

**HIGHER TECHNICAL INSTITUTE**  
**MECHANICAL ENGINEERING COURSE**

**DIPLOMA PROJECT**

**OPTIMIZATION OF A GAS CYLINDER  
PRODUCTION LINE**

**M/969**

**LAMBROS KYRLITSIAS**

**JUNE 2003**

# HIGHER TECHNICAL INSTITUTE

## Mechanical Engineering Course Diploma Project

### OPTIMIZATION OF A GAS CYLINDER PRODUCTION LINE

M/969

Lambros Kyriltsias

June 2003

HIGHER TECHNICAL INSTITUTE	PROJECT NO. 3444
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# **OPTIMIZATION OF A GAS CYLINDER PRODUCTION LINE**

By

Lambros Kyrlitsias

Project Report

Submitted to

the department of Mechanical Engineering

of the

Higher Technical Institute

Nicosia Cyprus

in partial fulfillment of the requirements

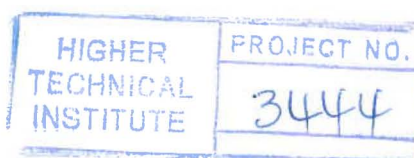
for the diploma of

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in

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June 2003



**HIGHER TECHNICAL INSTITUTE  
NICOSIA-CYPRUS  
MECHANICAL ENGINEERING DEPARTMENT**

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Project Number: M/969

Title: "Optimization of a gas cylinder production line"

Objectives:

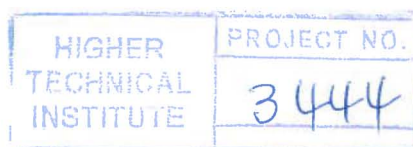
1. Study the theory of Production Management and optimization techniques in working industries.
2. Identify problematic areas in the existing production line and highlight the source of these problems.
3. Use flow charts to demonstrate the flow of the work.
4. Make suggestions to improve the production line.
5. Support your argument by quantifiable justification.
6. Present the new layout of the gas cylinder production line with percentage optimization figures.

Student: Lambros Kyriltsias

Supervisor: Dr Lazaros Lazari

LL/AEP

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This Project is dedicated  
to my parents who offered  
me so much.

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Lambros Kyrilitsias  
student in  
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3M

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# CHAPTER 1

## INTRODUCTION

This thesis is aiming to identify the potential problems of the present Gas Filling cylinder's Line, located at Petrolina (Holdings) Ltd and at the end, the student will attempt to propose options to the existing problems allowing the management of the company to identify what is the best solution for optimum performance of the plant.

The **second** chapter presents a brief historical background of the company as a whole, its position in the local market and the operation procedures that are associated with the LPG section.

The **third** chapter presents in more detail the cultural and structural links of the specified department under examination. Organizational charts and flow diagrams will present the flow of work and decision making of the section.

The **fourth and fifth** chapter deal with the LPG theory, and the literature review of operations management respectively. Blending of these theories is derived from a variety of books. From the Literature review a selection of methods is made, that are applicable with the working practices of the company under examination, and presented in the suggestion section.

The **sixth** chapter is the problem identification. Observations on the production line of filling gas cylinders and its tasks and procedure were made. In this chapter the aim is to expose the existing problems and to identify the causes of low efficiency and effectiveness during the process.



The Last chapter, **seven**, deals with the possible scenarios suggesting to the company ways that will help in increasing the efficiency and effectiveness of the LPG filling production line.

The aim of the writer of this thesis is to be objective, critical and analytical as possible, allowing all parties involved to realize their share of responsibility and to see more clearly what is the best not only for improving the overall performance of the plant but also for better working practices and better relationships among employees in the company.