

### **Comparative Analysis of the Mechanical Properties of 3-D Printed Specimens**

Additive manufacturing technology is one of the innovative developments brought by the modern age. It has been in our lives for a long time. It is fast developing and used in many sectors, such as the aviation and defense industry. It opens new doors and gives numerous opportunities for organizations hoping to improve manufacturing efficiency. It has been seen that the most widely parameters for choosing the best Additive manufacturing are mechanical properties of the printed parts, printing style and amount of waste. This research focused on the mechanical properties of 3-D printed specimens (Dog-bone) from MakerBot printer. It is to study and analyze the variations in the material strength (tensile test). In this study different specimens of Dog-bone will be printed with a 3-D printer. Printing one sample at once (continuous printing) and printing three samples at once (Intermediate Printing). A simulation will be performed using SOLIDWORKS as computer aided design software to examine the optimum properties of the test specimens and ASTM D638 specimen will be used to print the specimen from 3-D MakerBot printer. A physical test will be performed using a TESTRESOURCE universal testing machine to examine the optimum properties and then compare the results of the simulation and the experiment. To guarantee consistency in chemical and physical composition, polylactic (PLA) filament will be used in the printing process throughout the analysis on the 3-D printer.