NORTHEASTERN TECHNICAL COLLEGE
COURSE OUTLINE

<table>
<thead>
<tr>
<th>COURSE:</th>
<th>PREFIX NO.</th>
<th>EFFECTIVE DATE</th>
<th>NEXT REVIEW DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welding</td>
<td>WLD 111</td>
<td>August 2013</td>
<td>August 2015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TITLE:</th>
<th>CREDITS</th>
<th>CONTACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC Welding I</td>
<td>4</td>
<td>CLASS - LAB - TOTAL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 6 4</td>
</tr>
</tbody>
</table>

PREREQUISITES: None

DESCRIPTION: This course covers the safety, equipment, and skills used in the shielded metal ARC welding process. Fillet welds are made to visual criteria in several positions.

TEXTBOOK(S) OR ALTERNATIVE: Modern Welding, Chapter 1-4, 15, 16 (Optional); Pat Programmed Audio-Visual Training: Hobart School of Welding Technology.

MATERIALS (specifying those to be purchased by student):
- Welding shield
- Earplugs
- Safety glasses
- Welding gloves
- Cutting goggles

COLLATERAL READING:
- Practical Welding
- General Welding - John Wiley and Sons
- Welding Principles and Applications - Delmar

CLASS MANAGEMENT ACTIVITIES (attendance, tardies, testing, etc.):
Attendance: Students must attend a minimum of 80% of the meetings of each class. If students miss more than 20% of a class, the student will be dropped automatically by the instructor, and assigned a grade of "F". If the student wishes to withdraw from the class he/she must complete a withdrawal form found in Student Development Office. A grade of "W" will be assigned up to midterm. After midterm a grade of "WF" will be assigned if the student is not passing the course.

Tardy: Realizing that regular attendance in classes is a contributing factor toward academic success, it is also important that students arrive promptly for classes. Arriving late for a class not only disrupts a class in progress but interrupts the learning process. A tardy is defined as the arrival of the student to class after attendance has been taken. Three tardies will constitute one full absence. It is the student’s responsibility to notify the instructor after class that he/she arrived late for class. If a student leaves early from class it is also counted.

Academic Dishonesty: NETC honors the state TEC Student Code with regard to Academic Dishonesty. Students should read the Student Code and Grievance Procedure Book. Copies of the Student Code are available in Student Services. Academic Dishonesty will not be tolerated.
Classroom Etiquette: An integral part of an education is developing a sense of integrity and responsibility not only toward ourselves but also toward others. In the classroom, as on the job or in your home, exhibiting appropriate behavior reflects on your maturity. Arriving late to class, being unprepared, unappropriate talking while class is in session, etc., negatively reflect on you and your fellow students. Please be considerate.

Student ID: It is mandatory that students wear his or her student ID at all times. The instructor will dismiss students without ID from class. The student may get his/her ID and return to class before the midpoint of the class. If the student cannot get his/her ID and return to class by the midpoint, the instructor will record the absence.

DISABILITIES STATEMENT: Students with disabilities are encouraged to contact the Vice President for Student Services to discuss needs or concerns as they pursue an academic program and participate in campus life. The Vice President for Student Services will provide guidance concerning official documentation of disabilities and/or accommodation of needs. (See College Catalog)

RESOURCES (A-V, persons, tools/equipment):

COURSE TOPICAL OUTLINE (List topics and sub-topics of course) and Calendar or approximate length of time devoted to topic.

Topic:  
I. Introduction to Shielded Metal ARC Welding  
II. The safety and health of welders  
III. Striking and controlling the ARC in flat position  
IV. Pad of beads in flat position and crater filling  
V. Fillet weld, lap joint, horizontal position  
VI. Pad of beads in flat position with E6010 electrodes  
VII. Visual inspection and practical weld tests  
VIII. Fillet welds (3 bead), tee joint, horizontal position  
IX. Fillet weld, tee joint, horizontal position, break test  
X. Pad of beads, surface weld, horizontal position  
XI. Square groove weld, butt joint, horizontal position  
XIII. Fillet weld, lap joint, vertical-up position  
XIV. Fillet weld, tee joint, vertical-up position
Topic:

XVI. Square groove, butt joint, vertical-up position

XVIII. Fillet weld, lap joint, overhead position

XIX. Fillet weld, tee joint, overhead position

XXI. Square groove weld, butt joint, overhead position

XXIII. Fillet weld, lap and tee joint, flat and vertical-down position

XXIV. Pad of beads, surface weld, flat, horizontal and vertical-down positions

XXV. Fillet and square groove weld, lap and butt corner joints, flat-horizontal and vertical positions

XXVI. Fillet weld, lap joint, vertical-down position

XXVII. Square groove weld, butt joint, flat position

XXVIII. Fillet weld, lap joint, horizontal position

XXX. Fillet weld, tee joint, vertical-up position

XXXI. Fillet weld, tee joint, overhead position

XI. Single vee groove weld, butt joint, horizontal position

XII. Single vee groove weld, butt joint, overhead position

XV. Single vee groove weld, butt joint, vertical position

XVII. Cast iron welding and surfacing of steel

XVIII. Single vee groove weld, butt joint, flat position

XIX. Fillet weld, lap joint, all positions

STUDENT LEARNING OUTCOMES/OBJECTIVES OF COURSE:

1. Safe work habits in welding lab.

2. Importance of safety in Oxy-Acetylene and electric ARC welding.

3. Use and care of Oxy-Acetylene and electric ARC welding equipment.

4. Operation and setup of Oxy-Acetylene and electric ARC welding.
STUDENT LEARNING OUTCOMES/OBJECTIVES OF COURSE: (Continued)

5. Procedure for applying Oxy-Acetylene and electric ARC to different metals.

6. Ability to select proper tip and filler wire for job.

7. Ability to distinguish between good and bad weld beads and cuts.

INSTRUCTIONAL METHODS TO COMPLETE LEARNING OUTCOMES/OBJECTIVES:

1. Textbook

2. Audio-Visual Instruction

3. Lab Projects

4. Demonstrations

5. Small Group Discussions

EVALUATIVE METHODS TO APPRAISE LEARNING OUTCOMES/OBJECTIVES:

1. Quality of projects - Student selects example of each type and notifies instructor that it is being presented for grading. Instructor will grade as A, B, C, D, or F and inform student at that time. Student may present a second attempt only. All grades count equally.

2. Care of machines and equipment.

3. Midterm report will be distributed.

GRADING SCALE:

93 - 100 = A
86 - 92 = B
78 - 85 = C
70 - 77 = D
BELOW 70 = F
### GRADING RECORD FOR WELDING 111

(Student Name: __________________________  Term: ________________

**INSTRUCTOR:** __________________________

<table>
<thead>
<tr>
<th>Project Name</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; attempt (Grade/date)</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; attempt (Grade/date)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Striking/Controlling ARC/flat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pad of Beads/flat/crater fill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/lap/horiz.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pad of beads/flat/E6010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual inspection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practical weld tests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/tee/horiz/break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pad of beads/surf/horiz.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Square groove/butt/horiz.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/lap/vert-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/tee/vert-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Square/butt/vert-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/lap/overhd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/tee/overhd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Square groove/butt/overhd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/lap&amp;tee/flat&amp;vert-down</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pad of beads/surf/flat/horiz &amp; vert-down</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet &amp; sq.groove/lap &amp; butt/fit-horiz &amp; vert</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/lap/vert-down</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Name</td>
<td>1st attempt (Grade/date)</td>
<td>2nd attempt (Grade/date)</td>
<td>Comment</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>--------------------------</td>
<td>--------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Sq. groove/butt/flat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/lap/horiz.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/tee/vert-up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/tee/overhd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SingleVgroove/butt/horiz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SingleVgroove/butt/overhd</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SingelVgroove/butt/vert</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cast iron/surfacing steel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SingleVgroove/butt/flat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fillet/lap/all</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation/setup of oxy-acetylene</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation/setup of electric ARC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selection of proper tip/filler wire</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to select good welds/cuts</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following is a progress report on your performance in WLD 111 for the objectives of the course:

<table>
<thead>
<tr>
<th>Objective</th>
<th>E=Excellent</th>
<th>S=Satisfactory</th>
<th>N=Needs Improvement</th>
<th>U=Unsatisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe Work Habits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation and Set-up of Oxyacetylene WLD</td>
<td>E</td>
<td>S</td>
<td>N</td>
<td>U</td>
</tr>
<tr>
<td>Operation and Set-up of Electric ARC WLD</td>
<td>E</td>
<td>S</td>
<td>N</td>
<td>U</td>
</tr>
<tr>
<td>Procedure for Oxyacetylene to various metals</td>
<td>E</td>
<td>S</td>
<td>N</td>
<td>U</td>
</tr>
<tr>
<td>Procedure for ARC to various metals</td>
<td>E</td>
<td>S</td>
<td>N</td>
<td>U</td>
</tr>
<tr>
<td>Ability to select proper tip/filler wire</td>
<td>E</td>
<td>S</td>
<td>N</td>
<td>U</td>
</tr>
<tr>
<td>Ability to distinguish quality of beads</td>
<td>E</td>
<td>S</td>
<td>N</td>
<td>U</td>
</tr>
<tr>
<td>Ability to distinguish quality of cuts</td>
<td>E</td>
<td>S</td>
<td>N</td>
<td>U</td>
</tr>
</tbody>
</table>

Comments:

Instructor/Date: ___________________________________________________________