

**K to 12 BASIC EDUCATION CURRICULUM
 JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
 INDUSTRIAL ARTS – CONSUMER ELECTRONICS SERVICING**

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

	Specialization	Number of Hours	Pre-requisite
1.	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.	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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Grade 7/Grade 8 (Exploratory)

Course Description:

This is an exploratory and introductory course which leads to a **Consumer Electronics Servicing** National Certificate Level II (NCII). It covers **five** common competencies that the **Grade 7/Grade 8** Technology and Livelihood Education (TLE) student ought to possess: (1) using tools, equipment and paraphernalia; (2) performing mensuration and calculation; (3) practicing Occupational Health and Safety (OHS) procedures; (4) maintaining tools, equipment and paraphernalia; and (5) interpreting technical drawing and plans.

The preliminaries of this exploratory course include the following: (1) discussion on the relevance of the course, 2) explanation of key concepts relative to the course, and (3) exploration of career opportunities.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Basic concepts in electronics servicing 2. Relevance of the course 3. Career opportunities	The learner demonstrates an understanding of the basic concepts and underlying theories in consumer electronics servicing.	The learner independently demonstrates common competencies in electronics servicing as prescribed by TESDA Training Regulations.	1. Explain basic concepts in electronics servicing 2. Discuss the relevance of the course 3. Explore career opportunities in electronics servicing	
PERSONAL ENTREPRENEURIAL COMPETENCIES AND SKILLS (PeCS)				
1. Assessment of Personal Entrepreneurial Competencies and Skills (PeCS) vis-à-vis a practicing entrepreneur/employee 1.1 Characteristics 1.2 Attributes 1.3 Lifestyle 1.4 Skills 1.5 Traits 2. Analysis of one's PeCS	The learner demonstrates an understanding of one's Personal Entrepreneurial Competencies and Skills (PeCS).	The learner recognizes his/her Personal Entrepreneurial Competencies and Skills (PeCS) and prepares a list of PeCS of a practitioner/entrepreneur in consumer electronics servicing.	LO 1. Recognize Personal Entrepreneurial Competencies and Skills (PeCS) needed in consumer electronics servicing 1.1 Assess one's PeCS: characteristics, attributes, lifestyle, skills, traits 1.2 Assess practitioner's: characteristics, attributes, lifestyle, skills, traits 1.3 Compare one's PeCS with those of a practitioner /entrepreneur	TLE_PECS7/8-00-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
ENVIRONMENT AND MARKET (EM)				
1. Key concepts of Environment and Market 2. Products & services available in the market 3. Differentiation of products and services 4. Customers and their buying habits 5. Competition in the market 6. SWOT Analysis	The learner demonstrates an understanding of the concepts, environment and market and how they relate with a career choice in consumer electronics servicing.	The learner independently generates a business idea based on the analysis of environment and market in consumer electronics servicing.	LO 1. Generate a business idea that relates with a career choice in Consumer Electronics Servicing 1.1 Conduct SWOT analysis 1.2 Identify the different products/services available in the market 1.3 Compare different products/services in the consumer electronics servicing business 1.4 Determine profile of potential customers 1.5 Determine profile of potential competitors 1.6 Generate potential business ideas based on the SWOT analysis	TLE_EM7/8-00-1
