ME 213L Manufacturing processes Lab

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February 1, 2021

1 Machine codes

Syntax	**Function**
G54	workpiece coordinate system
G90	absolute coordinate system
G91	moving coordinate system(attached to tool)
G00 Xx_f Zz_f	The tool goes from current position to x_f and z_f
G01 Xx_f Zz_f Ff	tool moves from current position to x_f and z_f at feed rate f.
G02 Xx_f Zz_f Rr Ff	Circular interpolation - the tool moves to x_f, z_f along the arc of radius r at feed rate f in clockwise sense
G03 Xx_f Zz_f Rr Ff	Circular interpolation - the tool moves to x_f, z_f along the arc of radius r at feed rate f in anticlockwise sense
G32 Xx_{minor} Zz_f Fp	Threading - Execute this command from $X = x_{minor}$ and Z outside the work piece. Here, z_f is the min diameter point of the last thread
G28 U00 V00	Moves to home
M03 Ss	Spindle rotates clockwise at s rpm
M04 Ss M05	Spindle rotates anticlockwise at s rpm Spindle stops
M06 Tt	Tool changes to tool t
M30	Program ends

2 Lab 1

- Machining parameters:
  - Feed rate : Rate at which tool is removing the workpiece.(mm/rev)
  - Depth of cut
  - Rotational speed
- Facing: It is the reduction of length of workpiece (along z) - Use tool 5
- Turning: Reducing the diameter - use tool 5
- Grooving: Make a cavity into the workpiece - use tool 98
- Circular interpolation: use tool 5
- Threading: use tool 103