

# Effect of printing parameters on the mechanical behaviour of the thermoplastic polymer processed by FDM technique: A research review

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## ABSTRACT

Fused deposition modelling (FDM) is an additive-based manufacturing technique used by various industries due to its effectiveness & ability to make complicated geometries possible. This technique requires sufficient knowledge about the process and its parameters including their effect on the component's mechanical characteristics. Thus, it is crucial to review the available articles on this topic not only to identify the practical and useful aspects, limitations, and process variables but also to understand how the results of the literature are relevant to be used for real applications and further studies. A systematic literature review is carried out based on the type of 3D printing materials. The printing parameters which influence the mechanical characteristics of the FDM specimens are discussed based on the results presented in the literature. From the present study, it has been found that the process variables such as orientation, raster angle, raster width, layer height, and contours directly affect the quality of the 3D-printed parts. It has also been found that the effect of these process variables also varies with the type of thermoplastic materials. The present article will help researchers to select FDM processed material and appropriate process variables for further research.

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