Kent Career/Technical Center
WELDING 1
Syllabus 2019-20

Main Office: (616)364-8421

Instructor: Mr. Swenson Ext: 2390 jameswenson@kentisd.net
Mr. Goodman Ext: 2692 kurtgoodman@kentisd.net

COURSE DESCRIPTION:
CIP Code: 48.0508

Are you interested in knowing more about:
➢ Industrial safety?
➢ Welding processes?
➢ Cutting processes?
➢ Welding fabrication?
➢ Welding symbols?
➢ Blueprint reading?
➢ CNC systems?
➢ Learning real career skills for your future?

Immerse yourself in the highly skilled, highly technical world of welding. From the science of metals, to joining and cutting, you’ll explore a variety of welding techniques and materials professionals use to create and repair everything from bridges and buildings to computers and cellphones. With one of the most in-demand skills in the country, welding students have nearly endless opportunities for further education and work right out of high school.

CORE SKILLS NEED BY EVERY WORKER
• Problem Solving
• Personal Management
• Career Planning
• Teamwork
• Work Ethic

CAREER PREPARATION EXPERIENCES
• College Expo
• Business and Industry Expo
• Field Trips
• Practice Presentations and Interviews with business and industry members

COURSE STANDARDS
• OCCUPATIONAL ORIENTATION
• SAFETY AND HEALTH OF WELDERS
• SHIELDED METAL ARC WELDING
• GAS METAL ARC WELDING
• GAS TUNGSTEN ARC WELDING
• MANUAL OXY-FUEL CUTTING
• MECHANIZED OXY-FUEL CUTTING
• FLUX CORED ARC WELDING
• PLASMA ARC CUTTING
• AIR CARBON ARC CUTTING
• DRAWING AND WELDING SYMBOLS
• WELDING INSPECTION AND TESTING

CLASSROOM PROCEDURES:
➢ A code of conduct (cooperation) is created by each class.
➢ Students will participate and cooperate in class activities.
➢ Students must treat self, others, and equipment with respect.
➢ Students need to request permission from instructor and sign out before leaving classroom. Only one person may be gone at a time.
➢ KC/TC Responsible Thinking Process is utilized in classroom management.
**ATTENDANCE:**
The Tech Center mimics the world of work. Students are asked to call or email their teacher for themselves before the start of class in absence situations. Parents may see absences through PowerSchool and will be notified of excessive absences.

**LATE WORK AND MAKEUP WORK:**
Late work will be handled using through communication with student, parent, and teacher while following the guidelines of the RTC process. All assignments must be turned in prior to the end of the quarter in which they were assigned. A final due date for each quarter will be set by the Instructor. Any assignments that are not completed by this date will be marked 0 (E). The instructor will set due dates for some assignments during the quarter. Assignments turned in after the set due date, but before the end of the quarter due date, will be marked down 15% from the graded score.

Students who need to makeup work must communicate with the instructor to setup a plan.

**ASSESSMENT/TESTING:**
Students will be provided every reasonable opportunity to show their best work on assessments. Students may retake tests as necessary to demonstrate their competency. Students may be required to stay after class or come back to KCTC to retake tests under certain circumstances.

**RESOURCES:**
- Power School: powerschool.kentisd.org/public
- G-mail: (firstname.lastname)@kentisd.net
- Moodle: www.moodle.kentisd.net
- OSHA: https://campus.careersafeonline.com
- U/LINC: https://lincolneh.plateau.com/learning/user/nativelogin.jsp
- ESAB: https://training.esabna.com/

**GRADING:**
KCTC supports grading practices that are consistent, accurate, meaningful and supportive of learning.

KCTC grades are reported in two ways – Semester grades (A, B, C, D, E) and a year-end Certificate identifying a proficiency level on each course standard.

KCTC issues grades on a quarterly (9 week) basis. This quarter grade is composed of 70% Technical skills and 30% Career and Employability skills.

The semester grade is determined by combining the two quarterly grades, the semester industry evaluation, and the embedded academic content within a course. Each quarter counts for 45% of the grade. The industry evaluation counts for 10% of the grade. When viewing grades on PowerSchool, it is always important to look at the S1 or S2 grade as the overall in-progress grade for the course.

Technical skill grades are issued on assignments and assessments which represent a total number of points earned. This total number determines a percentage of points earned and a letter grade is assigned accordingly. Assignments and assessments in this type of grading are categorized as either formative or summative. Formative work guides learning. Summative work measures how well something has been learned. Summative work is weighted more than formative work. Students may earn the opportunity to redo or retake summative assessments.

Students will be issued Career and Employability summative scores at least twice per quarter to provide feedback on the skills of professionalism, initiative, respect, responsibility and safety. The combination of these scores will determine the Career and Employability skills grade.

Pre and Post Testing – at times, students will be asked to complete pre-instruction assessments to aid the teacher in designing learning. These pre-assessments will be scored, but they will not affect the student grade. It is important for a student to make their best attempt on a pre-instruction assessment to help the teacher design appropriate instruction. After instruction the student will complete a post-instruction assessment to determine how well they learned the skill. This will be scored and will affect the student grade.

Additionally, scores are issued to students to reflect the proficiency level they have achieved on particular Industry Standards. The Standards scoring scale: 0 – Not attempted or Minimal Knowledge, 1 – Beginning Proficiency, 2 – Developing Proficiency, 3 – Proficient (meets industry standard), and 4 – Advanced Proficient. Students will also be issued a quarterly Standards score (0 – 4) in the Career and Employability skill areas of professionalism, initiative, respect, responsibility and safety. At the end of each year, students will be issued a Standards score (0 – 4) in the area of career writing proficiency and math proficiency as well. These scores are reported on the year-end Certificate which is used by employers to assess industry skill levels.
**NINE WEEK GRADING POLICY:**

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>*Foundation / technical Skills</td>
<td>70%</td>
</tr>
<tr>
<td>Career and Employability Skills</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
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**SEMESTER GRADING POLICY**

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>First Nine Weeks</td>
<td>45%</td>
</tr>
<tr>
<td>Second Nine Weeks</td>
<td>45%</td>
</tr>
<tr>
<td>Evaluation (interview or project presentation)</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100%</td>
</tr>
</tbody>
</table>

*70% Foundation / Technical Skill is broken into two areas: Assessments =50%, Homework = 20%

**GRADING SCALE:**

<table>
<thead>
<tr>
<th>Rubric Average Range*</th>
<th>Score out of 100 to enter into Gradebook</th>
<th>Description</th>
<th>Standard Score</th>
<th>Letter grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.50</td>
<td>4.00</td>
<td>Advanced</td>
<td>4</td>
<td>A</td>
</tr>
<tr>
<td>3.25</td>
<td>3.49</td>
<td>Proficient</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>3.00</td>
<td>3.24</td>
<td>Proficient</td>
<td>3</td>
<td>A</td>
</tr>
<tr>
<td>2.80</td>
<td>2.99</td>
<td>Proficient</td>
<td>3</td>
<td>A-</td>
</tr>
<tr>
<td>2.51</td>
<td>2.79</td>
<td>Proficient</td>
<td>3</td>
<td>B+</td>
</tr>
<tr>
<td>2.31</td>
<td>2.50</td>
<td>Proficient</td>
<td>3</td>
<td>B</td>
</tr>
<tr>
<td>2.11</td>
<td>2.30</td>
<td>Proficient</td>
<td>3</td>
<td>B-</td>
</tr>
<tr>
<td>1.91</td>
<td>2.10</td>
<td>Developing</td>
<td>2</td>
<td>C+</td>
</tr>
<tr>
<td>1.71</td>
<td>1.90</td>
<td>Developing</td>
<td>2</td>
<td>C</td>
</tr>
<tr>
<td>1.50</td>
<td>1.70</td>
<td>Developing</td>
<td>2</td>
<td>C-</td>
</tr>
<tr>
<td>1.25</td>
<td>1.49</td>
<td>Beginning</td>
<td>1</td>
<td>D+</td>
</tr>
<tr>
<td>1.00</td>
<td>1.24</td>
<td>Beginning</td>
<td>1</td>
<td>D</td>
</tr>
<tr>
<td>0.75</td>
<td>0.99</td>
<td>Beginning</td>
<td>1</td>
<td>D-</td>
</tr>
<tr>
<td>0.50</td>
<td>0.74</td>
<td>Minimal knowledge</td>
<td>0</td>
<td>E</td>
</tr>
<tr>
<td>0.01</td>
<td>0.49</td>
<td>Minimal knowledge</td>
<td>0</td>
<td>E</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>Minimal knowledge</td>
<td>0</td>
<td>E</td>
</tr>
<tr>
<td>0.00</td>
<td>0.00</td>
<td>Student did not Attempt</td>
<td>0</td>
<td>E</td>
</tr>
</tbody>
</table>

**TARDY PROCEDURE:**

To gain the most from this course and encourage good employability readiness, it is strongly recommended that daily attendance and timeliness be observed. If a student’s tardiness becomes chronic, the RTC process will be used to resolve the problem. If a student is tardy, they must go to the front KTC office and sign in before they are able to enter class.
**INTERNSHIPS AND JOB SHADOWS:**
Students may have the opportunity to complete an internship or a job shadow during the course. In addition, job recommendations and placement through student services are possible.

**ARTICULATION:**
College credit may be offered to students who complete the program with a grade of 84% or higher. Please speak with your instructor about your plans for college and career.

**HIGH SCHOOL CORE CREDIT:**
Students who complete the Welding program may be eligible to receive high school credit. For more information on the eligibility requirements and application process, talk to your KCTC or high school counselor. After completing the Welding program the following credits are available:

- Math: 1/2 credit
- ELA: ½ credit

**CERTIFICATIONS:**
OSHA 10 Hour Safety

**STUDENT ORGANIZATIONS:**
Students may have the opportunity to participate in:
- Boilermakers competition
- MITES competition
- Ferris State University welding competition
- Muskegon Community College welding competition

**STUDENT EXPECTATIONS:**

<table>
<thead>
<tr>
<th>Participation</th>
<th>Integrity</th>
<th>Attendance</th>
<th>Dependability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Participate in class</td>
<td>1. Follow policies set by KCTC</td>
<td>1. Provide documentation to homeschool when absent.</td>
<td>1. Work without supervision when allowed.</td>
</tr>
<tr>
<td>2. In class on time</td>
<td>2. Follow safety rules and expectations</td>
<td>2. Follow KCTC attendance policy</td>
<td>2. Manage your own time</td>
</tr>
<tr>
<td>3. Come prepared to work</td>
<td>3. Be aware of surroundings to ensure safety</td>
<td>3. Be proactive to make up missed learning opportunities</td>
<td>3. Answer for your own activities</td>
</tr>
<tr>
<td>4. Volunteer and do extra tasks and activities</td>
<td>4. Display a positive and respectful attitude</td>
<td>4. Attendance is key to your success, attend whenever possible</td>
<td>4. Begin tasks promptly</td>
</tr>
<tr>
<td>5. Accept work assignments willingly</td>
<td>5. Demonstrate positive leadership</td>
<td></td>
<td>5. Re-check, verify, or proof work</td>
</tr>
<tr>
<td>7. Work to your capacity</td>
<td></td>
<td></td>
<td>7. Use and store equipment and tools properly</td>
</tr>
<tr>
<td>8. Work well with other students</td>
<td></td>
<td></td>
<td>8. Create and maintain a safe work area</td>
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<tr>
<td>10. Display a positive attitude</td>
<td></td>
<td></td>
<td>10. Show pride in your work</td>
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<td></td>
<td></td>
<td></td>
<td>11. Show concern for your career goal</td>
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<td></td>
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<td></td>
<td>12. Accept feedback</td>
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</tbody>
</table>
YEAR SEQUENCE:
(PLEASE NOTE THIS IS A TENTATIVE SCHEDULE)

Introduction / General Welding Exploration 1st week

**PRE TESTING**

Safety rules / issues lecture & video 1st week

*Segment 1 – Occupational Orientation*

Safety operations
lab equipment / hand tools 2nd week

*Segment 2 – Safety and Health for Welders*

Electrical Safety unit 2nd week
Video / lecture on equip repair

SMAW (ARC) introduction info

lab exercises 3-5th week

*Segment 3 - Shielding Metal Arc Welding*

Math / Tape measure (fractions) 4-5th week
exercise units 1-6 (classroom) / Lab exercises

SMAW (ARC) information
prep for written test / Lab exercises 6-7th week

**Segment 2 – Safety and Health for Welders** 7th week

Prep SMAW (ARC) exercises
Performance Test 8th week

SMAW (ARC) Performance Test 8th week basic entry level

Finish all Arc exercises 9th week
see check off sheet in lab

Oxy-Acetylene Safety
Torch operation / Gas welding 10th week

*Segment 4 - Manual Oxyfuel Gas Cutting*

*Segment 5 – Mechanized Oxyfuel Gas Cutting* 11th week

Carbon Arc review 11th week
CNC Plasma cutting introduction / demo

*Segment 12 – Air Carbon Arc Cutting*
**Segment 10 – Plasma Arc Cutting**

- Advanced SMAW (ARC) welding (V-groove plates 3/8”)
- Math / decimal units 1-3 prep for *Welding Principles* / or *Math text*
- Work Exploration / Field trip to local Industry / College visitation (additional speakers from colleges)

**Welding Principles**

- *Welding Principles reading Math test #1*
- **SEMESTER END TEST**
  - Prep for project performance project test
- Advanced SMAW welding lab exercises 3/8 V groove AWS D1.1 specifications
- Welding competitions Preparation
- NECCA electric vehicle fabrication
- Finish Welding Principles / *Math test #2*
  - Structural shapes introduction and testing
  - Resumes / Employability / Cover letter Life skills units 1-6 / Job shadowing (all material must be saved on thumb drive)
  - Bill of Material introduction and testing
  - Drilling and tapping section
  - Sheet metal exercises
  - CNC plasma cutting exercises
  - Philosophy / creative thinking unit

11th week
12th week
13th week
14th week
14th-18th week *every day* (60 minutes)
17th week
18 WEEK
18-23rd week
19th Week
19th Week
19th week
20th week
20th week
21st week
22nd week
23rd week
23rd week
<table>
<thead>
<tr>
<th>Topic</th>
<th>Week(s)</th>
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</thead>
<tbody>
<tr>
<td>GMAW (M.I.G) introduction</td>
<td>24-25&lt;sup&gt;th&lt;/sup&gt; week</td>
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<tr>
<td><strong>Segment 6 – Gas Metal Arc Welding</strong></td>
<td>25&lt;sup&gt;th&lt;/sup&gt; week</td>
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<tr>
<td>GMAW (M.I.G) exercises</td>
<td>26&lt;sup&gt;th&lt;/sup&gt; week</td>
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<tr>
<td>equipment maintenance / written test</td>
<td></td>
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<tr>
<td>GMAW (M.I.G) Performance test</td>
<td>27&lt;sup&gt;th&lt;/sup&gt; week</td>
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<tr>
<td>(Entry level)</td>
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<tr>
<td><strong>Segment 7 – Drawing and Welding Symbols</strong></td>
<td>27&lt;sup&gt;th&lt;/sup&gt; week</td>
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<tr>
<td>FCAW Flux Cored Arc Welding intro</td>
<td>28&lt;sup&gt;th&lt;/sup&gt; week</td>
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<tr>
<td><strong>Segment 8 – Flux Cored Arc Welding</strong></td>
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<tr>
<td>Gas welding feeder section for GTAW</td>
<td>29&lt;sup&gt;th&lt;/sup&gt; week</td>
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<tr>
<td>Advanced AWS D1.1 certification testing</td>
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<tr>
<td><strong>Segment 11 – Welding Inspection and Testing</strong></td>
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<tr>
<td>GTAW (T.I.G) welding introduction</td>
<td>30&lt;sup&gt;th&lt;/sup&gt; week</td>
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<tr>
<td><strong>Segment 9 – Gas Tungsten Arc Welding</strong></td>
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<tr>
<td>GTAW (T.I.G) welding exercises</td>
<td>31&lt;sup&gt;st&lt;/sup&gt; week</td>
</tr>
<tr>
<td>GTAW (T.I.G) Performance Test</td>
<td>32&lt;sup&gt;nd&lt;/sup&gt; week</td>
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<tr>
<td>(entry level)</td>
<td></td>
</tr>
<tr>
<td><strong>In House Welding Competition</strong></td>
<td>32&lt;sup&gt;nd&lt;/sup&gt; week</td>
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<tr>
<td>Project Performance Test / Fabrication project</td>
<td>33-34&lt;sup&gt;th&lt;/sup&gt; week</td>
</tr>
<tr>
<td>Lab Prep / Make up welding exercises / Review all welding components to (Mastery level) CNC Plasma cutting units</td>
<td>33-35&lt;sup&gt;th&lt;/sup&gt; week</td>
</tr>
<tr>
<td>College prep documentation review / Career research / Employability documentation</td>
<td>36&lt;sup&gt;th&lt;/sup&gt; week</td>
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<tr>
<td><strong>SEMESTER END</strong></td>
<td>36&lt;sup&gt;th&lt;/sup&gt; week</td>
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