

Welding		Curriculum Map										
Program Outcomes: Upon completion of the program, graduates will be able to...	Institutional Skills	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G).	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Courses												
WELD 101 Welding Safety	CPW					IRMA	IRMA					IRMA
WELD 103 Blueprint Reading for Welders	CPW			IRMA	IRA		IRMA					R
WELD 106 Mathematics for Welders	CPW				IRMA		IRMA					R
WELD 110 Introduction to AWS Welding		IRMA				IRMA	IRMA	IRMA				
WELD 111 Shielded Metal Arc Welding	CP	IRMA	IRMA			IRMA	IRMA		IRMA	IRMA		
WELD 120 Intermediate AWS Welding		RMA				RMA	RMA	RMA				
WELD 122 Gas Metal Welding	CPW	IRMA	IRMA			R	IRMA		IRMA	IRMA		
WELD 200 Advanced AWS Welding		RMA				RMA	IRMA	RMA				
WELD 201 Gas Tungsten Arc Welding	CPW	IRMA	IRMA			R	IRMA		IRMA	IRMA		
WELD 212A Industrial Welding I	CPW					RMA	IRMA		IRMA	IRMA		
WELD 212B Industrial Welding II	CPW					RMA	IRMA		IRMA	IRMA		
WELD 213 Layout and Fabrication	CPW			RMA	RMA	RMA	IRMA					
WELD 214 Pipefitting	CPW			IRMA	RMA		IRMA	IRMA			IRMA	
PCDE 109 Career Success												IR
ENGL 100 Applied Communications												IRMA
SPCH 113 Interpersonal Communications												IRMA

Mapping	
I	Introduced
R	Reinforced
M	Mastered
A	Assessed/Artifact

Essential Skills	
1	written communication
2	oral communication
3	critical thinking
4	cultural diversity
5	social responsibility

Employability Skills	
C	communication
P	problem solving
W	work ethic

Curriculum Map

WELD 101 Welding Safety	Curriculum Map										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G)	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
identify and describe welding and cutting safety hazards.					IRMA	IRMA					IRMA
identify different types of warning labels.					IRMA	IRMA					IRMA
identify the need and describe PPE for welding and cutting.					IRMA	IRMA					IRMA
identify the risks associated with electricity and high voltage.					IRMA	IRMA					IRMA
demonstrate the lockout/tagout process.					IRMA	IRMA					IRMA
identify confined spaces.					IRMA	IRMA					IRMA
describe purpose and use of a hotwork permit.					IRMA	IRMA					IRMA
locate data sheets and explain their use.					IRMA	IRMA					IRMA

WELD 103 Blueprint Reading for Welders

Curriculum Map

Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G).	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
describe parts of a weld symbol.			IRMA			IRMA					R
interpret supplemental weld symbol information.			IRMA			IRMA					R
identify welding detail drawing components.			IRMA			IRMA					R
identify isometric views.			IRMA			IRMA					R
point out dimensions and tolerances on drawings.			IRMA	IRA		IRMA					R
interpret basic weld symbol			IRMA			IRMA					R
interpret supplemental weld symbol information.			IRMA			IRMA					R
interpret lines.			IRMA			IRMA					R

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WELD 106 Mathematics for Welders	Curriculum Map											
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G).	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.	
Course SLO: Students will be able to												
add whole numbers on a written test.				IRMA		IRMA						R
add and subtract fractions on a written test.				IRMA		IRMA						R
add and subtract decimals on a written test.				IRMA		IRMA						R
calculate averages on a written test.				IRMA		IRMA						R
find the perimeter of squares and rectangles on written test.				IRMA		IRMA						R
determine angles on a written test.				IRMA		IRMA						R
determine takeoffs for pipefitting on a written test.				IRMA		IRMA						R
calculate rolling offsets with trigonometry.				IRMA		IRMA						R

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WELD 110 Introduction to AWS Welding	<i>Curriculum Map</i>										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G).	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
explain, safely set up, adjust, join metals by welding, and stow SMAW, GTAW, and GMAW equipment.	IRMA				IRMA	IRMA	IRMA				R
weld mild carbon steel in flat, vertical, and overhead positions utilizing the SMAW, GTAW, Or GMAW processes.	IRMA				IRMA	IRMA	IRMA				R

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**WELD 111 Shielded Metal Arc
Welding**
Curriculum Map

Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G).	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
master general SMAW safety rules and procedures on a written test.	IRMA	IRMA			IRMA	IRMA		IRMA	IRMA		
identify various carbon steels.	IRMA	IRMA			IRMA	IRMA		IRMA	IRMA		
master SMAW safety principles on a written test.	IRMA	IRMA			IRMA	IRMA		IRMA	IRMA		
estimate time required to perform specific SMAW tasks.	IRMA	IRMA			IRMA	IRMA		IRMA	IRMA		
interact positively with all genders, ages, ethnicities, and special needs.	IRMA	IRMA			IRMA	IRMA		IRMA	IRMA		
display dependability, arrive on time, work diligently on assignments and accept responsibility.	IRMA	IRMA			IRMA	IRMA		IRMA	IRMA		
work cooperatively as a team member when appropriate.	IRMA	IRMA			IRMA	IRMA		IRMA	IRMA		
apply mathematical concepts appropriately.	IRMA	IRMA			IRMA	IRMA		IRMA	IRMA		

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WELD 120 Intermediate AWS Welding	<i>Curriculum Map</i>										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G).	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
explain, safely set up, adjust, join metals by welding, and stow SMAW, GTAW, and GMAW equipment.	RMA				RMA	RMA	RMA				
weld mild carbon steel in flat, vertical, and overhead positions utilizing the SMAW, GTAW, Or GMAW processes.	RMA				RMA	RMA	RMA				

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WELD 122 Gas Metal Arc Welding	Curriculum Map										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G).	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
master general GMAW safety rules and procedures on a written test.	IRMA	IRMA			R	IRMA		IRMA	IRMA		
identify various carbon steels.	IRMA	IRMA			R	IRMA		IRMA	IRMA		
master GMAW safety principles on a written test.	IRMA	IRMA			R	IRMA		IRMA	IRMA		
estimate time required to perform specific GMAW tests.	IRMA	IRMA			R	IRMA		IRMA	IRMA		
interact positively with all genders, ages, ethnicities, and special needs.						IRMA					
display dependability, arrive on time, work diligently on assignments and accept responsibility.						IRMA					
work cooperatively as a team member when appropriate.						IRMA					
apply mathematical concepts appropriately.						IRMA					

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WELD 200 Advanced AWS Welding	Curriculum Map										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G)	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
explain, safely set up, adjust, join metals by welding, and stow SMAW, GTAW, and GMAW equipment.	RMA				RMA	RMA	RMA				
weld mild carbon steel in flat, vertical, and overhead positions utilizing the SMAW, GTAW, Or GMAW processes.	RMA				RMA	RMA	RMA				

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WELD 201 Gas Tungsten Arc Welding	Curriculum Map										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G)	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
master general GTAW safety rules and procedures on a written test.	IRMA	IRMA			R	IRMA		IRMA	IRMA		
identify various carbon steels.	IRMA	IRMA			R	IRMA		IRMA	IRMA		
master GTAW safety principles on a written test.	IRMA	IRMA			R	IRMA		IRMA	IRMA		
estimate time required to perform specific GTAW tasks.	IRMA	IRMA			R	IRMA		IRMA	IRMA		
interact positively with all genders, ages, ethnicities, and special needs.						IRMA					
display dependability, arrive on time, work diligently on assignments and accept responsibility.						IRMA					
work cooperatively a team member when appropriate.						IRMA					
apply mathematical concepts appropriately.						IRMA					

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WELD 212A Industrial Welding I	Curriculum Map										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G).	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
demonstrate proper use of hand tools.					RMA	IRMA		IRMA	IRMA		
properly prepare pipe coupons to be welded with SMAW.					RMA	IRMA		IRMA	IRMA		
perform a quality 2G weld using SMAW.					RMA	IRMA		IRMA	IRMA		
perform a quality 5G weld using SMAW.					RMA	IRMA		IRMA	IRMA		
perform a quality 6G weld using SMAW.					RMA	IRMA		IRMA	IRMA		
demonstrate the knowledge of proper SMAW filler metal selection.					RMA	IRMA		IRMA	IRMA		
demonstrate proper use of pipefitting power tools.					RMA	IRMA		IRMA	IRMA		
properly fit pipe coupons together with proper gap for SMAW.					RMA	IRMA		IRMA	IRMA		

