

# Lassen Community College Course Outline

## GS 58 Metal Finishing

2.0 Units

### I. Catalog Description

This course is designed to teach the gunsmithing student to safely prepare and finish firearms with finishes other than bluing. The topics that will be covered include: color case hardening, parkerizing, the application of cerakote, gunkote and other spray on finishes. This course will consist of one hour lecture and three hours lab weekly.

**Prerequisite:** GS 50

**Recommended Preparation:** Successful completion of ENGL105 or equivalent.

Transfer Status: Not transferable

17 Hours Lecture, 51 Hours Lab, 34 Out of Class Hours, 102 Total Hours of Instruction

Scheduled: Spring semester only

### II. Coding Information

Repeatability: Not Repeatable

Grading Option: Graded only

Credit Type: Credit - Degree Applicable

TOP Code: 095630

### III. Course Objectives

#### A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. Safely apply chosen finish to assigned projects to industry standard or better.

#### B. Course Objectives

Upon completion of this course the student will be able to:

1. Properly apply of each type of finish covered in this course.

### IV. Course Content

#### A. Outline of Topics

1. Color case hardening
2. Parkerizing
3. Spray on firearm finishes

### V. Assignments

#### A. Appropriate Readings

Trade manuals will be the primary reference sources, access will be provided by the instructor, may also include instructor handouts. Additional information resources will include product and use guides from industry manufacturers to enhance the learning process.

#### B. Writing Assignments

Students will be required to complete a set of notes covering lectures, labs and demonstrations. Notes will include appropriate diagrams, when applicable, for clarity of

information. Assignments may be made involving repair, refinishing, and/or modifications to the studied firearm parts. Assignments will proximate problems actually encountered in the field. Performance levels must meet or exceed industry and/or shop specifications.

**C. Expected Outside Assignments**

Students will be required to complete two hours of outside-of-class homework for each hour of lecture. Pertinent supplementary literature and research assignments.

**D. Specific Assignments that Demonstrate Critical Thinking**

Assignments may include the design and fabrication of a tool, new ideas toward manufacturing techniques, new ways to assemble a gun, new modification techniques.

Example: The student will be told what a tool must do and then must design and fabricate the tool without being given dimensions of other information.

**VI. Methods of Evaluation**

**Traditional Evaluation**

Student will be evaluated on:

1. Completion of assignments in a timely manner.
2. Completed assignments must meet or exceed industry standard.
3. Lecture notes including line drawings and pictures for clarification must be complete.
4. Final examination may include a practical demonstration of skills learned during the course.

**VII. Methods of Delivery**

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

Traditional Classroom Delivery

Correspondence Delivery    Hybrid Delivery    Online Delivery

**Traditional Classroom Instruction**

Lecture, discussion, audio/visual aids, demonstration, group exercises, guest speakers, lab, individualized programs and other as needed.

**VIII. Representative Texts and Supplies**

**Required Firearms First Year**

- 1 Safety breech bolt action rifle (Remington 700)
- 1 Flat breech bolt action rifle (Mauser 98, Ruger 77, Savage 110)
- 1 Other bolt action rifle of your choice

The following guns can be from the second year firearms list.

