MAJORIO: A WEB BASED APPLICATION FOR DETERMINING COURSE AT BAKRIE UNIVERSITY USING FUZZY ANALYTICAL NETWORK PROCESS (FANP) AND TECHNIQUE FOR ORDER PREFERENCE BY SIMILARITY TO IDEAL SOLUTION (TOPSIS)

UNDERGRADUATE THESIS

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INFORMATION SYSTEM

FACULTY OF ENGINEERING AND COMPUTER SCIENCE

BAKRIE UNIVERSITY

JAKARTA

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STATEMENT OF ORIGINALITY

This undergraduate thesis is my original work and all information contained in this project paper which is derived from the work of others had been given an award by citing the name of the source's author correctly. All the contents of this undergraduaate thesis are the responsibility of the author thoroughly.

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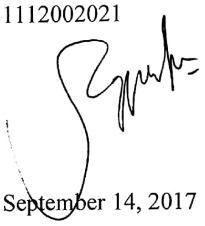

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STATEMENT OF APPROVAL

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Utomo Hendra Saputra

ABSTRACT

In selecting course at University, graduated students from high school rarely exposed with the information regarding with the courses offered. This lack of information about university's courses may lead to a problem which student may choose course that less preferences. This research aims to design and develop a Decision Support System (DSS) that can be used to assist students in selecting preferable course according to their interests and talents. The DSS named Majorio. The system build according to the curriculum 2013 and multiple information theories. Majorio is developed using combination of two algorithms/ functions: Fuzzy Analytical Network Process (FANP) and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). This combined function is used to calculate a combination of talents and academic competence and analyze how far the individual match against course. The methodology used in the development of Majorio is Web Methodology Language. This requires five stages including : requirement analysis, conceptual modelling, implementation, testing and implementation, deployment. Since Majorio is a web-based application, it will be accessed in majorio.org. Majorio is developed using PHP as a medium for data access which is supported by Apache web service while Javascript is used as a criterion calculating machine on the client side. The results of this study are 10 criteria used in determining the course, Majorio DSS design formed into Unified Modeling Languange (UML), and Comparison ranking between Fuzzy ANP and Fuzzy ANP TOPSIS resulting in calculation of Fuzzy ANP TOPSIS more accurate than Fuzzy ANP. In summary, the analysis of study show that 80% respondent students agree that Majorio can help them in selecting preferable course according to their interests and talents

Keywords : FANP, TOPSIS, DSS, Majorio, WebML

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ABBREVATIONS LIST

AHP	: Analytical Hierarchy Process
ANP	: Analytical Network Process
BSC	: Balanced Scorecard
BOCR	: Benefit Cost Opportunity Risk
BEER	: Building Energy Efficiency Retrofit
CCS	: Cascading Style Sheets
CPU	: Central Processing Unit
CHP	: Cognitive Hierarchy Process
CI	: Consistency Index
DFD	: Data Flow Diagram
DSS	: Decision Support System
DOD	: Document Oriented Database
E-commerce	: Electronic-commerce
EPC	: Engineering, Procurement and Construction
ERD	: Entity Relationship Diagram
E-R	: Entity-Relationship
EIS	: Executive Information Systems
ES	: Expert Systems
XML	: Extensible Markup Language
FANP	: Fuzzy Analytical Network Process
HDM	: Hierarchical Development Methodology
HTML	: Hyper Text Markup Language
PHP	: Hypertext Preprocessors
IA	: Intangible Assets
IC	: Intellectual Capital
JSON	: JavaScript Object Notation
KPI	: Key Performance Indicators
KSO	: Key Strategic Objectives
KS	: Knowledge System
KD	: Kompetensi Dasar
KI	: Kompetensi Inti
K-13	: Curriculum 2013
LS	: Languange System
MIS	: Management Information System
MVC	: Model-View Controller
MAUT	: Multi-Attribute Utility Theory
MCDA	: Multiple-Criteria Decision Analysis
MCDM	: Multiple-Criteria Decision Making
OO	: Object Oriented

OODBMS	: Object Oriented Database Management System
OO-H	: Object Oriented Hypermedia
OOP	: Object Oriented Programming
PDF	: Portable Document Format
PS	: Presentation System
PPS	: Problem Processing System
RI	: Random Index
RDMS	: Relational Database Management System
RMM	: Relationship Management Methodology
REST	: Representational State Transfer
SDLC	: Software Development Life Cycle
SA	: Structured Analysis
TOPSIS	: Technique for Order Performance by Similarity to Ideal Solution
TPS	: Transaction Processing System
TFN	: Triangular Fuzzy Number
UML	: Unified Modeling Language
UB	: Bakrie University
UI	: User Interface
WAE	: Web Application Extension
WDLC	: Web Development Life Cycle
WISDM	: Web Information System Development Methodology
WebML	: Web Modelling Language

APPENDIX LIST

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