K to12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
INDUSTRIAL ARTS – AUTOMOTIVE SERVICING (NC I)

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)		
2.	Agricultural Crops Production (NC II)++	480 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 (NC II)
5.	Animal Production (NC II) + *When updated, this CG will become the following:* *1. Animal Production (Poultry-Chicken) (NC II);* *2. Animal Production (Ruminants) (NC II); and* *3. Animal Production (Swine) (NC II)*	480 hours	
6.	Aquaculture (NC II)	640 hours	
7.	Artificial Insemination (Ruminants) (NC II)	160 hours	Animal Production (NC II)
8.	Artificial Insemination (Swine) (NC II)	160 hours	Animal Production (NC II)
9.	Agricultural Crops Production (NC I)	320 hours	
10.	Fish Capture (NC II) ++	640 hours	
11.	Fishing Gear Repair and Maintenance (NC III)	320 hours	
12.	Fish-Products Packaging (NC II)	320 hours	
13.	Fish Wharf Operation (NC I)	160 hours	
14.	Food (Fish) Processing (NC II)	640 hours	
15.	Horticulture (NC II) +	640 hours	
16.	Horticulture (NC III)	640 hours	Horticulture (NC II)
17.	Landscape Installation and Maintenance (NC II)	320 hours	Agricultural Crops Production (NC I)
18.	Organic Agriculture (NC II)	320 hours	Agricultural Crops Production (NC I)
19.	Pest Management (NC II)	320 hours	Agricultural Crops Production (NC I)
20.	Rice Machinery Operation (NC II)	320 hours	Agricultural Crops Production (NC I)
21.	Rubber Processing (NC II)	320 hours	
22.	Rubber Production (NC II)	320 hours	
23.	Slaughtering Operation (NC II)	160 hours	Animal Production (NC II)

+CG to be updated by December 2015
++CG to be uploaded by December 2015

HOME ECONOMICS

	Specialization	Number of Hours	Pre-requisite
1.	Attractions and Theme Parks (NC II)	160 hours	
2.	Barbering (NC II)	320 hours	
3.	Bartending (NC II)	320 hours	
4.	Beauty/Nail Care (NC II)	160 hours	40 hours of the subject during exploratory Grade 7/8
5.	Bread and Pastry Production (NC II)	160 hours	
6.	Caregiving (NC II)	640 hours	40 hours of the subject during exploratory Grade 7/8
7.	Commercial Cooking (NC III)	320 hours	Cookery (NC II)
8.	Cookery (NC II)	320 hours	40 hours of the subject during exploratory Grade 7/8
9.	Dressmaking (NC II)	320 hours	40 hours of the subject during exploratory Grade 7/8
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) [+]	160 hours	
13.	Front Office Services (NC II)	160 hours	40 hours of the subject during exploratory Grade 7/8
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) [+]	160 hours	
21.	Local Guiding Services (NC II)	160 hours	
22.	Tailoring (NC II)	320 hours	40 hours of the subject during exploratory Grade 7/8
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 – AUTOMOTIVE SERVICING (NC I)

INDUSTRIAL ARTS

	Specialization	Number of Hours	Pre-requisite
1.	Automotive Servicing (NC I) [+]	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.	Consumer Electronics Servicing (NC II) [+]	640 hours	
7.	Domestic Refrigeration and Airconditioning (DOMRAC) Servicing (NC II)	640 hours	
8.	Driving (NC II)	160 hours	
9.	Electrical Installation and Maintenance (NC II)	640 hours	
10.	Electric Power Distribution Line Construction (NC II)	320 hours	Electrical Installation and Maintenance (NC II)
11.	Electronic Products Assembly and Servicing (NC II) [++] *(CG under construction based on Consumer Electronics Servicing (NC II) CG)*	640 hours	
12.	Furniture Making (Finishing) (NC II) [+]	480 hours	
13.	Instrumentation and Control Servicing (NC II)	320 hours	Electronic Products Assembly and Servicing (EPAS) (NC II)
14.	Gas Metal Arc Welding (GMAW) (NC II)	320 hours	Shielded Metal Arc Welding (SMAW) (NC II)
15.	Gas Tungsten Arc Welding (GTAW) (NC II)	320 hours	Shielded Metal Arc Welding (GMAW) (NC II)
16.	Machining (NC I) [++]	640 hours	
17.	Machining (NC II)	640 hours	Machining (NC I)
18.	Masonry (NC II)	320 hours	
19.	Mechatronics Servicing (NC II)	320 hours	Consumer Electronics Servicing (NC II)
20.	Motorcycle/Small Engine Servicing (NC II)	320 hours	
21.	Plumbing (NC I)	320 hours	
22.	Plumbing (NC II)	320 hours	Plumbing (NC I)
23.	Refrigeration and Air-Conditioning (Packaged Air-Conditioning Unit [PACU]/Commercial Refrigeration Equipment [CRE]) Servicing (NC III)	640 hours	Domestic Refrigeration and Airconditioning (DOMRAC) Servicing (NC II)
24.	Shielded Metal Arc Welding (NC I)	320 hours	
25.	Shielded Metal Arc Welding (NC II)	320 hours	Shielded Metal Arc Welding (NC I)
26.	Tile Setting (NC II)	320 hours	
27.	Transmission Line Installation and Maintenance (NC II)	640 hours	Electrical Installation and Maintenance (NC II)

