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[Ok, so here's another page that, even though it has nothing on it, it has something on it. These things happen ...]
I. About This Handbook

- This handbook is intended for use in conjunction with University of Michigan CourseTools pages developed for particular courses which use the Metals Studio. Please refer to the appropriate CourseTools pages within the CourseTools site (http://coursetools.ummu.umich.edu) for specific information for a given course.

- This handbook is not intended to be a "catch-all" and will not be applicable to any-and-all circumstances. Please discuss specific circumstances with those involved.

- Electronic versions of this handbook are located online at http://art-design.umich.edu.

- This handbook is written and maintained by the Metals Studio Coordinator at the School of Art & Design, University of Michigan, Ann Arbor, and is edited by Dave Liske, Electronic Media Coordinator. Please send any suggestions or comments regarding this handbook or its contents to dliske@umich.edu.
II. Student Guidelines for Studio Usage

1. Regular class schedule and timings for each studio are posted outside the studio.
2. Student studio monitors may be chosen/assigned by studio coordinators for after
   hours monitoring on an “as needed” basis for each academic term.
3. After hours access to studios to individual students will be granted on a case-by-case
   basis. This will only occur after a student enrolled in a course held within a specific
   Studio, or an Art & Design student who attended a previously-held Studio course,
   signs and returns the Signature Page for Studio Student Users found at the end of this
   handbook. This signature page must also include the instructor's signature.
4. Access will not be granted to students who have not attended a course at the School
   of Art & Design, nor to non-majors who are not currently enrolled in an A&D
   course.
5. Access permission to individual students to the specific studios will be at the
   discretion of the individual studio coordinators in charge.
6. Access will be granted only for specific academic terms or, in the case of courses
   with durations different from an academic term, the length of the course. (Example:
   TMP Metals courses lasting 7 weeks vs. a full 14-week course.)
7. Students who are granted access to specific studios cannot bring in other unauthorized
   students/acquaintances into those studios at any time.
8. Authorized students need to go through an orientation regarding access, safety,
   security and individual studio maintenance and supplies usage policies/practices.
9. Students involved with any project must clean up after themselves at the end of each
   day.
10. Studio coordinators can revoke access to any individual student found to be not in
    compliance with access, security and maintenance requirements of specific studio
    policies/practices and will notify the Director of Finance & Facilities and the
    Associate Dean for Academic Affairs.
11. Emergency/non-emergency contact numbers are posted in the studio:
    Police/Ambulance/Fire (emergency help) - 911
    Department of Public Safety (non-emergency help) – 763-1131
    Occupational Safety and Environmental Health - 647-1143
    Facilities Supervisor – 763-3132
    Custodial Supervisor – 763-3132 (4 PM till 10 PM)
III. Metals Studio Policies and Safety Rules

1. Resources
The Maskell Studio provides a classroom work area and both a hot and cold metals shop. Students will be given studio access upon request and completion of Safety/Power Tools training. To obtain access, a student must sign the Metals Studio Access Agreement.

Metals equipment includes:
• 5 Small Metals Soldering Stations
• Stock cut-off and grinding (cut-off saw, vertical and horizontal band saws, several belt sanders, pedestal grinder, bead blaster)
• Welding and cutting (TIG, MIG, plasma cutter)
• Sheet metal forming (shear, brake, roller)
• Assembly and small hand work (workbenches, hydraulic press, hand tools, and hand held power tools)

2. Studio Usage
To use the metals studio, a student must be enrolled in a School of Art and Design course, and be working on a course-related project. The Metals Studio CANNOT be used for personal work not related to a course. When not used for a scheduled class session, the metals studio will be available on a first come, first serve basis to all approved students. The manual equipment in the hot and cold shop is available on a first come-first serve basis. Special arrangements must be made with the studio coordinator for use of the vertical mill, engine lathe, and air hammer.

3. Studio Approval
Each student wishing to use the metal shops must have the Studio Coordinators approval authorizing his or her use of equipment. Approval is obtained after attending training sessions at the beginning of each semester.

