# TEMPLATE OF THESIS BOOK (PTEX VERSION.BETA)

A THESIS SUBMITTED TO THE SCHOOL OF COMPUTING

 $\mathbf{BY}$ 

YOUR FULLNAME

YOUR ID/NIM



IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF OF MASTER OF FORENSIC SCIENCE IN THE SCHOOL OF COMPUTING

TELKOM UNIVERSITY 2023

# APPROVAL PAGE

Approval of the School of Computing of Telkom University

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master Forensic Science.

Date May 23, 2023 (\*the date can be set manully)

(Dr. Farah Afianti)	
Head of Master Forensic Science	
This is to certify that we have read this thesis in scope and quality, as a thesis for the degree	
Date <u>May 23</u> , 2023	
(Supervisor's name)	(Co-Supervisor's name)
 (Supervisor's name) Supervisor	(Co-Supervisor's name) Co-Supervisor
	·
Supervisor  Examining Committee Members.	·
Supervisor  Examining Committee Members.  Date May 23, 2023	·
Supervisor	·

# SELF DECLARATION AGAINST PLAGIARISM

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Month/Date/Year May 23 , 2023
Name, last name: Your Name
Signature:
Month/Date/Year May 23, 2023
Name, last name of the Supervisor: Supervisor Name
Signature:
Month/Date/Year May 23 , 2023
Name, last name of the Co-Supervisor: Co-Supervisor Name
Signature:

# ABSTRACT

YOUR ABSTRACT.

**Keywords:** temp1, temp2

# ABSTRAK

Abstract in bahasa Indonesia.

Kata kunci:

# **DEDICATION**

This thesis is compiled with the support of my family. I praise GOD and thanks to all who have helped, directed, and supported this work. I dedicate the work to my beloved parents ALICE and BOB.

Finally this thesis is dedicated to all informatics students in the world. I hope that this research may provide valuable contribution in Computer Science.

# **ACKNOWLEDGMENTS**

This thesis is compiled with the effort, help, and support from both students and lecturers. I would like to express my deepest gratitude and thanks to:

- 1. .....
- 2. .....

# **PREFACE**

In thesis writing, the most difficult part to write is Chapter 1 (Introduction/The Problem). As they say, the most difficult part of any endeavor is the starting point. This is because the first chapter is where you conceptualize your entire research. The whole research/thesis can be reflected in Chapter 1 including expected results or outcomes. For your guidelines, please read the following sample format of Chapter 1.

Bandung,

YOUR NAME

# CONTENTS

	APPROVAL	ii
	SELF DECLARATION AGAINST PLAGIARISM	iii
	ABSTRACT	iv
	ABSTRAK	$\mathbf{v}$
	DEDICATION	vi
	ACKNOWLEDGMENTS	vii
	PREFACE	viii
	CONTENTS	ix
	LIST OF TABLES	xi
	LIST OF FIGURES	xii
	LIST OF TERMS	xiii
	LIST OF NOTATIONS	xiv
1	INDTRODUCTION  1.1 Rationale	1 1 1 1
2	REVIEW OF LITERATURE AND STUDIES  2.1 Related Literatures	<b>3</b> 3
3	RESEARCH METHODOLOGY  3.1 Research Design	<b>4</b> 4

# LIST OF TABLES

A.1	Example of Tables	12
A.2	Iris flower data set #Example of longtable	13

# LIST OF FIGURES

A.1	Picture of mary elizabeth winstead	12
A.2	Example of block diagram.	12

# LIST OF TERMS

Terms	Definition
Classes	Number of individual in biometrics data
Sample	Number of images can be used to represent population in a class.

# LIST OF NOTATIONS

Symbols	Definition
$\mapsto$	Mapping operator
$(x_i, y_i)$	Data point
A	Cardinality of A
p-q	Absolute of $p-q$
$\mathbb{R}$	Sets of real number

## CHAPTER 1

#### INDTRODUCTION

This chapter includes the following subtopics, namely: (1) Rationale; (2) Theoretical Framework; (3) Conceptual Framework/Paradigm; (4) Statement of the problem; (5) Hypothesis (Optional); (6) Assumption (Optional); (7) Scope and Delimitation; and (8) Importance of the study.