[+]CG to be updated by December 2015
[++]CG to be uploaded by December 2015

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	1. Telecom OSP and Subscriber Line Installation (Copper Cable/POTS and DSL) (NC II) 2. Telecom OSP Installation (Fiber Optic Cable) (NC II)
3.	Computer Hardware Servicing (NC II) [+]	320 hours	
4.	Computer Programming (NC IV) [+] *When updated, this CG will become the following:* *1. Programming (.net Technology) (NC II)[++]* *2. Programming (Java) (NC II)[++]* *3. Programming (Oracle Database) (NC II)[++]*	320 hours	
5.	Computer System Servicing (NC II) [++] *(CG under construction based on Computer Hardware Servicing (NC II) CG)*	320 hours	
6.	Contact Center Services (NC II)	320 hours	
7.	Illustration (NC II)	320 hours	
8.	Medical Transcription (NC II)	320 hours	
9.	Technical Drafting (NC II)	320 hours	
10.	Telecom OSP and Subscriber Line Installation (Copper Cable/POTS and DSL) (NC II)	320 hours	Computer Hardware Servicing (NC II)
11.	Telecom OSP Installation (Fiber Optic Cable) (NC II)	160 hours	Telecom OSP and Subscriber Line Installation (Copper Cable/POTS and DSL) (NC II)

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JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
INDUSTRIAL ARTS – AUTOMOTIVE SERVICING (NC I)
Grade 7/Grade 8 (Exploratory)

Course Description:
This is an exploratory and introductory course which leads to **Automotive Servicing** National Certificate Level I (NCI). It covers four 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 and; 4) interpreting technical drawing and plans.

The preliminaries of this exploratory course include the following: (1) relevance of the course, (2) 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 Automotive Servicing 2. Relevance of the course 3. Career opportunities	The learner demonstrates an understanding of basic concepts and underlying theories in automotive servicing.	The learner independently demonstrates an common competencies in automotive servicing as prescribed by TESDA Training Regulations.	1. Explain basic concepts in automotive servicing. 2. Discuss the relevance of the course. 3. Explore career opportunities in automotive servicing.	
PERSONAL ENTREPRENEURIAL COMPETENCIES (PECS)				
1. Assessment of Personal Entrepreneurial Competencies and Skills (PeCS) vis-à-vis PeCS of 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 automotive servicing.	**LO 1. Recognize Personal Entrepreneurial Competencies and Skills (PeCS) needed in automotive servicing** 1.1 Assess one's PeCS: characteristics, attributes, lifestyle, skills, traits 1.2 Assess practitioner's PeCS: 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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INDUSTRIAL ARTS – AUTOMOTIVE SERVICING (NC I)

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 of environment and market and how they relate with a career choice in automotive servicing.	The learner independently generates a business idea based on the analysis of the environment and the market in automotive servicing.	**LO 1. Generate a business idea that relates with a career choice in automotive servicing** 1.1 Conduct SWOT analysis 1.2 Identify the different products/services available in the market 1.3 Compare different products/services in automotive servicing 1.4 Determine the profile of potential customers 1.5 Determine the profile of potential competitors 1.6 Generate potential business ideas based on the SWOT analysis	**TLE_ 7/8EM-00-1**
LESSON 1: USE BASIC HAND TOOLS AND EQUIPMENT (UT)				
1. Automotive hand tools and equipment	The learner demonstrates an understanding of the operational concept and principles in: 1. Selecting hand tools 2. Identifying serviceable and defective hand tools	The learner independently uses hand tools appropriate to the requirements of the task.	**LO 1.1 Select hand tools and equipment** 1.1.1 Identify unsafe or defective tools and mark for repair according to procedure	**TLE_IAAS7/8UT-0a-1.1**
			LO1.2 Classify hand tools and equipment	**TLE_IAAS7/8UT-0a-1.2**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
	3. Using hand tools 4. Performing the task		**LO 2. Use hand tools and equipment** 2.1 Use hand tools to produce the desired outcomes based on job specifications	**TLE_IAAS7/8UT-0a-2**
2. Maintenance of hand tools and equipment 2.2 Cleaning 2.3 Lubricating 2.4 Tightening 2.5 Simple tool repair 2.6 Hand sharpening	5. Maintaining hand tools and equipment		**LO 3. Maintain hand tools and equipment** 3.1 Undertake routine maintenance of hand tools and equipment according to standard operating procedure, principles and techniques	**TLE_IAAS7/8UT-0b-3**
3. Storage of hand tools	6. Storing hand tools		**LO 4. Store hand tools in designated location in accordance with manufacturer's instructions/standard operating procedure**	**TLE_IAAS7/8UT-0b-4**
LESSON 2: PERFORM MENSURATION AND CALCULATION (MC)				
1. Four fundamental operations 3.1. Subtraction 3.2. Addition 3.3. Multiplication 3.4. Division	The learner demonstrates an understanding of the concepts and underlying theories and principles in: 1. Fundamental Operations	The learner independently performs mensuration and calculations based on the job requirement.	**LO 1. Perform four fundamental operations** 1.1 Perform simple calculations involving whole numbers, mixed numbers, fraction and decimal using the four fundamental operations	**TLE_IAAS7/8MC-0c-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
2. Conversion of units 3. System of measurement 3.1 English 3.2 Metric	2. System of Measurement 3. Conversion of English to metric (and vice versa)		**LO 2. Convert English Unit of measurement to Metric System** 2.1. Perform conversion of units to the required figure using the given formula 2.2. Convert English measurements to metric measurements according to procedure	**TLE_IAAS7/8MC-0d-2**
4. Ratio and proportion 5. Area and volume calculation	4. Computing ratio and proportion		**LO 3. Perform basic computation of percentage and ratio and proportion** 3.1. Compute percentages using appropriate formula 3.2. Use precise and accurate formula for computing area and volume	**TLE_IAAS7/8MC-0e-3**
LESSON 3: APPLY SAFETY PRACTICES (OS)				
1. Hazard 2. Sign & symbols 3. Occupational health and safety procedures	The learner demonstrates an understanding of safety concepts and practices. 1. Identifying types of hazards 2. Identifying safety signs and symbols 3. Observing occupational health and safety standards	The learner independently applies safety practices in the workplace in accordance with OHS (occupational health and safety) procedures.	**LO 1. Identify hazards in the workplace** 1.1 Identify hazards in accordance with OHS procedures	**TLE_IAAS7/8OS-0f-1**
			LO 2. Identify safety signs and symbols 2.1 Recognize and follow safety signs and symbols in accordance with workplace safety procedure	**TLE_IAAS7/8OS-0f-2**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			LO 3. Observe occupational health and safety standards	**TLE_IAAS7/8OS-0f-3**
4. Personal protective equipment (PPE)	4. Using personal protective equipment (PPE) 5. Inspecting and checking procedure of (PPE)		**LO 4. Use personal protective equipment (PPE)** 4.1 Identify Personal Protective Equipment (PPE) as per job requirement 4.2 Observe proper wearing of PPE in accordance with workplace safety procedure	**TLE_IAAS7/8OS-0g-4**
5. Safe handling of tools, equipment and materials	6. Performing safe handling of tools, equipment and materials	.	**LO 5. Perform safe handling of tools, equipment and materials** 5.1 Observe proper and safe handling of tools, equipment and materials in accordance with OHS procedures	**TLE_IAAS7/8OS-0g-5**
6. First Aid	7. Performing first aid		**LO 6. Perform first aid** 6.1 Carry out first aid treatment of injuries according to recommended procedure	**TLE_IAAS7/8OS-0h-6**
LESSON 4: READ AND INTERPRET MANUALS /SPECIFICATION (ID)				
1. Manuals and specifications	The learner demonstrates an understanding of the concepts, underlying theories and principles in: 1. Identifying and accessing manual/	The learner independently reads and interprets manuals and specifications.	**LO 1. Read manuals and specifications**	**TLE_IAAS7/8ID-0i-1**
			LO 2. Interpret information and procedure in the manual in	**TLE_IAAS7/8ID-0i-2**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
	specification 2. Interpreting manuals 3. Storing manuals		**accordance with industry practice**	
			LO 3. Store manual/specification appropriately to ensure prevention of damage, ready access and updating of information	**TLE_IAAS7/8ID-0j-3**

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INDUSTRIAL ARTS – AUTOMOTIVE SERVICING (NC I)
(160 hours)

Course Description:
This course leads to a specialization in **Automotive Servicing** NC Level I. It covers two (2) core competencies that a high school student should possess: 1) servicing automotive battery, and (2) servicing the ignition system and Entrepreneurial concepts

