





Unit A – Fitting and Machining

Equipment Summary Sheet




This Equipment Summary Sheet serves as a quick reference guide outlining key machinery, their purpose, and simple step guide used in workshop setting. It helps participants understand the purpose and proper use for each equipment, ensuring accuracy in their work while maintaining safety.

Important: This summary sheet is intended for learning and reference purposes only. It must not replace Safe/Standard Operating Procedures (SOPs), risk assessments, or relevant manuals. Always consult official documentation to ensure compliance with safety protocols.

Machining & Fabrication Equipment

Tool	Description	Purpose	Quick Step Guide	Key Safety Checks	Common Mistakes & Prevention
Manual Lathe 	A manually operated rotating tool for shaping workpieces.	Used for turning, facing, threading, and drilling.	<ol style="list-style-type: none">1. Secure workpiece in the chuck.2. Select cutting tool and adjust speed.3. Manually feed the tool into the workpiece.	Keep hands clear of rotating workpiece, and avoid loose clothing.	Incorrect speed – match spindle speed to material type
Drill Press 	Fixed drill setup for accurate hole drilling.	Drilling into various materials with stability.	<ol style="list-style-type: none">1. Secure workpiece using clamps or vice.2. Select drill bit and adjust spindle speed.3. Lower drill bit steadily into material.4. Withdraw drill bit gradually after hole is completed.5. Turn off machine and clear debris.	Use clamps for small parts, avoid excessive force	Bit breakage – ensure proper speed and pressure



Vertical Bandsaw 	<p>A stationary saw with a vertically moving blade for intricate cuts and contouring.</p>	<p>Cutting complex shapes and contours in wood, metal, or plastics.</p>	<ol style="list-style-type: none"> 1. Choose appropriate blade and check tension. 2. Adjust table angle if needed. 3. Start saw and guide material into blade. 4. Use steady movements for accuracy. 5. Maintain even pressure. 6. Turn off saw and clean work area. 	<p>Keep hands clear of blade, avoid pushing material too aggressively.</p>	<p>Inaccurate cuts – ensure correct blade type and slow cutting pace.</p>
Horizontal Bandsaw 	<p>A motorized cutting machine with a horizontally moving blade, ideal for cutting metal bars and profiles.</p>	<p>Efficient and accurate cutting of metal stock.</p>	<ol style="list-style-type: none"> 1. Install the appropriate blade. 2. Adjust saw speed and feed rate. 3. Secure workpiece in the vice. 4. Start saw and lower blade into material. 5. Allow automatic feed to complete cut. 6. Turn off saw and inspect cut. 	<p>Use correct blade tension, ensure secure clamping.</p>	<p>Blade breakage – avoid excessive pressure and check alignment.</p>
Milling Machine 	<p>A versatile machine used for shaping metal or wood.</p>	<p>Cutting, drilling, and shaping materials.</p>	<ol style="list-style-type: none"> 1. Secure workpiece in vice. 2. Select cutting tool and set spindle speed. 3. Adjust feed rate and depth of cut. 4. Start milling operation and monitor progress. 5. Remove workpiece and check finished surface. 	<p>Ensure correct tool position, keep work area clear</p>	<p>Poor surface finish – adjust speed and feed settings</p>



Cold Saw	<p>A precision metal-cutting tool using a circular blade that stays cool during operation.</p>	<p>Produces clean, burr-free cuts in metal with minimal heat distortion.</p>	<ol style="list-style-type: none"> 1. Secure workpiece firmly in the vise. 2. Select appropriate blade and set cutting speed. 3. Check coolant flow and blade guard. 4. Lower blade gently into material using steady pressure. 5. Complete cut and return blade to rest position. 6. Turn off machine and clean area. 	<p>Ensure blade guard is in place.</p> <p>Check blade condition and tightness.</p> <p>Confirm coolant system is functioning.</p> <p>Keep hands clear of cutting area.</p>	<p>Use wrong blade type – match blade to material.</p> <p>Forcing the cut – apply steady pressure.</p> <p>Skipping coolant – leads to overheating and poor finish.</p> <p>Improper clamping – secure workpiece to avoid shifting.</p>
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General Tips

- **Inspect First** – Check for damage, ensure guards are in place, and verify tool settings.
- **Wear PPE** – Safety glasses, hearing protection, steel-capped boots – whatever the task requires
- **Knowing the Machine** – Understand its controls, limitations, and proper usage
- **Secure Everything** – Clamp workpieces and use push sticks where needed. Keep hands clear.
- **Focus Up** – Stay alert, avoid distractions, and never rush a job.
- **Keep It Clean** – Tidy workspaces make it a safer and smoother operation. Clean after use.
- **Emergency Ready** – Know where the stop switch is. Never override safety features.

Additional Notes & Observations



INFORMATION