K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK
INDUSTRIAL ARTS – SHIELDED METAL ARC WELDING (SMAW) (NC II)

These are the list of specializations and their pre-requisites.

		Specialization	Number of Hours	Pre-requisite
1.	AGRI-FISHERY ARTS	Animal Production (NC II)	480 hours	
2.		Aquaculture (NC II)	320 hours	
3.		Artificial Insemination (Ruminants) (NC II)	160 hours	Animal Production
4.		Artificial Insemination (Swine) (NC II)	160 hours	Animal Production
5.		Crop Production (NC I)	320 hours	
6.		Fish Nursery Operation (NC II)	160 hours	
7.		Fish or Shrimp Grow Out Operation (Non NC)	160 hours	Aquaculture
8.		Fish Wharf Operation (NC I)	160 hours	Fish or Shrimp Grow Out Operation
9.		Food (Fish) Processing (NC II)	640 hours	
10.		Horticulture (NC II)	640 hours	
11.		Landscape Installation and Maintenance (NC II)	320 hours	Crop Production
12.		Organic Agriculture (NC II)	320 hours	Crop Production
13.		Pest Management (NC II)	320 hours	Crop Production
14.		Rice Machinery Operation (NC II)	320 hours	Crop Production
15.		Slaughtering Operation (NC II)	160 hours	Animal Production
1.	HOME ECONOMICS	Beauty/Nail Care (NC II)	160 hours	40 hours of the subject during exploratory Grade 7/8
2.		Attractions and Theme Parks (NC II)	160 hours	
3.		Bread and Pastry Production (NC II)	160 hours	
4.		Caregiving (NC II)	640 hours	40 hours of the subject during exploratory Grade 7/8
5.		Cookery (NC II)	320 hours	40 hours of the subject during exploratory Grade 7/8
6.		Dressmaking (NC II)	320 hours	
7.		Food and Beverage Services (NC II)	160 hours	
8.		Front Office Services (NC II)	160 hours	40 hours of the subject during exploratory Grade 7/8
9.		Hairdressing (NC II)	320 hours	
10.		Handicraft (Basketry, Macrame) (Non-NC)	160 hours	
11.		Handicraft (Fashion Accessories, Paper Craft) (Non-NC)	160 hours	
12.		Handicraft (Needlecraft) (Non-NC)	160 hours	
13.		Handicraft (Woodcraft, Leathercraft) (Non-NC)	160 hours	
14.		Household Services (NC II)	320 hours	40 hours of the subject during exploratory Grade 7/8
15.		Housekeeping (NC II)	160 hours	
16.		Tailoring (NC II)	320 hours	40 hours of the subject during exploratory Grade 7/8
17.		Tour Guiding Services (NC II)	160 hours	
18.		Tourism Promotion Services (NC II)	160 hours	
19.		Travel Services (NC II)	160 hours	
20.		Wellness Massage (NC II)	160 hours	

K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK
INDUSTRIAL ARTS – SHIELDED METAL ARC WELDING (SMAW) (NC II)

		Specialization	Number of Hours	Pre-requisite
1.	ICT	Computer Hardware Servicing (NC II)	320 hours	
2.		Animation (NC II)	320 hours	
3.		Computer Programming (NC IV)	320 hours	
4.		Contact Center Services (NC II)	320 hours	
5.		Illustration (NC II)	320 hours	
6.		Medical Transcription (NC II)	320 hours	
7.		Technical Drafting (NC II)	320 hours	
1.	INDUSTRIAL ARTS	Automotive Servicing (NC I)	640 hours	
2.		Carpentry (NC II)	640 hours	
3.		Consumer Electronics Servicing (NC II)	640 hours	
4.		Electrical Installation and Maintenance (NC II)	640 hours	
5.		Masonry (NC II)	320 hours	
6.		Plumbing (NC I)	320 hours	
7.		Plumbing (NC II)	320 hours	Plumbing (NC I)
8.		Refrigeration and Airconditioning Servicing (NC II)	640 hours	
9.		Shielded Metal Arc Welding (NC I)	320 hours	
10.		Shielded Metal Arc Welding (NC II)	320 hours	Shielded Metal Arc Welding (NC I)
11.		Tile Setting (NC II)	320 hours	

K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK
INDUSTRIAL ARTS – SHIELDED METAL ARC WELDING (SMAW) (NC II)
(160 hours)

Course Description:

Prerequisite: Shielded Metal Arc Welding (NC I)

This curriculum guide is a competency-based leading to TESDA qualification standard for National Level I Certificate (NCI). It covers competencies in **Shielded Metal Arc Welding** (SMAW) that a high school student should acquire. The content of this curriculum guide for Shielded Metal Arc Welding (SMAW) includes Personal Entrepreneurial Competencies (PECs), Environment and Market (EM), and Process and Delivery (PD).

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Core concepts and principles of Shielded Metal Arc Welding (SMAW) 2. Employment and business opportunities	The learner demonstrates an understanding of the concepts and underlying principles in Shielded Metal Arc Welding (SMAW).	The learner independently performs Shielded Metal Arc Welding (SMAW) processes based on market standards.	1. Explain the core concepts and principles of Shielded Metal Arc Welding (SMAW) 2. Explore job/entrepreneurial opportunities for a craftsman 3. Choose related courses to pursue	
PERFORM FILLET WELD ON CARBON STEEL PLATES (FW)				
1. Essentials of welding 2. International welding codes and standards 3. Acceptable weld profiles 4. Weld defects, causes and remedies 5. Welding Procedure Specifications (WPS) 6. Welding techniques and procedures 7. Safe welding practices			**LO 1. WELD CARBON STEEL PLATES IN VERTICAL POSITION (3F)** 1.1 Perform stringer or layered beads in accordance with welding standards 1.2 Observe uniformity of bead, ripples in accordance with welding standards 1.3 Observe weld capping/ final pass not exceeding allowable tolerances specified by welding codes/ standards on: 1.3.1 Concavity 1.3.2 Convexity 1.3.3 Height of reinforcement 1.3.4 Underfill 1.3.5 Porosities 1.3.6 Undercut 1.3.7 Cracks 1.3.8 Cold laps 1.4 Conducts visual inspection on the finished weldment in accordance with	**TLE_IAAW9-12FW-Ia-IIj-3**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			welding standards for 1.4.1 Spatters 1.4.2 Arc strikes 1.4.3 Slag inclusion 1.4.4 Uniformity of beads 1.5 Use appropriate Personal Protective Equipment (PPE) 1.6 Perform proper housekeeping (5S)	
8. Essentials of welding 9. International welding codes and standards 10. Acceptable weld profiles 11. Weld defects, causes and remedies 12. Welding Procedure Specifications (WPS) 13. Welding techniques and procedures 14. Safe welding practices			**LO 2. WELD CARBON STEEL PLATES IN OVERHEAD POSITION (4F)** 1.1 Perform stringer or layered beads in accordance with welding standards 1.2 Observe uniformity of bead, ripples in accordance with welding standards 1.3 Observe weld capping/ final pass not exceeding allowable tolerances specified by welding codes/ standards on: 1.3.1 Concavity 1.3.2 Convexity 1.3.3 Height of reinforcement 1.3.4 Underfill 1.3.5 Porosities 1.3.6 Undercut 1.3.7 Cracks 1.3.8 Cold laps 1.4 Conducts visual inspection of the finished weldment in accordance with welding standards for 1.4.1 Spatters 1.4.2 Arc strikes 1.4.3 Slag inclusion 1.4.4 Uniformity of beads 1.5 Use appropriate Personal Protective Equipment (PPE)	**TLE_IAAW9-12FW-IIIa-IVj-4**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			1.6 Perform proper housekeeping (5S)	

K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK
INDUSTRIAL ARTS – SHIELDED METAL ARC WELDING (SMAW) (NC II)
(160 hours)

Course Description:

This curriculum guide is competency-based leading to a TESDA qualification standard for National Level I Certificate (NCI). It covers competencies in **Shielded Metal Arc Welding** (SMAW) that a high school student should acquire. The content of this curriculum guide for Shielded Metal Arc Welding (SMAW) includes Personal Entrepreneurial Competencies (PECs), Environment and Market (EM), and Process and Delivery (PD).