#### 1.1 Rationale

This section have to explain: (a) the background of the study; (b) describe the problem situation considering global, national and local forces; (c) Justify the existence of the problem situation by citing statistical data and authoritative sources; and (d) Make a clinching statement that will relate the background to the proposed research problem.

#### 1.2 Theoretical Framework

Discuss the theories and/or concepts, which are useful in conceptualizing the research.

### 1.3 Conceptual Framework/Paradigm

Identify and discuss the variables related to the problem, and present a schematic diagram of the paradigm of the research and discuss the relationship of the elements/variables therein.

#### 1.4 Statement of the Problem

The general problem must be reflective of the title. It should be stated in such a way that it is not answerable by yes or no, not indicative of when and where. Rather, it should reflect between and among variables. Each sub-problem should cover mutually exclusive dimensions (no overlapping). The sub-problem should be arranged in logical order from actual to analytical following the flow in the research paradigm.

# 1.5 Objective and Hypotheses

First, explain the objective according the problem, then hypothesis. A hypothesis should be measurable/ desirable. It expresses expected relationship between two or more variables. It is based on the theory and/or empirical evidence. There are techniques available to

measure or describe the variables. It is on a one to one correspondence with the specific problems of the study. A hypothesis in statistical form has the following characteristics: (a) it is used when the test of significance of relationships and difference of measures are involved; and (b) the level of significance if stated.

#### 1.6 Assumption

An assumption should be based on the general and specific problems. It is stated in simple, brief, generally accepted statement.

#### 1.7 Scope and Delimitation

Indicate the principal variables, locale, timeframe, and justification.

## 1.8 Significance of the Study

This section describes the contributions of the study as new knowledge, make findings more conclusive. It cites the usefulness of the study to the specific groups.

## CHAPTER 2

#### REVIEW OF LITERATURE AND STUDIES

This chapter starts with a brief introductory paragraph concerning the researcher's exploration of related literature and studies on the research problem. It should be organized thematically to confirm to the specific problems. It should synthesize evidence from all studies reviewed to get an overall understanding of the state of the knowledge in the problem area. As much as possible, the reviewed should be limited within the last ten years. A statement showing how the related materials had assisted the researchers in the present study should be the last part.

This chapter discusses the literature studies and theories of this study. It is divided into two sections: (1) the related literatures; and (2) the related studies.

#### 2.1 Related Literatures

This section discusses state of the art of biometrics technologies and typical process which should be conducted in biometrics such as: data acquisition; preprocessing; feature extraction; and classification.

#### 2.2 Related Studies

This section discusses about the related studies which support in the designing of the proposed method.

## CHAPTER 3

#### RESEARCH METHODOLOGY

This chapter of a thesis commences a brief statement and enumerating the main topics that are to be covered in it; namely; (1) Research Design; (2) Sources of Data (Locale of the Study and Population/Sampling); (3) Instrumentation and Data Collection; and (4) Tools for Data Analysis. Writing chapter 3 of a thesis requires the assistance of a statistician (in most cases). This is because it is in this chapter that the thesis writer is usually required to indicate what statistical tools he intends to use in data analysis. Here is the basic format of Chapter 3.

#### 3.1 Research Design

The appropriate research design should be specified and described (including requirement, modeling and detailed description of system/product/method development.

#### 3.1.1 System/product/method Implementation

Describe the place where the study was conducted and the rationale behind its choice, the environment of the system (device specification, tools specification and language, which were used in the implementation)

#### 3.1.2 Experiment Scenario

Describe the experiment scenario (including the objective, the procedure of the experiment and the variable which will be used in the experiment).

## 3.2 Population/Sampling

Describe the population of interest and the sampling of subjects used in the study.

#### 3.3 Instrumentation and Data Collection

Describe the instrument, what it will measure, how to interpret. Discuss how the validity and the reliability will be established. Specify the level of reliability (probability). Give details of instruction given to assistants if persons other than the researcher gather data. State qualifications of informants if used in the study.

# 3.4 Tools for Data Analysis

Determine and justify the statistical treatment for each sub-problem, the scales of values used and the descriptive equivalent ratings, if any.

#### CHAPTER 4

# PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

In thesis writing, the most difficult part to defend is chapter 4 because it is in this section where you will present the results of the whole study. Here is a sample thesis format.

#### 4.1 Presentation of Data

Present the findings of the study in the order of the specific problem as stated in the statement of the Problem. Present the data in these forms: (a) tabular; (b) textual; and (c) graphical (optional). The ZOOM LENS approach may be used for purposes of clarity in the presentation of data, i.e. general to particular, macro to micro or vice versa. (Note: Mean of data in here is data of the experiment result, not the data for input of the system)

### 4.2 Analysis of the Data

Data may be analyzed quantitatively or qualitatively depending on the level of measurement and the number of dimensions and variables of the study. Analyze in depth to give meaning to the data presented in the data presented in the table. Avoid table reading. State statistical descriptions in declarative sentences, e.g. in the studies involving:

#### 1. Correlation

- (a) State level of correlation
- (b) State whether positive or negative
- (c) Indicate the level of significance
- (d) Make a decision

#### 2. Differences of Measures

- (a) State the obtained statistical results
- (b) Indicate the level of significance of the difference
- (c) Make a decision

#### 3. Interpretation of Data

(a) Establish interconnection between and among data

- (b) Check for indicators whether hypothesis/es is/are supported or not by findings.
- (c) Link the present findings with the previous literature.
- (d) Use parallel observations with contemporary events to give credence presented in the introduction.
- (e) Draw out implications.

In thesis writing, the Chapter is simply a summary of what the researcher had done all throughout the whole research.

## 4.3 Summary of Findings

This describes the problem, research design, and the findings (answer to the questions raised). The recommended format is the paragraph form instead of the enumeration form. For each of the problems, present: (a) the salient findings; and (b) the results of the hypothesis tested.

## CHAPTER 5

#### CONCLUSION AND RECOMMENDATIONS

#### 5.1 Conclusions

These are brief, generalized statements in answer to the general and each of the specific sub-problems. These contain generalized in relation to the population. These are general inferences applicable to a wider and similar population. Flexibility is considered in making of conclusions. It is not a must to state conclusions on a one-to-one correspondence with the problems and the findings as all variables can be subsume in one paragraph. Conclusions may be used as generalizations from a micro to a macro-level or vice versa (ZOOM LENS approach). Conclusions should be written on paragraph.

#### 5.2 Recommendations

They should be based on the findings and conclusion of the study. Recommendations may be specific or general or both. They may include suggestions for further studies. They should be in non-technical language, feasible, workable, flexible, doable, and adaptable. An action plan is optional.

## **BIBLIOGRAPHY**

- [1] A. K. Jain, P. Flynn, and A. A. Ross. *Handbook of Biometrics*. Springer-Verlag New York, Inc., Secaucus, NJ, USA, 2007. ISBN 038771040X.
- [2] A. Kong, D. Zhang, and M. Kamel. A survey of palmprint recognition. Pattern Recogn., 42(7):1408-1418, July 2009. ISSN 0031-3203. doi: 10.1016/j.patcog.2009.01.018. URL http://dx.doi.org/10.1016/j.patcog.2009.01.018.
- [3] J.-G. Wang, W.-Y. Yau, A. Suwandy, and E. Sung. Person recognition by fusing palmprint and palm vein images based on "laplacianpalm" representation. *Pattern Recogn.*, 41(5):1514–1527, May 2008. ISSN 0031-3203. doi: 10.1016/j.patcog.2007.10. 021. URL http://dx.doi.org/10.1016/j.patcog.2007.10.021.
- [4] Y. Zhou and A. Kumar. Contactless palm vein identification using multiple representations. In 2010 Fourth IEEE International Conference on Washington DC, ,, pages 1–6. IEEE, Biometrics: Theory Applications and Systems (BTAS), September 2010.

# Appendices

## APPENDIX A

## **MISCELLANEOUS**

This chapter discusses how to insert equation, figure and table on LATEX document. All the object in this chapter just the examples to make you ease to write your awesome thesis.

### A.1 Equation #examples

For simple equation, There is a equation 10 + 5x = 0, then determine the value of x by solving that algebraic equation problem. The answer is shown by equation A.1

$$10 + 5x = 0$$

$$5x = -10$$

$$x = -2$$
(A.1)

Besides that, for complicated equation will be explained as follow. The general equation for a 2D (N by M image) Discrete Cosine Transform is defined by equation A.2

$$F(u,v) = \sqrt{\frac{2}{N}} \sqrt{\frac{2}{M}} \sum_{i=0}^{N-1} A(i) * \cos\left(\frac{u(2i+1)\pi}{2N}\right) * \sum_{j=0}^{M-1} A(j) * \cos\left(\frac{v(2j+1)\pi}{2M}\right) * f(i,j)$$
 where  $A(i)$  is defined as 
$$\begin{cases} \frac{1}{\sqrt{2}}, & \text{for } u = 0\\ 1, & \text{otherwise} \end{cases}$$
, while  $A(j)$  as 
$$\begin{cases} \frac{1}{\sqrt{2}}, & \text{for } v = 0\\ 1, & \text{otherwise} \end{cases}$$

# A.2 Figure #examples

This section contain how to insert figure (see figure A.1) and block diagram (see figure A.2). We recommend to use high resolution JPEG or JPG instead PNG format, it will make the compiling process to PDF faster, size of the PDF file is smaller and the quality is image still better when the PDF is print out or zooming out.

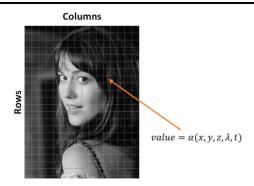


Figure A.1: Picture of mary elizabeth winstead

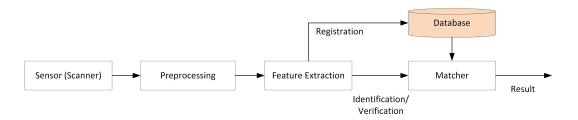


Figure A.2: Example of block diagram.

#### Table #examples A.3

The regular table (see table A.1) only can be used in single page. So, for the long table which use multiple pages is recommended to use longtable (see table A.2)

#### 1. Table

Table A.1 will show you how to cite the reference, it can be the author or the year of the reference.

Reference	Paper or Journal			
	Authors Full Authors			
[1]	Jain et al. $[1]^a$	Jain, Flynn, and		
		Ross		
[2]	Kong et al. [2]	Kong, Zhang, and		
		Kamel		

Wang,

Sung

Suwandy,

Zhou and Kumar

Yau,

and

Table A.1: Example of Tables

[3]

Wang et al. [3]

#### 2. Longtable

Table A.2: Iris flower data set #Example of longtable

Sepal length	Sepal width	Petal length	Petal width	Species
5.1	3.5	1.4	0.2	I. setosa
4.9	3	1.4	0.2	I. setosa
4.7	3.2	1.3	0.2	I. setosa
4.6	3.1	1.5	0.2	I. setosa
5	3.6	1.4	0.2	I. setosa
5.4	3.9	1.7	0.4	I. setosa
4.6	3.4	1.4	0.3	I. setosa
5	3.4	1.5	0.2	I. setosa
4.4	2.9	1.4	0.2	I. setosa
4.9	3.1	1.5	0.1	I. setosa
5.4	3.7	1.5	0.2	I. setosa
4.8	3.4	1.6	0.2	I. setosa
4.8	3	1.4	0.1	I. setosa
4.3	3	1.1	0.1	I. setosa
5.8	4	1.2	0.2	I. setosa
5.7	4.4	1.5	0.4	I. setosa
5.4	3.9	1.3	0.4	I. setosa
5.1	3.5	1.4	0.3	I. setosa
5.7	3.8	1.7	0.3	I. setosa
5.1	3.8	1.5	0.3	I. setosa
5.4	3.4	1.7	0.2	I. setosa
5.1	3.7	1.5	0.4	I. setosa
4.6	3.6	1	0.2	I. setosa
5.1	3.3	1.7	0.5	I. setosa
4.8	3.4	1.9	0.2	I. setosa
5	3	1.6	0.2	I. setosa
5	3.4	1.6	0.4	I. setosa
5.2	3.5	1.5	0.2	I. setosa
5.2	3.4	1.4	0.2	I. setosa
4.7	3.2	1.6	0.2	I. setosa
4.8	3.1	1.6	0.2	I. setosa
5.4	3.4	1.5	0.4	I. setosa
5.2	4.1	1.5	0.1	I. setosa
5.5	4.2	1.4	0.2	I. setosa

