Lassen Community College Course Outline

Course- GS 60 Design, Function and Repair Bolt Action Rifles 3.0 Units

I. Catalog Description

This course is to teach the gunsmithing student the design function and repair of military and sporting bolt action rifles. This course will also cover accurizing bolt action rifles as well as precision rifle building.

Prerequisites: GS 59
Recommended Preparation: Successful completion of ENGL105 or equivalent.

Transfer Status: Not Transferable
17 hours lecture, 102 hours lab, 34 out of class hours, 153 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. Build a custom bolt action rifle to industry standard
2. Repair bolt action rifles to industry standard

B. Course Objectives

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

1. Contour a rifle barrel to specific dimensions
2. Blueprint a rifle action and correct oversize firing pin hole
3. Thread, breech, chamber and head space a barrel to fit a specified rifle action
4. Correct head space
5. Fit a barreled action to wood and synthetic stocks
6. Bed barreled action to stock
7. Fit military and aftermarket triggers to rifle action to function safely
8. Fit military and aftermarket safety to rifle action with trigger for safe function
9. Convert military rifle action and bottom metal for sporting use
10. Evaluate/inspect bolt action rifles for safety

IV. Course Content

A. Outline of Topics

1. Rifle barrel contouring
2. Blueprinting and correcting oversize firing pin holes
3. Breeching and headspace
4. Barrel fitting

5. Fitting barreled action to stock both wood and synthetic
6. Bedding
7. Trigger and safety mechanisms
8. Military conversions
9. History
10. Safety and evaluation

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 Guns and parts

1 Remington 700 complete rifle (safety breech)
1 Mauser complete rifle (flat breech)
1 Springfield 03, 03A3 or 1917 Enfield or Winchester M70 pre 64, classic complete rifle (cone breech)
1 Uncontoured rifle barrel blank
2 Precontoured rifle barrel blanks
1 aftermarket trigger for Mauser or Springfield
1 Low scope safety
1 scope base for Mauser
Mic. Parts for repair of rifles(see instructor)

Required tools

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 ¼"
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 ¼"& ½" 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: 10/04/2022
Course Originator: B. Bauer
Board Approval Date: 11/08/2022
Chancellor's Office Approval Date: