K to 12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND SENIOR HIGH SCHOOL TECHNICAL-VOCATIONAL-LIVELIHOOD TRACK
INDUSTRIAL ARTS – INSTRUMENTATION AND CONTROL SERVICING NC II
(320 hours)

These are the specializations and their pre-requisites. These lists should be used as reference for curriculum maps.

AGRI-FISHERY ARTS

	Specialization	Number of Hours	Pre-requisite
1.	Agricultural Crops Production (NC I)	320 hours	
2.	Agricultural Crops Production (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	640 hours	
3.	Agricultural Crops Production (NC III)	640 hours	Agricultural Crops Production (NC II)
4.	Animal Health Care Management (NC III)	320 hours	Animal Production (Poultry-Chicken) (NC II) or Animal Production (Ruminants) (NC II) or Animal Production (Swine) (NC II)
5.	Animal Production (Poultry-Chicken) (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
6.	Animal Production (Large Ruminants) (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
7.	Animal Production (Swine) (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
8.	Aquaculture (NC II)	640 hours	
9.	Artificial Insemination (Large Ruminants) (NC II)	160 hours	Animal Production (Large Ruminants) (NC II)
10.	Artificial Insemination (Swine) (NC II)	160 hours	Animal Production (Swine) (NC II)
11.	Fish Capture (NC II)	640 hours	
12.	Fishing Gear Repair and Maintenance (NC III)	320 hours	
13.	Fish-Products Packaging (NC II)	320 hours	
14.	Fish Wharf Operation (NC I)	160 hours	
15.	Food Processing (NC II)	640 hours	
16.	Horticulture (NC III)	640 hours	Agricultural Crops Production (NC II)
17.	Landscape Installation and Maintenance (NC II)	320 hours	
18.	Organic Agriculture (NC II)	320 hours	
19.	Pest Management (NC II)	320 hours	
20.	Rice Machinery Operations (NC II)	320 hours	
21.	Rubber Processing (NC II)	320 hours	
22.	Rubber Production (NC II)	320 hours	
23.	Slaughtering Operations (Hog/Swine/Pig) (NC II)	160 hours	

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HOME ECONOMICS

	Specialization	Number of Hours	Pre-requisite
1.	Attractions and Theme Parks Operations with Ecotourism (NC II)	160 hours	
2.	Barbering (NC II)	320 hours	
3.	Bartending (NC II)	320 hours	
4.	Beauty/Nail Care (NC II)	160 hours	
5.	Bread and Pastry Production (NC II)	160 hours	
6.	Caregiving (NC II)	640 hours	
7.	Commercial Cooking (NC III)	320 hours	Cookery (NC II)
8.	Cookery (NC II)	320 hours	
9.	Dressmaking (NC II)	320 hours	
10.	Events Management Services (NC III)	320 hours	
11.	Fashion Design (Apparel) (NC III)	640 hours	Dressmaking (NC II) or Tailoring (NC II)
12.	Food and Beverage Services (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	160 hours	
13.	Front Office Services (NC II)	160 hours	
14.	Hairdressing (NC II)	320 hours	
15.	Hairdressing (NC III)	640 hours	Hairdressing (NC II)
16.	Handicraft (Basketry, Macrame) (Non-NC)	160 hours	
17.	Handicraft (Fashion Accessories, Paper Craft) (Non-NC)	160 hours	
18.	Handicraft (Needlecraft) (Non-NC)	160 hours	
19.	Handicraft (Woodcraft, Leathercraft) (Non-NC)	160 hours	
20.	Housekeeping (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	160 hours	
21.	Local Guiding Services (NC II)	160 hours	
22.	Tailoring (NC II)	320 hours	
23.	Tourism Promotion Services (NC II)	160 hours	
24.	Travel Services (NC II)	160 hours	
25.	Wellness Massage (NC II)	160 hours	

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INDUSTRIAL ARTS

	Specialization	Number of Hours	Pre-requisite
1.	Automotive Servicing (NC I) *updated based on TESDA Training Regulations published December 28, 2013*	640 hours	
2.	Automotive Servicing (NC II)	640 hours	Automotive Servicing (NC I)
3.	Carpentry (NC II)	640 hours	
4.	Carpentry (NC III)	320 hours	Carpentry (NC II)
5.	Construction Painting (NC II)	160 hours	
6.	Domestic Refrigeration and Air-conditioning (DOMRAC) Servicing (NC II)	640 hours	
7.	Driving (NC II)	160 hours	
8.	Electrical Installation and Maintenance (NC II)	640 hours	
9.	Electric Power Distribution Line Construction (NC II)	320 hours	Electrical Installation and Maintenance (NC II)
10.	Electronic Products Assembly and Servicing (NC II) *updated based on TESDA Training Regulations published December 28, 2013*	640 hours	
11.	Furniture Making (Finishing) (NC II)	640 hours	
12.	Instrumentation and Control Servicing (NC II)	320 hours	Electronic Products Assembly and Servicing (EPAS) (NC II)
13.	Gas Metal Arc Welding (GMAW) (NC II)	320 hours	Shielded Metal Arc Welding (SMAW) (NC II)
14.	Gas Tungsten Arc Welding (GTAW) (NC II)	320 hours	Shielded Metal Arc Welding (GMAW) (NC II)
15.	Machining (NC I)	640 hours	
16.	Machining (NC II)	640 hours	Machining (NC I)
17.	Masonry (NC II)	320 hours	
18.	Mechatronics Servicing (NC II)	320 hours	Electronic Products Assembly and Servicing (EPAS) (NC II)
19.	Motorcycle/Small Engine Servicing (NC II)	320 hours	
20.	Plumbing (NC I)	320 hours	
21.	Plumbing (NC II)	320 hours	Plumbing (NC I)
22.	Refrigeration and Air-Conditioning (Packaged Air-Conditioning Unit [PACU]/Commercial Refrigeration Equipment [CRE]) Servicing (NC III)	640 hours	Domestic Refrigeration and Air-conditioning (DOMRAC) Servicing (NC II)
23.	Shielded Metal Arc Welding (NC I)	320 hours	
24.	Shielded Metal Arc Welding (NC II)	320 hours	Shielded Metal Arc Welding (NC I)
25.	Tile Setting (NC II)	320 hours	
26.	Transmission Line Installation and Maintenance (NC II)	640 hours	Electrical Installation and Maintenance (NC II)

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INFORMATION, COMMUNICATIONS AND TECHNOLOGY (ICT)

	Specialization	Number of Hours	Pre-requisite
1.	Animation (NC II)	320 hours	
2.	Broadband Installation (Fixed Wireless Systems) (NC II)	160 hours	Computer Systems Servicing (NC II)
3.	Computer Programming (.Net Technology) (NC III) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
4.	Computer Programming (Java) (NC III) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
5.	Computer Programming (Oracle Database) (NC III) *updated based on TESDA Training Regulations published December 28, 2013*	320 hours	
6.	Computer Systems Servicing (NC II) *updated based on TESDA Training Regulations published December 28, 2007*	640 hours	
7.	Contact Center Services (NC II)	320 hours	
8.	Illustration (NC II)	320 hours	
9.	Medical Transcription (NC II)	320 hours	
10.	Technical Drafting (NC II)	320 hours	
11.	Telecom OSP and Subscriber Line Installation (Copper Cable/POTS and DSL) (NC II)	320 hours	Computer Systems Servicing (NC II)
12.	Telecom OSP Installation (Fiber Optic Cable) (NC II)	160 hours	Computer Systems Servicing (NC II)

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(320 hours)

