



**FACULTY OF MECHANICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
40450 SHAH ALAM, SELANGOR**

**FINAL YEAR PROJECT
KJM 565**

**THE PRACTICE OF UNIT PENYELENGGARAAN IN MAINTAINING
AIR CONDITIONING SYSTEM IN UiTM SHAH ALAM:
A CRITICAL ANALYSIS**

PREPARED BY:

ANWAR BIN ABDUL RAHMAN	98015407
MAZ IZHA BIN SAMSUDIN	98015421

**BACHELOR OF ENGINEERING (MECHANICAL) (HONS)
NOVEMBER 2000**

ACKNOWLEDGEMENT

In the name of ALLAH s.w.t, the Most Gracious who has given us the strength and ability to complete this project and report. All perfect praises belong to ALLAH s.w.t, Lord of the Universe. May His blessing upon the Prophet Muhammad s.a.w. and members of the family and companions.

First, we would like to express our sincere and deepest gratitude to our project supervisor, Tn. Hj. Md. Fuad Bahari, for his valuable ideas, suggestions and continuous encouragement. Likewise, we would also like to honour him for his patience and kindness to assist us facing some hiccups during the course of completing this project.

Next, we wish to thank to all staff of Unit Mekanikal, Pejabat Penyelenggaraan, Universiti Teknologi MARA, Shah Alam, particularly En. Saaid Hassan (Mechanical Engineer), Pn. Mona Anita Fauzi (Technical Assistant for Unit Penyaman Udara), En. Anuar Hashim (Senior Technician), the technicians and technical support staff. Similarly, we thank En. Kasim Ahmad (Manager) and En. Sukri Ahmad Zainuddin (Technical Executive) of Facility Maintenance Section, SIRIM Berhad and En. Saidulnazid Kamari of Cofreth (M) Sdn. Bhd. for valuable information and guidance.

To our parents and our family, we thank them for their moral support, encouragement and advise. Last but not least, we would also like to thank to our classmates and friends who have contributed directly or indirectly in making this project a success.

Anwar B. Abdul Rahman

&

Maz Izha B. Samsudin

ABSTRACT

The objective of this project is to improve the maintenance management system of Unit Mekanikal (Penyaman Udara), Pejabat Penyelenggaraan, Universiti Teknologi MARA, Shah Alam, Selangor.

We started the project by examining their work condition, work culture and data management. Next, we identified the problems and analysed them to provide the best possible solutions. Some of these problems were found by comparing the operation of Unit Penyaman Udara with other organisations while others were found through observation during our practical training at the Unit.

The proposed solutions were based on theory for technical problems as well as from human or non-human based condition analysis. Most of them were gathered by conducting interviews with the staff of Unit Penyaman Udara and some other organisations, from the technical support level to the executive and/or engineer level.

We also found other option that is by implementing the Total Preventive Maintenance (TPM) or Total Quality Management (TQM) in their maintenance management system. With some aids that needed in both tools, it will help Unit Penyaman Udara to elevate the productivity of staff's work quality. In experiencing the computer science and information technology advancement, Unit Penyaman Udara should able to use the Computerised Maintenance Management System (CMMS) in their system for having more competitive staff in doing better management and maintenance work.

TABLE OF CONTENTS

CHAPTER		PAGE
	ACKNOWLEDGEMENT	iii
	ABSTRACT	iv
1	UNIT MEKANIKAL (PENYAMAN UDARA), PEJABAT PENYELENGGARAAN, UNIVERSITI TEKNOLOGI MARA, SHAH ALAM	1
	1.1 Introduction	1
	1.2 Structure of Unit Penyaman Udara	1
	1.3 Types of Air Conditioning System in UiTM	5
2	THEORY OF MAINTENANCE WORK AND QUALITY MANAGEMENT	12
	2.1 Classification of Maintenance Work	12
	2.2 Preventive Maintenance (PM)	13
	2.3 Total Quality Management	15
	2.4 ISO 9000 (Quality Assurance)	16
3	PROBLEMS IDENTIFICATION AND SOLUTION	18
	3.1 Introduction	18
	3.2 External Factors	18
	3.3 Internal Factors	20
	3.3.1 Management Aspect	22
	3.3.2 Technical Aspect	30
4	GUIDELINE TO PROVIDE BETTER MANAGEMENT FOR UNIT MEKANIKAL (PENYAMAN UDARA)	51
	4.1 Implementation of Preventive Maintenance	51
	4.2 Implementation of Total Quality Management	54
5	COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM (CMMS)	60
	5.1 Introduction	60
	5.2 CMMS Software	61

CHAPTER		PAGE
6	DISCUSSION	64
7	CONCLUSION	66
	BIBLIOGRAPHY	67
	APPENDIX I	
	APPENDIX II	
	APPENDIX III	