



DEPARTMENT OF MECHANICAL ENGINEERING

VISION

“To incorporate technical & professional skills in Mechanical Engineers to fulfill industrial & social needs”.

MISSION

- To educate, guide, and mentor the students for academic excellence.
- To develop technical skills and discipline among the students as per the requirement of the industry.
- To impart ethics & social values by arranging social activities.

Subject Name: AMP(22563)

Assignment No 1

CO NO:CO503.1

Questions.

1. Enlist any four process parameters in EDM.
2. Explain the purpose of electrolyte in ECM.
3. Draw set-up diagram of wire cut EDM and label the parts, also suggest approximate range of following process parameters with it's measuring unit. (i) Discharge current OR Pulse frequency. (ii) Wire speed OR Wire tension.
4. Enlist the different types of non-conventional machining processes.
5. Explain working principle of Electro Discharge Machining (EDM) with sketch.
6. Draw Abrasive Jet Machining (AJM) setup diagram showing all the elements. State the function of each elements.
7. Draw the setup diagram of ultrasonic machining (USM). Explain the function of elements in setup. State the process parameters in it

Course coordinator: - Mr. Mayuresh Naikawade

Date of Submission:



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Assignment No 2

CO NO:CO503.2

Questions.

1. Name the various types of cutters used in milling operations.
2. Draw internal mechanism of universal dividing head and label the parts.
3. Find cutting speed for milling operation to machine two parallel vertical surfaces of a workpiece simultaneously by using pair of side milling cutters, when cutter rpm is 600 rpm and diameter of cutter is 200 mm.
Draw the cutter and work arrangement diagram for above operation.
4. Explain Face milling and side milling operations with neat sketch.
5. Use the different milling cutter to cut 'T' slot on rectangular block with neat diagram, also mention the sequence of operations and types of milling cutter used.
6. Compare between vertical and horizontal milling machine.

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Assignment No 3

CO NO:CO503.3

Questions.

1. Enlist the different types of gear manufacturing methods.
2. Explain the working principle of gear hobbing with suitable sketch.
3. Classify gear finishing methods stating one application of each.
4. Draw the setup of Gear shaping by pinion cutter or rotary gear cutter and explain its working.
5. Differentiate between gear hobbing and gear honing.
6. List the various gear finishing methods.

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Assignment No 4

CO NO:CO503.4

Questions.

1. Describe automatic tool changer (ATC) of CNC machine.
2. Explain Re-circulating ball screw arrangement in CNC machines with neat sketch.
3. State the advantages of CNC machines over conventional machines.
4. Explain need of virtual CNC machine simulators.
5. Name the basic components of an CNC machine. Write only classification of CNC machine.
6. Compare “Point to Point” and continuous path CNC machine.
7. Explain the Do loops programming format with simple example
8. Sketch the Axes nomenclature for CNC lathe and CNC milling. Show major axes with sign conventions.

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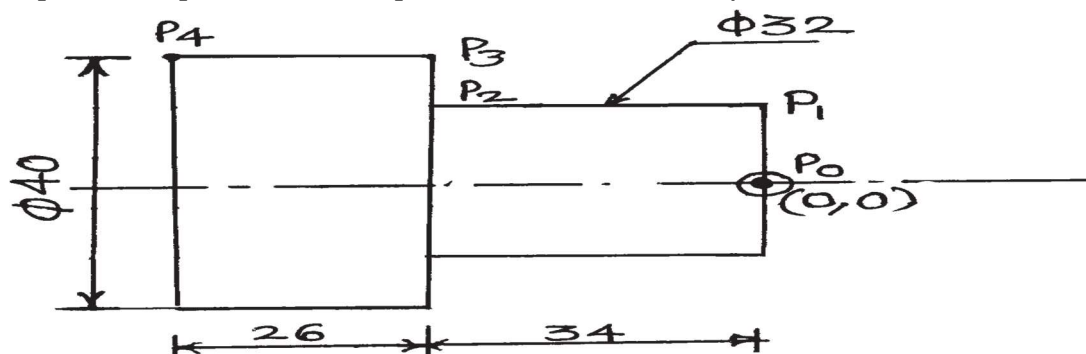
Subject Name: AMP(22563)

Assignment No 5

CO NO:CO503.5

Questions.

1. Explain the concept of tool presetting in CNC tooling.
2. Explain the use of following codes in CNC part programme. I)G00 II) G03 III) M03 IV) M30
3. Develop a part program for turning on CNC lathe for the component shown in Fig. 1 using ISO format. Use the tool path co-ordinates shown in Fig. 1. Neglect tool compensation. Assume suitable data if necessary. Speed of spindle 1000 rpm and feed 100 mm/min.



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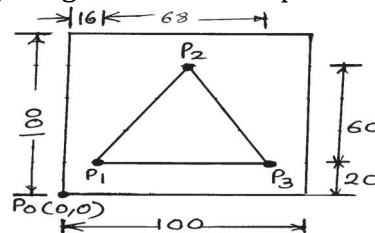
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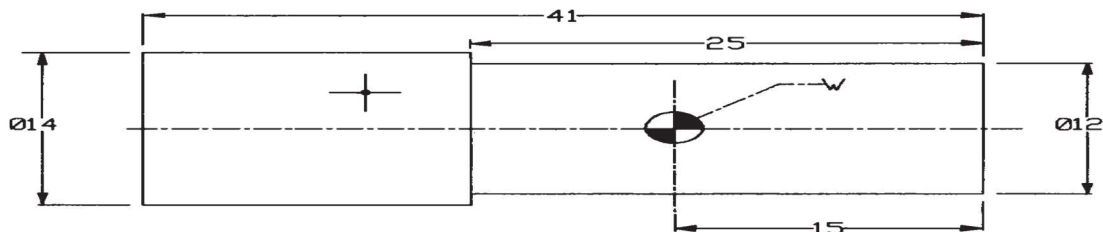
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4. Develop a part program for CNC milling for the part shown in Fig. 2 using ISO format. Take spindle speed 800 rpm, feed 80 mm/min. Depth of slot 5 mm. Assume suitable data if necessary. Neglect cutter compensation.



5. Calculate the cutting parameters and prepare process sheet for the component shown in Fig. No.1. with neat diagram. All dimensions are in mm. Given: Raw material - Aluminium, stock size $\varnothing 14 \times 42$ length, feed (f) = 0.2 mm/rev, cutting speed (V) = 90 m/min. Consider work zero (W) as per the Fig.



Develop full G and M code manual part program of CNC lathe for component shown in Fig. No.1. using word address format (WAF).

6. State the meaning of subroutine and canned cycles in CNC part programming.

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Assignment No 6

CO NO:CO503.6

Questions.

1. Define Robotics. State the components of Robotics manipulator.
2. Justify the need of Group Technology in today's manufacturing situation.
3. Describe fixed and programmable automation..
4. Select a engineering product manufactured by applying group technology principles. Write its part classification and coding.
5. Compare hard automation and soft automation stating one application of each.

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