MACHINE TOOL AND MACHINING (MTM) LABORATORY
DEPARTMENT OF MECHANICAL ENGINEERING

Title: Role of Process Parameters on Surface finish

Objective: To study the effect of feed and nose radius on surface roughness parameters in Turning with a single point tool.

Experimental Conditions and Observations:

Work Material:
Cutting Tool material:
Cutting Tool geometry:
Cutting Tool specification
Depth of cut: 2 mm
Cutting velocity: 100 m/min

Serial No.	Feed (mm/rev)	Nose radius (mm)	R_a (micron)	R_{max} (micron)	R_z (micron)	h_m (micron)
1.	0.08	0.4				
2.	0.12					
3.	0.16					
4.	0.20					
5.	0.08	0.8				
6.	0.12					
7.	0.16					
8.	0.20					
9.	0.08	1.2				
10.	0.12					
11.	0.16					
12.	0.20					

Report:

1. Derive the expression for surface roughness parameters with respect to tool geometry and feed.
2. Plot the variations in the surface roughness parameters with feed and nose radius.
3. Explain the nature of variation in surface roughness with feed and nose radius.
4. Determine the theoretical surface roughness parameters h_m for all combinations.
5. Explain the reasons for variations between the theoretical and experimental values.