LESSON 1: USE HAND TOOLS (UT)				
1. Electronic hand tools and test equipment	The learner demonstrates an understanding of the underlying principles in the use of electronic hand tools.	The learner independently uses the electronic hand tools.	LO 1. Plan for tasks to be undertaken 1.1 Select the appropriate hand tools for the job/task	TLE_IAES7/8UT-0a-1
			LO 2. Prepare hand tools 2.1 Check hand tools for proper operation and safety	TLE_IAES7/8UT-0a-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			LO 3. Use appropriate hand tools and test instruments 3.1 Apply the appropriate hand tool for the given tasks	TLE_IAES7/8UT-0b-3
LESSON 2: PERFORM MENSURATION AND CALCULATION (MC)				
1. Multi-tester 2. Resistor color coding	The learner demonstrates an understanding of the underlying principles in measurements and calculations.	The learner independently performs accurate measurements and calculation based on given tasks.	LO 1. Select measuring instrument 1.1 Select appropriate measuring instruments for a specific task	TLE_IAES7/8MC-0c-1
			LO 2. Carry out measurement and calculation 2.1 Measure the resistance using a multi-tester 2.2 Compute for the value of resistors based on its color code	TLE_IAES7/8MC-0d-2
LESSON 3: PREPARE AND INTERPRET TECHNICAL DRAWINGS (ID)				
1. Electronics components and electronic symbols 2. Schematic diagrams	The learner demonstrates an understanding of the concepts in interpreting simple technical drawings and electronics diagram.	The learner independently reads and interprets simple technical drawings and diagrams based on IEE (Institution of Electrical Engineers) standards.	LO 1. Prepare the identified electronic component from the identified electronic diagrams 1.1 Describe the electronic component being asked based on the electronic diagram 1.2 Identify the proper electronic component or its equivalent value for the given electronic diagram	TLE_IAES7/8ID-0e-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			LO2. Interpret technical drawing 2.1 Interpret working plans and electronic diagrams	TLE_IAES7/8ID-0f-2
LESSON 4: OBSERVING OCCUPATIONAL HEALTH AND SAFETY (OS)				
1. Personal Protective Equipment (PPE) 2. Safety in the workplace	The learner demonstrates an understanding of the underlying principles in occupational health and safety procedures.	The learner independently prepares occupational health and safety checklist being applied in industries.	LO 1. Identify health hazards and occupational risks 1.1 List down the different health hazards and risks found in the workplace 1.2 Discuss the effects of the health hazards and occupational risks	TLE_IAES7/8OS-0g-1
			LO 2. Observe occupational health and safety practices 2.1 Prepare checklist on observations of occupational health and safety practices	TLE_IAES7/8OS-0h-2
LESSON 5: MAINTAIN HAND TOOLS AND EQUIPMENT (MT)				
1. Maintenance of electronic tools and test instruments	The learner demonstrates an understanding of the concepts in the maintenance of electronic hand tools and test instruments.	The learner independently performs maintenance of electronic hand tools and test instruments based on industry standards.	LO 1. Maintain hand tools 1.1 Check and clean tools and test instruments after each use 1.2 Store hand tools safely in appropriate locations based on manufacturer’s specifications or standard operating procedure	TLE_IAES7/8MT-0i-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			<p>LO 2. Perform preventive maintenance of tools 1.1 Conduct preventive maintenance</p>	<p>TLE_IAES7/8MT-0j-2</p>

