

**Honolulu Community College  
Marine Education and Training Center  
Boat Maintenance and Repair Program**

## **Course Syllabus**

**Course Name:** Marine Finish Systems

**Course Number:** MARR 33

**Course Credits and Hours:** 4 credits; 120 hours lecture/lab

**Prerequisites:** None

**Course Description:** This course covers the fundamental techniques involved in the application of modern marine finishes. Projects stress proper surface preparation, proper handling and mixing of coatings, and selection, adjusting, and maintenance of spray application equipment. Hands-on experience in the use of the siphon gun, pressure pot system, and HVLP systems is included.

### **Course Objectives:**

1. Perform refinish survey to determine scope of work.
2. Perform surface preparation including selection of tools and abrasives.
3. Calculate material cost of refinishing project
4. Perform brightwork finishing and refinishing.
5. Calculate air compressor requirements for finish systems and identify function of the air delivery system components.
6. State and perform safety checks of Breathing Air System.
7. Perform set-up and adjustment of Siphon Gun, Conventional Pressure Pot, and High Volume low-pressure Spray (HVLP) application systems including nozzle, needle, and air cap selection.
8. Perform maintenance and clean up of equipment.
9. Perform wet sanding and polishing of defects
10. Perform maintenance of Spray Booth.

### **Course Outline:**

- I. REFINISH SURVEY TO DETERMINE SCOPE OF WORK
  - A. Condition of existing finish
  - B. Compatibility of existing finish with new
  - C. Estimating labor hours required to perform the work
  
- II. SURFACE PREPARATION
  - A. Testing for compatibility
    1. Testing integrity of sub-strate
    2. Tie coat-When it is needed and why
  - B. Sanding/Fairing techniques

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1. Types of tools
  2. Types of abrasives
- C. Priming
- D. Cleaning surface prior to application of coating

III. CALCULATING AMOUNT OF COATINGS REQUIRED AND COST

A. Calculating square footage (surface area)

1. Hull
2. Deck

B. Calculating coatings usage

1. Percent volume solids
2. Transfer efficiency
3. Dry film thickness
4. Coating cost

C. Overview of different coating systems.

1. Enamels
2. Epoxies
3. Urethanes
4. Varnishes
5. Polyesters

IV. PRACTICE BRIGHT WORK & BRUSH PAINT FINISHING TECHNIQUES

A. Strippers

B. Sharpening scrapers

C. Application techniques

1. Brushing techniques
2. Types of brushes
3. Types of rollers
4. Cleaning of brushes/rollers

D. Wet sanding & polishing techniques

V. THINNING TECHNIQUES

A. Zahn Cup

B. Additives

VI. EQUIPMENT CONSIDERATIONS

A. Compressors

1. Type required
2. Size required

B. Air delivery

1. Air regulator/filters
2. Hose
3. Quick connects

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- VII. AIR BREATHING SYSTEM
  - A. Compressor
  - B. Filters
  - C. Maintenance & safety procedures
  
- VIII. SPRAY TECHNIQUES
  - A Spray Gun Selection
    - 1. Siphon Gun
    - 2. Conventional Pressure Pot
    - 3. High Volume Low Pressure Spray
  - B. Fluid control
  - C. Pattern Control
  - D. Nozzle, needle, air cap selection
  - E. Trouble shooting
  
- IX. MAINTENANCE
  - A. Gun Break Down
  - B. Compressor
  - C. Regulators and Air Lines
  - D. Spray Booth
  
- X. MATERIAL WASTE HANDLING
  - A. Recyclables
  - B. Regulatory Compliance

**Evaluation:**

Standard Alpha System

- A 94 -100
- B 88 -93
- C 80 -87
- D 70 -80
- F below 70

Evaluation by percentages

Shop Projects	40%
Written Quizzes	40 %
Work Habits Evaluation*	20%

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\*The evaluation addresses behavior such as “Does the student report to class on time and prepared? Does the student use lab time wisely? Does the student cooperate with the instructor and team members? Is METC policy followed? Does the student participate in class discussions?”

Many handouts will be issued to you throughout your career at the METC. It is imperative that you keep a three-ring binder with labeled dividers. During some written tests you will be allowed to refer to your notes. You will also find it beneficial to refer to your notebook while executing projects. Your notebook will directly effect your written and "hands on" project scores. Your notebooks will periodically be turned in and evaluated.

Prompt attendance is vital to your success. Many "hands-on" projects and demonstrations simply can not be repeated. The table below demonstrates how absences and tardiness will limit how high a grade you will be eligible to receive for this course.

If you miss:	You are eligible for a(n)
7.5 hours or less	A
11.5 hours or less	B
16.5 hours or less	C
21.5 hours or less	D
More than 21.5 hours	F

**Each Tardy will equal 1/2 Hour Absent. This includes being late to returning to class after a designated break.**

Please call to inform if you are going to be absent. Many of our projects are tackled as a team. We need to know if a team member is going to be absent. The answering machine is on phone # **832-3682**.

If you do not call to notify of your absence and there is a test, and you are granted permission to take a make-up test, a 14 point (based on 100 pt. scale) penalty can be deducted from your make-up score. Be advised that any make-up exam administered may be different in format from the original exam, and may include oral examination.

**Required Textbooks:**

Manuals will be loaned to the student.