Prerequisite: Electronic Products Assembly and Servicing (EPAS) NC II

Course Description:
This course is designed to enhance the knowledge, skills and attitudes of a learner on core competencies such as installation, calibration, and configuration of instrumentation and control servicing in accordance with TESDA Training Regulations. Work Immersion is incorporated within the school year to enhance the learning experience of the learner in a workplace environment.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Core concepts in Instrumentation and Control Servicing 2. Relevance of the course 3. Employment /business opportunities	The learner demonstrates an understanding of the core concepts and underlying theories in instrumentation and control servicing.	The learner independently demonstrates an understanding of the core competencies in instrumentation and servicing as prescribed by TESDA Training Regulations.	1. Explain core concepts in instrumentation and control servicing. 2. Discuss relevance of the course. 3. Explore opportunities for employment/business.	
PERSONAL ENTREPRENEURIAL COMPETENCIES AND SKILLS (PECS)				
1. Assessment of learner's Personal Competencies and Skills (PECS) vis-à-vis PECS of a practicing entrepreneur/employee in a province. 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	The learner demonstrates an understanding of one's Personal Competencies and Skills (PECS) in Instrumentation and Control Servicing.	The learner independently creates a plan of action that strengthens/further develops one's PECS in Instrumentation and Control Servicing.	**LO 1. Develop and strengthen Personal Entrepreneurial Competencies and Skills (PECS) needed in Instrumentation and Control Servicing.** 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_PECS9-12-00-1**
ENVIRONMENT AND MARKET (EM)				
1. Product Development 2. Key concepts of developing a product 3. Finding Value 4. Innovation	The learner demonstrates an understanding of environment and market in Instrumentation and Control Servicing in one's	The learner independently creates a business vicinity map reflective of the potential Instrumentation and Control Servicing market within the	**LO 1. Develop a product/service in Instrumentation and Control Servicing.** 1.1 Identify what is of "Value" to the customer. 1.2 Identify the customer.	**TLE_EM9-12-00-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
4.1 Unique Selling 4.2 Proposition (USP)	town/municipality.	locality/town.	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.	
1. Selecting a business idea 2. Key concepts in selecting a business idea 2.1 Criteria 2.2 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_EM9-12-00-2**
1. 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_EM9-12-00-3**
CORE COMPETENCIES				
LESSON I: INSTALLING INSTRUMENTATION AND CONTROL DEVICES (ICD)				
• Fundamentals of Instrumentation • Instrumentation Systems • Fundamentals of Installation • Tools, Materials, Equipment and Testing Devices	The learner demonstrates an understanding of concepts and principles of installing instrumentation and control devices	The learner independently install instrumentation and control devices based on TESDA Training Regulations	**LO1. Interpret work instructions for installation** 1. Read and interpreted work instructions to determine job requirements. 2. Select tools, equipment and testing devices needed to carry out the installation work in accordance with established procedures and checked for correct operation and safety.	**TLE_IAICS9-12ICD-Ia-j-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			3. Obtain materials necessary to complete the work are in accordance with job requirements.	
• Instrumentation Safety • I&C Standards • I&C Devices -Sensors and Transducers -Transmitters -Indicators -Recorders -Alarms and Annunciators -Process switches -Controllers -Control Valves and Actuators			**LO2. Install instrumentation and control devices** 1. Wear appropriate personal protective equipment in line with standard operating procedures. 2. Follow the OH&S policies and procedures for installation in line with the requirements. 3. Follow Instrumentation and Control standards are followed in line with the job requirements. 4. Install devices in accordance with manufacturer's instructions, requirements, and without damage to the surrounding place or environment. 5. Respond to unplanned events or conditions in accordance with established procedures.	**ITLE_IAICS9-12ICD-I-III-2**
• Testing I&C Devices • Documenting I&C works			**LO3. Test installed instrumentation and control devices** 1. Test devices in accordance with standard procedures. 2. Perform final inspections to ensure that the installed devices conform to technical requirements. 3. Clean and clear the work site in accordance with the company requirements 4. Prepare the report on installation and testing of equipment according to company's procedures/policies.	**TLE_IAICSII-12ICD-IV-3**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
LESSON 2: CALIBRATING INSTRUMENTATION AND CONTROL DEVICES (CALC)				
• Calibration Safety • Fundamentals of Measurement • Calibration Principles and Practices • General Calibration Procedures • Test Equipment • Tools, Materials and Equipment	The learner demonstrates an understanding of concepts and underlying principles in calibrating instruments and control devices	The learner independently performs calibration of instruments and control devices based on TESDA Training Regulations	**LO1. Plan and Prepare for Calibration** 1. Plan and prepare calibration in line with job requirements. 2. Follow OHS policies and procedures in line with job requirements. 3. Follow instrumentation and control standards in line with the job requirements. 4. Check instrumentation and control devices for calibration against specifications and requirements. 5. Obtain materials necessary to complete the work in accordance with established procedures and checked against job requirements. 6. Obtain tools, equipment and testing devices needed for calibration and checked for correct operation and safety 7. Identify calibrated instrumentation and control devices based on Job/Service Order or instructions.	**TLE_IAICS9-12CALC-Ia-e-4**
• Calibration Safety • Calibration Procedures • Calibration procedures -Calibration of Pressure Devices - Calibration of Level Devices - Calibration of Flow Devices - Calibration of Temperature Devices • Diagnosing Faults/ Problems			**LO2. Calibrate instrumentation and control devices** 1. Use appropriate personal protective equipment in line with the OHS policies and procedures 2. Check the normal functions of devices in accordance with manufacturer's instructions & standard procedures. 3. Diagnose fault/s or problem/s in the device in line with the standard operating procedures. 4. Calibrate instrumentation and control devices in line with the standard operating procedures 5. Respond to unplanned events or conditions in accordance with established procedures	**TLE_IAICS9-12CALC-If-j-IIa-e-5**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Performing Test and Inspection • Calibration Report			**LO3. Inspect and test calibrated instrumentation and control devices** 1. Perform final inspection to ensure that the calibration done on the device conforms with the manufacturer's instruction/manual 2. Check and test instrumentation and control devices to ensure safe operation 3. Prepare and complete the report according to company requirements.	**TLE_IAICS9-12CALC-IIf-j-6**
LESSON 3: CONFIGURING INSTRUMENTATION AND CONTROL DEVICES (CONC)				
• Configuration Safety • I&C Standards • Principles of Configuration • I&C Devices -Primary Element -Secondary Element -Intermediate Element -Miscellaneous Elements • Tool, Materials, Equipment and Testing Devices	The learner demonstrates an understanding of concepts and underlying principles in configuring instruments and control devices	The learner independently performs configuration of instruments and control devices based on TESDA Training Regulations.	**LO1. Plan and Prepare for Configuration** 1. Plan and prepare configuration in line with job requirements. 2. Follow OHS policies and procedures in line with job requirements. 3. Follow instrumentation and Control standards in line with the job requirements 4. Check instrumentation and control devices for configuration against specifications and requirements. 5. Obtain materials necessary to complete the work in accordance with established procedures and checked against job requirements. 6. Obtain and check tools, equipment and testing devices needed for configuration of the instrumentation and control devices for correct operation and safety 7. Identify configured instrumentation and control devices based on the Job/Service Order or instructions.	**TLE_IAICS9-12CONC-IIIa-e-7**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
• Pressure Monitoring System • Level Monitoring System • Flow Monitoring System • Temperature Monitoring System • Pressure Control System			**LO2. Configure instrumentation and control devices** 1. Use appropriate *personal protective equipment* and follow OHS policies and procedures 2. Check normal function of systems and components in accordance with manufacturer's instructions 3. Diagnose fault/s or problem/s in the device in line with the standard operating procedures. 4. Configure instrumentation and control devices in line with the standard operating procedures. 5. Respond to unplanned events or conditions in accordance with established procedures.	**TLE_IAICS9-12CONC-IIIf-j-IVa-e-8**
• Configuration Report			**LO3. Inspect and test configured instrumentation and control devices** 1. Perform final inspections to ensure that the configuration done on the devices conforms with the manufacturer's instruction/manual 2. Check instrumentation and control devices to ensure safe operation 3. Prepare report according to company requirements 4. Complete report according to company requirements.	**TLE_IAICS9-12CONC-IVf-j-9**

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RESOURCES			METHODOLOGY	ASSESSMENT METHOD
TOOLS	**EQUIPMENT**	**MATERIALS**		
• Long-nosed pliers • Diagonal cutters • Standard screwdrivers • Phillips Screwdriver • Electrical pliers • Soldering iron • Adjustable wrench • Wire stripper • Crimping tool • Allen key wrench • Jeweler's screwdrivers • Combination wrench, metric • Combination wrench, English	• Multimeters • Signal simulators • Multifunction calibrators • Pressure transmitters • Pressure gages • Air compressor • Thermocouple sensors • RTD sensors • Temperature transmitters, universal input • Loop power supplies • Instrument stanchions • Process indicators • Process controllers • Control valve with positioner • I/P converter • Desktop PC • Oscilloscope • Communication equipment • Safety helmet • Safety shoes • Safety harness • Safety glasses/goggles • Ear plugs/earmuffs • Gas mask • Face shield	• Solder lead • Shielded instrumentation cables • Terminal lugs • Terminal strips/blocks • Cotton gloves • Copper tubing • Plastic tubing • Compression fittings • Electrical tape • Teflon sealant tape • Cable ties • Calibration stickers • Manuals/books • Learning elements and activity sheets • Schematic diagrams • Component layout • Technical brochures • Technical references	• Lecture/discussion • Demonstration • Project method • Experiment/simulation • Company visit • Multimedia • Competency-based • Dual training • Distance learning	• Written test • Practical test • Direct observation • Interview

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GLOSSARY

1.	Analysis	-	is a careful study of something to learn about its parts, what they do, and how they are related to each other.
2.	Assembly Language	-	A machine oriented language in which mnemonics are used to represent each machine language instruction. Each CPU has its own specific assembly language.
3.	Calibration	-	The process of adjusting an instrument or compiling a deviation chart so that its reading can be correlated to the actual value being measured.
4.	Contingency management skills	-	refers to the demonstration of appropriate personal management in responding to problems and irregularities when undertaking a work activity, such as, breakdowns, changes in routine unexpected or a typical results or outcomes.
5.	Control system	-	The deliberate guidance or manipulation of the elements in a system in order to achieve a prescribed value or performance of a system to complete a defined process.
6.	Control valve	-	refers to any valve which controls pressure, rate of flow, or flow direction in a fluid or gas filled system.
7.	Conventions	-	is a definite formatting method used in electronic diagrams to present the clearest picture of the circuit function.
8.	Converter	-	is a device that receives information in one form of an instrument signal and transmits an output signal of another form.
9.	DAS (data acquisition system)	-	is a system used for acquiring data from sensors via amplifiers and multiplexers and any necessary analog to digital converters.
10.	DAS (data acquisition system)	-	is a system of one or more sensors, devices and communication links used to scan or collect and forward data to a central location for further processing, display, or archiving.
11.	DCS (distributed control system)	-	refers to a process plant and industrial process wherein control elements are not only located in central location but distributed throughout the system. It is a computerized control system used to automate processes in various industries.
12.	DCS	-	Distributed Control System (DCS) is a big Programmable Logic Controller (PLC) that is typically networked to other controllers, PLCs or field devices. It typically has a workstation to interface with the controller and can be very expensive due to built-in security and fail-over features.
13.	Effective communication	-	includes set of combined skills including nonverbal communication, attentive listening, the ability to manage stress in the moment, and the capacity to recognize and understand your own emotions and those of the person you're communicating with.
14.	Equipment	-	consists of the things which are used for a particular purpose.
15.	Flow	-	is the rate of flow of a liquid expressed in volume units per unit of time.
16.	Installation	-	refers to putting equipment or software in place prior to commencing operation.
17.	Instruction	-	is clear and detailed information on how to do something
18.	Level	-	is the measure of the logarithm of the ratio of some quantity to a reference quantity of the same kind.
19.	Materials	-	refers to the consumable and non-consumable items or things that you need for a particular activity
20.	Multi-loop controllers	-	are used to control a thermal or process machine in systems which need more than one control loop within a single system.
21.	Occupational Health and Safety (OHS)	-	is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work.
22.	Personal Protective Equipment (PPE)	-	is defined in the Occupational Safety and Health Administration (OSHA) as a tool used to protect workers from injury or illness caused by chemical, biological, radiation, physical, electrical, mechanical, and other hazards.

23.	PLC (Programmable Logic Controller)	-	A class of industrially hardened devices that provides hardware interface for input sensors and output actuators. PLCs can be programmed using relay ladder logic to control the outputs based on input conditions and / or algorithms contained in the memory of the PLC.
24.	Pressure	-	is the measure of applied force compared with the area over which the force is exerted
25.	Process control	-	is the regulation or manipulation of variables influencing the conduct of a process in such a way as to obtain a product of desired quality and quantity in an efficient manner
26.	Process control	-	Automatic monitoring and control of a process by an instrument or computer programmed to respond appropriately to feedback from the process.
27.	SCADA	-	Supervisory Control and Data Acquisition (SCADA) is a common process control application that collects data from sensors on the shop floor or in remote locations and sends them to a central computer for management and control.
28.	Sensor	-	A transducer whose input is a physical phenomenon and whose output is a quantitative measure of the phenomenon.
29.	Single-loop	-	is a process control system that uses one feedback signal which is directly influenced by the controlling medium.
30.	Symbols	-	is a simplified or a graphical design representing a part in a schematic circuit diagram. A letter could represent a particular component, part and quantity in formulas.
31.	Temperature	-	is the indication or a measure of how hot or cold a substance or object is with reference to some standard value.
32.	Test	-	refers to using a device for a short time to find its condition or how well it is
33.	Testing devices	-	refers to devices used to determine or indicate the functionality, operation and even defect of equipment.
34.	Transducer	-	A device that converts signals from one physical form to another.
35.	Transmitter	-	is equipment used to generate and amplify an rf carrier signal, modulate this carrier with intelligence, and radiate the modulated rf carrier into space.
36.	Work instructions	-	refers to documents containing detailed information on how to do task.
37.	Work signs	-	refer to posted image or information necessary in a workplace
38.	Workplace communication	-	is a process of exchanging information, both verbal and non-verbal, within an organization.
39.	Workplace	-	refers to a terminal device usually but not necessarily operating within a local area network, which is used by someone to perform the greater part of his or her everyday work.

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CODE BOOK LEGEND
Sample: **TLE_IA-ICS11-ICD-Ia-1**

LEGEND		SAMPLE	
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education_ Industrial Arts Instrumentation and Control Servicing NC II	**TLE_** **IA** **ICS**
	Grade Level	9 to 12	**9-12**
Uppercase Letter/s	Domain/ Content/ Component/ Topic	Installing Instrumentation and Control Devices	**ICD**
			-
Roman Numeral **Zero if no specific Quarter*	Quarter	First Quarter	**I**
Lower case letter/s **Put an en-dash (-) in between letters to indicate more than a specific week*	Week	Week one to ten	**a-j**
			-
Arabic Number	Competency	Interpret work instructions for installation.	**1**

DOMAIN / COMPONENT	CODE
Installing Instrumentation and Control Devices	ICD
Calibrating Instrumentation and Control Devices	CALC
Configuring Instrumentation and Control Devices	CONC