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(160 hours)

Course Description:

This is a standards based curriculum leading to a TESDA Qualification Standard for a **Consumer Electronics Servicing** National Certificate Level I (N II). It covers two (2) core competencies that a high school student should acquire: (1) assembling and disassembling of consumer electronic product and system, and 2) maintaining and repairing electronically controlled domestic appliances.

The preliminaries of this course include the following: (1) discussion on the relevance of the course, (2) explanation of key concepts relative to the course, and 3) exploration of career opportunities.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<p>Introduction:</p> <ol style="list-style-type: none"> 1. Core concepts in Electronics Servicing 2. Relevance of the course 3. Employment /Business opportunities 	<p>The learner demonstrates an understanding of the basic concepts and underlying theories in consumer Electronics servicing.</p>	<p>The learner independently demonstrates an understanding of the core competencies in electronics servicing as prescribed by TESDA Training Regulations.</p>	<ol style="list-style-type: none"> 1. Explain core concepts in electronics servicing. 2. Discuss relevance of the course. 3. Explore opportunities for employment/business. 	
PERSONAL ENTREPRENEURIAL COMPETENCIES (PeCS)				
<ol style="list-style-type: none"> 1. Assessment of learner’s Personal Competencies and Skills (PeCS) vis-à-vis PeCS of a practicing entrepreneur/ employee in locality/town. <ol style="list-style-type: none"> 1.1 Characteristics 1.2 Attributes 1.3 Lifestyle 1.4 Skills 1.5 Traits 2. Analysis of one’s PeCS 3. Align, strengthen and develop one’s PeCS based on the results 	<p>The learner demonstrates an understanding of one’s PeCS in consumer electronics Servicing.</p>	<p>The learner recognizes his/her PeCS and prepares an activity plan that aligns with the PeCS of a practitioner/entrepreneur in consumer electronics Servicing.</p>	<p>LO 1. Recognize Personal Entrepreneurial Competencies and Skills (PeCS) needed in Consumer electronics Servicing</p> <ol style="list-style-type: none"> 1.1 Assess one’s PeCS: characteristics, attributes, lifestyle, skills, traits 1.2 Assess practitioner’s: characteristics, attributes, lifestyle, skills, traits 1.3 Compare one’s PeCS with those of a practitioner /entrepreneur 1.4 Align one’s PeCS with those of a practitioner/entrepreneur 	TLE_PECS9-12-I0-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
ENVIRONMENT AND MARKET (EM)				
Market (Town) 1. Key concepts of Market 2. Players in the Market (Competitors) 3. Products & services available in the market	The learner demonstrates an understanding of the concepts environment and market in the consumer electronics servicing field, particularly in one's town/municipality.	The learner independently creates a business vicinity map reflective of the potential consumer electronics servicing market within the locality/town.	LO 1. Recognize and understand the market in consumer electronics servicing 1.1 Identify the players/ competitors within the town 1.2 Identify the different products/services available in the market	TLE_EM9-12-I0-1
Market (Customer) 4. Key concepts of identifying and understanding the consumer 5. Consumer analysis through: 5.1 Observation 5.2 Interviews 5.3 Focus group discussion (FGD) 5.4 Survey			LO 2. Recognize the potential customer/market in Consumer Electronics Servicing 2.1 Identify profile of potential customers 2.2 Identify the customer's needs and wants through consumer analysis 2.3 Conduct consumer/market analysis	TLE_EM9-12-II0-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
6. Generating business idea 6.1 Key concepts of generating business ideas 6.2 Knowledge & skills, passions, interests 6.3 New application 6.4 Irritants 6.5 Striking ideas (new concept) 6.7 Serendipity Walk			LO 3. Create new business ideas in Consumer Electronics Servicing by using various techniques 3.1 Explore ways of generating business ideas from one's own characteristics/attributes 3.2 Generate business ideas using product innovation from irritants, trends and emerging needs 3.3 Generate business ideas using Serendipity Walk	TLE_EM9-12-III0-IV0-3
ASSEMBLE AND DISASSEMBLE CONSUMER ELECTRONIC PRODUCT AND SYSTEM (40) (AD)				
AC/DC Power Supply 1. Tools, equipment and materials 2. OH&S policies and procedure	The learner demonstrates an understanding of the principles in AC/DC power supply.	The learner independently assembles AC/DC power supply in accordance with manufacturer's specification.	LO 1. Prepare tools and materials For assembly 1.1 Check required tools, equipment and materials 1.2 Prepare tools and materials according to job requirements	TLE_IAES9-12AD-Ia-e-1
3. Soldering and soldering processes			LO 2. Solder/ desolder components to the board 3.1 Perform soldering and desoldering processes 3.2 Check soldered products in accordance with quality standards	TLE_IAES9-12-If-j-2
4. Assembling and disassembling processes			LO 3. Assemble/ disassemble boards 4.1 Perform assembling and disassembling processes 4.2 Observe safety procedure in assembling and	TLE_IAES9-12AD-IIa-e-3

