HIGHER TECHNICAL INSTITUTE

ELECTRICAL ENGINEERING COURSE

DIPLOMA PROJECT

DESIGN OF THE ELECTRICAL SERVICES OF AN ARMY CAMP

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DESIGN OF THE ELECTRICAL SERVICES OF AN ARMY CAMP

By

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Project Report

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I DEDICATE THIS PROJECT TO THE

MOST IMPORTANT PERSON

IN MY LIFE

WHICH IS MY FIANCEE ELEFTHERIA

LIST OF CONTENTS

Acknowledgments

Summary

Introduction

			PAGE
C H A P T E R 1	:	ILLUMINATION DESIGN	1
		Units and definitions	1
		The Lumens Method of illumination calculations	3
		Illumination Procedure and design Calculations	4
		Illumination Calculations	5
C H A P T E R 2	:	LIGHTING CIRCUITS	31
		Lighting Load Analysis and Calculations	32
C H A P T E R 3	:	SOCKET OUTLET CIRCUITS	103
		Introduction	103
		Socket outlet Calculations	104
C H A P T E R 4	:	FIXED APPLIANCES	119
		General	119
		Fixed Appliances Calculations	120
C H A P T E R 5	:	BALANCING AND DIVERSITY	133
		General	133
		Balancing and Diversity Calculations	134

C H A P T E R 6	:	FAULT LEVEL CALCULATIONS	
		General	160
C H A P T E R 7	:	FIRE ALARM SYSTEM	175
		General about Fire Protection	175
		Fire Protection Planning	176
		Fire Detection Systems Control units	183
		Fire Alarm System	186
		Fire Alarm Zones and Equipment	190
C H A P T E R 8	:	LIGHTNING PROTECTION SYSTEM	192
		Lightning Protection Theory	192
		General Definitions	192
		Basic Considerations	201
		System Design Calculations	203
		Earthing (general)	207
		Earth Electrodes	209
C H A P T E R 9	:	TELEPHONE SYSTEM T16	211
		General description and all the features of the system	211
		Conduit Schematic	214
		Wiring Schematic	215
		List of Connections	216
C H A P T E R 10	:	EARTHING	217
		Introduction, Methods of Earthing and Definitions	217
C H A P T E R 11	:	MATERIAL AND LABOUR COSTING	219

CONCLUSIONS
REFERENCES
APPENDICES

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SUMMARY

The electrical installation and services of an Army-Camp are composed of the design of the lighting and power circuits, the design of the fire alarm system, the lightning protection system and finally the telephone installation.

Great concern is given about safety as all the necessary calculations are made. Safety is the most important thing that is taken into consideration when an electrical installation is designed.

Safety for other external or internal conditions is made (i.e Fire alarm and Lightning protection system)

Internal and external communication must be provided at all times by the telephone installation of the camp. The telephone system T16 (8/16) was used for this particular design.

The estimation of the cost is based on the running cost of materials used and the present existing labour cost.

INTRODUCTION

The project, as its title states, is the design of the electrical services of an Army-Camp. More specifically the basic aims to study were the following:

a. Power

b. Lighting

c. Telephone Distribution

d. To design the security system

e. To provide lightning protection for explosive areas.

f. To provide all necessary diagrams schedule of materials and costing including labour.

The lighting load was determined in accordance with the study of the illumination engineering work. During the illumination design care was taken so as all the requirements used to comply with the CIBS codes for interior lighting. The selection of the required number, kind of position of any other load had been taken after an examination of the work carried at each area.

In carrying out the design of the whole installation the I.E.E (16th edition) regulation as well as the local regulations established by the E.A.C were taken into account.

The telephone installation was designed considering all CYTA requirements and regulations.

CHAPTER 1

ILLUMINATION DESIGN

DEFINITIONS

1. Luminous Flux (ϕ):

The total quantity of light from a source in lumens (Lm)

2. Luminous Efficiency:

Nlum=Lumens/Watt

3. Luminous Intensity (I):

In a given direction in the quotient of the luminous flux by a point source in an infinitesimal cone containing the given direction and the solid angle of the cone

I=Flux in one solid angle/Area of the cone of the solid angle

4. Illumination or Illuminance (E):

It is the amount of light (in lumens) falling on a unit area.

E=Flux/Area (Lm/m=Lux=Lx)

5. Luminance (L):

It expresses the intensity of light emitted in a given direction by a unit area of a luminous of reflected surface.

6. Maintenance Factor (nm):

The ratio of illumination from a dirty installation to that if the installation was clean.