<u>Safety Policy for the GWW School of Mechanical Engineering</u>

**Purpose:** This document details the George W. Woodruff (GWW) School of Mechanical Engineering (ME) safety policy in order to ensure a safe operating environment in Instructional labs and fabrication spaces. This policy covers the support personnel, safety procedures, operating and training procedures, signage, and safety notices/communications to courses with regards to maintaining safety. This policy complies with Georgia Tech Environmental Health & Safety (EH&S) safety recommendations, while considering the curriculum requirements and the needs of students and faculty instructors for efficient and effective operations of the School's facilities.

**Goals**:
1.) To provide a safe environment for students, staff and faculty.
2.) Minimize risk to the school's resources – machines, equipment and facilities.
3.) To enhance access to the GWW School Design Studio and Fabrication space.

**Scope**: The scope of this policy is applicable to all GWW School Faculty, Staff, Teaching Assistants (TAs), volunteer GT students, and designated Undergraduate Lab Instructors (ULIs), and encompasses the School's Instructional labs and the fabrication spaces detailed in Appendix A.

**Safety Policy – key elements:**
1. *Prior to using any equipment to perform tasks in the GWW Instructional labs and the fabrication spaces, users will read, acknowledge and accept the **User's Agreement**. Reference: Appendix B.*
2. *Maintain a **unified training curriculum** for all tools/machines (listed under Category 2, 3 & 4) within the GWW instructional labs and fabrication spaces. Reference: Appendix C.*
3. *The **GWW Safety Task Force** will monitor and regularly review the policy, as needed, and update the school's Safety Policy and Procedures, reporting policy updates and recommendations to the School Chair at the conclusion of the Fall and Spring semesters.*
4. *Authorized Personnel and GWW Staff have safety **duties and responsibilities**. Reference: Appendix D*

<u>Appendices</u>
Appendix A: List of GWW Instructional Labs and Fabrication Spaces and corresponding Staff
Appendix B: GWW Instructional Labs and Fabrication Space User's Agreement
Appendix C: Categories of tools/machines and required user training and trainer qualification
Appendix D: Definitions and duties for Authorized Personnel & Staff

**Appendix A:** Table listing the instructional labs/fabrication spaces (which are subject to the GWW Safety Policy) and the corresponding GWW staff facility coordinators

| Area | Room #'s | Basic Use | GWW Staff Facility Coordinators |
|---|---|---|---|
| MRDC common areas (not covered below) | 2nd and 3rd floor lobby | General assembly | Cary Ogletree, Clint Rinehart, Sterling Skinner, Steven Sheffield |
| Woodruff School Design Studios | MRDC 2202 | Small Machine Tools | Clint Rinehart |
| | MRDC 2203 | Computers and Presentations | |
| | MRDC 2212 | General assembly | |
| | | | |
| ME Machine Shop | MRDC 2323 | GWW Machine Shop | Steven Sheffield |
| | MRDC 2327 | GWW Student Machine Shop | |
| | MRDC 2328 | CNC Lathe, CNC Mill, Machine Tools | |
| | | | |
| Instructional Labs | MRDC 3317 | ME 3057 | Sterling Skinner |
| | MRDC 3319 | ME 4053 | |
| | MRDC 3321 | ME 4053 | |
| | MRDC 3328 | ME 4053/3057 | |
| | MRDC 3330 | ME 3057/4053/+ | |
| | MRDC 3334 | ME 4053 | |
| | MRDC 3336 | ME 4012 | |
| | MRDC 3329 | Tool Room | |
| | MRDC 2106 | Mechatronics | |
| | MRDC 1205 | Internal Combustion Engines Lab | |
| | | | |
| Invention Studio | MRDC 2211 | Water Jet/Laser Cutting | Clint Rinehart |
| | MRDC 2102 | Wood Working | |
| | MRDC 2103 | Electronic Assembly | |
| | MRDC 2104 | 3D Design Computers/Assembly | |
| | MRDC 2328 | Machine Tools / Thermal Molding, CNC Lathe | |
| | Loading Dock | Mobile Paint Booth | |

**Appendix B –** GWW Instructional Labs and Fabrication Space User's Agreement

Professional Conduct is required
- Training is required to use any piece of equipment in the fabrication lab space.
- Horseplay is never appropriate in any of the lab spaces.
- Be aware of others around your work, and the work being performed around you, at all times.
- Use the correct tool for the job and never abuse the tool.  Use the training you have received.
- Do not  hold your work pieces with your hands when using cutting tools.  Clamp your work piece in a vice and use two hands to hold the tool whenever possible.
- Know your physical limits.  Do not operate power tools when you are too tired to be alert.
- Always report any injury, broken tool, housekeeping issue, or potential hazard to the Facility Coordinators (Appendix A)

Dress for the work being performed
- Personal protection equipment (safety glasses, ear plugs, breathing masks, etc) are to be worn anywhere signs are posted in the work space, or whenever appropriate based on training for that tool. For example, safety glasses are to be worn anytime powered, sharp, or impact tools are being used in your vicinity.
- Never approach rotating or any large power tools with loose clothing, long untied hair, lanyards, headphone cords around your neck, or large jewelry that could pull you toward the machine.
- Shoes worn in the fabrication spaces must cover the tops of your feet.

