Curriculum Map for Jewelry and Metal Craft Version 31 - Aug. 10, 2017

Introduction to the Jewelry and MetalCrafts Shop

+ Why this shop is in TinkerMill
+ Overview of tools and curriculum paths
+ Resources: Books, Web, TM Experts
+ Examples
+ Shop tour
+ Q&A

Elective Classes (Supervised - No certifications needed)

Saltwater etching class + Project

Soft soldering class + Project
Using a Soldering Iron for joining and embellishment

Mold making class + Project

Wire forms for sculpting class + Project

Polymer clay Class + Project

Metals 100: Introduction to Metal - Theory and Practice
All of Introduction information, plus:
Composition and properties of metal
Forms of metal
Manipulating metal
+ Demonstrations
+ Examples
+ Q&A
+ Safety first
+ Shop rules, (Ferrous vs Nonferr.) priority use, Size matters

Metals:
300, 400, 500,

Metals 101: Basic Hand Tools & Fabrication
+ Safety and Certification

+ List of tools included with Cert.
+ Instruction on hand tools
+ Resources: e.g.: Wire+Metals Text, Web, TinkerMill Wiki
+ Hands-on trials (supervised)
+ DEMONSTRATE competency by completing the METALS 101 **CERT SAMPLER***

Metals 101 Projects:

+ *Certification Sampler
requiring proper use of hand tools for (wire and sheet metal): Measuring, Cutting/Punching, Texturing, Cold forming, Filing and Finishing

Other Projects:
+ Clasps, Ear wires and Jump rings
+ Hinges
+ Wire-wrapping, braiding, weaving
+ Foil embossing: Tiles, Mosaic?
+ Basic Riveting: Pendant

Metals 102: Using Power tools

+ Safety and Certification

+ List of tools included with Cert.
+ Instruction on using Drill press, Flexshaft, buffer, sander
+ Reference materials and tool manuals
+ Hands-on trials (supervised)
+ DEMONSTRATE competency by completing the METALS 102 **CERT PROJECT***

Metals 102 Projects:

+ *Certification Project requiring proper use of power tools: Cutting, Texturing, Sanding and Finishing

NOTE: Additional classes may be required

Other Projects:
+ Carving models for a metal cast ring
Wax carving, cuttlefish molds
+ Metal Inlay

Metals 200: Introduction to Torch Use - Theory and Practice

What is the difference between Soldering, Brazing, and Welding, Annealing and Tempering?
Single fuel vs dual fuel
BTU ratings vs amount of heat
+ Demonstrations
+ Examples
+ Q&A

Metals 201: Using single fuel torches (Butane, Propane, Acetylene-Air) for annealing metal and basic soldering
+SINGLE FUEL Torch Safety and Certification
+ Certification to use tools that can be used only with annealed metal

+ List of tools and techniques requiring annealing
+ Theory: Annealing different metals
+ Instruction on use of torches for annealing
+ Theory on melting and fusing metals
+ Soldering fundamentals
+ Reference materials and tool manuals
+ Hands-on trials (supervised)
+ DEMONSTRATE competency and safety by completing the **CERT SAMPLER***

Metals 201 Projects that can be done using a single fuel torch:

+ *Certification Sampler using 3 of the techniques/Tools requiring annealing:
- Dapping block, Disc cutter, Bending brake, Fold forming, Imprinting textures, Rolling Mills, Chasing/ Repousse, Hydraulic press, Rivets, Marriage of metals
+ Use acetylene/air torch and soldering equipment to make soldered samples
NOTE: Additional classes may be required

Projects:
+ Forming vessels, jewelry
+ Hot Patinas: Surface treatments, tiles
+ Torch-fired enameling - jewelry, tiles
+ Marriage of Metals
+ Simple rings or pendants, jump rings

Metals 202: Using the Oxygen - Acetylene torch for soldering
+ DUAL FUEL Torch Safety and Certification

+ List of tools included with certification
+ Instruction on dual fuel torch use and safety
+ Instruction on advanced silver soldering
+ Reference materials
+ Hands-on trials (supervised)
+ DEMONSTRATE competency and safety by completing the **CERT SAMPLER***

Metals 202 Projects:

+ *Certification Sampler requiring soldering ... details TBD.
NOTE: Additional classes may be required

Other Projects
+ Bezels
+ Bangle bracelets
+ Pendants
+ etc.

