## REFINISH APPLICATION
### Course Syllabus

<table>
<thead>
<tr>
<th>Course Number:</th>
<th>ART-0831</th>
<th>OHLAP Credit:</th>
<th>No</th>
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<tbody>
<tr>
<td>OCAS Code:</td>
<td>None</td>
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<tr>
<td>Course Length:</td>
<td>120 Hours</td>
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<tr>
<td>Career Cluster:</td>
<td>Transportation, Distribution &amp; Logistics</td>
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<tr>
<td>Career Pathway:</td>
<td>Automotive Collision Repair</td>
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<tr>
<td>Career Major(s):</td>
<td>Collision Repair Technician</td>
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### Pre-requisite(s):
In this course spray gun operation will be covered in great detail and applied to different products used in refinishing. Students will learn about corrosion protection products and how to mix and apply them, which will include etching primers, primer surfacer and sealing materials. Seam sealers and chip resistant coatings will be covered to demonstrate their role and application process. Students will learn about topcoats, like basecoat/clear coat products and their application techniques. Included in this course is instruction to determine the cause and corrective action for finish failures.

### Textbooks:

### Course Objectives:

#### A. Practice Using Compliant Spray Equipment
1. Inspect, clean, and determine condition and adequacy of spray guns and related equipment (air hoses, regulators, air lines, air source, and spray environment. (HP-I) ¹
2. Check and adjust spray gun operation for HVLP or LVLP guns. (HP-I) ¹
3. Set up (fluid needle, nozzle and cap), adjust, and test spray gun using fluid, air, and pattern control valves. (HP-I) ¹
4. Overhaul a malfunctioning spray gun.
5. Lubricate a spray gun.
6. Analyze/troubleshoot incorrect spray gun problems (leaks, jerky spray, and defective patterns); correct problems.

#### B. Use H.V.L.P./L.V.L.P. Spray Equipment.
1. Inspect, clean, and determine condition and adequacy of spray guns.
2. Check and adjust high volume, low pressure spraying equipment.
3. Check and adjust turbine spray equipment.
4. Check and adjust air pressure on spray equipment.
5. Adjust spray equipment using fluid and pattern control valves.
7. Analyze/troubleshoot spray equipment problems, (leaks, jerky spray, and defective spray patterns); correct problems.

#### C. Use Spray Booth and Equipment.
1. Distinguish between a cross-flow and a downdraft spray booth.
2. Discuss OSHA regulations for a spray booth.
3. Inspect air makeup and exhaust systems (including intake and exhaust filters, fan and other mechanical components of the system); ensure proper filtering and ventilation.
4. Dispose of contaminated filters properly.
5. Inspect mechanical components of prep stations; ensure proper filtering and ventilation.
6. Inspect and service central and portable sanding vacuum systems.
7. Review OSHA regulations for spot and panel drying systems.
8. Discuss procedure for safely operating a drying system.
9. Inspect and service air filtration systems.

D. Identify Types and Need for Corrosion Protection.
1. Investigate types of corrosion and discuss causes.
2. List types of corrosion protection used by automakers.
3. Describe the loss of factory protection on vehicles.
5. Discuss inspection and application of corrosion protection to enclosed and exposed interior surfaces.
6. Discuss selection and application of seam sealers to exposed joints and seams.
7. Sequence steps for protecting exterior surfaces of the vehicle.
8. Sequence steps for protecting the underbody surfaces of the vehicle.
9. Describe precautions taken when working with exterior accessories.
10. Explain procedures of working anti-corrosion compounds.
12. Restore corrosion resistant coating, caulk, and seam sealers to repaired areas. (HP-G)
13. Select the most suitable undercoating for the repair being performed.
14. Review the steps for mixing and applying a self-etching primer.
15. Prepare surface for primer applications.
16. Apply suitable metal treatment or primer in accordance with total product systems. (HP-I) ¹
17. Mix primer, primer-surfacer or primer sealer. (HP-I) ¹
18. Apply primer onto surface of repaired area. (HP-I) ¹

E. Apply Urethane and Epoxy Primers.
1. Review personal and environmental safety.
2. Select proper undercoat system for the type of repair being performed.
3. Prepare surface for primer application.
4. Mix and spray onto surface of repaired area according to manufacturer’s specifications.
5. Mix and apply guide coat over primed area.

F. Apply Polyester Glazing Putty/Finishing Fillers.
1. Select proper type of glazing putty for repair being performed.
2. Apply polyester glazing putty to pinholes, scratches, & other minor surface imperfections.
3. Apply two component finishing filler to minor surface imperfections. (HP-I) ¹
4. Dry or wet sand area to which primer surfacer has been applied. (HP-I) ¹
5. Dry sand area to which two-component finishing filler has been applied. (HP-I) ¹
6. Remove dust from area to be refinished, including cracks or moldings of adjacent areas. (HP-I) ¹
7. Clean area to be refinished using a final cleaning solution. ¹
G. Apply Sealers.
1. List three basic functions of a sealer.
2. Select proper type of sealer for the topcoat to be used.
3. Apply suitable sealer to the area being refinished when sealing is desirable. (HP-I)¹
4. Apply adhesion promoter over area to be painted, where applicable; blend into adjacent area.
5. Scuff sand to remove nibs or imperfections from a sealer. (HP-I)¹

H. Apply Specialty Coatings.
1. Apply stone chip-resistant coating to lower body areas. (HP-I)¹
2. Restore corrosion-resistant coatings, caulking, & seam sealers to repaired areas. (HP-I)¹
3. Restore rubberized undercoating to interior panels.