Sepal length	Sepal width	Petal length	Petal width	Species
4.9	3.1	1.5	0.2	I. setosa
5	3.2	1.2	0.2	I. setosa
5.5	3.5	1.3	0.2	I. setosa
4.9	3.6	1.4	0.1	I. setosa
4.4	3	1.3	0.2	I. setosa
5.1	3.4	1.5	0.2	I. setosa
5	3.5	1.3	0.3	I. setosa
4.5	2.3	1.3	0.3	I. setosa
4.4	3.2	1.3	0.2	I. setosa
5	3.5	1.6	0.6	I. setosa
5.1	3.8	1.9	0.4	I. setosa
4.8	3	1.4	0.3	I. setosa
5.1	3.8	1.6	0.2	I. setosa
4.6	3.2	1.4	0.2	I. setosa
5.3	3.7	1.5	0.2	I. setosa
5	3.3	1.4	0.2	I. setosa
7	3.2	4.7	1.4	I. versicolor
6.4	3.2	4.5	1.5	I. versicolor
6.9	3.1	4.9	1.5	I. versicolor
5.5	2.3	4	1.3	I. versicolor
6.5	2.8	4.6	1.5	I. versicolor
5.7	2.8	4.5	1.3	I. versicolor
6.3	3.3	4.7	1.6	I. versicolor
4.9	2.4	3.3	1	I. versicolor
6.6	2.9	4.6	1.3	I. versicolor
5.2	2.7	3.9	1.4	I. versicolor
5	2	3.5	1	I. versicolor
5.9	3	4.2	1.5	I. versicolor
6	2.2	4	1	I. versicolor
6.1	2.9	4.7	1.4	I. versicolor
5.6	2.9	3.6	1.3	I. versicolor
6.7	3.1	4.4	1.4	I. versicolor
5.6	3	4.5	1.5	I. versicolor
5.8	2.7	4.1	1	I. versicolor
6.2	2.2	4.5	1.5	I. versicolor
5.6	2.5	3.9	1.1	I. versicolor
5.9	3.2	4.8	1.8	I. versicolor

Sepal length	Sepal width	Petal length	Petal width	Species
6.1	2.8	4	1.3	I. versicolor
6.3	2.5	4.9	1.5	I. versicolor
6.1	2.8	4.7	1.2	I. versicolor
6.4	2.9	4.3	1.3	I. versicolor
6.6	3	4.4	1.4	I. versicolor
6.8	2.8	4.8	1.4	I. versicolor
6.7	3	5	1.7	I. versicolor
6	2.9	4.5	1.5	I. versicolor
5.7	2.6	3.5	1	I. versicolor
5.5	2.4	3.8	1.1	I. versicolor
5.5	2.4	3.7	1	I. versicolor
5.8	2.7	3.9	1.2	I. versicolor
6	2.7	5.1	1.6	I. versicolor
5.4	3	4.5	1.5	I. versicolor
6	3.4	4.5	1.6	I. versicolor
6.7	3.1	4.7	1.5	I. versicolor
6.3	2.3	4.4	1.3	I. versicolor
5.6	3	4.1	1.3	I. versicolor
5.5	2.5	4	1.3	I. versicolor
5.5	2.6	4.4	1.2	I. versicolor
6.1	3	4.6	1.4	I. versicolor
5.8	2.6	4	1.2	I. versicolor
5	2.3	3.3	1	I. versicolor
5.6	2.7	4.2	1.3	I. versicolor
5.7	3	4.2	1.2	I. versicolor
5.7	2.9	4.2	1.3	I. versicolor
6.2	2.9	4.3	1.3	I. versicolor
5.1	2.5	3	1.1	I. versicolor
5.7	2.8	4.1	1.3	I. versicolor
6.3	3.3	6	2.5	I. virginica
5.8	2.7	5.1	1.9	I. virginica
7.1	3	5.9	2.1	I. virginica
6.3	2.9	5.6	1.8	I. virginica
6.5	3	5.8	2.2	I. virginica
7.6	3	6.6	2.1	I. virginica
4.9	2.5	4.5	1.7	I. virginica
7.3	2.9	6.3	1.8	I. virginica

