



**HIGHER TECHNICAL INSTITUTE  
ELECTRICAL ENGINEERING DEPARTMENT**

**DIPLOMA PROJECT**

**DESIGN OF 11kV OVERHEAD  
DISTRIBUTION LINES USING DIGITAL  
TECHNIQUES**

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**DESIGN OF 11kV OVERHEAD DISTRIBUTION  
LINES USING DIGITAL TECHNIQUES**

by  
**APOLLON KAPODISTRIAS**

**PROJECT REPORT**

**SUBMITTED TO**

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## CUSTOMER

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- \* Chapter 2 Definitions
- \* Chapter 3 The Role of the Customer

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**TO MY FAMILY**

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## INTRODUCTION

Today's society has become more dependent for its successful functioning on a good supply of electrical energy, the link between the source and the consumer, the distribution system, which has a very critical role to play. There is a great need for expansion of the present distribution network requirements for the designing of new distribution lines. The Electricity Authority of Cyprus is the only responsible Authority for all the electrical supply needs of the island. Over the years, the Electricity Authority tried to improve their methods of distribution in order to save valuable time, increase the efficiency and satisfy the increasing demand of consumers.

On improving the distribution methods, the Electricity Authority had to improve the methods of designing 11kV overhead lines. For many years there was only one method being used and that was the traditional method of designing overhead distribution lines. The traditional method consists of five major operations:

- A. Line planning from the Planning Engineer.
- B. Field survey carried out by the Surveyor after the new line has been approved.
- C. Line profile plotted by the Surveyor from the levelling figures obtained from the field survey.
- D. The design of the line by the Surveyor, having in mind the several statutory requirements and limitations
- E. Finally, the plans are prepared and appropriate forms are filled where pole positioning is carried out showing the exact route of the line.

The second and new method of designing being used is the Computer Aided Design. This method uses a program known as PLS-CADD (Power Line Systems - Computer Aided Design and Drafting). With this method the field survey is carried out by the surveyor using a data logger and the PLS-CADD program receives data from a data logger where it



works out the data and presents the line profile and the design of a new line in very short time.

These two methods together with information regarding 11kV overhead distribution lines and information concerned with PLS-CADD are described in detail in the chapters that follow.

Three complete survey works, profiles and designs of 11kV overhead distribution lines are carried out in this project:

1. STAVROS PAPADOPOULOS FARM AT PERA ORINIS.

Using the traditional method of designing. (Appendix C)

2. K & P LINGIS FARM AT XYLOTYMBOS VILLAGE.

Using the traditional and new method of designing. (Appendix C, D, E)

3. COSTAS HADJIELIA AT PALEOMETOHO VILLAGE.

Using the new method of designing. (Appendix B, D, E)

DEFINITIONS