

Case-Based Module Development to Enhance 4Cs in Laboratory Management Engineering Students

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Critical thinking, creativity, communication, and collaboration (4Cs) are essential competencies that students must acquire in the 21st-century education era. The 4Cs skills can be trained through case method-based learning presented in lecture modules. This study aims to develop a case method-based module to improve the 4Cs skills of students in the laboratory management engineering program. This research employed a Research and Development (R&D) design using the ADDIE model, which consists of Analysis, Design, Development, Implementation, and Evaluation stages. The research subjects were students enrolled in laboratory management courses. The research instruments included validation sheets, practicality questionnaires, and 4Cs skill observation sheets, analyzed using descriptive techniques. The feasibility test of the module was carried out through product validation by two experts and limited trials involving students. The results indicate that the developed case method-based module met the criteria of validity, practicality, and effectiveness in enhancing students' 4Cs skills. Therefore, this module can serve as an innovative teaching material to support learning in higher education.

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