

# 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.

#### Diversity Statement

Our commitment to diversity requires that we strive to eliminate barriers to equity and that we act deliberately to create a safe and inclusive environment where individual and group differences are valued and leveraged for the growth and understanding as an educational community.

**Prerequisites:** GS-50

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

#### Additional Course Information

*Transfer Status:*

- NT

*Total Number of Hours by Instructional Method:*

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

*Scheduled:*

- Every Spring

### 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
  - 1. Trade manuals will be the primary reference sources, access will be provided by the instructor, may also include instructor handouts.
  - 2. Additional information resources will include product and use guides from industry manufacturers to enhance the learning process.
- B. Writing Assignments
  - 1. 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.
  - 2. 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 specification.
- C. Expected Outside Assignments
  - 1. Students will be required to complete two hours of outside-of-class homework for each hour of lecture.
  - 2. Pertinent supplementary literature and research assignments.
- D. Specific Assignments that Demonstrate Critical Thinking
  - 1. 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

List general evaluation methods (i.e., mixed format exams, participation, written essays, oral and listening exams)

### **Traditional Evaluation**

Project completion, function, fit and finish, homework, classroom discussion, essay, journals, lab demonstrations and activities, multiple choice quizzes, and participation.

## 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 Delivery**

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

## **VIII. Representative Texts and Supplies**

### **A. Required Firearms First Year**

1. 1 Safety breech bolt action rifle (Remington 700)
2. 1 Flat breech bolt action rifle (Mauser 98, Ruger 77, Savage 110)
3. 1 Other bolt action rifle of your choice
4. The following guns can be from the second year firearms list.
5. 2 Handguns
6. 4 .22 Rifles
7. 2 Shotguns
8. 2 Other Centerfire Rifles

### **B. Required Tools and Materials**

1. Safety glasses
2. Parrot Multi vice
3. Layout fluid (Dykem)
4. Steel or carbide scribe
5. Steel machinist's Protractor
6. 4x 3/8" HSS Tool bits
7. 60 Deg Center Gauge
8. #3 Center Drill
9. 6" dial Caliper
10. Steel Rule
11. Chip brush
12. Shop rags
13. 8-10" Mill Files (1 each)
14. Smooth Cut
15. Second Cut
16. Bastard Cut
17. File handles for all files
18. Hacksaw and blades
19. 4 OZ. Ball Peen Hammer
20. Assorted flat blade screwdrivers (Fixed type, not magnetic tip)
21. 10" Adjustable Wrench
22. Allen Wrenches, Standard and Metric
23. Tapered feeler gauges
24. Tool box for your belongings-Bench Top, not roll away type
25. Padlock
26. 3 corner file (Three square file)
27. 3/16" Chainsaw File

28. Needle file Set
29. File Card
30. Stones: (1/2"x1/2"x6"):
31. 1 Medium
32. 1 Fine
33. 1 Extra fine
34. Dial Indicator, 0-1" w/ Magnetic Base
35. Gun Cleaning supplies (Rods, Brushes, Jags, Patches, Solvent)
36. Pin Punch Set
37. Extra 1/16" punches
38. Depth Micrometer, 0-1"
39. Needle Nose Pliers
40. Sand Paper (min 5 sheets each):
41. 150 Grit
42. 220 Grit
43. 320 Grit
44. 400 Grit
45. Steel wool, '0000'
46. Aluminum Oxide General Purpose Shop Rolls 1" wide
47. 220 Grit
48. 320 Grit
49. Acetone
50. Simple Green w/ Spray bottle
51. Breakfree Gun Oil (pump or aerosol)
52. Toothpicks
53. Q-tips
54. Thread Locker (Medium and High Strength)
55. Dust Masks or Respirator
56. Dremel or Foredom Tool with Accessories
57. Masking tape
58. #5 Welding Goggles
59. 1/16" 2% Thoriated Tungsten Welding electrodes (Red)
60. Thin Welding Gloves-TIG
61. Welding Helmet w/ #10 lens-TIG
62. Stainless Steel wire Brush, small
63. Quality Drill Index
64. Mechanical Edge Finder
65. End Mills, Center Cutting HSS Standard up to 1/2 inch
66. Tap Set Complete set to 1/2" and includes: 6-48, 8-40, similar to Brownells #2 Tap Set
67. Tap Fluid
68. Tap Handle (may not be included in set)
69. Propane or MAP Gas Torch
70. Tooth Brushes
71. C Clamps:
72. 2 @3"
73. 2 @5"
74. Tape Measure
75. Cross Test Level

76. Mallet, 10-12 OZ. Non-marring
77. Scissors
78. Small Flashlight
79. Latex/Nitrile Disposable Gloves
80. One set screw on sights
81. One set dovetail sights
82. Dovetail Cutter (3/8"x60 Deg OR .330"x65 Deg-to match your sights)
83. Assortment of Wooden Dowels
84. A wide assortment of rubber corks to plug bores and muzzles
85. Chemical Resistant spray Bottle
86. Two part epoxy 24hour cure
87. ACRAGLASS or ACRAGEL bedding Compound
88. Release Agent
89. Cerakote Starter Kit OR 1 Can OF TEFLONMOLY, OR GUNKOTE
90. 3 Grind to Fit Recoil Pads
91. .22 Barrel Liner Drill bit
92. .22 Barrel Liner
93. A 2 Sear Trigger such as Timney, or Jard for a centerfire bolt action rifle of your choice
94. Quality Steel Scope Bases and horizontally split steel rings
95. Rifle Scope of your choice
96. Weld-on bolt handle
97. Jewell Trigger for Remington 700 (Hunter)
98. White Cotton Gloves
99. A roll of bailing wire
100. 36" length of 1/4" Allthread with nuts and washers to fit
101. 20 gauge Sheet Steel (aprox 12"x12")
102. Assorted Spring Stock (Flat and Round) Brownells
103. 2 Pre contoured barrels (un-threaded and un-chambered)
104. 1 un-contoured barrel blank
105. A Semi-inletted wood stock for a bolt action rifle of your choice
106. Foam-Filled Fiberglass stock for a bolt action rifle of your choice
107. Cold Rolled Round stock Steel (10' Lengths):
108. 1/2", 3/4", 1", 1 1/4"
109. Flat Bar Stocks 27" length of 1"x2"
110. Flat Bar Stocks 24" length of 1/2"x1-1/2"
111. Aluminum Bar Stock (1 piece of each dimension below)
112. 1"x3"x6"
113. 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. 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: 11/05/2024