Syllabus:
Structural and Pipe Welding/Fabrication

Subject Code:
Course Number: WE9300
CIP Code: 48.0508
SOC Code: 51.4121

C-TEC of Licking County
150 Price Road
Newark, Ohio 43055
Instructors:

- Tim Broseus – Coordinator
- Leo Collins – Instructor/Coordinator

Coordinator Contact:

- C-TEC 150 Price Road Newark, Ohio 43055
- Appointments as scheduled
- Office Telephone (740) 364-2275
- C-TEC Telephone (740) 364-2333
- Email Address: tbroseus@c-tec.edu
- Email Address: lcollins@c-tec.edu

Class Meeting Times:

- September, 2018 – June 20, 2019
- Monday – Thursday Day Session – 8:30 a.m. to 3:00 p.m. Evening Session – 4:00 p.m. to 10:00 p.m.

Class Location:

- 7004B Classroom
- 7002 Lab

Program Hours:

- 900 Hours

Course Prerequisites:

- WorkKeys pretesting, copy of High School Diploma or GED

Required and Recommended Texts and Resources:

<table>
<thead>
<tr>
<th>Class</th>
<th>Vendor/Author</th>
<th>ISBN</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>WE9300</td>
<td>GoodHeart/Wilcox</td>
<td>9781605257952</td>
<td>Modern Welding Text 11th Edition</td>
</tr>
<tr>
<td></td>
<td>Hobart</td>
<td>EW517</td>
<td>Pipe Layout for Fitters &amp; Welders</td>
</tr>
<tr>
<td></td>
<td>Hobart</td>
<td>EW459</td>
<td>Blueprint Reading for Welders and Fitters</td>
</tr>
<tr>
<td></td>
<td>Hobart</td>
<td>EW462</td>
<td>Layout, Symbols &amp; Math</td>
</tr>
<tr>
<td></td>
<td>Pipefitters.com</td>
<td>A116</td>
<td>Pipe Template Layout</td>
</tr>
<tr>
<td></td>
<td>Pipefitters.com</td>
<td>A102</td>
<td>Pipefitter Blue Book</td>
</tr>
<tr>
<td></td>
<td>Pipefitters.com</td>
<td>A103</td>
<td>Pipefitter &amp; Welders Handbook</td>
</tr>
</tbody>
</table>
Course Description:
This 900 hour, one-year certificate program offers students a series of American Welding Society Technical Certificates. Students develop the technical knowledge and trade skills to layout, assemble, and fabricate metal projects. Instruction and assigned tasks familiarize students with metallurgy, plasma arc cutting (PAC), shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW), gas tungsten arc welding (GTAW), and oxyacetylene welding (OAW) and cutting (OFC). Students also learn the safe use of related hand and power tools, equipment and machines, and fastener systems. Students will demonstrate proficiency with orthographic projections, pattern making and parallel and radical line development. Applied math is taught throughout the program.

The Pipefitting component of the program includes skill development in: piping systems, drawing detail sheets, pipe template layout, identification and installation of fittings, valves and flanges, and the identification and fabrication of threaded pipe.

Course Objectives/Outcomes:
The course objectives include:

- Preparing students for post-program success, both in the work force and in their educational pursuits.
- Preparing students to process information using higher order thinking skills and to engage in sound decision-making.
- Providing a rich learning environment utilizing research-based methods of instruction, and current resources and materials.
- Maintaining high expectations for all students regardless of educational needs and providing support necessary for achievement.
- Providing a challenging, worthwhile curriculum based on current industry/academic expectations. Specifically and upon successful completion of the program/course for Structural and Pipe Welding/Fabrication the students will be able to demonstrate proficiency with:

Metal Fabrication, OSHA, NDE, AWS D1.1, AWS D1.3, and AWS D1.6 Structural Welding

- Safety of Metal Working Tools and Machinery
- Metal Identification
- Fasteners
- Blueprint Reading and Math
- Metal Fabrication
- Welding Safety
- Metallurgy
- Introduction of the AWS Code

Rev. 5/25/18
• Oxyacetylene Processes
• Shielded Metal Arc Welding
• Air Carbon Arc & Plasma Cutting
• Gas Metal Arc Welding
• Gas Tungsten Arc Welding
• Flux Cored Arc Welding
• AWS D1.1 Structural Welding Code/Steel
• AWS D1.3 Structural Welding Code – Sheet Steel
• AWS D1.6 Structural Welding Code – Stainless Steel

**ASME Section IX, Pipefitting and API 1104 Certification**
• Piping Systems
• Drawing and Detail Sheets
• Pipe Template Layout
• Identifying and Installing Fittings, Valves and Flanges
• Pipefitting Trade Mathematics
• Threaded Pipe and Fabrication
• Introduction to the ASME and API Code
• Butt Weld Pipe Fabrication
• API 1104 Certification
• ASME Section IX Certification

**Grading:**
Evaluation of student performance is based upon pupil performance objectives relating to course competencies study. The number of competencies mastered and the degree of mastery is translated into appropriate grades consistent with the C-TEC Board of Education policy on grading guidelines, practices, and procedures.

In the process of evaluation, instructors obtain several grades for each student within the time frame of the program/course. These grades may include, but are not limited to, performance on tests, quizzes, homework, assignments, special research projects, classroom participation, lab competency mastery and/or improvement and the demonstration of positive employability traits.

Final grades will be assigned based upon the student's accumulated points. Letter grades will be assigned using the following scale:

**Grading Scale**
90-100% - A
80-89% - B
70-79% - C
60-69% - D
59% or below – F

Rev. 5/25/18
Credentialing:
- AWS D1.1
- AWS D1.3
- AWS D1.6
- ASME Section IX
- API 1104

Course Policies:

- **Disruptive Behavior** – Disruptive behavior of any type is NOT permitted and may result in dismissal from the program. Sleeping during class, tardiness to class, excessive talking during class and disrespectful behavior are examples of disruptive behavior.

- **Plagiarism** – Submitting plagiarized work for an academic requirement is considered academic misconduct. Plagiarism is the representation of another’s work or ideas as one’s own; it includes the unacknowledged word-for-word use and/or paraphrasing of another person’s work, and/or inappropriate unacknowledged use of another person’s ideas.

- **Diversity** - It is the responsibility of the instructor and the students to foster and maintain a harmonious, non-threatening and non-discriminating environment in the classroom. Therefore, all individuals are to be respected as equal and contributing partners of our society.

- **Attendance**: Must maintain at least **90% rate of attendance**. You are required to attend all classes. Any other absences must be approved by the program supervisor.