

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

**A NEW DISTANCE SCORE FUNCTION OF
HESITANT FUZZY SET AND APPLICATION TO
MULTIPLE CRITERIA DECISION MAKING
(MCDM)**

P48S18

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	2
TABLE OF CONTENTS	3
ABSTRACT	9
1. INTRODUCTION.....	10
1.1 Motivation	10
1.2 Problem Statement	11
1.3 Objective	12
1.4 Significance of The Research.....	12
1.5 Scope of The Research.....	13
1.6 Definition of Term and Concept	14
2 LITERATURE REVIEW	16
2.1 Background of Theory of Hesitant Fuzzy Sets in TOPSIS	16
2.1.1 Theory of Fuzzy Sets	16
2.1.2 Hesitant Fuzzy Sets in Multi-Criteria Decision Making (MCDM).....	17
2.2 A Score Function in Hesitant Fuzzy Sets (HFS).....	18
2.3 A Score Function in Other Fuzzy Sets	19
3. METHODOLOGY AND IMPLEMENTATION	21
3.1 Preliminaries	21
3.2 Flow Chart of Score Function in Hesitant Fuzzy Sets by Multiple Criteria Decision Making	24
3.2.1 Methodology of Score Function in Hesitant Fuzzy Set By Multi-Criteria Decision Making (MCDM).....	25
3.3 Analysis of Score Function	31
3.4 The Application of New Distance Score Function of Hesitant Fuzzy Set (HFS) in Multiple Criteria Decision Making (MCDM).....	39
4. RESULT AND DISCUSSION	63
4.1 Comparison of The Result	63
4.2 Discussion of The Result	65
5. CONCLUSIONS AND RECOMMENDATION.....	66

5.1 Conclusion.....	66
5.2 Recommendations	66
REFERENCES.....	68

ABSTRACT

The hesitant fuzzy set has been proposed recently in providing an interesting expansion in a fuzzy set. This research applies hesitant fuzzy sets which is it presents the degree of the membership where the value possibility between zero and one. We analysed the seven types of score function which are arithmetic-mean score function, geometric-mean score function, minimum score function, maximum score function, product score function, bounded sum score function, and fractional score function. The new formula of distance method has been proposed based on Euclidean distance of score function by using the ideal solution in TOPSIS. Then, we apply the proposed method of distance score function in solving the multi-criteria decision making (MCDM) problem. Finally, the result of ranking the alternative using purpose distance method is consistent with the other ranking method.