Never Work Alone with Tools in Category 3 or 4 (Appendix C)
- Work with at least a minimum of one person within at least voice distance of you when Category 3 tools are in operation. Category 4 tools require vocal and line of sight contact with your work partner.
- You must not be separated by a closed door from this partner.  If due to the space a closed door is unavoidable then the door must not be locked.
- Your work partner must be trained (and able) to turn off the tool in the event of an emergency.
- Partner must be able to call the campus police (404) 894-2500 in any emergency.
- It is the user's responsibility to confirm the above four steps any time powered tools are in operation.

Help Keep the Fabrication Labs Safe as You Use Them
- Clean your work area of any debris that you have created or others have created before you.  The next person using the space must find it to be clean, organized, and safe.
- Help keep the floor space in the fabrication labs dry and free of tripping or slipping hazards such as saw dust, oil, electrical cords, or raw materials.
- Whenever you use a tool, you are responsible for returning it to its proper storage location, regardless of where you found it.  If you are unsure, please ask the lab personnel.
- Exits, corridors, and passageways must be kept clear for safe passage during an emergency.
- Never modify any tool, and especially, never remove safety devices from tools.
- If you see someone working in an unsafe manner, you must gently correct them as a colleague.

I accept the user's agreement and also understand that I am authorized to use only the equipment in which I have received training on. Violation of the above user agreement may lead to loss of access.

Name, GTID, Sign and date: _____

**Appendix C –** Categories of tools/machines and required user training and trainer qualification

| | Category 1 | Category 2 | Category 3 | Category 4 |
|---|---|---|---|---|
| Power | Low power hand tools/small bench tools (< 10 amp @ 120 VAC, <18V cordless) | Powerful portable and small benchtop tools (10-15 amps @ 120 VAC) | Light to medium industrial tools | Large industrial tools (manual and NC-controlled) |
| Examples | • Cordless drill<br>• Soldering iron/gun<br>• 3D printers<br>• Vinyl Cutter<br>• Hack Saw<br>• Claw/Ball Peen<br>• Hammer/Chisel<br>• Screw Driver/Pliers/Socket Set/Wrenches<br>• Tap and Die Set | • Injection Molding machine<br>• Vacuum Former<br>• Laser Cutter<br>• Waterjet<br>• Tools within Instructional labs | • Bandsaw<br>• Drill press<br>• Small benchtop milling machine<br>• Small/benchtop lathe<br>• Circular Saw<br>• Chop/miter saws<br>• Belt/disc sander<br>• Bench grinder | • Manual milling machine<br>• Manual metal lathe<br>• CNC Lathe<br>• CNC Mill<br>• CNC Router<br>• Wood working lathe |
| Usage during regular work hours | N/A | Supervised by authorized personnel | Supervised by authorized personnel | Supervised by authorized personnel |
| Usage during off work hours | Authorized personnel | Authorized personnel | Authorized personnel with another person within voice distance | Authorized personnel with another person physically present in the room |
| User training | Introduction to basic safety policies / procedures | | | |
| | | Tool Training by authorized trainers | | Professionally trained trainers only |
| | | | | Demonstrated proficiency of training curriculum |
| Trainer qualification | Tool Experience | | | Professional level tool experience |
| | | Knowledge of approved training curriculum | | |
| | | Demonstrated proficiency of training curriculum | | |

**Appendix D –** Definitions and duties for Authorized Personnel & Staff

1. "Authorized Personnel" are those users of the GWW instructional and fabrication spaces who have 24/7 access (either through a key or buzzcard) to any of the areas and are responsible to:
   a. Provide safety oversight in their respective control areas and enforce the user safety agreement.
   b. Develop and maintain up-to-date training curriculum for new equipment/machine added in their specific areas/zones. Submit any new or revised curriculum to the corresponding GWW staff.
   c. Assist the corresponding GWW staff facility coordinators in posting safety signage as recommended by the Safety Task Force

2. Faculty, Staff, TAs, volunteer students, ULIs (Undergraduate Lab Instructors from Invention Studio Staff/Maker's Club) can be considered as "authorized personnel" as long as they receive qualification/authorization from a superior level staff and/or EH&S, as required. They may need to be trained on being able to handle safety hazards like extinguishing fire, using emergency stops, etc.

3. In addition to the responsibilities listed for Authorized Personnel, the corresponding GWW staff Facility Coordinators are expected to:
   a. Maintain an updated record of all Authorized Personnel with their respective control areas and revise it at the beginning and end of the semester.
   b. Conduct periodic tool inspections, using the equipment assessment and room assessment form created by EH&S

4. The GWW Staff Facility Coordinators may be required to report to the DFSC on a periodic basis

5. Faculty can exercise authority to revoke access to individuals who violate the safety policy and… DFSC has oversight over the safety policy and Faculty and Staff can appeal to the DFSC if conflicts arise.