I. Decode the Vehicle.
1. Locate identification plates on various makes of vehicles.
2. Determine type and color of paint on vehicle by manufacturer’s vehicle information label. (HP-I)¹
3. Decode the identification plates using a guide to find: body, style, year, and other coded information.
4. Review several paint manufacturers’ color manuals and interpret formulas.
5. Translate paint codes into paint jobber formula numbers.
6. Decode the V.I.N. to determine to correctness of a vehicle.

J. Review Automotive Finishes.
1. Review personal and environmental safety.
2. Discuss basic color theory and components.
3. Explain how automotive color is made.
4. Match compatibility of paints and additives.
5. Research types of topcoats and their recommended usages.
6. Identify and classify types of repair procedures.
7. Discuss the difference between single and multi-usage finishes.
8. Research the importance of paint manufacturer’s product knowledge.
9. Perform a viscosity check to determine proper reduction of paint.
10. Perform a mill check to determine the build of the vehicles finish.
11. Demonstrate proper spray gun handling techniques.
12. Identify and mix paint using a formula. (HP-G)¹
13. Identify poor hiding colors; determine necessary action. (HP-G)¹
14. Tint color using formula to achieve a blendable match. (HP-G)¹
15. Identify alternative color formula to achieve a blendable match. (HP-G)¹

K. Apply Low VOC, Acrylic Urethane, and Waterborne Finishes
1. Review OSHA regulations dealings with VOC’s.
2. Discuss ways to lower VOC levels.
3. Identify equipment needed to apply VOC coatings.
5. Review personal and environmental safety practices.
6. Select the proper paint system for the repair being performed.
7. Compare advantages and disadvantages of waterborne and other low VOC coatings.
8. Select the proper solvents for the temperature and type of repair being performed.
9. Select proper air pressure and spraying techniques (gun arc, angle, distance, speed, and spray pattern overlap) for finish being applied.

10. Shake, stir, reduce, strain paint according to manufacturer's recommendations. (HP-I)

11. Apply selected product on a test panel according to manufacturer's recommendation.

12. Check for color match on all applied finishes.

13. Apply basecoat/clearcoat for panel blending, or partial refinishing. (HP-I) 1

14. Apply basecoat/clearcoat for overall refinishing. (HP-G) 1

15. Identify alternative color formula to achieve blendable match. (HP-G) 1

16. Apply single stage topcoat. (HP-I) 1

L. Apply Multi-Stage Refinishing (Tri-Coats)

1. Select the proper paint system for the repair being performed.

2. Select proper solvents for the temperature and type of repair being performed.

3. Shake, stir, thin or reduce, & strain paint according to manufacturer's recommendations.

4. Select proper air pressure and spraying techniques (gun arc, angle, distance, speed, and spray pattern overlap) for finish being applied. (HP-I) 1

5. Apply selected product on a test panel in accordance with manufacturer's recommendations; check for color match and let-down. (HP-I) 1

6. Apply multi-stage coats for panel blending or overall refinishing. (HP-G) 1

7. Check for color match on all applied finishes.

M. Apply Custom Finishes.

1. Discuss background and future of customizing.

2. Identify equipment used for customizing.

3. Review preparation steps and undercoating systems used for custom painting.

4. Compare and select the proper basecoat for the finish effect desired.

5. Discuss the candy color system.

6. Describe pearslescence and new paint systems.

7. Practice custom striping, graphics, and lettering techniques and designs.

8. Explain and practice techniques and designs used for murals and airbrushing.

9. Identify and compare metallic and flake finishes.

10. Identify other specialty coatings used in custom painting.

11. Compare various clearcoats used for custom painting.

12. Review polishing, refinishing, and protecting a custom finish.

13. Discuss radical and permanent body modifications.

14. Denib, buff, and polish finishes where necessary. (HP-I) 1

N. Apply Final Detail

1. Buff and polish to remove defects as required. (HP-I) 1

2. Clean interior, exterior, and glass. (HP-I) 1

3. Clean body openings. (door jambs and edges, etc.) (HP-I) 1

4. Remove overspray. (HP-I) 1

1ASE objective
All unmarked objectives are TTC instructor developed.
Teaching Methods: The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.

Grading Procedures: 1. Students are graded on theory and shop practice and performance. 2. Each course must be passed with seventy (70%) percent or better. 3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

Description of Classroom, Laboratories, and Equipment: Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit: The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

College Credit Eligibility: The student must maintain a grade point average of 2.0 or better.