**Abstract.** Rapid prototyping (RP) is the combination of technologies which used to produce functional parts with the help of Computer Aided Design (CAD). Fused deposition modeling (FDM) is one of the most commonly used Additive Manufacturing (AM) techniques in the industry it is based on extrusion of thermoplastic polymers. In present time application of FDM process is limited. To increase the capabilities of FDM technology need to develop accurate key elements of the system. The purpose of this paper is to study the FDM process and various process parameters of the FDM process like layer thickness, part builds orientation, raster angle, raster width, flow rate and feed rate.