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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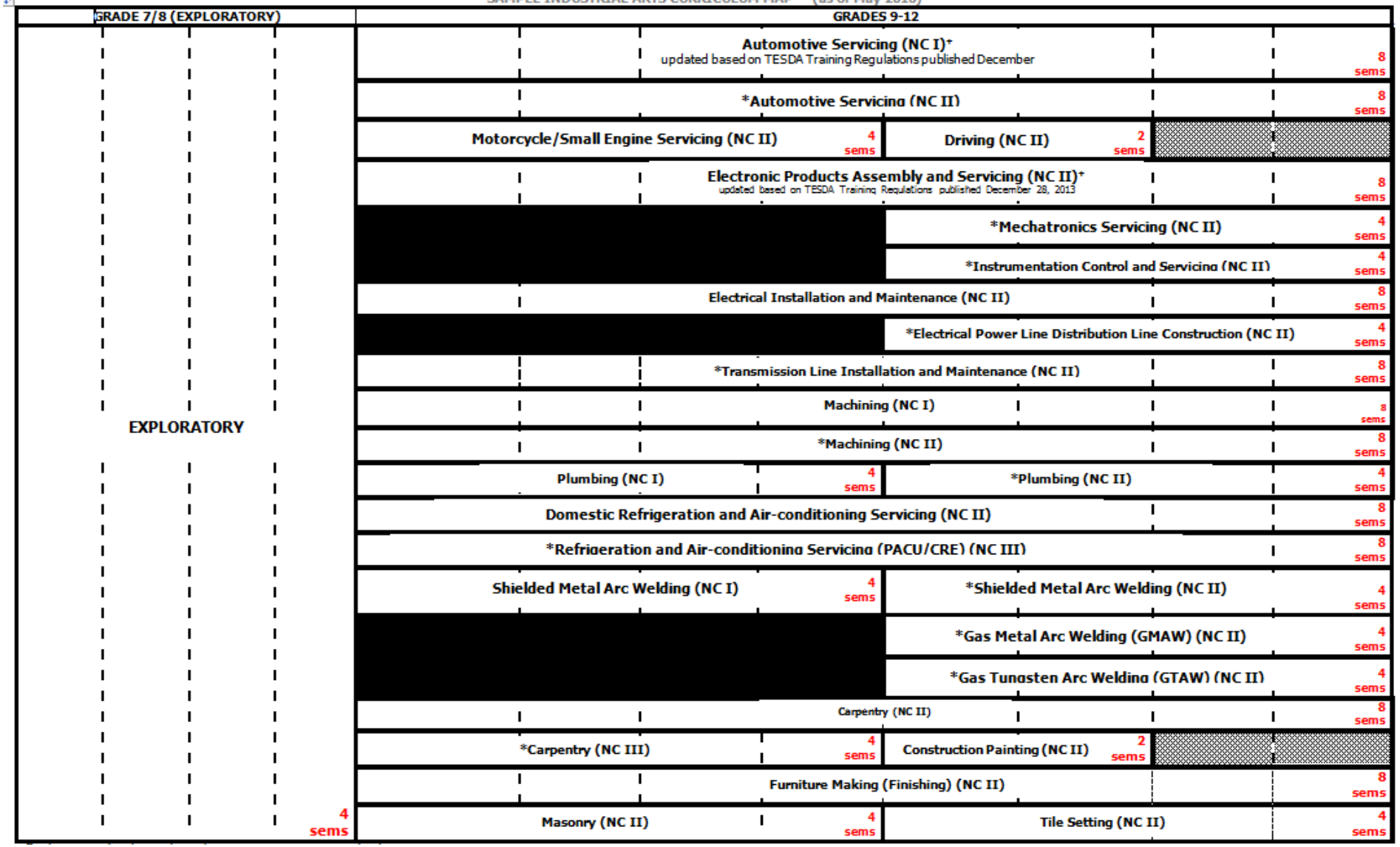
SAMPLE INDUSTRIAL ARTS CURRICULUM MAP** (as of May 2016)



* Please note that these subjects have pre-requisites mentioned in the CG.
\+ CG updated based on new Training Regulations of TESDA.
Other specializations with no prerequisites may be taken up during these semesters.
Pre-requisites of the subjects to the right should be taken up during these semesters.

****This is just a sample. Schools make their own curriculum maps considering the specializations to be offered. Subjects may be taken up at any point during Grades 9-12.**

Reference:

Technical Education and Skills Development Authority-Qualification Standards Office. *Training Regulations for Instrumentation and Control Servicing NC II.* Taguig City, Philippines: TESDA, 2007.