ANALISA BENDING STRESS PADA FILAMEN ABS TERHADAP ARAH CETAKAN 3D PRINTING TIPE FDM

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Abstract	Rapid Prototyping (RP) technology is rapidly advancing and plays a crucial role in various sectors. One of the methods used in this technology is Fused Deposition Modelling (FDM), which involves the process of melting thermoplastic material using an extrusion mechanism. FDM-type 3D printers control nozzle movements through computerization, resulting in various directions of movement, including parallel to the x-axis (0Ã‚Â°), y-axis (90Ã‚Â°), and diagonal (45Ã‚Â°). Differences in these directions impact the mechanical characteristics of flexural strength in the produced prints. This research involves a bending test according to ASTM D790 standards, using the Beste KJ-1065 testing machine. Test specimens were created in three different types, with nozzle direction settings that differ in external infill angle offset and internal infill angle offset, specifically at 0Ã‚Â° (parallel to the X-axis), 45Ã‚Â° (parallel to the diagonal), and 90Ã‚Â° (parallel to the Y-axis). The research results show that the nozzle direction in FDM-type 3D printers also influences the flexural strength of the produced products. The highest flexural strength was found in products with a 0Ã‚Â° nozzle direction, reaching 65.21 MPa, while the lowest occurred in products with a 90Ã‚Â° nozzle direction in the horizontal condition, reaching 45.18 MPa. Key words : Rapid prototyping, 3D Printing, Fused Deposition Modelling
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