Metals 203: Molten Metal
+Safety and Certification

+ Alloys and Ingots
+ Casting theory
+ Casting methods overview
+ Equipment
+ Instruction - making ingots
+ Reference materials
+ Hands-on trials (supervised)
+ DEMONSTRATE competency and safety by completing the **CERT SAMPLER***

MORE TO BE DETERMINED

Metals 203 Projects:

+ *Certification Sampler requiring melting metal ... details TBD.
NOTE: Additional classes may be required

Other Projects that require melting metal (may require separate certification):
+ Poured forms: ingot, broom, bean, water etc.
+ Sand casting
+ Centrifugal casting
+ Vacuum casting
+ Making alloys

Metals 300: Chemical and Electrical Surface Treatments
Using chemicals and/or electrolytic baths for altering the coloration and surface appearance of metals.
+ Demonstrations
+ Examples
+ Q&A

Metals 301: Electrolytic etching
+Safety and Certification

+ List of tools included with certification
+ Theory
+ Instruction on rectifier use, chemical etchant, and safety
+ Reference materials
+ Hands-on trials (supervised)
+ DEMONSTRATE competency and safety by completing the **CERT SAMPLER***

Metals 301 Projects:

+ *Certification Sampler using electrical power, complete 2 of the following samplers:

- Electrolytic etching
- Copper plating (galvanic and electrolytic bath)

NOTE: Additional classes may be required

Other Projects
+ Jewelry
+ Tile samples

Metals 302: Applying chemical patinas and inks
+Safety and Certification

+ List of tools included with certification
+ Theory
+ Instruction on chemical use and safety
+ Reference materials, recipes
+ Hands-on trials (supervised)
+ DEMONSTRATE competency and safety by completing the **CERT SAMPLER***

Metals 302 Projects:

+ *Certification Sampler using the following techniques:

- Chemical patinas
- Alcohol inks and coloration

NOTE: Additional classes may be required

Other Projects
+ Jewelry
+ Tile samples

Metals 303: Annodizing
+Safety and Certification

+ List of tools included with certification
+ Theory
+ Instruction on equipment use and safety
+ Reference materials, settings, color charts
+ Hands-on trials (supervised)
+ DEMONSTRATE competency and safety by completing the **CERT SAMPLER***

Metals 303 Projects:

+ *Certification Sampler using the following techniques:

- Annodizing (Titanium and Niobium) electrolytic process for reactive metals
- Use of anodizing power supply, chemical bath and power setting adjustments
- Use of various power leads to apply voltage

NOTE: Additional classes may be required

Other Projects
+ Jewelry
+ Tile samples

Metals 400: Kiln
What is the difference between the different kilns at TM? When to use each.
+ Demonstrations
+ Examples
+ Q&A

Metals 401: Using the MetalCraft Kiln
+Safety and Certification

+ List of tools included with certification
+ Instruction on the kiln use and safety
+ How to set a temperature profile using the programmable controller
+ Reference materials and User Manuals
+ Hands-on trials (supervised)
+ DEMONSTRATE competency and safety by completing the **CERT SAMPLER***

Metals 401 Projects:

+ *Certification Sampler requiring use of the kiln ... for at least one of the following:
- Enameling
- Reticulation
- Precious Metal Clay

NOTE: Additional classes may be required

Other Projets
+ Jewelry
+ Enamel beads
+ Cloisonné
+ Champleve
+ Plique-a-jour

Metals 500: Lapidary Unit
Introduction to the lapidary process and equipment.
+ Demonstrations
+ Examples
+ Q&A

Metals 501: Using the Lapidary for Stone shaping
+Safety and Certification

+ List of tools included with certification
+ Instruction on equipment use and safety
+ Reference materials and User Manuals
+ Hands-on trials (supervised)
+ DEMONSTRATE competency and safety by completing the **CERT SAMPLER***

Metals 501 Projects:

+ *Certification Sampler requiring use of the combination lapidary unit for all of the following:
- Cutting
- Shaping
- Polishing

NOTE: Additional classes may be required

Other Projets
+ Stone shapes
+ Cabochons