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Basic concepts in automotive servicing 2. Relevance of the course 3. Career opportunities	The learner demonstrates an understanding of the basic concepts and underlying theories in automotive servicing.	The learner independently demonstrates common competencies in automotive servicing as prescribed by TESDA Training Regulations.	1. Explain basic concepts in automotive servicing 2. Discuss the relevance of the course 3. Explore career opportunities in automotive servicing	
PERSONAL ENTREPRENEURIAL COMPETENCIES (PeCS)				
1. Assessment of Personal Competencies and Skills (PeCS) vis-à-vis PeCS of a practicing entrepreneur/ employee in locality/town. 1.1 Characteristics 1.2 Attributes 1.3 Lifestyle 1.4 Skills 1.5 Traits 2. Analysis of PeCS compared to those of a practitioner 3. Align, strengthen and develop ones PeCS based on the results	The learner demonstrates an understanding of one's PeCS in automotive servicing.	The learner recognizes his/her PeCS and prepares an activity plan that aligns with the PeCS of a practitioner/entrepreneur in automotive servicing.	**LO 1. Recognize Personal Entrepreneurial Competencies and Skills (PeCS) needed in automotive servicing** 1.1 Compare one's PeCS with those of a practitioner/entrepreneur 1.2 Align one's PeCS with those of a practitioner/entrepreneur 1.3 Assess one's PeCS 1.4 Assess practitioner's PeCS	**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 of environment and market and how they relate to the field of automotive servicing, particularly in one's town/municipality.	The learner independently creates a business vicinity map reflective of the potential automotive servicing market within the locality/town.	**LO 1. Recognize and understand the market in automotive 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 in 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 automotive servicing** 2.1 Identify the 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**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
6. Generating Business Ideas 6.4 Key concepts in generating business ideas 6.5 Knowledge, skills, passions and interests 6.6 New applications 6.7 Irritants 6.8 Striking ideas (new concepts) 6.9 Serendipity Walk			**LO 3. Create new business ideas in automotive servicing by using various techniques** 3.1 Explore ways of generating business ideas from ones' 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**
LESSON 1: SERVICE AUTOMOTIVE BATTERY (AB)				
1. Components of batteries 2. Types of batteries 3. Classification of batteries 4. Charging and discharging process 5. Hazards associated with use of batteries 6. Safe handling of batteries	The learner demonstrates an understanding of the principles in servicing the automotive battery.	The learner independently services an automotive battery.	**LO 1. Explain the operation and safe handling of different types of batteries** 1.1 Identify main components of batteries 1.2 Classify types of batteries 1.3 Observe proper safe handling of batteries 1.4 Identify hazards associated with batteries 1.5 Identify proper and safe disposal of discarded battery materials like solutions and components	**TLE_IAAS9-12AB-Ia-d-1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
7. Different types of battery testing 8. Procedure in testing 8.1 Hydrometer 8.2 Cell tester 8.3 Load tester/multitester 9. Testing tools and equipment 10. Personal safety in testing battery 11. Oral and written communication 12. Science and math: solution, electrolyte, ratio and proportion, temperature			**LO 2. Demonstrate the testing of an automotive battery** 2.1 Select appropriate test equipment 2.2 Test different types of batteries 2.3 Analyze test results 2.4 Compare battery test result based on manufacturer's specification 2.5 Observe safety at all times while doing battery test 2.6 Report findings of test results	**TLE_IAAS9-12AB-Ie-h-2**
13. Safety procedure in removing/replacing battery is observed 14. Correct tools and equipment in removing/replacing battery is used 15. Hazards in removing/replacing battery 16. Procedure in removing/replacing battery 16.1 Conventional 16.2 Electronic control			**LO 3. Demonstrate the procedure in removing and replacing batteries** 3.1 Remove battery without causing damage to workplace, property or vehicle 3.2 Follow the proper procedure in replacing battery 3.3 Follow the proper procedure to prevent loss of vehicle's electronic memory as per manufacturer's standard 3.4 Select appropriate tools and equipment 3.5 Observe personal safety in removing and replacing batteries. 3.6 Use appropriate PPE	**TLE_IAAS9-12AB-Ii-j-IIa-b-3**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
17. Parts and functions of battery charger 18. Repair/clean and replace connectors 19. Topping, filling electrolyte/distilled water 20. Procedure in battery charging 20. 1 Fast 20. 2 Slow 21. Manual/automatic 22. Battery cleaning 23. Proper connection of battery terminals 24. PPE/safety practices			**LO 4. Demonstrate the procedure in servicing the battery** 4.1 Charge the battery using the appropriate battery charger 4.2 Check electrolyte levels and fill up if necessary 4.3 Clean battery terminals and its connectors 4.4 Connect and disconnect battery clamps in sequence as indicated in the manual 4.5 Observe personal safety in servicing the battery	**TLE_IAAS9-12AB-IIc-f-4**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
25. Jump starting procedure 26. PPE/safety precaution 27. Polarity connection 28. Jump starting connection			**LO 5. Demonstrate the procedure in jump starting** 5.1 Jump start the battery without causing damage to workplace and property 5.2 Select appropriate jumper leads. 5.3 Connect and disconnect battery clamps in sequence as indicated in the manual 5.4 Observe personal safety in jump starting	**TLE_IAAS9-12AB-IIg-j-5**
SERVICING IGNITION SYSTEM (IS)				
1. Parts and function of ignition system components 2. Ignition system troubles and remedies	The learner demonstrates an understanding of the principles in servicing the ignition system.	The learner independently services the ignition system.	**LO 1.1 Explain the function of ignition system components** 1.1.1 Identify the types of ignition systems 1.1.2 Explain the component parts of the ignition system 1.1.3 Interpret ignition system diagram	**TLE_IAAS9-12IS-IIIa-d-1.1**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			LO 1.2 Explain the possible remedies for the identified ignition system troubles	**TLE_IAAS9-12IS-IIIe-h-1.2**
3. Procedure in disconnecting different wire terminals. 4. Distributor setting procedure 5. Spark test procedure 6. Spark analysis 7. Ignition system wiring diagram			**LO 2. Check ignition coil, ballast resistor and high-tension cable resistance** 2.1 Inspect and test ignition coil 2.2 Inspect and test ballast resistor 2.3 Check high tension cable resistance 2.4 Test wiring installation 2.5 Test and analyze ignition system electrical spark	**TLE_IAAS9-12IS-IIIi-j-IVa-d-2**
8. Use of tools and equipment in ignition timing 9. Procedure in ignition timing 10. Safety precautions in ignition timing 11. Use of measuring instrument 12. Dwell angle measurement 13. RPM measurement			**LO 3. Check distributor assembly** 3.1 Check dwell angle and RPM 3.2 Check and adjust ignition timing as per service manual 3.3 Evaluate ignition timing performance	**TLE_IAAS9-12IS-IVe-j-3**

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(160 hours)

Course Description:
This course leads to a specialization in **Automotive Servicing**, NC Level I. It covers entrepreneurial concepts and two core competencies that a high school student should possess: (1) testing and repairing wiring/lighting system, and (2) performing underchassis preventive maintenance.

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
Introduction 1. Basic concepts in automotive servicing 2. Relevance of the course 3. Career opportunities	The learner demonstrates an understanding of basic concepts and underlying theories in automotive servicing.	The learner independently demonstrates common competencies in automotive servicing as prescribed by TESDA Training Regulations.	1. Explain basic concepts in automotive servicing 2. Discuss the relevance of the course 3. Explore career opportunities automotive servicing	
PERSONAL ENTREPRENEURIAL COMPETENCIES (PeCS)				
1. Assessment of learner's Personal Competencies and Skills (PeCS) vis-à-vis those 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 learner's PeCS compared to a practitioner's PeCS 3. Strengthening and developing further one's PeCS	The learner demonstrates an understanding of one's Personal Competencies and Skills (PeCS) in automotive servicing.	The learner independently creates a plan of action that strengthens/develops one's PeCS in automotive servicing.	**LO 1. Develop and strengthen personal competencies and skills (PeCS) needed automotive 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-I0-1**

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CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
ENVIRONMENT AND MARKET (EM)				
1. Product Development 2. Key concepts in developing a product 3. Finding Value 4. Innovation 4.1 Unique Selling Proposition (USP)	The learner demonstrates an understanding of the concepts of environment and market and how they relate to the field of automotive servicing, particularly in one's town/municipality.	The learner independently creates a business vicinity map reflective of the potential automotive servicing market within the locality/town.	**LO 1. Develop a product/ service in automotive 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 creativity and innovative techniques to develop marketable product 1.5 Employ a Unique Selling Proposition (USP) to the product/service	**TLE_EM9-12-I0-II0-1**
5. Selecting 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-III0-2**
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	**TLE_EM9-12-IV0-3**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
			product brand	
TESTING AND REPAIRING WIRING/LIGHTING SYSTEM (WS)				
1. Ohm's law 2. Schematic diagram and circuitry 3. Signs and symbols 4. Sizes/color code/ampere rating of wires 5. Polarity, conductor and non-conductors 6. Laws of magnetism and electric charges	The learner demonstrates an understanding of the principles in servicing of the wiring/lighting system.	The learner independently performs servicing of the wiring / lighting system.	**LO 1. Explain the principle of auto electricity** 1.1 Explain Ohm's law 1.2 Explain the Law of magnetism 1.3 Draw schematic diagram of an electrical circuit 1.4 Interpret signs and symbols. 1.5 Identify size of wire according to job requirement 1.6 Determine polarity, conductor and insulator	**TLE_IAAS9-12WS-Ia-d-1**
7. Component parts of the lighting system 8. Functions of: 8.1 Headlights 8.2 Park and tail lights 8.3 Signal/hazard lights 8.4 Back-up lights 8.5 Interior lights 8.6 Horns 9. Occupational health and safety practices			**LO 2. Explain Automotive Lighting System and its functions** 2.1 Identify components of the lighting system 2.2 Explain functions of lighting system parts 2.3 Observe occupational health and safety practices	**TLE_IAAS9-12WS-Ie-h-2**
10. Procedure in installing lighting system 11. Principles of auto electricity and their applications 12. Personal safety requirements 13. Reading and interpreting circuits and diagrams 14. Soldering and crimping 15. Installing/repairing components			**LO 3. Install wiring/lighting system** 3.1 Interpret lighting system circuit diagram 3.2 Install electrical devices such as switches, lights and fuse boxes 3.3 Install wires leading to different lights and other relevant devices	**TLE_IAAS9-12WS-Ii-j-IIa-b-3**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
