IMPLEMENTATION OF PROJECT BASE LEARNING IN CAD LEARNING IN SUPPORTING MACHINE DESIGN DRAWING SKILLS

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ABSTRACT

The objectives of this study are: 1) Describe the implementation of PjBL in learning CAD 3D with Autodesk Fusion 360, 2) Knowing the improvement of students' abilities in developing creativity, collaboration and communication, and 3) Knowing the competence of CAD 3D in drawing machine designs with Autodesk Fusion 360.

Research methods that use classroom action research. Research is carried out by planning, implementing, observing and reflecting. The cycle carried out depends on the achievement of predetermined benchmarks and at least 3 cycles. The research was conducted on students who took 3D CAD courses in this case classes T1 and T2 totaling 43 students at the Department of Mechanical Engineering Education, Faculty of Engineering, Yogyakarta State University. The 3D CAD application used is with Autodesk Fusion 360. Research instruments are used to retrieve data to measure the achievement of 3D CAD competencies, and observation instruments to see creativity, collaboration, and communication.

The results of the study: 1) the implementation of PjBL in CAD learning includes project preparation, project implementation and exposure of project results, 2) students' ability to develop creativity (83.7), collaborative (84.4) and communication (80.4), 3) The average competence of 3D CAD in drawing machine designs with Autodesk Fusion 360 was achieved at 88.66.

Kata Kunci: *Project Based Learning, CAD 3D, Machine Design*