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			disassembling boards 4.3 Check assembled product in accordance with quality standards	
5. Techniques on actual product assembly based on service manuals 6. Product quality standards based on service manual			LO 4. Test and inspect assembled products 4.1 Test finished products in accordance with standard operating procedure 4.2 Document completed work 4.3 Perform proper housekeeping (5S)	TLE_IAES9-12AD-IIf-j-4
MAINTAIN AND REPAIR ELECTRONICALLY CONTROLLED DOMESTIC APPLIANCES (80) (MR)				
Servicing electronically-controlled domestic appliances with motor and with heating elements 1. Electronically-controlled domestic appliances 2. Service manuals 3. Tools, materials and test instruments	The learner demonstrates an understanding of the concepts in maintaining and repairing appliances with motor and with heating element: 1. blender 2. electric fan	The learner independently maintains and repairs appliances with motor and with heating element: 1. blender 2. electric fan	LO 1. Prepare unit, tools, equipment and workplace for maintenance/repair 1.1 Prepare necessary tools, test instruments and personal protective equipment in line with job requirements 1.2 Acquire service manuals and service information required for repair/maintenance as manufacturer’s specifications 1.3 Conduct complete check-up of electronically-controlled domestic appliances 1.4 Document the identified defects based on check-up conducted	TLE_IAES9-12MR-IIIa-j-1
4. Pre-testing procedure in accordance with the manufacturer’s manual 5. Steps in testing components 6. Responsible persons			LO 2. Diagnose faults of electronically-controlled domestic appliances 2.1 Observe systematic pre-testing procedure in accordance with manufacturer’s instructions 2.2 Check and isolate circuits using specified testing procedure 2.3 Document results of diagnosis and testing accurately and completely within the specified timeframe	TLE_IAES9-12MR-IIIa-j-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			2.4 Explain identified defects and faults based on the result of diagnosis and testing 2.5 Provide data/information regarding the status and serviceability of the unit as per procedure	
7. Personal protective equipment (PPE) 8. Troubles and possible remedies 9. Soldering and desoldering process 10. Care and extreme precaution in handling the unit/product as per procedure			LO 3. Maintain/repair appliances 3.1 Use PPE in accordance with OHS practices 3.2 Perform repair activity within the required timeframe 3.3 Observe safety precautions in handling the unit/product as per standard operating procedure 3.4 Replace defective parts/ components with identical or recommended appropriate equivalent ratings 3.5 Solder/mount repaired or replaced parts/components in accordance with industry standards 3.6 Clean unit in accordance with standard operating procedure	TLE_IAES9-12MR-IVa-e-3
11. Procedure of reassembling repaired units according to procedure			LO 4. Reassemble and test repaired appliances 4.1 Perform final test for reassembled units in conformity with manufacturer's specifications	TLE_IAES9-12MR-IVf-j-4

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(160 hours)

Course Description:

This is a standards based curriculum leading to a TESDA Qualification Standard for a **Consumer Electronics Servicing** National Certificate Level I (N II). It covers the core competency of maintaining and repairing electronically-controlled domestic appliances that a high school student should acquire.

The preliminaries of this course include the following: (1) discussion on the relevance of the course, (2) explanation of key concepts relative to the course, and (3) exploration of career opportunities.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
<p>Introduction:</p> <ol style="list-style-type: none"> 1. Core concepts in Electronics Servicing 2. Relevance of the course 3. Employment /business opportunities 	<p>The learner demonstrates an understanding of the basic concepts and underlying theories in consumer electronics servicing.</p>	<p>The learner independently demonstrates an understanding of the core competency in electronics servicing as prescribed by TESDA Training Regulations.</p>	<ol style="list-style-type: none"> 1. Explain core concepts in electronics servicing. 2. Discuss relevance of the course. 3. Explore opportunities for employment/business. 	
PERSONAL ENTREPRENEURIAL COMPETENCIES (PeCS)				
<ol style="list-style-type: none"> 1. Assessment of learner’s Personal Competencies and Skills (PeCS) vis-à-vis PeCS of a practicing entrepreneur/employee in a province. <ol style="list-style-type: none"> 1.1 Characteristics 1.2 Attributes 1.3 Lifestyle 1.4 Skills 1.5 Traits 2. Analysis of PeCS compared to the PeCS of a practitioner 3. Strengthening and further development of one’s PeCS 	<p>The learner demonstrates an understanding of one’s Personal Competencies and Skills (PeCS) in Consumer Electronics Servicing.</p>	<p>The learner independently creates a plan of action that strengthens/ further develops one’s PeCS in Consumer Electronics Servicing.</p>	<p>LO 1. Develop and strengthen personal competencies and skills (PeCS) needed Consumer Electronics Servicing</p> <ol style="list-style-type: none"> 1.1 Identify areas for improvement, development and growth 1.2 Align one’s PeCS according to his/her business/career choice 1.3 Create a plan of action that ensures success of his/her business/career choice 	TLE_PECS9-12-I0-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
ENVIRONMENT AND MARKET (EM)				
1. Product Development 2. Key concepts of developing a product 3. Finding Value 4. Innovation 4.1 Unique Selling 4.2 Proposition (USP)	The learner demonstrates an understanding of environment and market in Consumer Electronics Servicing in one's town/municipality.	The learner independently creates a business vicinity map reflective of the potential Consumer Electronics Servicing market within the locality/town.	LO 1. Develop a product/ service in Consumer Electronics Servicing 1.1 Identify what is of "Value" to the customer 1.2 Identify the customer 1.3 Explain what makes a product unique and competitive 1.4 Apply creative and innovative techniques to develop marketable product 1.5 Employ a Unique Selling Proposition (USP) to the product/service	TLE_EM9-12-IO-IIIO-1
5. Selecting a Business Idea 6. Key concepts in Selecting a Business Idea 6.1 Criteria 6.2 Techniques			LO 2. Select a business idea based on the criteria and techniques set 2.1 Enumerate various criteria and steps in selecting a business idea 2.2 Apply the criteria/steps in selecting a viable business idea 2.3 Determine a business idea based on the criteria/techniques set	TLE_EM9-12-IIIO-2
7. Branding			LO 3. Develop a brand for the product 3.1 Identify the benefits of having a good brand 3.2 Enumerate recognizable brands in the town/province 3.3 Enumerate the criteria for developing a brand 3.4 Generate a clear appealing product brand	TLE_EM9-12-IV0-3

