

**Universiti Teknologi MARA**

**Basketball Player Selection Using Fuzzy  
Analytic Hierarchy**

**SITI INDALLAH BINTI AMERUDIN**

**Report submitted in fulfillment of the requirements for  
Bachelor of Science (Hons.) Management Mathematics  
Faculty of Computer and Mathematical Sciences**

**July 2020**

## **STUDENT'S DECLARATION**

I certify that this report and the research to which it refers are the product of my own work and that any ideas or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.



.....  
**SITI INDALLAH BINTI AMERUDIN**

**2017775741**

**AUGUST 5, 2020**

## **ABSTRACT**

Selection of basketball players is a one-way process to choose the best players representing the teams. It helps every coach to find the eligible players in the teams. In order to do so, this study was intended to assess the weight of all the criteria identified in the evaluation of basketball players playing in the main Spanish basketball league, the Association of Basketball Clubs (ACB) and determine the most relevant selection criteria to be considered when selecting the best player using the Fuzzy Analytic Hierarchy Process (FAHP). Fuzzy Analytic Hierarchy Process (AHP) implies one multi-criteria decision-making process by determining the relative weights of each selection criterion. Through Microsoft Excel and formula, the data set was obtained involving ten players randomly chosen from 286 players. Data were then obtained from experts who ranked critical criteria through questionnaires to pick the best basketball players. Eight criteria were Years of Experience, Cost of the player, Games played, Minutes Played, Maximum Points, Blocked Shots, and Fouls performed. Based on the results, Based on the result, 'Maximum Points' was ranked first. The second rank was 'Height', followed by 'Games Played' in the third rank. Nonetheless, 'Cost of the player' was the least essential for selecting the best basketball players. 'Player 4' was rated first with a normalised 0.1738 for the best basketball players in the Spanish Basketball Club Association (ACB). The second rank was 'Player 9' with a normalised 0.1687, followed by 'Player 7' with a normalised 0.1352 in the third rank. 'Player 2' was the least among the ten players with a normalised 0.0390. As a result, basketball coaches could utilise this method to select eligible players as representatives in their teams.

**Keywords: Basketball Player Selection, Fuzzy Analytic Hierarchy Process, Criteria, Decision makers, Best Basketball player.**

# TABLE OF CONTENTS

<b>CONTENTS</b>	<b>PAGE</b>
<b>SUPERVISOR’S APPROVAL</b>	ii
<b>DECLARATION</b>	iii
<b>ACKNOWLEDGEMENT</b>	iv
<b>ABSTRACT</b>	v
<b>TABLE OF CONTENTS</b>	vi
<b>LIST OF FIGURES</b>	viii
<b>LIST OF TABLES</b>	ix

## **CHAPTER ONE: INTRODUCTION**

1.1	Background of the Study	1
1.2	Problem Statement	2
1.3	Objective of the Study	2
1.4	Scope of the Study	3
1.5	Significance of the Study	3

## **CHAPTER TWO: LITERATURE REVIEW**

2.1	Basketball Player Selection	4
2.2	Summary	7

### **CHAPTER THREE: RESEARCH METHODOLOGY**

3.1	Method of Data Collection	9
3.2	Method of Data Analysis	9

### **CHAPTER FOUR: RESULTS AND DISCUSSIONS**

4.1	Criteria and Decision Makers	15
4.2	Results and Discussion	16

### **CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS**

5.1	Conclusions	25
5.2	Recommendations	25

### **REFERENCES**

### **APPENDICES**

APPENDIX A: LINGUISTICE TERMS OF CRITERIA FOR DECISION MAKER	29
APPENDIX B: LINGUISTICE TERMS FOR ALTERNATIVES	31
APPENDIX C: THE IMPORTANCE (WEIGHT) OF CRITERIA IN TRIANGULAR FUZZY NUMBER	35
APPENDIX D: THE IMPORTANCE (WEIGHT) OF ALTERNATIVES IN TRIANGULAR FUZZY NUMBER	38