and wiring			3.4 Solder and crimp lead terminals of wires	
16. Hand tools, testing equipment including multi-meters and test lamp. 17. Reading and interpretation of circuit and diagrams 18. Testing and electrical measurements 19. Fault finding using aural, visual and functional assessments for damage, correction, wear and electrical defects 20. Installing/repairing components and wiring 21. Soldering 22. Crimping			**LO 4. Test electrical system and determine preferred action** 4.1. Test electrical system without causing damage to workplace or vehicle 4.2. Perform correct procedure for testing and interpreting schematic diagram in accordance with the manufacturer's specification 4.3. Determine faults/defects using appropriate tools and techniques 4.4. Execute remedies based on the identified faults/defects	**TLE_IAAS9-12WS-IIc-f-4**
23. Procedure in repairing electrical system enumerated. 24. Reading and interpretation of circuit and diagram. 25. Hand tools, testing equipment, multi-testers 26. Open, close and short circuits 27. Occupational, health and safety practices related to job			**LO 5. Carry out necessary repair in the electrical system** 5.1 Identify procedure in repairing electrical system 5.2 Interpret information based on assessment 5.3 Use appropriate tools, technique and materials in repairing electrical system 5.4 Repair electrical system without causing damage to workplace, property or vehicle	**TLE_IAAS9-12WS-IIg-j-5**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
PERFORMING UNDERCHASSIS PREVENTIVE MAINTENANCE (PM)				
1. Clutch/brake fluid levels and lines 2. Clutch/brake line cracks, twists, bends, looseness and restrictions 3. Master cylinder fluid low level 4. Safe handling of hydraulic fluid 5. Hazards associated with the use of brake fluid	The learner demonstrates an understanding of the concept of performing underchassis preventive maintenance.	The learner independently performs underchassis preventive maintenance.	**LO 1.1 Check clutch and brake fluid and lines** 1.1.1 Check clutch/brake fluid level and lines for leakage 1.1.2 Check clutch/brake lines for cracks, twists, bends, looseness and restrictions 1.1.3 Refill clutch/brake master cylinder with brake fluid to the specified level 1.1.4 Replace defective clutch/brake system components in accordance with manufacturer's specification	**TLE_IAAS9-12PM-IIIa-d-1.1**
			LO 1.2 Inspect/bleed brake and clutch system	**TLE_IAAS9-12PM-IIIa-d-1.2**
6. Inspect or change transmission gear oil 7. Inspect or change differential gear oil 8. Check leakage of gear oil 9. Refill gear oil 10. Observe procedure and safety			**LO 2. Inspect and change transmission/differential gear oil** 2.1 Check transmission / differential for leakage 2.2 Check transmission /differential gear oil level 2.3 Change transmission /differential gear oil in accordance with manufacturer's specification 2.4 Refill transmission/differential gear oil to specified level	**TLE_IAAS9-12PM-IIIe-h-2**
11. Inspecting power steering fluid			**LO 3. Inspect/replace power**	**TLE_IAAS9-**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
level 12. Replacing power steering fluid 13. Gather technical data 14. Inspect leakage on linkages			**steering fluid** 3.1 Read technical data pertaining to power steering 3.2 Check power steering fluid level 3.3 Inspect power steering for leakage 3.4 Replace power steering fluid in accordance with manufacturer's specification	**12PM-IIIi-j-IVa-b-3**
15. Automatic transmission fluid specifications 16. Automatic transmission fluid level 17. Hazards and safe handling of automatic transmission fluid (ATF) 18. Check leakage for automatic transmission 19. Refill transmission fluid			**LO 4. Check/refill automatic transmission fluid** 4.1 Check automatic transmission for leakage 4.2 Check automatic transmission fluid following instructions in service manual 4.3 Refill transmission fluid to specified level	**TLE_IAAS9-12PM-IVc-f-4**
20. Determine causes of abnormalities 21. Check tire and tire pressure 22. Check tire studs 23. Check wheel nuts and bolts 24. Inspect tire for solid object struck 25. Inspect tire wear and deformities			**LO 5. Check tire and tire pressure** 5.1 Inspect tires for stuck solid objects 5.2 Inspect tires for wear and deformities 5.3 Determine causes of abnormal tire wear 5.4 Check tire pressure in accordance with manufacturer's specifications	**TLE_IAAS9-12PM-IVg-j-5**

K to12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
INDUSTRIAL ARTS – AUTOMOTIVE SERVICING (NC I)
(160 hours)

Course Description:
This is a competency-based course leading to a TESDA Qualification Standard for National Certificate Level I (NC I) in **Automotive Servicing**. It covers one core competency that a high school student should acquire—namely, that of performing a gas engine tune-up of a vehicle. 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. Relevance of the course 2. Core concepts in Automotive Servicing 3. Employment opportunities 4. Business opportunities 5. Further studies	The learner demonstrates an understanding of the basic concepts and underlying theories in automotive servicing.	The learner independently performs engine and body electrical services as prescribed by TESDA Training Regulations.	1. Explain basic concepts in automotive servicing 2. Discuss relevance of the course 3. Explore opportunities for employment, business, or further studies	
Perform Gas Engine Tune Up (GT)				
1. Procedure in setting valve tappet clearance 2. Procedure in checking and adjusting valve tappet clearance 3. Safety procedure	The learner demonstrates an understanding of gas engine tune up.	The learner independently performs a gas engine tune-up.	**LO 1. MEASURE/ADJUST VALVE TAPPET CLEARANCE** 1.1 Valve tappet clearance is set 1.2 Checking and adjustment is performed	**TLE_IAAS9-12GT-Ia-h-1**
4. Procedure in adjusting spark plug clearance 5. Procedure in testing spark plug 6. Analyzing spark plug spark 7. Safety procedure 8. Timing result/reference table			**LO 2. TEST SPARK PLUG** 2.1 Spark plug clearance is adjusted 2.2 Spark plug is tested 2.3 Spark plug test result is analyzed and appropriate recommendations are prescribed	**TLE_IAAS9-12GT-Ii-j-IIa-d-2**
9. Procedure in replacing fuel filter and air cleaner 10. Types of filter elements			**LO 3. CHECK/REPLACE FUEL AND AIR FILTER** 3.1 Fuel filter and air cleaner are replaced 3.2 Fuel filter is free of sediments and impurities	**TLE_IAAS9-12GT-IIe-j-3**
11. Procedure in			**LO 4. TEST AND REPLACE**	**TLE_IAAS9-**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
inspecting/adjusting/replacing contact point gap 12. Procedure in testing and replacing condenser			**IGNITION BREAKER** 4.1 Contact point gap is inspected, adjusted or replaced 4.2 Condenser is tested and replaced	**12GT-IIIa-f-4**
13. Procedure in adjusting dwell angle 14. Setting ignition timing. 15. Procedure in ignition timing 16. Procedure in checking advance timing			**LO 5. CHECK AND ADJUST DISTRIBUTOR SETTING** 5.1 Dwell angle is adjusted 5.2 Ignition timing is set 5.3 Ignition timing is adjusted 5.4 Safety is observed in using equipment 5.5 Advance timing is checked	**TLE_IAAS9-12GT-IIIg-j-5**
17. Procedure in adjusting idle engine speed 18. Adjusting idle fuel mixture			**LO 6. SET FUEL MIXTURE AND IDLE RPM** 6.1 Air-fuel mixture is adjusted 6.2 Engine speed in revolutions per minute (RPM) is checked	**TLE_IAAS9-12GT-IVa-e-6**
19. Procedure in compression testing 20. Safety precaution 21. Compression specification			**LO 7. PERFORM COMPRESSION TESTING** 7.1 Compression test is conducted 7.2 Test is conducted without damage or injury to person or property 7.3 Compression test result is interpreted and appropriate recommendation is prescribed	**TLE_IAAS9-12GT-IVf-j-7**

K to12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
INDUSTRIAL ARTS – AUTOMOTIVE SERVICING (NC I)
(160 hours)