- 2 Handguns
- 4 .22 Rifles
- 2 Shotguns
- 2 Other Centerfire Rifles

**Required Tools and Materials**

- Safety glasses
- Parrot Multi vice

Layout fluid (Dykem)  
Steel or carbide scribe  
Steel machinist's Protractor  
4x 3/8" HSS Tool bits  
60 Deg Center Gauge  
#3 Center Drill  
6" dial Caliper  
Steel Rule  
Chip brush  
Shop rags  
8-10" Mill Files (1 each)  
Smooth Cut  
Second Cut  
Bastard Cut  
File handles for all files  
Hacksaw and blades  
4 OZ. Ball Peen Hammer  
Assorted flat blade screwdrivers (Fixed type, not magnetic tip)  
10" Adjustable Wrench  
Allen Wrenches, Standard and Metric  
Tapered feeler gauges  
Tool box for your belongings-Bench Top, not roll away type  
Padlock  
3 corner file (Three square file)  
3/16" Chainsaw File  
Needle file Set  
File Card  
Stones: (1/2"x1/2"x6"):  
1 Medium  
1 Fine  
1 Extra fine  
Dial Indicator, 0-1" w/ Magnetic Base  
Gun Cleaning supplies (Rods, Brushes, Jags, Patches, Solvent)  
Pin Punch Set  
Extra 1/16" punches  
Depth Micrometer, 0-1"  
Needle Nose Pliers  
Sand Paper (min 5 sheets each):  
150 Grit  
220 Grit  
320 Grit  
400 Grit  
Steel wool, '0000'  
Aluminum Oxide General Purpose Shop Rolls 1" wide  
220 Grit  
320 Grit  
Acetone  
Simple Green w/ Spray bottle

Breakfree Gun Oil (pump or aerosol)  
Toothpicks  
Q-tips  
Thread Locker (Medium and High Strength)  
Dust Masks or Respirator  
Dremel or Foredom Tool with Accessories  
Masking tape  
#5 Welding Goggles  
1/16" 2% Thoriated Tungsten Welding electrodes (Red)  
Thin Welding Gloves-TIG  
Welding Helmet w/ #10 lens-TIG  
Stainless Steel wire Brush, small  
Quality Drill Index  
Mechanical Edge Finder  
End Mills, Center Cutting HSS Standard up to ½ inch  
Tap Set Complete set to ½" and includes: 6-48, 8-40, similar to Brownells #2 Tap Set  
Tap Fluid  
Tap Handle (may not be included in set)  
Propane or MAP Gas Torch  
Tooth Brushes  
C Clamps:  
2 @3"  
2 @5"  
Tape Measure  
Cross Test Level  
Mallet, 10-12 OZ. Non-marring  
Scissors  
Small Flashlight  
Latex/Nitrile Disposable Gloves  
One set screw on sights  
One set dovetail sights  
Dovetail Cutter (3/8"x60 Deg OR .330"x65 Deg-to match your sights)  
Assortment of Wooden Dowels  
A wide assortment of rubber corks to plug bores and muzzles  
Chemical Resistant spray Bottle  
Two part epoxy 24hour cure  
ACRAGLASS or ACRAGEL bedding Compound  
Release Agent  
Cerakote Starter Kit OR 1 Can OF TEFLONMOLY, OR GUNKOTE  
3 Grind to Fit Recoil Pads  
.22 Barrel Liner Drill bit  
.22 Barrel Liner  
A 2 Sear Trigger such as Timney, or Jard for a centerfire bolt action rifle of your choice  
Quality Steel Scope Bases and horizontally split steel rings  
Rifle Scope of your choice  
Weld-on bolt handle  
Jewell Trigger for Remington 700 (Hunter)  
White Cotton Gloves

A roll of bailing wire  
36" length of 1/4" Allthread with nuts and washers to fit  
20 gauge Sheet Steel (aprox 12"x12")  
Assorted Spring Stock (Flat and Round) Brownells  
2 Pre contoured barrels (un-threaded and un-chambered)  
1 un-contoured barrel blank  
A Semi-inletted wood stock for a bolt action rifle of your choice  
Foam-Filled Fiberglass stock for a bolt action rifle of your choice  
Cold Rolled Round stock Steel (10' Lengths):  
1/2", 3/4", 1", 1 1/4"  
Flat Bar Stocks 27" length of 1"x2"  
Flat Bar Stocks 24" length of 1/2"x1-1/2"  
Aluminum Bar Stock (1 piece of each dimension below)  
1"x3"x6"  
36" length of 1/4" & 1/2" Drill Rod  
This may not be a complete list of tools and materials, other things may be necessary depending on the particular firearms you choose to bring and projects you attempt to complete.

## **IX. Discipline/s Assignment**

Gunsmithing

## **X. Course Status**

Current Status: Active

Original Approval Date: 09/06/2022

Course Originator: John Martin

Board Approval Date: 10/11/2022

Chancellor's Office Approval Date:

Revised By:

Curriculum/Academic Standards Committee Revision Date: