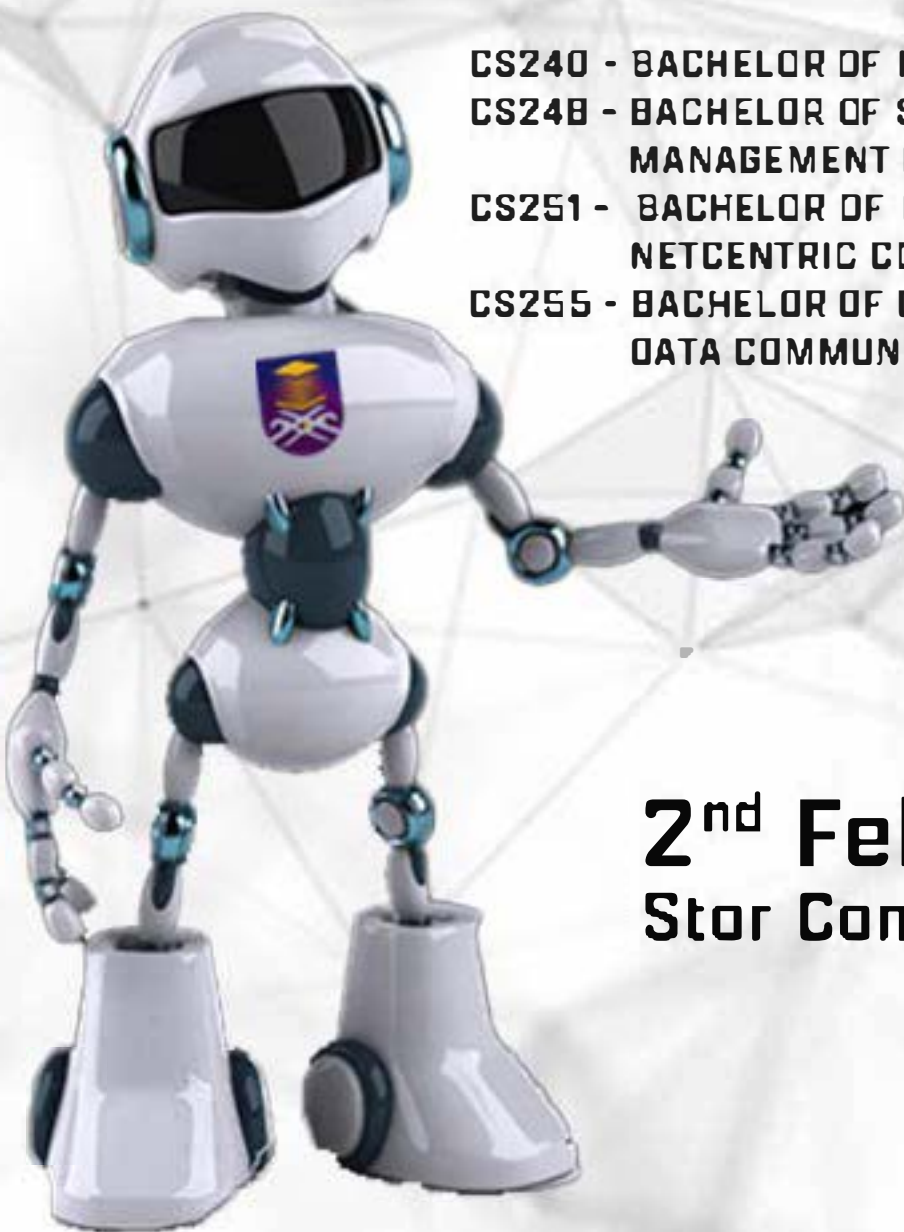

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES

REMACS 5.0



CS240 - BACHELOR OF INFORMATION TECHNOLOGY [HONS.]
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College of Computing, Informatics and Media
Universiti Teknologi MARA Perlis Branch

**Research Exhibition in Mathematics and Computer Sciences
(REMACS 5.0)**

Research Exhibition in Mathematics and Computer Sciences (REMACS 5.0)

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Preface

It is with great pleasure that we present this extended abstract book, titled "The 5th Research Exhibition in Mathematics and Computer Sciences (REMACS 5.0)". This book is a collection of research work in the fields of Computer Science and Mathematics, contributed by the final year students from Universiti Teknologi MARA, Perlis Branch. The aim of this book is to showcase the diversity and depth of research in these two interrelated fields.

Mathematics and Computer Science are two fields that have seen tremendous growth and advancement in recent years. With the rise of new technologies and the increasing demand for data-driven solutions, researchers in these fields have been working hard to develop new theories, algorithms, and models that can help solve some of the most pressing problems of our time. This book is a testament to their hard work and dedication.

The abstracts in this book cover a wide range of topics, including algebra, analysis, logic, computer architecture, algorithms, artificial intelligence, machine learning, computer network, netcentric computing and many more. The work presented here is both theoretical and practical, and has the potential to impact many areas of society, from finance and healthcare to education and security.

We hope that this book will serve as a valuable resource for future students in the fields of Mathematics and Computer Science. We also hope that it will inspire more students to pursue innovative and groundbreaking research in these two fields. Finally, we would like to express our gratitude to all the contributors for their hard work and dedication, without which this book would not have been possible.



RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
REMACS 5.0

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EVENT SCHEDULE

8:00 – 8:30 am

- Registration

8:00 am – 12:00 pm

- FYP Project Presentation

12:00 - 2:00pm

- Lunch Break

2:15 – 2:35 pm

- National & Wawasan Setia Anthems
- Doa Recitation

2:35 – 2:45 pm

- Welcoming Address by Director of REMACS 5.0

2:45 – 2:55 pm

- Officiating & Closing Remarks from Rector of UiTM Perlis

2:55 – 3:00 pm

- REMACS 5.0 Montage

3:00 – 4:00 pm

- Awarding of Winners:
 - Best Poster
 - Best Project Award

- Photo Session

- End of Ceremony

Dress Code: Formal / Corporate

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EXTENDED ABSTRACTS

RESEARCH EXHIBITION IN MATHEMATICS & COMPUTER SCIENCES
REMACS 5.0

RANKING THE EFFECTIVE PREVENTION MEASURES AGAINST COVID-19 BY USING FUZZY AHP METHOD

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Abstract

Knowledge, attitudes, and practices (KAP) about COVID-19 significantly impact a society's preparedness to embrace behavioural interventions from health authorities. Since the COVID-19 virus is spreading rapidly and wildly throughout the world, it would be essential to value the general public knowledge, attitude, and practice regarding COVID-19 among the community during the pandemic. The studies on KAP towards COVID-19 offered information that can identify the intervention necessary to alter prevailing perceptions of the virus. It can help to know the actions that should be taken and also help to determine the best preventive measures to curb this pandemic. This study used Multi-Criteria Decision Making (MCDM) methods to solve the decision-making problem and evaluated effective prevention measures against COVID-19 infection based on three criteria: knowledge, attitude, and practices. After collecting these criteria from the earlier study, we employed Fuzzy Analytic Hierarchy Process (AHP) technique to establish the best decision for the issue. Fuzzy AHP can be used for various decision-making problems and help make more effective, adaptable, and realistic decisions based on the available criteria and alternatives.

Keywords: *prevention measures, knowledge, attitudes, practices, COVID-19*

1. Introduction

Since COVID-19 virus is spreading fast and wildly throughout the world, it would be advantageous to assess the knowledge, attitude and practice that related to COVID-19 among the general public. Therefore, in order to discover and ranking the effective prevention measures against COVID-19, this study proposed to use the Fuzzy Analytical Hierarchy Process (FAHP) method. From this method, the study discovered other specific objectives such as providing a comparison of criteria as well as the value of alternative comparison to each criterion. Next, the study aimed to determine the weight of the three criteria, which are the knowledge, attitude and practice toward COVID-19 and the weight of four alternatives: hand hygiene, social distancing, mask, and personal care in pairwise comparisons.

2. Methodology

Data were collected from three experts who is active in COVID-19 activities to be the decision makers and evaluate the level influenced by these three criteria: knowledge, attitude and practice during COVID-19 pandemic. For the first step of fuzzy AHP method, the hierarchy structure will be demonstrated with the goal as the top level and the pair-wise comparisons matrix was created for each criterion by using fuzzy triangular numbers. Next, geometric mean of fuzzy comparison was calculated to find the weight of the criteria and then be defuzzied as the weight was still in triangular fuzzy number. The relative weight should be normalized if the total value was not equal to 1 since it was not a normalized weight to assign the weight to each alternative element. The same process will be repeated to identify the final weights and ranking of the alternatives with respect to criterion.

3. Results and Discussion

As a result, social distancing is the highest weights value to consider for effective prevention measures against COVID-19 with respect to the three main criteria, knowledge, attitude and practice. Due to the recent outbreak of COVID-19, social distancing is highly recommended by World Health Organization

(WHO) as a measure of reducing the COVID-19 outbreak. With regard to the preventative behaviour measures recommended by the government, hand hygiene practices and attitude are important not only during the coronavirus disease pandemic, but also important to prevent the possible spread of other infectious diseases. Next, the result also showed the weight value of personal care is higher than mask and so the lowest weight for effective prevention measures is mask. Wearing suitable mask to prevent COVID-19 is truly necessary and set the limitation of infection for the virus. However, there are several important preventive measures that need to be considered such as avoiding crowd places, frequently take the medicine advised by doctor or pharmacist and other personal care should be considered.

4. Novelty of Research / Product

There have been a number of researches that have investigated on this study related COVID-19 infection and focused on individual's knowledge, attitudes and practices during the pandemic. COVID-19 disease occurs in almost all countries around the world shortly after it appeared in China and many countries take various measures to fight with the disease, which has a high risk of transmission (Yildirim & Cinar, 2020). Not only that, a previous study about Iranian students' knowledge, attitude, risk awareness and practice of COVID-19 revealed that there is a need to educate students to receive health information from credible sources in order to minimize COVID-19 from spreading (Dashti et al., 2022). In general, people know that avoiding contact with infected people is essential to control COVID-19 spread but some of them observed with preventive measures and showed inadequate behaviour towards hand sanitizing (Chang et al., 2021). Since the issue is considered to be critical and there has not been any research on ranking effective prevention measures against the virus with respect to the criteria of knowledge, attitude and practice, this study aim to rank the effective prevention measures against COVID-19 by using Fuzzy AHP method as it can be carried in further research to evaluate the spread of coronavirus.

5. Conclusion

Fuzzy Analytical Hierarchy Process method is often used as it is convenient in a variety of decision-making situations and assist in making conclusions since it allowed for better decision-making while measuring the importance of criteria and alternatives. Based on the study, it is shown that knowledge, attitude and practice are relevant as a weight to determine the ranking for effective prevention measures against COVID-19.

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