

UNIVERSITI TEKNOLOGI MARA

**LAND USE CHANGES DETECTION
USING SUPERVISED
CLASSIFICATION AND POST
CLASSIFICATION METHOD**

**NUR LIYANA BINTI YUSOF
(2014748801)**

Thesis submitted in fulfillment
of the requirements for the degree of
Bachelor Science Geomatics

Faculty of Architecture, Planning and Surveying

July 2018

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student : Nur Liyana Binti Yusof

Student I.D. No. : 2014748801

Programme : AP220- Bachelor of Surveying Science and
Geomatics

Faculty : Architecture, Planning and Surveying

Thesis : Land Use Changes Detection Using Supervised
Classification And Post Classification Method

Signature of Student :

Date : July 2018

ABSTRACT

The purpose of this study was to examine the land use land cover in Klang Selangor by using supervised classification and post classification method. The comparison of time series data between year 2005 to 2010 and 2010 to 2016 have been carried out to identify the changes of land use land cover. The data use in this study were Landsat Satellite Imagery (TM and Oli-Tirs). Land use have been divided into five main categories representing water body, forest, agriculture, bare soil and built area. The classification of land use land cover using method supervised classification and post classification then make comparison using both method. After that, the relationship between land use land cover with land surface temperature was derived from linear correlation coefficient. Calculate land surface temperature from satellite imagery using a formula. Comparison data from Development Rural and Urban (JPBD) with the data derived from satellite imagery.

TABLE OF CONTENT

	Page
CONFIRMATION BY PANEL OF EXAMINERS	ii
AUTHOR'S DECLARATION	iv
ABSTRACT	v
ACKNOWLEDGEMENT	vi
TABLE OF CONTENT	vii
LIST OF TABLES	xii
LIST OF FIGURES	xiv
LIST OF PLATES	xvi
LIST OF SYMBOLS	xvii
LIST OF NOMENCLATURE	xviii
CHAPTER ONE INTRODUCTION	1
1.1 Research Background	1
1.2 Motivation	2
1.3 Problem Statement	2
1.4 Aim	3
1.5 Objective	3
1.6 Significance of Study	4
1.7 SUMMARY	4
1.7.1 Chapter 1: Introduction	4
1.7.2 Chapter 2: Literature Review	4
1.7.3 Chapter 3: Methodology	5
1.7.4 Chapter 4: Result and Analysis	5
1.7.5 Chapter 5: Conclusion and Recommendation	5
CHAPTER TWO LITERATURE REVIEW	6
2.1 Introduction	6

3.7.1	Data Used	22
3.7.2	Base Map	22
3.7.3	Satellite Imegery	23
3.7.4	Specification of satellite imagery	24
3.7.5	Landsat 5 TM	24
3.7.6	Landsat 8 Oli	24
3.6.5	Statistic Number Land Cover Area	25
3.8	Data Processing	26
3.9	Pre-Processing	26
3.10	Radiometric Correction	28
3.11	Subset Images	28
3.12	Change detection technique	30
3.12.1	Supervised classification	30
3.12.2	Post classification	31
3.13	Accuracy assessment	32
3.14	Urban change detection	32
3.14.1	Image differencing	32
3.15	Process of Land Surface Temperature (LST)	33
3.15.1	Land Surface Temperature (LST) landsat 5 TM	34
3.15.2	Land Surface Temperature Landsat 8 Oli	35
3.15.3	Correlation analysis	36
3.15.4	Evaluate data	37
CHAPTER FOUR	RESULTS AND ANALYSIS	38
4.1	Introduction	38
4.2	Result	38
4.3	Land Use Changes Detection In Year 2005, 2010 And 2016	39
4.3.1	Supervised classification of land use land cover	39
4.3.2	Post classification of land use land cover	32
4.3.3	Land use changes detection using supervised classification and post classification in year 2005 and 2010 and 2010 and 2016	34
4.3.4	Land use land cover on 2005, 2010 and 2016 in Klang Selangor	42