

## عنوان مقاله:

Elastic Modulus and Ultimate Tensile Strength Evaluation of 3D-Printed Tensile Test Specimens of Acrylonitrile butadiene styrene

## محل انتشار:

شانزدهمین همایش ملی و پنجمین کنفرانس بین المللی مهندسی ساخت و تولید (سال: 1398)

تعداد صفحات اصل مقاله: 5

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## خلاصه مقاله:

Additive manufacturing (AM) alias 3D printing is a promising manufacturing process that directly builds physical parts from computer-aided design (CAD) models. AM makes it possible to produce models with any complicated designs, layer by layer and eliminates the need for the molds or machining. Acrylonitrile butadiene styrene (ABS) is a thermoplastic polymer that widely uses in the FDM machine as filament. Meanwhile, the discoveries on the ABS properties are still varied and incomplete, and extra studies need to be taken to specify their properties before using them in different applications. Therefore, it needs to have a complete understanding of their mechanical properties. This study carried out on a set of standard samples out of ABS using the FDM process. a comprehensive mechanical property evaluation has been performed to determine the influence of the infill density and layer thickness on the ultimate tensile strength and elastic modulus of ABS using a tensile test. From the result analysis, it is found that infill density and layer thickness have an important effect on elastic modulus and ultimate tensile strength. Results of the tensile test indicate that specimens printed with 100% density of infill and 0.1 mm layer thickness have been optimally achieved.

## کلمات کلیدی:

Additive manufacturing (AM), Elastic modulus, Ultimate tensile strength, Acrylonitrile butadiene styrene (ABS), Mechanical properties

## لینک ثابت مقاله در پایگاه سیویلیکا:

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