the department of chemical and process engineering, Busitema University.

NAME OF SUPERVISOR: **Mr. SSERUMAGA PAUL.**

SIGNATURE:

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DEDICATION

I dedicate this report to my dear parents, brothers and sisters, and friends for the unsparing support that made this report writing a success. May God bless you all.

ACKNOWLEDGEMENT

I would like to extend my sincere thanks to the almighty GOD who has gifted me with life and has enabled me to reach this academic height as He has been the provider of all the necessary requirements.

Great thanks go to my beloved parents, brothers and sisters for the financial support and moral guidance.

Let me convey my heartfelt appreciation to my supervisor, Mr. Ssrumaga Paul as well as the group members and classmates for their advice and guidance during the preparation of this report.

Table of Contents

ABSTRACT.....	i
DECLARATION.....	ii
APPROVAL	iii
DEDICATION.....	iv
ACKNOWLEDGEMENT.....	v
CHAPTER ONE: INTRODUCTION	1
1.1 <i>Background</i>	1
1.2 <i>Problem statement</i>	1
1.3 <i>Justification</i>	2
1.4 <i>Purpose of the study</i>	2
1.5 <i>Objectives</i>	2
1.5.1 <i>Main objective</i>	2
1.5.2 <i>Specific objectives</i>	2
1.6 <i>Scope</i>	2
CHAPTER TWO: <i>LITERATURE REVIEW</i>	3
2.0 <i>Introduction</i>	3
2.1 <i>Wastewater treatment</i>	7
2.1.1 <i>Reasons for wastewater treatment</i>	7
2.1.2 <i>Stages involved in wastewater treatment</i>	8
2.1.3 <i>Methods/ techniques used in wastewater treatment</i>	9
2.1.4 <i>Biological wastewater treatment</i>	10
2.1.5 <i>Biological wastewater treatment methods</i>	10
2.1.6 <i>Role of microorganisms in wastewater treatment</i>	16
CHAPTER THREE: <i>METHODOLOGY</i>	17
CHAPTER FOUR: <i>RESULTS AND DISCUSSION</i>	20
CHAPTER FIVE: <i>CONCLUSIONS AND RECOMMENDATIONS</i>	24
5.1 <i>Conclusions</i>	24
5.2 <i>Recommendations</i>	24
<i>References</i>	25
APPENDICES	26