**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 |
| **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 |
| **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. |