**Classification Matrix for Academic Machine Shop Equipment**

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| --- | --- | --- | --- | --- | --- |
| **Categories** | **1** | **2** | **3** | **4** | **5** |
| **Equipment Power** | **Low Power hand/small bench tools**(2-4 amp @120V,< 9V cordless) | **Medium Power tools**( ¼ to ½ hp)( <10 amp @ 120 V, 14-18 V cordless)Specialized NC- computer tools | **High Power portable and small bench tools**(> ½ hp)(10-15 amps @120V, 24-36 V portable, pneumatics, hydraulics) | **Light industrial tools**(typically benchtop, < ½ hp, pneumatics, hydraulics) | **Large Industrial Tools**(manual and NC- controlled) |
| **Examples** | * Dremel tools
* Cordless drills under 18V
* Palm sanders
* Soldering irons/guns
* Heat guns
* Hot melt glue guns
* Sewing machines
* 3D printers
 | * Jig saw
* 3/8” hand drill
* Corded devices < ⅓ hp
* 18V-24V cordless drills
* Laser cutters/engravers
* Thermal foam cutters
 | * Circular saw
* Belt sander
* Framing nailer
* ½ hp geared drill
* Reciprocating saw
* >18V cordless tools
* Chop/miter saws
* Routers
* Mini-lathe
* Angle grinders
* Printing presses
 | * Small bandsaw
* Small drill press
* Small/benchtop milling machines
* Small/benchtop lathes
* Belt/disc sanders
* Horizontal saw
* Scroll saw
* Planer, jointer
* Bench grinder
* SawStop-style tablesaw
 | * Full-sized milling machine
* Full-sized metal lathe
* Table Saw (non –Saw Stop)
* Radial arm saw
* Large drill press
* Large band saw
* Surface grinder
* Large jointer/planer
* Shaper/moulder
* Power shear
* CNC Mill
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| **Shop Access Control** | * In approved areas with permission of Responsible Person/Monitor
* Buddy system
 | * With permission of Responsible Person/Monitor
* Buddy system
 | Only when Responsible Person/Monitor is present. Documented project safety review should be completed. | Only when Responsible Person/Monitor is present. Documented project safety review should be completed | Only when Responsible Person/Monitor is present. Documented project safety review should be completed. |
| **Tool Access Controls** | Locked Cabinet | Locked Cabinet | Locked cabinet | Tool Power Lockout  | Tool Power Lockout |
| **Oversight Requirements** | Oversight by individual with tool experience | Oversight by individual with tool experience | Oversight by individual with tool experience | * Oversight by individual with **extensive** tool experience.
 | * Oversight by individual with (documented) **professional-level** experience
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| **User Training Requirements** | * Basic Machine Shop Safety and individual tools.
* Training must be documented.
 | * Basic Machine Shop Safety and individual tools.
* Training must be documented.
 | - Basic machine shop safety- Tool Specific Training- Demonstrated proficiency- Training must be documented for ***individual*** tool. | * Basic Machine Shop Safety
* Tool specific instruction
* Hands-on use training and experience.
* Demonstrated Proficiency
* Training must be documented for ***individual*** tool.
 | * Basic Machine Shop Safety

Tool specific instruction* Extended Hands-on use training and experience.
* Demonstrated Proficiency
* Training must be documented for ***individual*** tool.
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