

Abstract

The implementation of Outcome-Based Education (OBE) at the Faculty of Industrial Engineering (FRI), Telkom University, presents challenges in managing and evaluating learning outcomes, both at the Course Learning Outcome (CLO) and Program Learning Outcome (PLO) levels. The manual process carried out by the head of the study program often takes a long time and is prone to errors. This research aims to design and develop a backend system to support the preprocessing of CLO and PLO data in a web-based environment, integrated with the i-Gracias system to accelerate the curriculum evaluation process.

The development process follows a prototyping model approach to ensure system requirements are met through iterative user feedback-based design. The backend system is developed using Laravel Lumen as the framework and utilizes Python for calculating CLO, Course PLO (PLO MK), and PLO values. Testing is conducted using the Black Box Testing method to verify endpoint functions, such as data import features, value calculations, and the generation of SKCP (Learning Outcome Certificate) documents.

The research results indicate that the designed system can automate the calculation process of CLO and PLO values, reduce the risk of manual errors, and improve the efficiency of learning outcome monitoring. This system is expected to be a significant solution in supporting OBE-based evaluation processes in higher education.