

TABLE OF CONTENTS

TITLE PAGE	i
APPROVAL PAGE	ii
PRONOUNCEMENT	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENTS	v
LIST OF FIGURE	viii
LIST OF TABLES	x
APPENDIX	xi
APHABET ORDER	xii
ABSTRACT	xiv
INTISARI	xv
CHAPTER 1 INTODUCTION	1
1.1 Background	1
1.2 Formulation of Problem	4
1.3 Scope of Problem	4
1.4 Purpose of Research	5
1.5 Benefits of Research	5
CHAPTER 2 LITERATURE REVIEW	6
2.1 Kaolinite	6
2.2 Physical Properties of Salacca fiber	7
2.3 Mechanical Properties of Kaolinite Addition Composite	8
CHAPTER 3 BASIC THEORY	12
3.1 Composite Materials	12
3.2 Fiber-reinforced composite	13
3.3 Matrix/Resin	15
3.4 Weight/Volume Fraction	16

3.5	Longitudinal Modulus	18
3.6	Hand lay-up Method	18
3.7	Vacuum Desiccators	19
3.8	Density of Reinforcement	20
3.9	Theoretical Values of Composite Density	20
3.10	Mechanical Testing	21
	3.10.1 Tensile Test	21
	3.10.2 Flexural Test	23
3.11	Salacca Fiber	25
CHAPTER 4	RESEARCH EXPERIMENTAL PROCEDURES	27
4.1	Materials	27
	4.1.1 Salacca Fiber	27
	4.1.2 Epoxy Resin	27
	4.1.3 Kaolinite ($Al_2O_3 \cdot 2H_2O$)	28
	4.1.4 Composite	29
4.2	Methodology	29
	4.2.1 Mold preparation	29
	4.2.2 Sodium Hydroxide (NaOH) Preparation	30
4.3	Manufacture Process	30
	4.3.1 Measurement Salacca fiber Density	30
	4.3.2 Variation of Epoxy-Hardener with	31
	4.3.3 Variation of Epoxy-resin, fiber and Kaolinite	31
	4.3.4 Specimen Cutting	32
	4.3.5 Composite density testing	32
	4.3.6 Tensile Test	32
	4.3.7 Flexural Test	34
	4.3.8 Scanning Electron Microscope (SEM)	35
	4.3.9 Flowchart of Manufacture process	36
CHAPTER 5	RESULTS AND DISCUSION	37
5.1	Volume fraction and Density	37
	5.1.1 Volume Fraction	37

5.1.2	Density	37
5.2	Void	38
5.3	Tensile test	39
5.3.1	Tensile strength of Epoxy/Salacca fiber	39
5.3.2	Tensile strength of Epoxy/fiber/kaolinite	40
5.4	Flexural test	41
5.5	SEM Analysis	43
CHAPTER 6	CONCLUSION	46
6.1	Conclusion	46
6.2	Suggestion	47
	REFERENCE	48
	APPENDIX	51