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Measurement of students' achievement using fuzzy logic for the general education in mathematics at Rajabhat Maha Sarakham University

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Abstract

The purpose of this research aims to measure students' achievements using fuzzy logic for the general education in mathematics at Rajabhat Maha Sarakham University. The target group was students who enrolled on the subject of Mathematics and Statistics for Decision Making (1400003) of the academic year 2561, including 350 samples. An instrument in this study is the multiple choice test of knowledge level, learning level, and problem-solving level. In this paper, principles of fuzzy sets theory and possibility theory were used to describe the process of mathematical model in the classroom. The main stages of the model process are represented as fuzzy sets in a set of linguistic labels indicating the degree of a student's achievements in each of these stages. The total possibilistic uncertainty on the ordered possibility distribution of all student profiles was used to measure the students' achievements. The results of this study showed that the total achievement in mathematics was at a low level. The students have the highest average score in the knowledge, followed by learning skill, problem-solving skill, respectively.

Keywords: Fuzzy logic, General education, Mathematics, Achievements, Problem solving