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
MAINTAIN AND REPAIR ELECTRONICALLY CONTROLLED DOMESTIC APPLIANCES (80) MR				
<p>Servicing electronically-controlled domestic appliances with motor and with heating elements</p> <ol style="list-style-type: none"> 1. Electronically controlled domestic appliances 2. Service manuals 3. Tools, materials and test instruments 	<p>The learner demonstrates an understanding of the concepts in maintaining and repairing appliances with motor and with a heating element:</p> <ol style="list-style-type: none"> 1. washing machine 2. flat iron 3. microwave oven 4. rice cooker 	<p>The learner independently maintains and repairs appliances with motor and with a heating element:</p> <ol style="list-style-type: none"> 1. washing machine 2. flat iron 3. microwave oven 4. rice cooker 	<p>LO 1. Prepare unit, tools, equipment and workplace for maintenance/repair</p> <ol style="list-style-type: none"> 1.1 Prepare necessary tools, test instruments and personal protective equipment in line with job requirements 1.2 Acquire service manuals and service information required for repair/maintenance as manufacturer's specifications 1.3 Conduct complete check-up of electronically-controlled domestic appliances 1.4 Document the identified defects based on check-up conducted 	LE_IAES9-12MR-Ia-j-1
<ol style="list-style-type: none"> 4. Pre-testing procedure in accordance with the manufacturer's manual. 5. Steps in testing components 6. Responsible persons 			<p>LO 2. Diagnose faults of electronically-controlled domestic appliances</p> <ol style="list-style-type: none"> 2.1 Observe systematic pre-testing procedure in accordance with manufacturer's instructions 2.2 Check and isolate circuits using specified testing procedure 2.3 Document results of diagnosis and testing accurately and completely within the specified timeframe 2.4 Explain identified defects and faults based on the result of diagnosis and testing 2.5 Provide data/information regarding the status and serviceability of the 	TLE_IAES9-12MR-Ia-j-2

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
7. Personal protective equipment (PPE) 8. Troubles and possible remedies 9. Soldering and desoldering process 10. Care and extreme precaution in handling the unit/product as per procedure			unit as per procedure LO 3. Maintain/repair appliances 3.1 Use PPE in accordance with OHS practices 3.2 Perform repair activity within the required timeframe 3.3 Observe safety precautions in handling the unit/product as per standard operating procedure 3.4 Replace defective parts/ components with identical parts or recommended parts with equivalent ratings 3.5 Solder/mount repaired or replaced parts/components in accordance with industry standards 3.6 Clean unit in accordance with standard operating procedure	TLE_IAES9-12MR-IIa-IVj-3
11. Procedure of reassembling repaired units according to procedure			LO 4. Reassemble and test repaired appliances 4.1 Perform final test for reassembled units in conformity with manufacturer's specifications	TLE_IAES9-12MR-IIa-IVj-4

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GLOSSARY

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INDUSTRIAL ARTS – CONSUMER ELECTRONICS SERVICING
(160 hours)

Course Description:

This is a standards based course on **Consumer Electronics Servicing** leading to a TESDA Qualification Standard for National Certificate Level II (NCII). It covers one (1) core competency that a high school student should acquire—namely, that of maintaining and repairing audio–video products and systems

The preliminaries of this course include the following: (1) discussion on the relevance of the course, (2) explanation of key concepts relative to the course, and (3) exploration of career opportunities.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Core concepts in electronics servicing 2. Relevance of the course 3. Employment/business opportunities	The learner demonstrates an understanding of the core concepts and underlying theories in electronics servicing.	The learner independently demonstrates the core competencies in electronics servicing as prescribed by TESDA Training Regulations.	1. Explain core concepts in troubleshooting electronics products 2. Discuss relevance of the course 3. Explore opportunities for employment	
MAINTAIN AND REPAIR AUDIO – VIDEO PRODUCTS AND SYSTEM (AV)				
1. Maintain and repair audio-video products and systems 1.1 Work safety requirements 1.2 Tools, equipment and devices for repairing audio-video products and system 1.3 Service manual	The learner demonstrates an understanding of the concepts and underlying principles of servicing audio-video products and systems services.	The learner independently repairs/services audio-video products and systems based on service manuals.	LO 1. PREPARE UNIT, TOOLS AND WORKPLACE FOR MAINTENANCE/REPAIR 1.1. Clean the work station for repair activities 1.2. Prepare tools, test instruments and Personal Protective Equipment 1.3. Secure copy of service manuals and service information	TLE_IAES9-12AV-Ia-e-1
2. Pre-Testing procedure in diagnosing faults in audio-video products 3. Common symptom/defects of video products & systems			LO 2. DIAGNOSE DEFECTS OF AUDIO PRODUCTS AND SYSTEMS 2.1. Perform the pre-testing procedure following manufacturer’s instructions	TLE_IAES9-12AV-If-j-IIa-j-2

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 JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
 INDUSTRIAL ARTS – CONSUMER ELECTRONICS SERVICING**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
4. Troubleshooting guide for video products & systems			2.2. Identify the system defects/ faults using appropriate tools and equipment 2.3. Diagnose the identified defects/faults 2.4. Observe safety precautions	
5. Reading schematic diagram 6. Procedure in repairing audio video products 7. Assembling and testing audio-video products			LO 3. MAINTAIN AND REPAIR AUDIO PRODUCTS AND SYSTEM 3.1. Perform repair within the required time frame 3.2. Replace defective parts/ components with their appropriate equivalent 3.3. Solder repaired parts/ components 3.4. Substitute parts based on manufacturer’s specifications 3.5. Observe safety precautions	TLE_IAES9-12AV-IIIa-j-IVa-j-3

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INDUSTRIAL ARTS – CONSUMER ELECTRONICS SERVICING
(160 hours)

Course Description:

This is a standards-based course on **Consumer Electronics Servicing** leading to a TESDA Qualification Standard for National Certificate Level II (NCII). It covers one (1) core competency that a high school student should acquire —namely, the service and repair cellular phones.

