

K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK
INDUSTRIAL ARTS – PLUMBING (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	

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		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	

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INDUSTRIAL ARTS – PLUMBING (NC II)
(160 hours)

Course Description:

Prerequisite: Plumbing NC I

This is a Training Regulation-based TLE course which leads to a Plumbing **National Certificate II (NC II)**. It focuses on the core competencies that a high school student ought to possess. The course is designed to enhance the knowledge, skills, positive attitude and work values in accordance with workplace standards. The core competencies are (1) performing single unit plumbing installation and assemblies, and (2) performing plumbing repair works.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Observe procedure, specifications and manuals of instructions 2. Relevance of the course 3. Career opportunities	The learner demonstrates an understanding of the basic concepts and underlying theories in plumbing.	The learner independently demonstrates an understanding of the core competencies in plumbing as prescribed by TESDA Training Regulations.	1. Interpret manuals. 2. Discuss the relevance of the course. 3. Explore on opportunities for plumbing as a career.	
PERFORM SINGLE UNIT PLUMBING INSTALLATION AND ASSEMBLIES (PI)				
1. Interpreting isometric drawing 2. Blueprint reading 3. Plumbing tools, piping materials, and their uses 4. Types of PPE			LO 1. PREPARE FOR PLUMBING WORKS 1.1. Interpret work plans and isometric drawings in accordance with the job specifications 1.2. Prepare materials, tools, and equipment according to the job requirements 1.3. 3. Select appropriate Personal Protective Equipment (PPE)	TLE_IAPB9-12PI-Ia-j-1
5. Revised National Plumbing Code of the Philippines (RNPCP) 6. Elements of plumbing system			LO 2. INSTALL PIPES AND FITTINGS. 2.1 Install pipes and fittings for branches based on job specifications following the Revised National Plumbing Code of the Philippines (RNPCP) and venting requirements and procedures	TLE_IAPB9-12PI-IIa-j-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
7. Installation of drainage/sewer/vent piping system 8. Proper use of tools and equipment 9. Proper use of PPE			2.2 Align drainage, sewer, and vent piping systems in the required locations as prescribed in the approved work plan 2.3 Use tools and equipment according to the job requirements 2.4 Use appropriate Personal Protective Equipment (PPE)	
10. Procedure in cutting cast iron pipe 11. Procedure in caulking cast iron pipes 12. Tables for amount of lead and oakum in caulking CI pipes			LO 3. INSTALL HOT AND COLD WATER SUPPLY 3.1 Use pipes and fittings in accordance with the job specifications 3.2 Install hot and cold water supply according to the approved work plan and specifications 3.3 Install water pipes free of leak and contamination 3.4 Align water pipes with the drainage, vents, and waste piping	TLE_IAPB9-12PI-IIIa-j-3
13. Procedures in setting-up plumbing fixtures 14. Plumbing code provisions 15. Plumpness of plumbing fixtures 16. Proper housekeeping (5S)			LO 4. INSTALL AND ASSEMBLE PLUMBING FIXTURES 4.1 Use pipes and fittings in accordance with the work plan 4.2 Install plumbing fixtures according to the rough-in specifications 4.3 Use tools, materials, and equipment in accordance with the job specifications 4.4 Use appropriate Personal Protective Equipment (PPE) 4.5 Perform proper housekeeping (5S)	TLE_IAPB9-12PI-IVa-j-4

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INDUSTRIAL ARTS – PLUMBING (NC II)
(160 hours)

Course Description:

This is a Training Regulation-based TLE course which leads to **Plumbing NC II**. It focuses on the **Core Competencies** that a high school student ought to possess. The course is designed to enhance the knowledge, skills, positive attitude and work values in accordance with workplace standards. It covers 1) performing plumbing maintenance works and; 2) performing pipe leak testing.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Observe Procedure, Specifications and Manuals of Instructions 2. Relevance of the course 3. Career opportunities	The learner demonstrates an understanding of basic concepts and underlying theories in plumbing.	The learner independently demonstrates an understanding of the core competencies in plumbing as prescribed by TESDA Training Regulations.	1. Interpret manuals. 2. Discuss the relevance of the course. 3. Explore on opportunities for plumbing as a career.	
PERFORM PLUMBING REPAIR AND MAINTENANCE WORKS (PR)				
1. Mensuration 2. Materials use and specification 3. Procedures in maintaining and repairing pipes and fittings 4. Safety precautions			LO 1. REPAIR DEFECTIVE PIPES AND FITTINGS 1.1 Identify pipes and fitting defects 1.2 Repair defective pipes and fittings according to the job requirements 1.3 Use correct tools and equipment in accordance with the job requirements 1.4 Check replaced pipes and/or fittings in accordance with the standard specifications 1.5 Restore or repair damaged areas in line with the job requirements 1.6 Use appropriate Personal Protective Equipment (PPE)	TLE_IAPB9-12PR-Ia-e-1