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Core concepts and principles of Shielded Metal Arc Welding (SMAW) 2. Employment and business opportunities	The learner demonstrates an understanding of the concepts and underlying principles in Shielded Metal Arc Welding (SMAW).	The learner independently performs Shielded Metal Arc Welding (SMAW) processes based on market standards.	1. Explain the core concepts and principles of Shielded Metal Arc Welding (SMAW). 2. Explore job/entrepreneurial opportunities for a craftsman. 3. Choose related courses to pursue	
PERFORM GROOVE WELDING ON CARBON STEEL PLATES (GW)				
1. Essentials of welding 2. International welding codes and standards 3. Acceptable weld profiles 4. Weld defects, causes and remedies 5. Welding Procedure Specifications (WPS) 6. Welding techniques and procedures 7. Safe welding practices			**LO 1. WELD CARBON STEEL PLATES IN FLAT POSITION (1G)** 1.1 Perform root pass with root penetration not exceeding the allowable tolerances 1.2 Check root penetration in accordance with acceptable standards 1.3 Perform stringer or layered beads in accordance with welding standards 1.4 Observe welding codes and standards on: 1.1.1 Undercut 1.1.2 Excess penetration 1.1.3 Lack of fusion 1.1.4 Burn-through 1.1.5 Cracks	**TLE_IAAW9-12GW-Ia-j-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			1.5 Observe weld capping/ final pass not exceeding allowable tolerances specified by welding codes/ standards on: 1.5.1 Height of reinforcement 1.5.2 Underfill 1.5.3 Porosities 1.5.4 Undercut 1.5.5 Cracks 1.5.6 Cold laps 1.6 Conducts visual inspection of the finished weldment in accordance with welding standards for 1.6.1 Spatters 1.6.2 Arc strikes 1.6.3 Slag 1.6.4 Uniformity of beads 1.7 Use appropriate Personal Protective Equipment (PPE) 1.8 Perform proper housekeeping (5S)	
8. Essentials of welding 9. International welding codes and standards 10. Acceptable weld profiles 11. Weld defects, causes and remedies 12. Welding Procedure Specifications (WPS) 13. Welding techniques and procedures 14. Safe welding practices			**LO 2. WELD CARBON STEEL PLATES IN HORIZONTAL POSITION (2G)** 2.1 Perform root pass with root penetration not exceeding the allowable tolerances 2.2 Check root penetration in accordance with acceptable standards 2.3 Perform stringer or layered beads in accordance with welding standards 2.4 Observe welding codes and standards on: 2.4.1 Undercut 2.4.2 Excess penetration 2.4.3 Lack of fusion 2.4.4 Burn-through 2.4.5 Cracks	**TLE_IAAW9-12GW-IIa-j-2**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			2.5 Observe weld capping/ final pass not exceeding allowable tolerances specified by welding codes/ standards on: 2.5.1 Height of reinforcement 2.5.2 Underfill 2.5.3 Porosities 2.5.4 Undercut 2.5.5 Cracks 2.5.6 Cold laps 2.6 Conducts visual inspection of the finished weldment in accordance with welding standards for: 2.6.1 Spatters 2.6.2 Arc strikes 2.6.3 Slag 2.6.4 Uniformity of beads 2.7 Use appropriate Personal Protective Equipment (PPE) 2.8 Perform proper housekeeping (5S)	
15. Essentials of welding 16. International welding codes and standards 17. Acceptable weld profiles 18. Weld defects, causes and remedies 19. Welding Procedure Specifications (WPS) 20. Welding techniques and procedures 21. Safe welding practices			**LO 3. WELD CARBON STEEL PLATES IN VERTICAL POSITION (3G)** 3.1 Perform root pass with root penetration not exceeding the allowable tolerances 3.2 Check root penetration in accordance with acceptable standards 3.3 Perform stringer or layered beads in accordance with welding standards 3.4 Observe welding codes and standard on 3.4.1 Undercut 3.4.2 Excess penetration 3.4.3 Lack of fusion 3.4.4 Burn-through 3.4.5 Cracks	**TLE_IAAW9-12GW-IIIa-IVj-3**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			3.5 Observe weld capping/ final pass not exceeding allowable tolerances specified by welding codes/ standards on: 3.5.1 Height of reinforcement 3.5.2 Underfill 3.5.3 Porosities 3.5.4 Undercut 3.5.5 Cracks 3.5.6 Cold laps 3.6 Conducts visual inspection on the finished weldment in accordance with welding standards for 3.6.1 Spatters 3.6.2 Arc strikes 3.6.3 Slag 3.6.4 Uniformity of beads 3.7 Use appropriate Personal Protective Equipment (PPE) 3.8 Perform proper housekeeping (5S)	

GLOSSARY

K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK
INDUSTRIAL ARTS – SHIELDED METAL ARC WELDING (SMAW) (NC II)
Code Book Legend

Sample: TLE_IAAW9-12FW-Ia-IIj-3

LEGEND		SAMPLE	
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education_Industrial Arts Shielded Metal Arc Welding	**TLE_IAAW 9-12**
	Grade Level	Grade 9/10/11/12	
Uppercase Letter/s	Domain/Content/ Component/ Topic	Perform Fillet Weld on Carbon Steel Plates	**FW**
			-
Roman Numeral **Zero if no specific quarter*	Quarter	First to Second Quarter	**I-II**
Lowercase Letter/s **Put a hyphen (-) in between letters to indicate more than a specific week*	Week	Week One to Ten	**a-j**
			-
Arabic Number	Competency	Weld Carbon Steel Plates in Vertical Position	**3**

DOMAIN/ COMPONENT	CODE
Perform Fillet Weld on Carbon Steel Plates	FW
Perform Groove Welding on Carbon Steel Plates	GW

Technology-Livelihood Education and Technical-Vocational Track specializations may be taken between Grades 9 to 12.

Schools may offer specializations from the four strands as long as the minimum number of hours for each specialization is met.

Please refer to the sample Curriculum Map on the next page for the number of semesters per Industrial Arts specialization and those that have pre-requisites. Curriculum Maps may be modified according to specializations offered by a school.

SAMPLE INDUSTRIAL ARTS CURRICULUM MAP

No.	Grade 7/8	Grade 9	Grade 10	Grade 11	Grade 12
1	EXPLORATORY	*Automotive Servicing (NC I)			8 sems
2		*Carpentry (NC II)			8 sems
3		*Consumer Electronics Servicing (NC II)			8 sems
4		*Electrical Installation and Maintenance (NC II)			8 sems
5		**Plumbing (NC I)		**Plumbing (NC II)	
6			4 sems		4 sems
7		*Refrigeration and Airconditioning (NC II)			8 sems
8		**Shielded Metal Arc Welding (NC I)		**Shielded Metal Arc Welding (NC II)	
9			4 sems		4 sems
10		**Masonry (NC II)		**Tile Setting (NC II)	
11	4 sems		4 sems		4 sems

* Students must complete four years to take the NC Exam.
** Students must complete two years to take the NC Exam.