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KICT TALE NEWSLETTER

STEAM-BASED APPROACH FOR THE INTRODUCTION TO COMPUTER ORGANIZATION GROUP PROJECT

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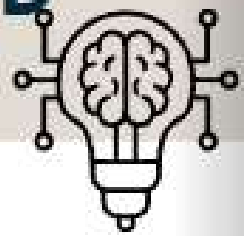
INTRODUCTION

The Science, Technology, Engineering, Arts, and Mathematics (STEAM) approach was applied in the group project for the Introduction to Computer Organization (ICO) course during Semester II of the 2023/2024 academic session. However, the science discipline was excluded from this implementation.

The integration of a STEAM-based approach can follow two methods: either focusing on a single discipline or incorporating all disciplines simultaneously. In this course, the former method was adopted.

METHOD



In essence, three tasks were designed in line with the STEAM-based approach: programming (aligned with the technology, engineering, and mathematics disciplines), multimedia (representing the arts discipline), and robotics (pertaining to the engineering discipline).

These tasks resulted in the development of a system, an animation, and a simulation, respectively. A list of suggested tasks for each topic or subtopic was provided to the students, although they were encouraged to propose their own ideas. For instance, the subtopic "gates" under the topic of digital logic could be explored through robotics, where students might create a circuit using Arduino.

RESULT

Out of the 20 groups, 15 opted to develop systems using programming, four groups chose to create animations, and one group selected a robotics task.

DISCUSSION

The majority of the groups preferred the programming task due to their strong interest and prior experience in programming, specifically in Java and C++. Similarly, the group that pursued the robotics task had prior knowledge of Arduino from their foundation programme and continued to develop their interest by joining the Robotic Club in the Kulliyyah of Engineering. Meanwhile, the groups working on animation projects demonstrated a passion for creative work, even though they had to learn multimedia skills independently.

CONCLUSION

In conclusion, allowing students to integrate their group projects with the STEAM framework offers a broader range of options, enabling them to tailor their projects according to their knowledge, expertise, and interests. For future works, the group project could explore the second method of STEAM integration, where a single project encompasses all the disciplines, providing a more comprehensive and holistic approach.