

**HIGHER TECHNICAL INSTITUTE
ELECTRICAL ENGINEERING COURSE
DIPLOMA PROJECT**

**DESIGN OF ELECTRICAL SERVICES
FOR A CLOTHING FACTORY
COMPLEX**

E.1157

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This project is submitted in partial fulfillment of the award of Diploma of Technician Engineer in Electrical Engineering of the Higher Technical institute, Nicosia, Cyprus.

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ABSTRACT

This project deals with design of electrical services for a clothing factory complex comprising of Store of raw materials (warehouse), Spinning, knitting, sewing/cutting areas, Utilities area, Administration block

The design of the Electrical Services of the factory buildings will include Illumination design, Power, Power factor correction, Fire and burglar alarm systems.

The electrical design is based on the 16th edition of the IEE Regulations for the electrical equipment of the buildings and the requirements of the local undertakers (EAC).

The illumination design complies with the I.E.S. code and recommendations as well as the recommendations from the manufactures of the lamps and fittings.

Supply Voltage: 415V RMS, 50HZ

TT earthing System

The efficiency and power factor of high power circuit where not given must be taken to be 0.8

The Cables to be used are:

- (i) Single Core PVC insulated cables non-armored
- (ii) Multi-core armoured PVC insulated cables
- (iii) Method of installation: Method 3
- (iv) The external earth fault loop impedance is choosen to be 0.5

Fault level calculations have been carried out to decide the Short circuit breaking capacity of the main circuit breaker of each distribution board.

INTRODUCTION

This project consists of ten chapters. Each chapter includes briefly the followings:

CHAPTER 1

It deals with the illumination design work. Various definitions and the lumen method of design are explained and the necessary calculations are presented in a table.

CHAPTER 2

It deals with the electric installation. The relevant I.E.E. regulations and E.A.C. requirements are mentioned and applied.

CHAPTER 3

It includes the determination of the load distribution on each phase and also the calculation of the interconnecting cables sizes and ratings of the M.C.C.Bs. The load distribution on each D.B is shown in table form.

CHAPTER 4

It deals with the complet earthing arrangement of the factory.

CHAPTER 5

It deals with methods of power factor correction and calculations for its improvement.

CHAPTER 6

It include fault level calculations, distribution layout and typical calculations.

CHAPTER 7

It deals with inspection and testing of the whole installation.

CHAPTER 8

It deals with the fire alarm system. The fire alarm system is designed in accordance with the British standard code of practice.

CHAPTER 9

It deals with the burglar alarm system. The burglar alarm system is designed in accordance with the British Standard Code of practice.

CHAPTER 10

It deals with the Conclusions of the project.