Ag Metal Fabrication

Career Cluster	AFNR
Course Code	18404
Prerequisite(s)	Fundamental Ag Mechanical Technologies, Recommended: Introduction to AFNR
Credit	.5
Program of Study and Sequence	Fundamental Ag Mechanical Technologies – **Ag Metal Fabrication** – Capstone Experience
Student Organization	National FFA Organization
Coordinating Work-Based Learning	Job shadowing, mentoring, internships, entrepreneurships, service learning, workplace tours, apprenticeship, school-based enterprises, Supervised Agricultural Experience (SAE)
Industry Certifications	OSHA 10 Hour Safety Certification (Construction Industry, or General Industry), National Career Readiness Certificate (NCRC), Certified Welder (AWS)
Dual Credit or Dual Enrollment	None
Teacher Certification	Agriculture Food and Natural Resources Cluster Endorsement; Power Structural & Technical Systems Pathway Endorsement; *Agriculture Education
Resources	

Course Description:

The Ag Metal Fabrication Technology course provides students with advanced metal fabrication skills, which include Shielded Metal Arc Welding (SMAW), Metal Inert Gas (MIG) welding/Gas Metal Arc Welding (GMAW), oxyacetylene fuel welding, brazing and cutting, Gas Tungsten Arc Welding (GTAW)/Tungsten Inert Welding (TIG), and plasma cutting. This course will also incorporate soft skills necessary for careers in the Power, Structural, and Technical Systems career pathway. Classroom and laboratory content will be enhanced by utilizing appropriate equipment and technology. Geometry, physical science, physics, English and human relations skills will be reinforced throughout this course. Work-based learning opportunities appropriate for this course are school-based enterprises and field trips. Opportunities for application of clinical and leadership skills are provided by participation in FFA activities, conferences, and Career Development Events. Each student will be expected to maintain a Supervised Agricultural Experience (SAE).

Program of Study Application

Ag Metal Fabrication is a second pathway course in the Agriculture, Food and Natural Resources Program of Study, Power Systems pathway. Ag Metal Fabrication is preceded by Fundamental Ag Mechanical Technologies and would be followed by a capstone experience.

Course Standards

AMF 1 Demonstrate the basics of metal fabrication.

Webb Level	Sub-indicator	Integrated Content
Two Skill/Concept	AMF 1.1 Demonstrate knowledge of metal fabrication techniques and related technologies.	
Two Skill/Concept	AMF 1.2 Prepare various metals for welding.	
Three Strategic Thinking	AMF 1.3 Create plans for metal project construction.	

Notes

AMF 2 Demonstrate the principles of Shielded Metal Arc Welding (SMAW) and the correct operation of SMAW equipment.

Webb Level	Sub-indicator	Integrated Content		
Two Skill/Concept	AMF 2.1 Perform Shielded Metal Arc Welding (SMAW) techniques.			

Notes

AMF 3 Demonstrate the principles of Metal Inert Gas (MIG) welding, also known as Gas Metal Arc Welding (GMAW), and the correct operation of MIG equipment.

Webb Level	Sub-indicator	Integrated Content
Two Skill/Concept	AMF 3.1 Perform metal inert gas (MIG) welding techniques.	

Notes

AMF 4 Understand the correct operation of oxyacetylene equipment.

Webb Level	Sub-indicator	Integrated Content
Two Skill/Concept	AMF 4.1 Explore oxyacetylene welding, cutting, and brazing.	

Notes

AMF 5 Explore advanced welding processes.

Webb Level	Sub-indicator	Integrated Content
Two Skill/Concept	AMF 5.1 Investigate and explain principles of advanced welding processes (e.g. Tungsten Inert Gas (TIG) welding, plasma cutting)	

Notes

AMF 6 Develop employability skills related to the Power, Structural, and Technical Systems Pathway.

Webb Level	Sub-indicator	Integrated Content
Two Skill/Concept	FAM 6.1– Develop soft skills to enhance employability.	
Two Skill/Concept	FAM 6.2 Investigate careers related to metal fabrication.	

Notes