There are four types shop usage approval:
• Safety/Power Tools,
• Welding
• Cold Shop
• Machining
Each of these areas is described below.

a. Safety/Power Tools
Safety/Power Tools requires that all users of the facility have knowledge of the following:
1. Metals studio safety regulations,
2. Location and use of the emergency power cut-off switches within the shop,
3. Location of available telephones and the phone numbers of emergency services,
To obtain safety/power tool usage, a student must meet with the studio coordinator to
receive instruction on the above-mentioned items. Having completed this instruction, the student must then sign the METALS STUDIO SAFETY REGULATIONS form and return it to the studio coordinator.

Standing power tools within the shop include several belt sanders, pedestal grinder, and hydraulic press. Use of power tool requires that the student have knowledge of the safe operation of these devices. To obtain the use of power tools, a student must meet with the studio coordinator to receive instruction on these items. Having received the Studio Coordinator's approval, the student will be permitted to use power tools within the shop without an accompanying student. Note that no power tools may be operated without the presence of the studio coordinator or a representative in the shop area.

b. Welding
Welding resources within the shop include the MIG welding unit, the TIG welding unit, the plasma arc cutter and 4 gas-welding stations. Usage of welding equipment requires that the student have knowledge of the safe and effective operation of these units. To obtain use of welding equipment, a student must meet with the studio coordinator to receive instruction. Having received the Studio Coordinator's Approval, the student will be permitted to use the welding resources within the shop without an accompanying student. Note that no welding resources may be operated without the presence of the studio coordinator or a representative in the shop area.

c. Cold Shop
Resources within the cold shop include drill press, vertical and horizontal bandsaws, cut-off saw, belt and disk sanders, angle roller, universal break, slip-roller, and shear. Each student must get the Studio Coordinators's approval by demonstrating knowledge of the safe and effective operation of these units. To obtain approval a student must demonstrate proficiency to the Studio Coordinator. Having received approval, the student will be permitted to use the Cold Shop resources with an accompanying student. Note that the accompanying student must also have Studio Coordinators approval. Also note that no Cold Shop resources may be operated without the presence of the Studio Coordinator or representative in the shop area.

d. Machining
Machining resources include a manual mill and engine lathes. Each student must get the Studio Coordinator's approval by demonstrating knowledge of the safe and effective operation of these units. To obtain approval a student must demonstrate proficiency to the Studio Coordinator. Having received approval, the student will be permitted to use the machining resources with the Studio Coordinator present in the shop area.

4. Tool Checkout and Resource Cleanup Procedures
Many resources within the metals studio have a dedicated set of precision tools. These
tools are stored in cabinets within the shop. Students are responsible for using these tools properly, cleaning them when done with their use, and returning them to the appropriate storage cabinet. **All tools must be signed out. All tools must remain in the metals studio.** If tools are damaged during a session, students are to immediately report this to the Studio Coordinator. To maintain a clean, safe working environment, it is a student’s responsibility to clean up their work area after completion of their session. **Failure to comply will result in studio access being revoked.** Brooms, dustpans, and shop vacs are provided.

5. **Materials**
All materials are purchased through lab fees. If you are not currently enrolled in a metals class you do not have access to any material.

Local material resources:

ASAP Source (aluminum, steel, and plastic)
2284 S. Industrial
Ann Arbor, MI 48104
(734) 747-7139
www.asapsource.com

G&S Metals (see Studio Coordinator for more details)
(800) 852-3860
IV. Safety Rules and Regulations

The Maskell Studio safety regulations are described on the form at the end of this handbook. These regulations are to be read by the student. Note that two copies of the form are attached. Before a student is permitted to use the metal shop resources, one of these forms must be signed and given to the Studio Coordinator. The other copy is for the student’s records and future reference.
V. Equipment/Handtool Specifications and Layout

1. Key

9.1 Jewelry-Foredom Flex Shafts
9.2 Polishing wheels
9.3 Jewelry Soldering
9.4 Gas Welding
9.5 Belt Sander
9.6 Hydraulic Press
9.7 Annealing Booth
9.8 Propane Forge
9.9 Air Hammer
9.10 TIG Welding
9.11 MIG Welding
9.12 Plasma Cutter
9.13 Spot Welder
9.14 Drill Press
9.15 Pedestal Grinder
9.16 Grinding Area
9.17 Sand blaster-large glass bead
9.18 Sand blaster-small glass bead
9.19 Drill Press
9.20 Drill Press
9.21 Engine Lathe
9.22 Tool Cage
9.23 Bridgeport Vertical Mill
9.24 Corner Notcher
9.25 48" Shear
9.26 48" Slip-Roller
9.27 48" Universal Break
9.28 Angle Roller
9.29 Disk and Belt Sanders
9.30 Abrasive Saw
9.32 Forming Stakes and Dies-Non-Ferrous Only
9.33 Vertical Bandsaw
9.34 Horizontal Bandsaw
9.35 English Wheel
9.36 Bench Tools
VI. Metals Studios After-Hours Studio Access Agreement

