# MATERIAL/PROC/CORR CNTRL/NDT
## Course Syllabus

<table>
<thead>
<tr>
<th>Course Number:</th>
<th>TRGA-1105</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>49 Hours</td>
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<td>Career Cluster:</td>
<td>Transportation, Distribution &amp; Logistics</td>
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<td>Career Pathway:</td>
<td>Aviation Maintenance Technology</td>
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<td>Career Major(s):</td>
<td>General Aviation</td>
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**Pre-requisite(s):**

Students will identify and select appropriate nondestructive testing methods, perform penetrate chemical etching, and magnetic particle inspections, perform basic heat-treating processes, and inspect aircraft weld repairs. In addition, students will identify and use aircraft cleaning products on internal and external surfaces. They will identify forms of corrosion and remove and treat corrosion.

**Textbooks:**

**Course Objectives:**

**A. Lesson: NONMETALLIC STRUCTURAL MATERIALS**
1. Define terms related to aircraft structural materials.
2. Discuss materials used in aircraft construction and their properties.
3. Discuss various types of wood and how they are used in aircraft construction.
4. Discuss aircraft plastic and composite materials.

**B. Lesson: METALLIC STRUCTURAL MATERIALS**
1. Discuss ferrous metals and match them with alloying agents.
2. Discuss nonferrous metals and match them with alloying agents.
4. Discuss magnesium, titanium, nickel, and copper, and their alloys.
5. Discuss alloying agents, carbon steels, alloy steels, and the S.A.E. classification system used for steel.

**C. Lesson: TREATMENT PROCESSES**
1. Discuss treatment processes for steel.
2. Discuss heat treatment of metals. (Level 1) (App. B.E,16)(Gen-E17)
3. Discuss commonly used systems for measuring the hardness of steel.
4. Perform basic heat-treating. (Level 1) (App. B.E,16)

**D. Lesson: NONDESTRUCTIVE INSPECTIONS**
1. Define terms related to non-destructive testing.
2. Explain inspection methods, including advantages and disadvantages. (Level 2) (App. B.E,14,15)
3. Discuss dye-penetrant, magnetic particle, eddy current, ultrasonic and radiographic inspection. (Level 1) (App. B,E,14)
4. Discuss visual inspection of welds.

E. Lesson: CORROSION
1. Define terms related to cleaning and corrosion control.
2. Discuss electro-chemical origins of corrosion.
3. Identify common types of corrosion found in aircraft structures.
4. Discuss origins/causes of corrosion.
5. Discuss the most common corrosive agents.

F. Lesson: CORROSION CONTROL
1. Identify common nondestructive methods used to detect corrosion.
2. Discuss the most corrosive-prone areas on aircraft and reasons for this corrosion.
3. Discuss safety practices used during aircraft cleaning and corrosion control processes.
4. Explain the chemical neutralization process for metals.
5. Determine proper corrosion-preventive techniques to be used in various corrosion-prone areas.(Gen.G13)

G. Lesson: AIRCRAFT CLEANING
1. Discuss cleaning engine parts, metal, fabric, acrylics, and rubber. (Gen.G12)
2. Discuss cleaning agents and their appropriate usage.
4. Determine the proper sequence for paint removal on aircraft structures. (Gen.G10)
5. Identify and select cleaning materials for proper mechanical and chemical corrosion removal. (Level 3) (App. B,G,22) (Gen.G1,G3,G9)

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%, F=0-69%.

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.
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.