بسم الله الرحمن الرحيم

∞∞∞

تم رفع هذه الرسالة بواسطة / هناء محمد علي

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: ....

INTEGRATED ENVIRONMENTAL MANAGEMENT SYSTEMS IN EGYPTIAN HOSPITALS

Submitted by

Iman Mohamed Youssri Hassan Osman

B.Sc. In Civil Engineering, Faculty of Engineering, Cairo University, 2000
Diploma in Environmental Sciences, Faculty of Graduate Studies and Environmental Research, Ain Shams University, 2005
Master in Environmental Sciences, Faculty of Graduate Studies and Environmental Research, Ain Shams University, 2011

A Thesis Submitted in Partial Fulfillment

Of

The Requirement for the Doctor of Philosophy Degree

In

Environmental Sciences

Department of Environmental Engineering Sciences
Faculty of Graduate Studies and Environmental Research
Ain Shams University

2022

APPROVAL SHEET

INTEGRATED ENVIRONMENTAL MANAGEMENT SYSTEMS IN EGYPTIAN HOSPITALS

Submitted by

Iman Mohamed Youssri Hassan Osman

B.Sc. In Civil Engineering, Faculty of Engineering, Cairo University, 2000
Diploma in Environmental Sciences, Faculty of Graduate Studies and Environmental Research, Ain Shams University, 2005
Master in Environmental Sciences, Faculty of Graduate Studies and Environmental Research, Ain Shams University, 2011

A Thesis Submitted in Partial Fulfillment
Of
The Requirement for the Doctor of Philosophy Degree
In
Environmental Sciences
Department of Environmental Engineering Sciences

This thesis was discussed and approved by:

Name Signature

1-Prof. Dr. Ahmed Abdel Aziz Abdel Ghafar
Prof. and Head of Department of Surgery
Faculty of Medicine
Al-Azhar University

2-Prof. Dr. Tarek Ismail Mahmoud Sabry
Prof. of Sanitary Engineering
Faculty of Engineering
Ain Shams University

3-Prof. Dr. Mohammed El Hosseiny El Nadi
Emeritus Prof. of Sanitary & Environmental Engineering
Faculty of Engineering
Ain Shams University

2022

INTEGRATED ENVIRONMENTAL MANAGEMENT SYSTEMS IN EGYPTIAN HOSPITALS

Submitted by

Iman Mohamed Youssri Hassan Osman

B.Sc. In Civil Engineering, Faculty of Engineering, Cairo University, 2000
Diploma in Environmental Sciences, Faculty of Graduate Studies and Environmental Research, Ain Shams University, 2005
Master in Environmental Sciences, Faculty of Graduate Studies and Environmental Research, Ain Shams University, 2011

A Thesis Submitted in Partial Fulfillment
Of
The Requirement for the Doctor of Philosophy Degree
In
Environmental Sciences
Department of Environmental Engineering Sciences

Under The Supervision of:

1-Prof. Dr. Mohamed El Hosseiny El Nadi
Emeritus Prof. of Sanitary & Environmental Engineering
Faculty of Engineering
Ain Shams University

2-Prof. Dr. Asser Moustafa El-Afifi
Prof. of Surgery& Deputy director of Ain Shams University Hospitals
Ain Shams University

3-Prof. Dr. Khaled Hussein Taman (Dead)
Prof. of Childhood
Faculty of Post Graduate of Childhood
Ain Shams University

2022

ACKNOWLEDGEMENT

I sincerely appreciate Almighty God for his grace, sustenance strength, and benevolence that made me excel and succeed in all my academic pursuits.

I have no words to express my sincere thanks, appreciation, and gratitude to my advisor, Prof. Dr. Mohammed El- Hosseiny, I will be forever grateful for his guidance, and continuous support, he instilled in me the values of scientific inquiry and intellectual integrity, also the countless hours of attention he devoted throughout the course of this thesis.

I would like also to thank Prof. Dr. Khaled Hussien Taman, who passed away during the last stage of my work on this thesis, many thanks for his kind assistance, he has provided me extensive professional guidance, his valuable comments made a great influence on my work. I am very grateful for helping me to develop my medical background.

I extend my sincere profound gratitude to Prof. Dr. Asser Moustafa El-Afifi, for accepting the supervision and completion of this thesis, also for teaching me a great deal about hospital management.

My deep and sincere gratitude to my parents for their continuous and unparalleled love, support, I am forever indebted to them for giving me the opportunities and experiences that have made me who I am. My mother who have extended their unlimited love, constant prayers and kindness to me throughout my life. I am grateful to my father for always being a role model to me. Also, I wish to thank my supportive husband, and my wonderful children, for their patience and encouragement.

ABSTRACT

Healthcare facilities are energy and resource-intensive enterprise. This sector is a major consumer of resources, as they open 24 hours a day, 365 days a year, also function as offices, laboratories, commercial laundries, lodging establishments, food service providers, and in many cases they are used as energy generators and waste treatment enterprises. Each of those activities make them a design complicated building type, which requires an efficient integrated environmental management system afterwards.

Therefore, the research contributes to setting a new foundation for integrated hospital management throughout two perspectives: technical and environmental, this is for enhancing the operations for the existing hospital efficiently, given that, the budget which is allocated for operation, development and maintenance is very limited, so this program takes into account in its outputs; technically and environmentally accepted solutions; and such solutions are being implemented at the lowest possible cost and do not cause hinder or disruption of operations.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES