DESIGN DEVELOPMENT OF A 500 KG LIFTING DEVICE USING THE QUALITY FUNCTION DEPLOYMENT (QFD) METHOD

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Abstract

Lifting equipment is a tool used to move or lift heavy loads in order to improve work efficiency, especially in workshop environments. The limitations of the existing lifting equipment at the Bengkalis State Polytechnic, such as low lifting capacity and suboptimal features, have prompted the need to develop a lifting equipment design with a capacity of 500 kg. This research involved students from the Mechanical Engineering Department of Bengkalis State Polytechnic as respondents, with a sample size of 82 people. Data collection was carried out through questionnaires, observation, and interviews. Data analysis used the Quality Function Deployment (QFD) method to translate user needs into technical design specifications. The results of the study identified 5 Construction Quality Performance (CQP) aspects that are most important for developing a 500 kg lifting equipment design, each with the following weight percentages: 500 kg lifting capacity with a percentage weight of 10%, complex structural design with a percentage weight of 9.24%, efficient design using local materials with a percentage weight of 8.52%, equipment size suitable for workshop storage with a percentage weight of 8.3%, and materials coated with anti-rust paint with a percentage weight of 7.32%.

***Keywords**: Lifting Equipment, Design, Quality Function Deployment*