

COMPUTER AIDED LEARNING FOR METROLOGY STUDENTS

AHMAD FHATTAH SYAIFUDDIN B. KAMARUDIN 2001499445

A thesis submitted in partial fulfillment of the requirements for the award of Bachelor Engineering (Hons) (Mechanical)

Faculty of Mechanical Engineering
Universiti Teknologi MARA (UiTM)

APRIL 2005

ACKNOWLEDGEMENT

Allah has bestowed upon His Grace, and so it is, now we were completed this final year project thesis on the time. It could not have been written and produced without the constant help of Allah.

The production of this thesis would not have been accomplished, or it would be significantly less than it is, without the help of a great number of people. First, we owe a debt of gratitude to my supervisor Assoc. Prof. Sunhaji Kiyai Abas who helped us solidify the idea and significantly to influence our thinking about this final year project thesis.

We also would like to convey these special thanks to Mr. Shawal that is Metrology Laboratory Assistant who were helping us in information and guiding some experiments.

We also thanks to Mr Mohd Fazial Muhamad for his assistance in software development, and co-operation to making this project.

Lastly, we hope for your forgiveness for any unintended errors. Our appreciation of your counsel and encouragement is boundless and sincere. May this thesis can give the best knowledge for you all.

ABSTRACT

This project is based on the laboratory experiments done by Metrology students of Faculty of Mechanical Engineering, UiTM. These experiments are selected to initiate this project i.e. Straightness Measurement, Calibration of a Dial Gauge and Angular Measurement. These experiments are transformed into virtual laboratory system using software. The software of Visual Basic 6.0 is being used for this system. The project also provides a brief overview of the programming part using Visual Basic 6.0 as one of the powerful high level programming language for the virtual laboratory system. Hence, a system has been developed to help students in their learning especially in the field of Metrology. It is hoped that the student's effective learning and their interest in study in this particular subject will increase.

TABLE OF CONTENTS

£	CONT	TENTS		PAGE		
	ACKN	ii				
	ABST	ARCT	iii			
	TABL	TABLE OF CONTENTS				
	LIST	viii				
	LIST	OF FIGUI	ix			
CHAPTER I	GENERAL OVERVIEW					
	1.1	Introdu	1			
	1.2	Comp	uter Aided Learning	2		
	1.3	Advan	2			
	1.4	Risk		4		
CHAPTER II	PROJECT OVERVIEW					
	2.1	Introdu	6			
	2.2	Scope	6			
	2.3	Object	tive	7		
		2.3.1	Objective of Project	7		
		2.3.2	Objective of System	. 7		
	2.4	Benefits of System				
	2.5	Significance of Project				

	CHAPTER III	LITE	ERATURE REVIEW		
		3.1	Computer and Programming	9	
		3.2	Data Base	15	
		3.3	Visual Basic	25	
		3.4	Metrology	28	
	CHAPTER IV	METHODOLOGY			
		4.1	Selection of the Software	31	
		4.2	Literature Review	31	
		4.3	Experiment	31	
		4.4	Analysis Data	32	
		4.5	Study the Software	32	
		4.6	Create a System	32	
		4.7	Develop a System	32	
		4.8	Execute a System	34	
		4.9	Documentation of Thesis	34	
	CHAPTER V	EXPERIMENT LABORATORY DESCRIPTION			
		5.1	Straightness Measurement Experiment	35	
		5.2	Angular Measurement Experiment	40	
	*	5.3	Calibration of a Dial Gauge Experiment	44	
ć.	CHAPTER VI	INTERFACE OF SYSTEM			
		6.1	Overview	48	
		6.2	Set up Page	49	
		6.3	Copyright Page	50	
	*	6.4	Login Page	51	
**	re .	6.5	Main Menu Page	52	
	4	6.6	Introduction Page	54	
	3	6.7	Metrological Equipment	55	