Somaiya Vidyavihar University
K. J. Somaiya College of Engineering, Mumbai -77
(A Constituent College of Somaiya Vidyavihar University)

Workshop-1 / Sem. I ASSIGNMENT – 1 (Machine Shop) July_ Dec. 2022

Syllabus Module covered: 3 (Max. Marks: 05)

Q1. Draw the neat sketch of Lathe machine and name its parts.

Q2. Give the brief information of lathe operations. (Any Five)

Q3. Write down the safety precautions while working in machine shop.

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ASSIGNMENT-1 (MACHINE SHOP)

Q.1 Draw the neat sketch of lathe machine and name its parts.

Ans:

Q.2 Give the brief information of lathe operations.

Ans: A lathe machine is a manufacturing type of machine in which operations are performed to make any metal or a metal part to its desired shape.

Some of the lathe operations are as follows:

1. Facing: Facing is a process in which a flat surface is formed by cutting metal at right angles to the axis of the lathe. The tool should be set such that its cutting face makes an angle of about 2° with the metal surface and must be centered. In this operation, the tool is always perpendicular to the axis of the rotation of a job or workpiece.

2. Turning: The work which has to be cut in size and its diameter has to be kept the same for the entire length, then turning is done on it. In this operation, the workpiece is made to rotate about the lathe axis and the tool is fed parallel to the lathe axis.

3. Step-turning: When more than one diameter is machined on a shaft, the joining section of each diameter is called a step. Step-turning is the process of turning which produces different surfaces diameter. The workpiece is held between centers and the tool is moved parallel to the axis of the lathe.

4. Taper-turning: In a taper-turning, the operation of the lathe machine is performed in a manner of uniformly increasing the diameter of a workpiece or a job along its length. The methods that can be used for taper turning are – (a) using the tool, (b) using the compound slide, (c) using taper turning attachment, (d) displacing the tailstock.

5. Grooving: It is an operation performed at the ends of the thread, on the side of the step or to enhance the appearance.

This process produces a narrow groove on the cylindrical surface of the workpiece. The groove can be like a square, radial, also in a beveled type shape.

6. Drilling: This operation can be done either by rotating the work and feeding the drill into it or by rotating the drill and feeding the work to it. A drill bit tool is used for drilling the workpiece.

7. Threading: Threading is a method of cutting thread on the workpiece. It produces a helical ridge of uniform section on the workpiece. It is obtained by making successive cuts sequentially with a threading tool bit the same shape as the thread form required. Internal threading is also performed on the lathe.

Q.3 write down the safety precautions while working in machine shop.

Ans:
- safety glasses with side shields must be worn at all times.
- Do not wear loose clothing, loose neckwear or exposed jewellery while operating machinery.
- Pull back and secure long hair.
- Do not wear thin fabric shoes, sandals, open-toed shoes and high-heeled shoes.
- A machinist's apron tied in a quick release manner should be worn ideally.
- Always keep hands and other body parts a safe distance away from moving machine parts, work pieces and cutters.
- Use hand tools for their designed purposes only.
- Report defective machinery, equipment or hand tools to the lab manager.

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