# MARIN TRANSCAL INSTITUTE

RECHANICAL EXCIPERING DEPARTMENT

DIPLOMA PROJECT

# DESIGN OF A LOW CAPACITY LIFTING MACHINE FOR DOMESTIC USE

11/995

VALIANTIS PETROS

JUNE 2004

# HIGHER TECHNICAL INSTITUTE

## MECHANICAL ENGINEERING DEPARTMENT

#### **DIPLOMA PROJECT**

# DESIGN OF A LOW CAPACITY LIFTING MACHINE FOR DOMESTIC USE

By

## Valiantis Petros (M/995)

JUNE 2004



# DESIGN OF A LOW CAPACITY LIFTING MACHINE FOR DOMESTIC USE

By

#### Valiantis Petros

Projected report

Submitted to

The department of mechanical engineering

Of the higher Technical institute

Nicosia Cyprus

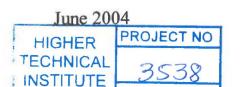
In partial fulfillment of the requirements

For the diploma of

**TECHNICIAN ENGINEER** 

In

**MECHANICAL ENGINEERING** 



#### **CONTENTS**

## INTRODUCTION: SOME THEORY ON ELEVATORS

History of elevators	1
How elevator works	1-2
Hydraulic elevators	3-4
Problems on hydraulics	5
The cable system	6-7
Safety systems	8-9
Making the rounds	10

#### **CHAPTER 1: MACHINES PRESENTATIONS**

Chain hoist	11-12
Level hoist	13-15
Wire rope pulling hoist	16-17
Electric chain hoist	18-20
Cranes	21-23

#### **CHAPTER 2: DECITION MAKING**

Decision making	24
Sketches	25-37

#### **CHAPTER 3:DIMENTIONS-CALCULATIONS**

Drawings- calculations ...38-58

#### **CHAPTER 4:SAFETY REGULATIONS**

Construction hoist	59
Incline hoist	59
Cranes and lifting equipment	60-61

#### **CHAPTER 5:COST ESTIMATION**

Cost estimation ...62-63

## **CHAPTER 6: CONCLUSIONS**

Conclusions ...64

**TABLES** 

Tables ...65...

**REFERENCES** 

#### **SUMMARY**

#### DESIGN OF A LOW CAPACITY LIFTING MACHINE FOR DOMESTIC USE

#### BY

#### **VALIANTIS PETROS**

The terms and conditions of this project is to design a lifting machine which must be suitable for a three-storey building with maximum capacity 200kgf.

Also safety regulations and procedure must be considered.

The objectives of the project is to design the lifting machine, to select the material and equipment for the design, to prepare detail drawings with technical specifications, and to prepare a cost analysis for the design.