AAS

WELD.CertC

WELD.CertA

WELD 212B Industrial Welding II	Curriculum Map										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G).	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
demonstrate proper use of hand tools.					RMA	IRMA		IRMA	IRMA		
properly prepare pipe coupons to be welded with GTAW.					RMA	IRMA		IRMA	IRMA		
perform a quality 2G weld using GTAW.					RMA	IRMA		IRMA	IRMA		
perform a quality 5G weld using GTAW.					RMA	IRMA		IRMA	IRMA		
perform a quality 6G weld using GTAW.					RMA	IRMA		IRMA	IRMA		
demonstrate the knowledge of proper GTAW filler metal selection.					RMA	IRMA		IRMA	IRMA		
demonstrate proper use of pipefitting power tools.					RMA	IRMA		IRMA	IRMA		
properly fit pipe coupons together with proper gap for GTAW.					RMA	IRMA		IRMA	IRMA		

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WELD.CertA

WELD 213 Layout and Fabrication	Curriculum Map										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G)	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
define basic terms pertaining to metal layout.						IRMA					
interpret basic elements of a drawing.			RMA			IRMA					
demonstrate proper use of a level and plumb bob.					RMA	IRMA					
design weldment, submit field sketch for review.			RMA			IRMA					
convert denominate numbers and solve problems using them.				RMA		IRMA					
select and use layout and marking tools.				RMA	RMA	IRMA					
interpret lines.			RMA			IRMA					
demonstrate proper use of a square.					RMA	IRMA					

AAS

WELD.CertC

WELD.CertA

WELD 214 Pipefitting											
Curriculum Map											
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G)	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
demonstrate knowledge of steel pipe sizes.				RMA		IRMA	IRMA			IRMA	
differentiate between tube and pipe.			RMA	RMA		IRMA	IRMA			IRMA	
demonstrate knowledge of different valves.				RMA		IRMA	IRMA			IRMA	
demonstrate knowledge of threaded pipe fittings.				RMA		IRMA	IRMA			IRMA	
identify different flange types.				RMA		IRMA	IRMA			IRMA	
calculate rise, run and travel.			IRMA	RMA		IRMA	IRMA			IRMA	
demonstrate use of Pythagorean theorem.			RMA	RMA		IRMA	IRMA			IRMA	
determine use of a pipe wrap-a-round.			IRMA		RMA	IRMA	IRMA			IRMA	

WELD.CertA

ENGL 100 Applied Communications	<i>Curriculum Map</i>										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G)	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
analyze audience and purpose to determine appropriate form of workplace communication.											IRMA
describe technical procedures in logical and accurate manner in written and/or oral communication.											IRMA
compose effective written and/or oral communication.											IRMA
critique own writing for logic, professional tone, and use of standard English.											IRMA

COMM 103 Interpersonal Communication	Curriculum Map										
Program Outcomes	demonstrate the ability to weld in different plate positions(1F, 2F, 1G)	demonstrate the ability to weld in different pipe	interpret welding symbols and demonstrate the ability to work off of a blueprint	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting	use tools and equipment found in a welding shop.	describe and practice welding safety	analyze different welding processes and demonstrate the ability to use them	demonstrate the ability to weld in different plate positions(1F, 2F, 1G + 1	demonstrate the ability to weld in different pipe positions(1G, 2G, 5G, 6G)	interpret pipe and tube data related to pipefitting from a reference book	communicate effectively
Course SLO: Students will be able to											
demonstrate an ability to apply effective communication techniques within a variety of contexts.											IRMA
demonstrate an understanding of various effective conflict management skills.											IRMA
demonstrate an understanding of the impact of gender and culture on interpersonal communication.											IRMA
demonstrate an ability to analyze effective listening habits and skills.											IRMA
evaluate the role of verbal and nonverbal messages in interpersonal communication.											IRMA
recognize the role of perception of self and others in interpersonal communication.											IRMA

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PCDE 109 Career Success	Curriculum Map										
Program Outcomes	demonstrate the ability to weld in different plate positions (1F, 2F, 1G).	demonstrate the ability to weld in different pipe positions (1G)	interpret welding symbols and demonstrate the ability to work off of a blueprint.	demonstrate proper use of math skills as related to layout, fabrication, and pipefitting.	use tools and equipment found in a welding shop.	describe and practice welding safety.	analyze different welding processes and demonstrate the ability to use them.	demonstrate the ability to weld in different plate positions (1F, 2F, 1G + 1 additional position).	demonstrate the ability to weld in different pipe positions (1G, 2G, 5G, 6G).	interpret pipe and tube data related to pipefitting from a reference book.	communicate effectively.
Course SLO: Students will be able to											
describe the significance of enthusiasm and passion in the workplace.											IR
demonstrate reliability.											IR
illustrate professionalism.											IR
identify acts of initiative.											
describe the significance of honesty and integrity in the workplace.											IR
critique interactions with managers and co-workers.											IR