



INVESTIGATION OF TURNING CONDITION BASED ON MINIMUM
ENERGY CONSUMPTION

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A thesis submitted in partial fulfilment of the requirements for the award of Bachelor
Engineering Mechanical (Manufacturing) (Hons)

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JULY 2016

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ABSTRACT

Sustainable machining is the prime requirement of green manufacturing technology. This present research present an experimental study to investigate the influences of cutting parameters like spindle speed, feed rate, and depth of cut towards surface energy consumption and surface quality on Mild steel (AISI 1018) using lathe machine. The cutting tool used is Tungsten carbide insert tool bit Korloy TNMG160408-HM NC3020. Response surface methodology (RSM) is used for designing the experiment and has been applied to optimize cutting parameters. The result revealed that the energy consumption was affected by cutting speed. The energy consumption will increase by increasing the cutting speed. The feed rate and depth of cut does not reflect the influential parameter for energy consumption. Besides that, the most influential factor on the surface quality are spindle speed, depth of cut, and feed rate respectively.