General Guidelines:

• After-hours studio access must be approved for access at other than scheduled course meeting times and additional posted, monitored hours for each studio.
• Only Studio Coordinators may approve after-hours access.
• Training for safety, security, individual studio maintenance, supplies usage, and the operation studio equipment must be completed.
• Unauthorized students or acquaintances are not allowed in the studio.
• Alcohol and illegal drugs are prohibited in the studio.
• Residue from work must be cleaned up before leaving the studio.
• Studio Coordinators may revoke access for non-compliance with these guidelines.

Key Card Procedure:

Students present this filled-out After-Hours Studio Access Agreement to the Studio Coordinator responsible for the studio to which access is sought. Studio Coordinators then sign this form for qualified students, thereby approving M-Card access for one semester. Students need not give up their M-Cards for the process.

Emergency/non-emergency contact numbers:
Police/Ambulance/Fire (emergency help) 911
Department of Public Safety (non-emergency help) 763-1131
Occupational Safety and Environmental Health 647-1143
Custodial Supervisor (between 4pm and 10pm) 763-3132

I have read, understand and agree to the above guidelines for after-hours access to A&D studios and request access for ____ Maskell Studio ____Metals Studio for the time period

beginning _________________________ and ending ____________________________

________________________________________________________________________

Student Name (printed)          Student Signature          Date
________________________________________________________________________

Student UM ID#                  StudentUniqname           Phone#

Approved by:

________________________________________________________________________

Studio Coordinator (printed)   Studio Coordinator Signature   Date
VII. Metals Studio Safety Regulations

For your protection, the following rules must be observed while working in the hot and cold metal shop.

1. OSHA approved safety glasses or goggles must be worn in all areas. Safety glasses must have wrap around side shields. Students must provide their own glasses.
2. Only students who have completed the Safety/Power Tool training are permitted to be in shop area during weekends and after-hours.
3. Long pants, short sleeve shirts and socks are required while operating machines. Shorts, dresses, dangling or loose clothing will not be tolerated for safety reasons. Neckties must be removed.
4. Shoes must have closed toes, and cover the entire foot. Protective spats should be worn in the welding areas. Over the ankle work shoes with steel toes are strongly recommended.
5. Long hair must be tied back so that it will not fall into a machine or your work area.
6. Use of MP3 players, iPods, and headphones is prohibited while using machines and hand tools in the studio.
7. All jewelry (rings, necklaces, bracelets, watches etc.) must be removed while operating any machinery.
8. Instruction manuals for all machines are available upon request. If you have any doubts or questions - ask for assistance before operating machines.
9. Please respect others in the lab. If a class is in session, do not use any loud machinery.
10. Working alone is prohibited. There must be at least 2 individuals present in the shop area who have completed the safety and power tool training before machinery may be operated.
11. Do not attempt to repair or alter machines at any time. If there is a problem, notify the Studio Coordinator immediately and do not operate the machine.
12. Anyone working in an unsafe manner will be asked to leave immediately and his or her working privileges will be revoked.
13. It is strictly prohibited to be in the Metals Studio while under the influence of alcohol or drugs. Anyone found in the facility under the influence will have his or her access privileges permanently revoked.
14. Please respect and preserve the facility. Clean up your own mess and return all tools to their proper place.
15. Students may only use the facilities for items, which are related to a course in which they are currently enrolled.

I have read and understood these Shop Safety Regulations and agree to comply with these policies. In addition, I have met with Studio Coordinator and know the location and use of the emergency power cut-off switches within the shop, the location of available telephones, the phone numbers of emergency services, and the location of first aid resources within the studio.

Name (printed) ___________________________________________ Date __________________________

Signature ____________________________________________________________________________