

**ANALYSIS OF BIG EFFECT OF THE SIDE CUTTING EDGE ANGLE AND  
THE SIDE RAKE ANGLE ON THE HSS LATHE TOWARDS THE  
SURFACE ROUGHNESS OF STEEL ST-37**

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**ABSTRACT**

Lathe machine is one of the production process machines used to form a cylindrical workpiece. Machining process will determine the surface roughness at a certain level, this research is done to know the value of the surface roughness of the workpiece. After the use of fertilizing using a variation of engine swivel speed 110 rpm, 200 rpm, 300 rpm, angle variation *side cutting edge angle* 12<sup>0</sup>, 13<sup>0</sup>, 15<sup>0</sup> and angle *side rake angle* 14<sup>0</sup>, 17<sup>0</sup>, 20<sup>0</sup> with low carbon steel *St-37* diameter of 20 mm and length 100 mm. Based on the results of this study obtained the smallest value of surface roughness occurring in the sixth parameter with a spin speed of 200 rpm, angle *side cutting edge angle* 15<sup>0</sup>, and angle *side rake angle* 14<sup>0</sup> measured surface roughness 2.40715 and the largest surface roughness occurs in the seventh parameter with a rotary speed of 200 rpm, the *side cutting edge angle* of 12<sup>0</sup> and the angle of the *side rake angle* 20<sup>0</sup> measured average surface roughness of 4.3394 μm.

**Keywords:** Speed round machine, side angle *Cutting Edge angle*, side angle *Rake angle*, surface roughness, carbon steel *St-37*, *Taguchimethod*.