**Semester(s) offered:   Fall    2018**

**Berrien Springs Parent Partnership**

**Independent Study/Project Based Learning Course Description and Syllabus**

**Course Title: Blacksmithing II**

**Ages/Grade Levels: Ages 14yrs and up.**

**Prerequisite: Age requirement, or Blacksmithing I, or prior blacksmithing experience.**

**Class size: Min: 2 per meeting Max: 4 per meeting**

**Location Name: Guimond Metal Art Studio**

**Location Address: 04160 County Road 689**

**South Haven, MI 49090**

**Start Date: \_\_\_TBA\_\_\_\_\_\_\_\_\_\_   
End Date: \_\_\_TBA\_\_\_\_\_\_\_\_\_\_\_** (Must be at least 16 hours of instructional time)

**Day of the Week: Circle: M Tu W Th F To be arranged with students**

**Begin and end time of class: \_\_\_\_\_\_TBA\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Contact/Instructors: Ted Guimond**

**Email and Website: tguimond@comcast.net**

**Best phone #: 269-767-4600 Publish # on website? Y**

**Does the student also need to register with you or at your location? Y**

**Classes will be (circle one): Pass/Fail 80% on written test + satisfactory completion of projects.**

**Course description:**

This class is designed for the blacksmithing student who has some forging experience or is at least 14 years old. Projects will build on the skills taught in **Blacksmithing I**. Greater emphasis will be placed on design elements and more complex projects. The projects include, but are not limited to making a trivet, forged tongs, candle holder, towel bar, forge welded poker handle, tool making, and heat treating. The students will use coal and gas forges and various blacksmith related tools while learning and practicing the blacksmithing skills of hand forging, drawing a taper, twisting, scrolling, bending, splitting, forming rings, drilling, and forging decorative elements.

**Weekly breakdown of instruction:** *classes will be ten two hr sessions*

Week 1: Discuss shop safety. Forge an iron garden snake.

Week 2: Forge coat hook with leaf element.

Week 3: Forging a loop handle: practice in forge welding using coal forge.

Week 4: Forge a trivet.

Week 5: Forge a pair of tongs.

Week 6: Forge and heat treat a center punch and chisel.

Week 7: Forge a candle holder.

Week 8: Forge fire pit poker with decorative elements.

Week 9: Forge a support stand for Kindle or Apple type tablet.

Week 10: Forge a towel bar that incorporates three decorative elements.

**All classes must have a min. of 4 Course Objective Checkpoints unique to your class. You will note on the attendance sheet when students have met these objectives. Write in #’s 2 and 3:  
  
1st: pre-test**

**2nd: Continuous attendance in class and satisfactory completion of projects through midterm date**

**3rd: Continuous attendance in class and satisfactory completion of projects through ending date**

**4th: post-test and satisfactory completion of all projects**

**List any materials that students are required to bring to class:**

* Students should always wear closed toe shoes (preferably leather)
* natural fiber clothing (100% cotton shirt and jeans).
* Pencil and notebook

**List any required or optional online resources you will use in class:**

* none

**Final Project: Circle method(s) of evaluation resulting in a percentage improvement score**

* Students will have actively engaged in class participation.
* Students will score a minimum of 80% on the final test. (same questions as on the pre-test).
* Students will satisfactorily complete all assigned projects.

**Please attach:**

**One 10 question test attached.**

**Cost per student for entire semester, including materials and supplies:**

**$20 per hr X 20 hr = $400 + $50 material fee = total $450.00 per student**

**Guimond Metal Art Studio requires that at least adult representative from each class remain with the class to provide instructor with “two deep leadership” for safety and liability purposes. Parents to work this schedule out among themselves.**

**BLACKSMITHING 2 PRE/POST TEST**

**1 Tell what type of clothing is appropriate to wear while blacksmithing.**

**A** Wear natural fiber clothes (jeans and 100% cotton shirt). Closed toe shoes (Leather preferred).

**2 How should you notify other people in the shop that you are going to put hot metal in or take hot metal out of the forge?**

**A** When moving hot metal, survey the shop to see where others are located. Then say in a loud voice, “HOT METAL” to announce your intention to move before taking other action.

**3 What is a safe way to pass hot metal to another person?**

**A** Keep your hand on a safe place on the metal leaving enough cool metal protruding below your hand that another person may grasp the cool metal. If that is not possible then use tongs and pass the person the tongs. Do not release the metal until the other person says, “THANK YOU” to indicate that they have control of the hot metal.

**4 Describe the processes in making a hook.**

**A** Draw out a taper, form a small scroll on an end if desired, form the hook on the anvil horn.

**5 How would you control the shape of your metal when drawing a taper?**

**A** Keep the metal squared the length of the taper. It is easier to control a square rod than a round one.

**6 What are at least two thing you should NOT do when forging high carbon steel?**

**A**  Do not: get it too hot, hammer when too cold, quench in cold water…

**7 How is forge welding the same as other forms of welding? How is it different?**

**A** Same because pieces of metal are welded together. Different because the metal is hammer welded.

**8 Describe hammering during forge welding.**

**A** Light blows. Hammer first at the center of the weld then at each end. Reheat and repeat if needed.

**9 How would you heat treat to harden very high carbon steel?**

**A** Heat to non-magnetic and quench in the oil.

**10 What is “tempering”?**

**A** The process of removing some of the hardness and tension in metal after the hardening process.