



Program Syllabus and Classroom Procedures

Beaufort-Jasper Academy for Career Excellence

Welding Technology

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Course Description

The Welding Technology program prepares students with the essential skills and knowledge to perform welding and cutting operations used in construction and advanced manufacturing. Students will learn fundamental safety practices, blueprint reading, joint design, and metal preparation. The curriculum covers core welding processes including Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), and Gas Tungsten Arc Welding (GTAW). Through hands-on training and theoretical instruction, students develop proficiency in welding setup, operation, and quality control techniques. This program equips students for entry-level welding careers and further technical education in the welding industry.

Industry Certifications Available:

Level I & II: OSHA 10, CPR/stop the bleed.

Level III & IV: AWS welding certification.

Program Dress Code

Students will be expected to be prepared for work every day. Safety and proper attire are mandatory to protect students from welding hazards. The program's dress is as follows:

- Wear flame-resistant or cotton clothing that covers arms and legs fully.
- Avoid synthetic fabrics like nylon or polyester that can melt.
- Wear long pants—no shorts or skirts allowed.
- Closed-toe, sturdy leather work boots or shoes are required.
- Remove or secure all loose jewelry and accessories.
- Hair must be tied back and secured away from the face.
- Use appropriate personal protective equipment (PPE) provided or required, including welding helmets, gloves, and safety glasses.
- Avoid wearing overly loose or baggy clothing that could catch on equipment.
- Safety and proper attire are mandatory to protect students from welding hazards.

Expectations for Class

These expectations ensure a safe, productive, and respectful learning environment for everyone.

- Arrive on time and prepared for every class.
- Follow all safety rules and wear required PPE at all times.
- Respect equipment, materials, and the workspace.
- Listen carefully and follow instructor directions promptly.
- Stay focused and engaged during both instruction and hands-on activities.
- Use tools and machines only as instructed and with care.

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- Clean up your work area before leaving class.
- Collaborate respectfully with classmates and practice teamwork.
- Ask questions when you need help or clarification.
- Maintain a positive attitude and demonstrate professionalism.

Discipline: ACE follows procedures for progressive discipline as outlined in the Beaufort-Jasper Academy for Career Excellence Student Handbook.

Cell Phones & Ear Pods

Phones will be collected by teachers and locked into a cell phone lock box at the start of each class. They will be returned to students during any breaks, times needed for instructional use, lunch and when permissible. **Air Pods/Buds should never be worn in class or in the shop. No Exceptions.**

GRADING

All Grades are based on South Carolina State Standards

Level 1 & Level 3	Grade will be on based Theory Work
Level 2 & Level 4	Grade will be based on Application (Hands-On) Work

GRADING POLICIES:

The semester grade is determined by the total points earned in each of the following areas and the number of points corresponds with a letter grade (outlined in the student handbook). The areas of evaluation and their weight toward the grade are as follows:

A 100-90 B 89-80 C 79-70 D 69-60 F 59 or Below

AF- Attendance Failure

Summative Grades will account for 60%

The goal for summative assessment is to evaluate student learning at the end of an instructional unit.

Formatives Grade will account for 40%

The goal of formative assessment is to monitor student learning to provide ongoing feedback that can be used to improve as needed.

Missed Work Due to Absences:

It is **the student's** responsibility to obtain the homework assignments, notes & any other pertinent information that is missed during an absence.

Missed work due to an absence: Additional time (up to five school days) and full credit will be allowed for each day of a verifiable and excused absence. Exceptions will be made in unique, deserving situations as determined by the teacher and/or administrator.

There is No Late Work at ACE:

Struggling to Complete Assignment- Communicate this to your teacher. You will be scheduled for Remediation during our ACE Intervention Block

Refusal to Complete Assignment- You will be assigned a Working Period during lunch, CTE or before or after school to complete the assignment. You applied to come to ACE and there is a waiting list. Failure to complete work is not an option.

Employability Rubric:

Soft Skills are an essential part of each CTE Curriculum. ACE has instituted an Employability Rubric (below) which will count as a summative grade. In each program level a summative accountability rubric grade (which will be the same for each level) will be given 4 times in a semester (roughly every 4 weeks).

Statement for Academic Dishonesty:

Academic honesty is expected in all ACE classes. Cheating will not be tolerated. Consequences may include: reduction in grade on the assignment, repeat the assignment, no grade on assignment or others as deemed appropriate. Academic dishonesty will be reported to a school counselor, administration and a parent will be notified.

ACE EMPLOYABILITY RUBRIC				
Criteria	Skill Level			
	Exceeds Standard 20pts	Meets Standard 15pts	Needs Improvement On Standard 10pts	Does Not Meet Standard 5pts
Time Management	Consistently demonstrates exceptional time management skills, exceeding expectations.	Consistently demonstrates solid time management skills, meeting expectations.	Demonstrates inconsistent time management skills, needing improvement.	Fails to demonstrate effective time management skills.
Ability to meet deadlines and submit work on time	<ul style="list-style-type: none"> Prioritizes tasks effectively, consistently completing them ahead of schedule. Demonstrates exceptional organization, with tasks and deadlines clearly defined. Proactively seeks additional responsibilities, effectively managing additional workload. Rarely, if ever, requires reminders or extensions. 	<ul style="list-style-type: none"> Prioritizes tasks effectively, typically completing them on schedule. Maintains good organization, with tasks and deadlines generally well-defined. Manages workload effectively but may occasionally require reminders or extensions. Adapts well to changing priorities and workloads 	<ul style="list-style-type: none"> Struggles to consistently prioritize tasks, often missing deadlines. Lacks clear organization, leading to occasional confusion about tasks and deadlines. Requires frequent reminders and extensions to meet expectations. Shows limited ability to adapt to changing priorities and workloads. 	<ul style="list-style-type: none"> Consistently misses deadlines and lacks prioritization. Displays disorganization, often unable to identify tasks and deadlines. Regularly relies on reminders and extensions to meet expectations. Struggles to adapt to changing priorities and workloads.
Professionalism	Consistently demonstrates exceptional professionalism and uniform compliance, exceeding expectations	Consistently demonstrates good professionalism and uniform compliance, meeting expectations.	Demonstrates inconsistent professionalism and uniform compliance, needing improvement.	Fails to demonstrate professionalism and uniform compliance.
Behavior, attitude, personal presentation, uniform and appearance	<ul style="list-style-type: none"> Always in uniform Demonstrates a positive attitude and self-control Appropriate language use Demonstrates a positive and respectful attitude toward peers & instructors 	<ul style="list-style-type: none"> Adheres to dress code and uniform policies with few exceptions Mostly demonstrates a positive attitude, self-control Appropriate language use; Maintains a positive and respectful attitude towards peers & instructors 	<ul style="list-style-type: none"> Requires reminders and occasional correction to adhere to dress code and uniform policies. Seldom exhibits a positive attitude; Frequently uses inappropriate language. Occasionally displays a less than positive attitude towards peers & instructors 	<ul style="list-style-type: none"> Regularly violates dress code and uniform policies. Exhibits a poor attitude; Often uses inappropriate language. Consistently displays a negative or disrespectful attitude towards peers, instructors, and supervisors.
Communication	Consistently demonstrates exceptional communication skills, exceeding expectations.	Consistently demonstrates good communication skills, meeting expectations	Demonstrates inconsistent communication skills, needing improvement.	Fails to demonstrate effective communication skills.
Listening; oral and written; making sure message is received; prioritizing urgent communication	<ul style="list-style-type: none"> Communicates ideas and information clearly and concisely, both in writing and verbally. Actively listens to others, showing empathy and understanding in interactions. Effectively conveys complex concepts and ideas with clarity and precision. Demonstrates exceptional non-verbal communication, including eye contact, body language, and active engagement. 	<ul style="list-style-type: none"> Communicates ideas and information clearly, with minimal misunderstandings. Listens attentively and shows understanding in interactions with others. Conveys concepts and ideas with a reasonable degree of clarity. Displays adequate non-verbal communication, including appropriate eye contact and body language. 	<ul style="list-style-type: none"> Sometimes struggles to communicate ideas and information clearly, leading to misunderstandings. May need improvement in active listening, occasionally appearing disengaged in interactions. Conveys concepts and ideas with varying levels of clarity. Displays occasional issues with non-verbal communication, including inconsistent eye contact and body language. 	<ul style="list-style-type: none"> Consistently struggles to communicate ideas and information clearly, leading to frequent misunderstandings. Rarely engages in active listening and may appear disinterested in interactions. Often fails to convey concepts and ideas with clarity and precision. Consistently displays issues with non-verbal communication, such as limited or inappropriate eye contact and body language.

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ACE EMPLOYABILITY RUBRIC				
Criteria	Skill Level			
	Exceeds Standard 20	Meets Standard 15	Needs Improvement On Standard 10	Does Not Meet Standard 5
Productivity & Quality	Consistently demonstrates exceptional productivity and quality, exceeding expectations.	Consistently demonstrates good productivity and quality, meeting expectations.	Demonstrates inconsistent productivity and quality, needing improvement.	Fails to demonstrate effective productivity and quality.
Strong work ethic; preparedness; quality of work	<ul style="list-style-type: none"> Always comes to class prepared & gives best effort Shows initiative in improving productivity and quality. Requires occasional supervision and corrections to maintain productivity and quality. Maximizes class time Always follows safety procedures and rules 	<ul style="list-style-type: none"> Regularly gives best effort Occasionally seeks opportunities to improve productivity and quality. Requires frequent supervision and corrections to maintain productivity and quality Regularly uses class time Follows most safety procedures and rules 	<ul style="list-style-type: none"> Frequently unprepared for class Shows limited initiative in improving productivity and quality. Regularly requires supervision and corrections to maintain productivity and quality. Poor use of class time seldom follows safety procedures and rules 	<ul style="list-style-type: none"> Often unprepared for class Rarely seeks opportunities to improve productivity and quality. Consistently requires extensive supervision and corrections to maintain productivity and quality. Wastes class time Never follows safety procedures and rules
Problem Solving & Troubleshooting	Consistently demonstrates exceptional problem-solving and troubleshooting skills, exceeding expectations.	Consistently demonstrates good problem-solving and troubleshooting skills, meeting expectations.	Demonstrates inconsistent problem-solving and troubleshooting skills, needing improvement.	Fails to demonstrate effective problem-solving and troubleshooting skills.
Critical thinking used to solve problems independently	<ul style="list-style-type: none"> Helps peers Approaches problems with a systematic and creative mindset, consistently producing innovative solutions. Effectively identifies, analyzes, and resolves problems in a timely manner. Proactively seeks opportunities to troubleshoot and resolve issues. 	<ul style="list-style-type: none"> Occasionally collaborates with other students Approaches problems with a logical and structured mindset, typically producing effective solutions. Identifies, analyzes, and resolves problems in a timely and efficient manner. Shows initiative in troubleshooting and resolving issues. 	<ul style="list-style-type: none"> Rarely collaborates with other students Sometimes struggles to approach problems in a logical and structured manner, leading to less effective solutions. Occasionally takes longer to identify, analyze, and resolve problems. Displays limited initiative in troubleshooting and resolving issues. 	<ul style="list-style-type: none"> Never collaborates with other students Approaches problems with a rudimentary level of logic and structure, producing basic solutions. May take longer to identify, analyze, and resolve problems, particularly with more complex challenges. Shows limited initiative in troubleshooting and resolving issues.

Outline of Topics Covered:

Course Outline
1. Career and Technology Student Organizations (CTSO)

- Purpose, goals, and benefits
- Leadership and lifelong professional development

2. Technology Knowledge

- Use of occupational technologies
- Proper netiquette and ethical technology use
- Legal and ethical issues related to digital tools.

3. Personal Qualities and Employability Skills

- Punctuality, work ethics, respect, time management
- Teamwork, leadership, conflict resolution
- Lifelong learning and a global perspective

4. Professional Knowledge

- Communication, reading, writing, and math skills.
- Critical thinking, problem solving, creativity.
- Business ethics and workplace diversity awareness

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5. NCCER Core Construction Modules

- Safety: PPE, hazard communication, fire prevention, electrical safety
- Basic math: fractions, decimals, measurement, geometry
- Hand and power tools: use, safety, maintenance
- Construction drawings: blueprint reading, symbols, dimensions
- Basic rigging and communication skills
- Employability skills in construction

Welding Safety

- Identify hazards, PPE, fume avoidance, material safety data sheets.
- Electrical shock prevention, safe material handling

Oxyfuel Cutting

- Equipment setup, lighting, operation, shutdown
- Cutting techniques: straight, piercing, bevels, gouging

Base Metal Preparation

- Cleaning, joint design and selection
- Mechanical preparation of plate and pipe edges

SMAW (Shielded Metal Arc Welding)

- Equipment setup and safety
- Electrode selection and storage
- Beads and fillet welds in multiple positions
- Groove welds with backing
- Joint fit-up, alignment, and distortion control

Welding Symbols and Detail Drawings

- Interpret and draw welding symbols.
- Read and develop welding detail drawings.

Plasma Arc Cutting (PAC)

- Equipment setup and operation
- Cutting techniques and maintenance

GMAW and FCAW (Gas Metal and Flux Cored Arc Welding)

- Equipment and filler metals
- Shielding gases and welding characteristics
- Multiple-pass fillet and groove welds on plate

Advanced Welding Topics (Levels 3/4)

- Welding codes and quality control

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- SMAW open V-groove welds and pipe welds in various positions
- Air carbon arc cutting and gouging.
- GTAW (Gas Tungsten Arc Welding) equipment, filler metals, and techniques
- GTAW welding on carbon steel, aluminum, low-alloy, and stainless-steel pipe.