MASTER SYLLABUS

AUTO104 – BASIC WELDING

Created by: Dennis Tuper

Canino School of Engineering Technology
Automotive Technology
Fall/2018
A. **TITLE:** BASIC WELDING

B. **COURSE NUMBER:** AUTO104

C. **CREDIT HOURS:** (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)

- **# Credit Hours:** 2
- **# Lecture Hours:** 1 per week
- **# Lab Hours:** 2 per week
- **Other:** per week

**Course Length:** 15 Weeks

D. **WRITING INTENSIVE COURSE:** NO

E. **GER CATEGORY:** NONE

F. **SEMESTER(S) OFFERED:** SPRING and FALL

G. **COURSE DESCRIPTION:**

This course includes all basic processes and procedures in joining and cutting ferrous and non-ferrous metals found in automotive/industrial applications using the latest tools and equipment. Focus will include safety, proper techniques, and quality control. Students receive equal number of lecture and lab sessions.

H. **PRE-REQUISITES/CO-REQUISITES:**

- a. Pre-requisite(s): NONE
- b. Co-requisite(s): NONE

I. **STUDENT LEARNING OUTCOMES:**

<table>
<thead>
<tr>
<th>Course Student Learning Outcome (SLO)</th>
<th>Program Student Learning Outcome (PSLO)</th>
<th>ISLO</th>
<th>Subsets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate the proper set-up and shut down procedures required for using an Oxy-fuel torch welding apparatus.</td>
<td>AL04</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Successfully weld two pieces of 14-16ga steel together in the flat position using the GMAW process.</td>
<td>AL04</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Successfully weld two pieces of 1/4&quot; plate steel together in the flat position using the SMAW process.</td>
<td>AL04</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
Successfully cut 3/16” - 3/8” plate steel using an Oxy-fuel torch cutting apparatus. | AL04 | 5
---|---|---
Safely cut 14-16ga steel using a plasma cutter. | AL04 | 5

<table>
<thead>
<tr>
<th>KEY</th>
<th>Institutional Student Learning Outcomes (ISLO1-5)</th>
<th>Automotive Learning Outcomes (ALO1-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISLO #</td>
<td>ISLO &amp; Subsets</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Communication Skills&lt;br&gt;Oral [O], Written [W]</td>
<td>Diagnose and repair all automotive systems</td>
</tr>
<tr>
<td>2</td>
<td>Critical Thinking&lt;br&gt;Critical Analysis [CA], inquiry &amp; Analysis [IA], Problem Solving [PS]</td>
<td>Demonstrate the ability to find all related system diagnostic/repair information within auto service publications.</td>
</tr>
<tr>
<td>3</td>
<td>Foundational Skills&lt;br&gt;Information Management [IM], Quantitative Lit/Reasoning [QTR]</td>
<td>Utilize the 8 point service procedures to diagnose and solve problems.</td>
</tr>
<tr>
<td>4</td>
<td>Social Responsibility&lt;br&gt;Ethical Reasoning [ER], Global Learning [GL], Intercultural Knowledge [IK], Teamwork [T]</td>
<td>Demonstrate safety procedures while conducting automotive service activities.</td>
</tr>
<tr>
<td>5</td>
<td>Industry, Professional, Discipline Specific Knowledge and Skills.</td>
<td></td>
</tr>
</tbody>
</table>

J. % **APPLIED LEARNING COMPONENT**: YES
1) CLASSROOM/LAB
2) SERVICE LEARNING

K. % **TEXTS:**
WELDING FUNDAMENTALS!
BOWDITCH, BOWDITCH, BOWDITCH!
4th EDITION ISBN# 978-1605252568!
GOODHEART-WILCOX APRIL, 2010

L. % **REFERENCES:**

M. % **EQUIPMENT:**
1) HEAVY LEATHER WELDING GLOVES!
2) LEATHER FOOTWEAR!
3) LONG PANTS (NO EXPOSED SKIN)!
4) SAFETY GLASSES!
5) FACILITY WELDING LAB AS EQUIPED!

N. % **GRADING METHOD**: A-F

O. % **SUGGESTED MEASUREMENT CRITERIA/METHODS:**
1] Homework Assignments and Quizzes!
2] End of Topic (OXY-FUEL, SMAW, GMAW) Exams!
3] Final Exam!
4] Participation!

P. **DETAILED COURSE OUTLINE:**

1] Sylabus, general discussion regarding expectations
2] Discuss Oxy-fuel safety and set-up procedures and American Welding Society
3] Discuss homework, hand out set-up and shut-down procedures and discuss
4] Discuss homework, discuss broken bolt and pipe plug removal procedures using torches
5] Oxy-fuel Hourly Exam
6] Discuss homework and hourly exam, start SMAW procedures
7] Discuss travel/work angles, 5 essentials of a good bead, DCRP vs DCSP vs A/C current
8] Discuss homework, major weld bead components, and electrode classification
9] SMAW Hourly Exam
10] Discuss homework and hourly exam, start GMAW procedures
11] Discuss homework, cover highlighted areas in text.
12] Discuss FCAW vs GMAW and related procedures
13] GMAW Hourly Exam
14] Discuss last hourly exam and review for final exam
15] Final Exam

Q. **LABORATORY OUTLINE:** YES

Wk. 1-5] Oxy-Fuel Systems and Procedures
Wk. 6-9] SMAW Systems and Procedures
Wk. 10-14] GMAW Systems and Procedures