

**UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

**FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY**

**Smart Course Management System**

**BITI2223 MACHINE LEARNING**

**Project Proposal**

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# **Executive Summary**

Quantum Class proposes the development of a Smart Course Management System designed to alleviate course scheduling conflicts, especially for direct-entry students with credit transfers. These students often face overlapping class times, creating disruptions in their academic plans, causing delays in semester preparation, and potentially extending graduation timelines. This proposal aims to provide an efficient scheduling solution that enhances student experience during university years by reducing the need for course re-selection and minimizing delays in academic progress.

The primary goals of the Smart Course Management System are to improve academic outcomes and institutional efficiency. By implementing this system, Quantum Class seeks to increase course completion rates by 20%, enhance student engagement in course activities by 30%, and reduce administrative workload by 40% within the first year. To achieve these targets, the project will deploy a course scheduling algorithm that uses historical data to minimize conflicts, an interactive dashboard that allows students to visualize their schedules and identify alternative options, and training workshops to help students maximize their use of the system.

Data for this project will be sourced from university administration as well as using student information system to provide information on course needed to be choose by the student. Analyses will include descriptive and predictive modeling to understand enrollment patterns, forecast course demand, and drive behavior change by optimizing student scheduling.

To ensure transparency and equity, Quantum Class will safeguard student data privacy and engage stakeholders—including students, faculty, and administration—in understanding the objectives and benefits of the new system. With strong public support anticipated, this system represents a significant step toward improving institutional efficiency and supporting student achievement by streamlining course scheduling and reducing barriers to academic progress.

# **Project Background**

At the start of each semester, students face the challenge of organizing their schedules to accommodate selected courses, which can lead to overlapping class times. This issue is particularly pressing for direct-entry students who often enter with credits from previous institutions, making their course requirements and schedules unique. As students register for required courses, they frequently discover conflicts that disrupt their study plans, necessitating a scramble to find alternative time slots, adjust course selections, or even drop classes. This chaotic process not only delays semester preparation but also impacts students’ academic progress, potentially extending their time to graduation. Addressing this challenge is essential to improve student satisfaction, reduce administrative burdens, and create a more streamlined academic experience.

# **Project Objectives**

Throughout the development progress of this project, there are several objectives that serve as benchmarks. This objective also ensuring the project meets the need and expectation to deliver a working model. The objective of this project is to:

1. Reduce Scheduling Conflicts by minimize course overlap issues, especially for direct-entry students with transferred credits.
2. Enhance Course Completion Rates: Increase the rate of successful course completion by providing conflict-free schedules.
3. Improve Student Engagement: Boost student participation and interaction in course activities by enabling a smoother registration process.
4. Streamline Administrative Tasks: Decrease time and resources spent on managing enrollment, schedule adjustments, and related administrative duties.
5. Support Timely Graduation: Facilitate on-track academic progress by aligning schedules with students’ study plans, helping them graduate on time.