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INDUSTRIAL ARTS – PLUMBING (NC II)

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
5. Procedures in repairing and replacing plumbing fixtures 6. Replacement of fittings for plumbing fixtures 7. PPE 8. Proper housekeeping (5S)			LO 2. REPAIR DEFECTIVE PLUMBING FIXTURES AND ACCESSORIES 2.1 Identify materials, tools, and equipment for repairing plumbing fixtures and accessories 2.2 Repair defective plumbing fixtures in accordance with the job requirements 2.3 Check replacement of plumbing fixtures in accordance with standard specifications 2.4 Restore or repair damaged areas in line with the job requirement. 2.5 Use appropriate Personal Protective Equipment (PPE)	TLE_IAPB9-12PR-If-j-2
9. Procedure in unclogging pipes 10. Causes and remedies of pipe clogs 11. Materials and tools for unclogging pipes 12. Personal Protective Equipment (PPE)/ Proper housekeeping (5S)			LO 3. CLEAR CLOGGED PIPES 3.1 Identify clogged pipes 3.2 Use appropriate materials and tools needed for unclogging pipes 3.3 Clear clogged pipes according to the job requirements. 3.4 Observe safety measures in clearing clogged pipes	TLE_IAPB9-12PR-IIa-e-3
13. Procedures in clearing the plumbing fixtures 14. Materials and tools in clearing fixtures 15. Personal Protective Equipment (PPE)/ Proper housekeeping (5S)			LO 4. CLEAR CLOGGED FIXTURES 4.1 Identify clogged fixtures 4.2 Use appropriate materials and tools needed for unclogging fixtures 4.3 Clear clogged fixtures according to the job requirements 4.4 Observe safety measures in clearing clogged fixtures	TLE_IAPB9-12PR-IIf-j-4

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
PERFORMING PIPE LEAK TESTING (LT)				
<ol style="list-style-type: none"> 1. Materials, tools, and equipment used for pipe-leak testing 2. Specification of materials, tools, and equipments used 	The learner demonstrates an understanding of the basic concepts and underlying theories in performing the pipe leak test.	The learner independently demonstrates competency in pipe leak testing.	LO 1. PREPARE MATERIALS FOR PIPE LEAK TESTING <ol style="list-style-type: none"> 1.1 Select materials, tools and equipment according to job requirements 1.2 Identify materials, tools and equipments used for pipe leak testing based on specifications 	TLE_IAPB9-12LT-IIIa-j-1
<ol style="list-style-type: none"> 3. Mensuration 4. Blueprint reading 5. Leak testing procedure/methods 6. Materials use and their specifications 7. Different types of tools and equipment used in plumbing 8. Safety precautions and Proper housekeeping (5S) implementation 			LO 2. PERFORM PIPE LEAK TESTING <ol style="list-style-type: none"> 2.1 Perform pipe leak testing in accordance with the job requirement 2.2 Use correct tools and equipment in accordance with the job requirements 2.3 Use appropriate Personal Protective Equipment (PPE) 2.4 Perform proper housekeeping (5S) 	TLE_IAPB9-12LT-IVa-j-2

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GLOSSARY

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Code Book Legend

Sample: TLE_IAPB9-12PI-Ia-j-1

LEGEND		SAMPLE		DOMAIN/ COMPONENT	CODE
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education_ Industrial Arts Plumbing	TLE_IA PB 9-12	Personal Entrepreneurial Skills	PECS
	Grade Level	Grade 9/10/11/12		Environment and Marketing	EM
Uppercase Letter/s	Domain/Content/ Component/ Topic	Preparing Pipes, Tools and Equipment for Installation	PI	Preparing Pipes, Tools and Equipment for Installation	PI
				Make Piping Joints and Connection	MP
			-	Performing Minor Construction Works	CW
Roman Numeral <i>*Zero if no specific quarter</i>	Quarter	First Quarter	I	Perform Single Unit Plumbing Installation and Assemblies	PI
Lowercase Letter/s <i>*Put a hyphen (-) in between letters to indicate more than a specific week</i>	Week	Week One to Ten	a-j	Perform Plumbing Repair and Maintenance Works	PR
			-	Performing Pipe Leak Testing	LT
Arabic Number	Competency	Prepare for Plumbing Works	1		

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.

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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.