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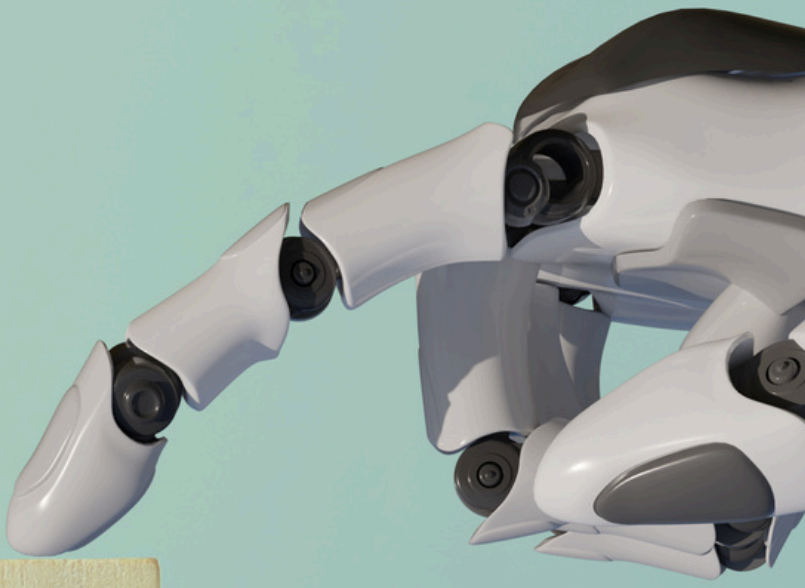

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MATHMARVEL 4.0

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EXECUTIVE SUMMARY

The *MathMarvel* 4.0 program was successfully conducted on May 23rd, 2025, at UiTM Negeri Sembilan, Kuala Pilah Campus. This initiative brought together 161 students and 9 facilitators from diverse academic backgrounds with the shared goal of enhancing students' mathematical understanding and academic performance. The primary objective of this program was to strengthen peer tutoring practices and improve exam preparedness through a variety of question-solving techniques, particularly in response to the high failure rates in mathematics-related subjects. Throughout the event, participants demonstrated noticeable improvements in both learning engagement and facilitation skills, alongside increased confidence and enthusiasm in tackling mathematical challenges. Despite the program's success, several challenges were identified, notably the difficulty in assigning subject-specific facilitators and monitoring student attendance. These issues highlighted the need for more structured coordination and follow-up mechanisms in future implementations. To sustain the positive impact and continue addressing the root causes of underperformance in mathematics, it is recommended that MathMarvel be institutionalized as a semesterly initiative. Regular execution of this program will support the Department of Mathematical Sciences Studies in elevating student outcomes and progressively reducing failure rates in critical mathematics courses.

INTRODUCTION

The *MathMarvel* 4.0 program is an academic enhancement initiative organized by the Faculty of Computer and Mathematical Sciences, UiTM Negeri Sembilan, Kuala Pilah Campus. Building on the success of previous editions, this semester's program focused on fostering mathematical thinking, collaborative learning, and peer tutoring among students from various science-based diploma programs.

Specifically, the program targeted participation from students enrolled in Diploma in Halal Management, Diploma in Food Technology, Diploma in Microbiology, Diploma in Textile Technology, Pre Diploma Science, and Pre Diploma in Science (STEM C and Arts Streams). These groups were selected due to their consistent engagement with mathematics-intensive subjects and the need to strengthen foundational skills in preparation for final examinations. The initiative is part of a broader effort to address the high failure rate in mathematics-related courses by offering students a supportive and dynamic learning environment. By combining collaborative problem-solving sessions with facilitator-guided activities, MathMarvel 4.0 aimed to create a more engaging and impactful academic support system.

RESULTS /ACHIEVEMENTS

The *MathMarvel* 4.0 program recorded positive outcomes based on student feedback and facilitator observations. Participants reported improved understanding of mathematical concepts, increased confidence in problem-solving, and better preparedness for examinations. Facilitators also noted enhanced peer engagement, effective collaboration, and active participation throughout the session. The structured guidance provided during the program enabled students to grasp alternative solution techniques and apply them independently. Additionally, the program successfully fostered a sense of academic motivation and peer support, particularly among students from mathematics-heavy diploma programs such as Diploma in Halal Management, Diploma in Food Technology, Diploma in Microbiology, Diploma in Textile Technology, Pre Diploma Science, and Pre Diploma in Science (STEM C and Arts Streams). These achievements indicate the program's strong potential to contribute to long-term academic performance improvements and a reduction in failure rates within the department. Figure 1 illustrates the activities throughout the program.

Figure 1: Students engaged in group discussions and problem-solving activities.

CONCLUSION

The implementation of *MathMarvel* 4.0 has proven to be a meaningful and impactful initiative in addressing the challenges faced by students in mathematics-related courses. Through structured peer tutoring, interactive problem-solving sessions, and the commitment of dedicated facilitators, the program successfully enhanced students' confidence, engagement, and academic preparedness. Despite minor logistical challenges, the positive outcomes underscore the program's relevance and effectiveness in supporting student success. It is therefore recommended that *MathMarvel* be continued and further refined in future semesters as a sustainable academic support mechanism within the Faculty of Computer and Mathematical Sciences.