The preliminaries of this course include the following: (1) discussion on the relevance of the course, (2) explanation of key concepts relative to the course, and (3) exploration of career opportunities.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Core concepts in electronics servicing 2. Relevance of the course 3. Employment / Business opportunities	The learner demonstrates an understanding of the core concepts and underlying theories in troubleshooting.	The learner independently demonstrates an the core competencies in electronics servicing as prescribed by TESDA Training Regulations.	1. Explain core concepts in troubleshooting electronics products 2. Discuss relevance of the course 3. Explore opportunities for employment business	
SERVICE AND REPAIR CELLULAR PHONES (CP)				
Servicing and repairing low end cellular phones 1. Parts of a low-end cellular phone 2. Schematic diagram of a low-end cellular phone 3. Identifying cellular phone for feature enhancement	The learner demonstrates an understanding of the concepts and underlying principles in servicing/repairing low-end cellular phones.	The learner independently repairs/service low-end cellular phones based on service manuals	LO 1. PREPARE UNIT, TOOLS AND WORKPLACE FOR SERVICE/REPAIR 1.1. Clean the work station for repair activities 1.2. Prepare tools, test instruments and Personal Protective Equipment 1.3. Secure copy of service manuals and service information	TLE_IAES9-12CP-Ia-b-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
4. Common symptoms/defects of a low-end cellular phone 5. Pre-testing procedure in a cellular phone 6. Troubleshooting procedure			LO 2. DIAGNOSE DEFECTS OF CELLULAR PHONE UNIT 2.1. Identify the parts of a low-end cellular phone unit to be repaired 2.2. Observe pre-testing of a cellular phone in accordance with the manufacturer’s manual 2.3. Perform troubleshooting based on diagnosis	TLE_IAES9-12CP-Ic-j-2
7. Tools in maintaining and repairing a low-end cellular phone unit 8. Maintenance and repair procedure			LO 3. SERVICE/REPAIR CELLULAR PHONE UNIT 3.1. Test the components using appropriate tools and equipment 3.2. Replace defective parts/ components following instructions in troubleshooting guide/manual 3.3. Observe safety precautions	TLE_IAES9-12CP-IIa-j-3
9. Procedure in assembling and disassembling a low-end cellular phone unit 10. Procedure in testing an assembled low-end cellular phone unit 11. Procedure in assembling and disassembling a low-end cellular phone unit			LO 4. REASSEMBLE AND TEST REPAIRED CELLULAR PHONE UNIT 4.1 Perform final test for reassembled units in conformity with manufacturer’s specifications	TLE_IAES9-12CP-IIa-j-4
Servicing and Repairing High – End cellular phones	The learner demonstrates an understanding of the concepts and underlying principles in servicing/repairing high–end cellular phones.	The learner independently repairs/services high–end cellular phones based on service manuals.	LO 1. PREPARE UNIT, TOOLS AND WORKPLACE FOR SERVICE/REPAIR 1.1 Clean the work station for repair activities 1.2 Prepare tools, test instruments and Personal Protective Equipment 1.3 Secure copy of service manuals and	TLE_IAES9-12CP-IIIa-b-1

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			service information	
			LO 2. DIAGNOSE DEFECTS OF CELLULAR PHONE UNIT 2.1. Identify the parts of a high-end cellular phone unit to be repaired 2.2. Observe pre-testing of a cellular phone in accordance with the manufacturer’s manual 2.3. Perform troubleshooting based on diagnosis	TLE_IAES9-12CP-IIIc-j-2
			LO 3. SERVICE/REPAIR CELLULAR PHONE UNIT 3.1. Test the components using appropriate tools and equipment 3.2. Replace defective parts/ components following instructions in troubleshooting guide manual 3.3. Observe safety precautions	TLE_IAES9-12CP-IVa-d-3
			LO 4. REASSEMBLE AND TEST REPAIRED CELLULAR PHONE UNIT 4.1 Perform final test for reassembled units in conformity with manufacturer’s specifications	TLE_IAES9-12CP-IVe-h-4
			LO 5. INSTALL ADDITIONAL/ ENHANCEMENT FEATURES 1.1 Identify software applications according to their uses based on the manual’s specifications	TLE_IAES9-12CP-IVi-j-5

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			1.2 Identify software application based on model and specification of a unit 1.3 Install additional software in accordance with the service manual	

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Code Book Legend

Sample: TLE_IAES7/8UT-0a-1

LEGEND		SAMPLE	
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education_Industrial Arts Consumer Electronics Servicing	TLE_IAES7/8
	Grade Level	Grade 7/8	
Uppercase Letter/s	Domain/Content/ Component/ Topic	Use hand tools	UT
			-
Roman Numeral <i>*Zero if no specific quarter</i>	Quarter	No Specific Quarter	0
Lowercase Letter/s <i>*Put a hyphen (-) in between letters to indicate more than a specific week</i>	Week	No Specific Week	0
			-
Arabic Number	Competency	Plan for tasks to be undertaken	1

DOMAIN/ COMPONENT	CODE
Personal Entrepreneurial Skills	PECS
Environment and Marketing	EM
Use Hand Tools	UT
Prepare and Interpret Technical Drawings	ID
Observe Occupational Health and Safety	OS
Maintain Hand Tools and Equipment	MT
Assemble and Disassemble Consumer Electronic Product and System	AD
Maintain and Repair Electronically Controlled Domestic Appliances	MR

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.

K to . 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.