Sepal length	Sepal width	Petal length	Petal width	Species
6.7	2.5	5.8	1.8	I. virginica
7.2	3.6	6.1	2.5	I. virginica
6.5	3.2	5.1	2	I. virginica
6.4	2.7	5.3	1.9	I. virginica
6.8	3	5.5	2.1	I. virginica
5.7	2.5	5	2	I. virginica
5.8	2.8	5.1	2.4	I. virginica
6.4	3.2	5.3	2.3	I. virginica
6.5	3	5.5	1.8	I. virginica
7.7	3.8	6.7	2.2	I. virginica
7.7	2.6	6.9	2.3	I. virginica
6	2.2	5	1.5	I. virginica
6.9	3.2	5.7	2.3	I. virginica
5.6	2.8	4.9	2	I. virginica
7.7	2.8	6.7	2	I. virginica
6.3	2.7	4.9	1.8	I. virginica
6.7	3.3	5.7	2.1	I. virginica
7.2	3.2	6	1.8	I. virginica
6.2	2.8	4.8	1.8	I. virginica
6.1	3	4.9	1.8	I. virginica
6.4	2.8	5.6	2.1	I. virginica
7.2	3	5.8	1.6	I. virginica
7.4	2.8	6.1	1.9	I. virginica
7.9	3.8	6.4	2	I. virginica
6.4	2.8	5.6	2.2	I. virginica
6.3	2.8	5.1	1.5	I. virginica
6.1	2.6	5.6	1.4	I. virginica
7.7	3	6.1	2.3	I. virginica
6.3	3.4	5.6	2.4	I. virginica
6.4	3.1	5.5	1.8	I. virginica
6	3	4.8	1.8	I. virginica
6.9	3.1	5.4	2.1	I. virginica
6.7	3.1	5.6	2.4	I. virginica
6.9	3.1	5.1	2.3	I. virginica
5.8	2.7	5.1	1.9	I. virginica
6.8	3.2	5.9	2.3	I. virginica
6.7	3.3	5.7	2.5	I. virginica

Sepal length	Sepal width	Petal length	Petal width	Species
6.7	3	5.2	2.3	I. virginica
6.3	2.5	5	1.9	I. virginica
6.5	3	5.2	2	I. virginica
6.2	3.4	5.4	2.3	I. virginica
5.9	3	5.1	1.8	I. virginica

## APPENDIX B

# Curriculum Vitae # Example

#### PERSONAL INFORMATION

Name : Mr. Handsome

Date and Place of Birth: May 04, 2015 - Bandung, West Java

Address : ...

City and Province : ...

Pograf Corp.

POSTAL CODE : 99999
SEX : Male
NATIONALITY : Indonesia

Religion : ...

MARITAL STATUS : Single

Language Skill 1 : Indonesian (Mother Tongue)

LANGUAGE SKILL 2 : English (Sufficient)

LANGUAGE SKILL 3 : Minang (Sufficient)

LANGUAGE SKILL 4 : Java (Intermediate)

LANGUAGE SKILL 5 : Malay (Basic Knowledge)

LANGUAGE SKILL 6 : Arabic (Basic Knowledge)

FAX : -

EMAIL : youremail@students.telkomuniversity.ac.id

#### **EDUCATION**

Education Degree	Institution	Period of	Year of
		Education	Graduation
Master	Telkom University	2013 - 2015	2015
Bachelor		2008 - 2012	2012
High School		2007 - 2008	2008
Middle School		2003 - 2005	2005

## **PUBLICATIONS**

Title	Event	Year
		2011
		2012

## TEACHING AND PROFESSIONAL EXPERIENCE

Position	Institution	Field	Period
			2012 - 2013
			2009 - 2013

# TRAINING AND WORKSHOP

Training and Workshop	Organizer	Year
		2012
		2009

# ACHIEVEMENT

Achievement	Event	Year
$1^{th}$	Winner of The Awesome Thesis	2015
	2015, Telkom University	