

# Lassen Community College Course Outline

## GS 61 Design, Function and Repair of Rifles

4.0 Units

### I. Catalog Description

This course is designed to teach the gunsmithing student to trouble shoot and repair common centerfire rifles. Action types to be covered will include lever actions, pump actions and semi auto rifles. Topic will include barrel fitting, chambering, extraction, ejection, feeding, fire control, stock fit and proper bedding. This course will consist of two hours lecture and six hours lab weekly. This course will not cover pivot barrel rifles.

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

Transfer Status: Not transferable

34 Hours Lecture, 102 Hours Lab, 68 Out of Class Hours, 204 Total Hours of Instruction

Scheduled: Fall 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. Trouble shoot centerfire rifles and determine a correct course of action to remedy a malfunction of a rifle to industry standard or better.
2. Properly apply the correct course of action to a malfunctioning rifle to complete needed repairs to industry standard or better.

#### B. Course Objectives

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

1. Diagnose malfunctions in all action types presented in this course.
2. Determine a correct course of action to correct malfunctions in all action types presented in this course.
3. Apply proper repair of all action types presented in this course.

### IV. Course Content

#### A. Outline of Topics

1. Barrel fit of lever, pump and semi auto centerfire rifles.
2. Chambering of lever, pump and semi auto centerfire rifles.
3. Extraction and ejection of lever, pump and semi auto centerfire rifles.
4. Feeding of lever, pump and semi auto centerfire rifles.
5. Fire control systems of lever, pump and semi auto centerfire rifles.
6. Stock fit and proper bedding of lever, pump and semi auto centerfire rifles.

## **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 Textbook**

None

### **Required Firearms**

Winchester 1894  
Marlin 336 or 1894  
Remington 740,742 or 7400  
AR platform rifle

## **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: 09/20/2022

Course Originator: John Martin

Board Approval Date: 10/11/2022

Chancellor's Office Approval Date:

Revised By:

Curriculum/Academic Standards Committee Revision Date: