Education and Workforce Development Cabinet

CURRICULUM MAP

School:	**Lake Cumberland ATC-Adair**	**Program:**	**Welding**
Teacher:	**Barney Taylor**	**School Year:**	**2020-2021**
KCTCS Course Number:	**WLD 170-171**	**KY Tech Course Name**	**Welding Blueprints**
Length of Course:	**Semester**	**Length of Period**	**min.**
High School Credit(s)	**1 Credit**		

Kentucky UNBRIDLED SPIRIT

Equal Education and Employment Opportunities M/F/D

Wks/Days Dates Taught	Objectives		Essential Questions	Core Content Skill Standards
Core Week 1 Days 1-5 _____	Safety in the Welding Shop	**TASKS** 1. Use lab equipment and tools safely **ACTIVITIES** ● Orientation for students (syllabus, introduction and rules (Hand book) ● Read Ch. 1(General Shop Safety/Ox fuel Gas Welding and Cutting) Q#1-20 and 1-16 ● Arc Welding and Cutting/Resistance and Special Welding Q#1-10 and 1-10 ● Safety Video- Part 1, 2-Welding Shop safety/ Proper Attitude ● Safety Video- Part 3, 4 –Equipment and Fire safety/Cylinder Safety ● Complete worksheet ● Classroom discussion ● Tour ATC building (fire exits) ● MSDS - over view ● Equipment use - Proper hand and foot placement **ASSESSMENT** Safety Test Lesson – Work sheet-1A,1B, 1C, 1D Safety Test #1(Over view of section above) Safety Video - Part 1,2,3,4 Safety Test#2 Equipment check off list – Proper use of equipment	How do safe practices affect the company where you may be employed? What is the importance of wearing the proper welding attire? Why should you be aware of MSDS information?	**Skill Standards:** **AD002** Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** **RST-2** Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. **RST-4**. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to *grades 11–12 texts* **RST-7**. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Week 2 Days 1,2,3	Objectives Equipment and Tools Selection	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment **ACTIVITIES** ● Demonstrate and discuss proper equipment operation ● Discuss feet and hand placement Demonstrate and discuss proper fit of welding attire ● Discuss proper waste of materials **ASSESSMENT** Rubric - Equipment check off sheet and visual inspection	Why is foot and hand placement important? Why is proper attire important? Who is responsible for your own safety?	**Skill Standards:** **AD002** Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** **RST-2** RST-4 RST-7 GC-1 G-GMD-3
Week 2 Days 4,5	Objectives Set up of Equipment and electrode selection	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment **ACTIVITIES** ● Read Ch.1 WS/complete questions at end of Ch.1-9 ● Ch. 1 Work sheet ● Introduce different welding process ● Demonstrate setup and operation of different welding process **ASSESSMENT** Ch.1 Writing test	What are some skills that all welders should have? Define autogenous weld? What is the difference between FCAW and GMAW?	**Skill Standards:** **AD002** Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** **RST-2** RST-4 RST-7 GC-1 G-GMD-3

Week 3 Days 1-5	Objectives Introduction to GMAW process	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment 3. Apply principles of SMAW,GMAW, and GTAW welding processes **ACTIVITIES** ● Unit 3 Power point ● Read Ch.19 WS/complete questions at end of Ch.1-17 ● Discuss Questions ● Ch. 19 Work sheet ● Introduce GMAW welding process ● Demonstrate setup and operation of GMAW process ● Shielding Gases ● Trouble shooting GMAW process **Lab ACTIVITIES** ● Perform single fillet welds on Tee-joints **ASSESSMENT** Ch.19 Writing test Using rubric grade quality of welds	What are some of the specific advantages of GMAW? What is the welding wire fed to the welding gun? What is the most common shielding gas for GMAW process?	**Skill Standards:** **AD002** Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** **RST-2** RST-4 RST-7 GC-1 G-GMD-3
Week 4 Days 1-5	Objectives GMAW Procedures	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment 3. Apply principles of SMAW,GMAW, and GTAW welding processes **ACTIVITIES**	How does GMAW differ from GTAW? How can crater porosity or cracks be prevented? What is globular transfer?	**Skill Standards:** **AD002** Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** **RST-2** RST-4

		• Read Ch.20 WS/complete questions at end of Ch.1-11 • Discuss Questions • Ch. 20 Work sheet • Demonstrate setup and operation of GMAW process **Lab ACTIVITIES** • Perform multiple pass T-joint ion mild steel **ASSESSMENT** Ch.20 Writing test Using rubric grade quality of welds		RST-7 GC-1 G-GMD-3
Week 5 Days 1-5	Objectives GTAW Applications	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment 3. Apply principles of SMAW,GMAW, and GTAW welding processes **ACTIVITIES** • Read Ch.18 WS/complete questions at end of Ch. Questions 1-6 • Discuss Questions • Ch. 18 Work sheet • Demonstrate setup and operation of GTAW process **Lab ACTIVITIES** • Perform multiple pass – pad welding mild steel **ASSESSMENT** Ch.18 Writing test Using rubric grade quality of welds	How does GMAW differ from GTAW? How can crater porosity or cracks be prevented? What is ACHF?	**Skill Standards:** **AD002** Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** **RST-2** RST-4 RST-7 GC-1 G-GMD-3
Week 6 Days 1-5	Objectives Introduction SMAW Process (Equipment)	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment	What is an electrical circuit? What is polarity?	**Skill Standards:** **AD002** Demonstrate ability to learn new process steps

		3. Apply principles of SMAW,GMAW, and GTAW welding processes **ACTIVITIES** ● Read Ch.8 WS/complete questions at end of Ch. Questions 1- 15 ● Discuss Questions ● Ch. 8 Work sheet ● Demonstrate setup and operation of SMAW process **Lab ACTIVITIES** ● Perform T-joint ion mild steel **ASSESSMENT** Ch.8 Writing test Using rubric grade quality of welds	How are welding machine rated?	OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** **RST-2** RST-4 RST-7 GC-1 G-GMD-3
Week 7 Days 1-5	Objectives Introduction SMAW Process (Equipment)	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment 3. Apply principles of SMAW,GMAW, and GTAW welding processes **ACTIVITIES** ● Read Ch.8 WS/complete questions at end of Ch. Questions 1- 15 ● Discuss Questions ● Ch. 8 Work sheet ● Demonstrate setup and operation of SMAW process **Lab ACTIVITIES** ● Perform T-joint ion mild steel **ASSESSMENT**	What is an electrical circuit? What is polarity? How are welding machine rated?	**Skill Standards:** AD002 Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** RST-2 RST-4 RST-7 GC-1 G-GMD-3

		Ch.8 Writing test Using rubric grade quality of welds		
Week 8 Days 1-5	Objectives SMAW- Depositing a continuous Bead.	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment 3. Apply principles of SMAW,GMAW, and GTAW welding processes **ACTIVITIES** ● Read Ch.11 WS/complete questions at end of Ch. Questions 1- 17 ● Discuss Questions ● Ch. 11 Work sheet ● Demonstrate setup and operation of SMAW process **Lab ACTIVITIES** ● Perform multi-pass T-joint ion mild steel **ASSESSMENT** Ch.11 Writing test Using rubric grade quality of welds	What factors allow for a quality weld with proper penetration? What is a crater? What causes undercut?	**Skill Standards:** AD002 Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** RST-2 RST-4 RST-7 GC-1 G-GMD-3
Week 9 Days 1-5	Objectives SMAW- Flat position	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment 3. Apply principles of SMAW,GMAW, and GTAW welding processes **ACTIVITIES**	What is butt joint used in welding? When should the edges of butt joint be beveled? What is the purpose of surfacing?	**Skill Standards:** AD002 Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** RST-2

		• Read Ch.12 WS/complete questions at end of Ch. Questions 1- 24 • Discuss Questions • Ch. 12 Work sheet • Demonstrate setup and operation of SMAW process **Lab ACTIVITIES** • Perform lap welds use different sizes of electrodes **ASSESSMENT** Ch.12 Writing test Using rubric grade quality of welds		RST-4 RST-7 GC-1 G-GMD-3
Week 10 Days 1-5	Objectives OAW-Equipment	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment 3. Apply principles of SMAW,GMAW, and GTAW welding processes **ACTIVITIES** • Read Ch.4 WS/complete questions at end of Ch. Questions 1- 19 • Discuss Questions • Ch. 4 Work sheet • Demonstrate setup and operation of OAW process **Lab ACTIVITIES** • Perform weld pool beads on flat plate. **ASSESSMENT** Ch.4 Writing test Using rubric grade quality of welds	How is the size of tip indicated? What is tip cleaner? When and why should it be used? What is a two-stage pressure regulator?	**Skill Standards:** AD002 Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** RST-2 RST-4 RST-7 GC-1 G-GMD-3
Week 11 Days 1-5	Objectives OAW- Setup & Operation	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment 3. Apply principles of SMAW,GMAW, and GTAW	What is a neutral flame? Why are check valves used?	**Skill Standards:** AD002 Demonstrate ability to learn new process steps

		welding processes **ACTIVITIES** ● Read Ch.5 WS/complete questions at end of Ch. Questions 1- 20 ● Discuss Questions ● Ch. 5 Work sheet ● Demonstrate setup and operation of OAW process **Lab ACTIVITIES** ● Perform welds of lap joints. **ASSESSMENT** Ch.5 Writing test Using rubric grade quality of welds	What is a Carburizing flame?	OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** RST-2 RST-4 RST-7 GC-1 G-GMD-3
Week 12 Days 1-5	Objectives	**TASKS** 1. Practice welding safety 2. Setup and operate various welding and cutting equipment 3. Apply principles of SMAW,GMAW, and GTAW welding processes **ACTIVITIES** ● Read Ch.25 WS/complete questions at end of Ch. Questions 1- 18 ● Discuss Questions ● Ch. 25 Work sheet ● Demonstrate setup and operation of OAW process ● Review for final exam ● Final Exam **Lab ACTIVITIES**	What cause the metal to rust? What is meant by PAC? What type of electrode is used in the CAC-A process?	**Skill Standards:** AD002 Demonstrate ability to learn new process steps OD008 Identify the safety and proper use of the tools of the trade EA009 Comply with safety guidelines **Core Content:** RST-2 RST-4 RST-7 GC-1 G-GMD-3

		• Perform welds of lap joints. **ASSESSMENT** Ch.5 Writing test Using rubric grade quality of welds		