Course Description:
This is a competency-based course leading to a TESDA Qualification Standard for National Certificate Level I (NC I) in **Automotive Servicing**. It covers the core competency that a high school student should acquire—namely, that of performing a gas engine tune-up of a vehicle. 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. Relevance of the course 2. Core concepts in Automotive Servicing 3. Employment opportunities 4. Business opportunities 5. Further studies	The learner demonstrates an understanding of the basic concepts and underlying theories in automotive servicing.	The learner independently performs engine and body electrical services as prescribed by TESDA Training Regulations.	1. Explain basic concepts in automotive servicing 2. Discuss relevance of the course 3. Explore opportunities for employment, business, or further studies	
Perform Diesel Engine Tune Up (DT)				
1. Procedure in installing injection pump 2. Fuel injection timing marks location interpretation and application 3. Use of special service tool (SST) in installing injection pump 4. Positive work values 5. Type and classification of gasket and sealant	The learner demonstrates an understanding of diesel engine tune-up.	The leaner independently performs a diesel engine tune-up.	**LO 1. SET AND INSTALL INJECTION PUMP TO ENGINE** 1.1 Setting/installation of injection pump is performed in accordance with manufacturer's manual specifications 1.2 Timing marks and torque of injection pump moving parts are checked before installation 1.3 Mounting bolts are tightened following torque as stated in the manual of specification 1.4 No error is found in detecting and reading injection timing	**TLE_IAAS9-12DT-Ia-j-IIa-j-1**
6. Procedure in injection timing. 7. Timing marks interpretation and application 8. Use of SS 9. Positive work values 10. Fuel injection marks			**LO 2. INSPECT INJECTION TIMING** 2.1 Injection pump timing device is used without error 2.2 Injection pump timing result is interpreted correctly 2.3 Advance timing operation is	**TLE_IAAS9-12DT- Ia-j-IIa-j-2**

CONTENT	CONTENT STANDARD	PERFORMANCE STANDARD	LEARNING COMPETENCIES	CODE
11. Timing result/reference table			checked	
12. Procedure in bleeding injection pump 13. Handling of bleeder screw and pump 14. Handling of equipment such as tester and pressurized gases 15. Positive work values			**LO 3. BLEED INJECTION SYSTEM COMPONENTS** 3.1. Fuel level, line leakage and fuel strainer or filters are checked 3.2. Air lock in the system is determined without error 3.3. Bleeder screw and prime pump is determined and used properly 3.4. Procedure on bleeding injection system are followed guided by the service	**TLE_IAAS9-12DT-IIIa-j-3**
16. Procedure in compression testing 17. Use of compression testing instruments 18. Use of special service tools 19. Positive work values 20. Effects of low compression			**LO 4. CONDUCT COMPRESSION TESTING** 4.1. Engine requirements in compression testing are set and prepared 4.2. Specific compression test result is read and interpreted 4.3. Corresponding recommendation/prescription is given based on test result	**TLE_IAAS9-12DT-IVa-j-4**

K to12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
INDUSTRIAL ARTS – AUTOMOTIVE SERVICING (NC I)
Code Book Legend

Sample: TLE_IAAS7/8OS-0f-1

LEGEND		SAMPLE	
First Entry	Learning Area and Strand/ Subject or Specialization	Technology and Livelihood Education_Industrial Arts Automotive Servicing	**TLE_IAAS 7/8**
	Grade Level	Grade 7/8	
Uppercase Letter/s	Domain/Content/ Component/ Topic	Practice Health and Safety Procedure	**OS**
			-
Roman Numeral **Zero if no specific quarter*	Quarter	No Specific Quarter	**0**
Lowercase Letter/s **Put a hyphen (-) in between letters to indicate more than a specific week*	Week	Week Six	**f**
			-
Arabic Number	Competency	Identify hazards in the workplace	**1**

DOMAIN/ COMPONENT	CODE
Personal Entrepreneurial Skills	PECS
Environment and Marketing	EM
Use Basic Hand Tools and Equipment	UT
Perform Mensuration and Calculation	MC
Apply Safety Practices	OS
Read and Interpret Manuals/Specifications	ID
Service Automotive Battery	AB
Servicing Ignition System	IS
Testing and Repairing Wiring / Lighting System	WS
Performing Underchassis Preventive Maintenance	PM

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.

K to12 BASIC EDUCATION CURRICULUM
JUNIOR HIGH SCHOOL TECHNOLOGY AND LIVELIHOOD EDUCATION AND TECHNICAL-VOCATIONAL LIVELIHOOD TRACK
INDUSTRIAL ARTS – AUTOMOTIVE SERVICING (NC I)

SAMPLE INDUSTRIAL ARTS CURRICULUM MAP** (as of November 2015)

GRADE 7/8 (EXPLORATORY)	GRADES 9-12			
EXPLORATORY (4 sems)	Automotive Servicing (NC I)+ (8 sems)			
	*Automotive Servicing (NC II) (8 sems)			
	Motorcycle/Small Engine Servicing (NC II) (4 sems)	Driving (NC II) (2 sems)		
	Consumer Electronics Servicing (NC II)+ (8 sems)			
		*Mechatronics Servicing (NC II) (4 sems)		
	Electronic Products Assembly and Servicing (NC II)++ (8 sems)			
		*Instrumentation Control and Servicing (NC II) (4 sems)		
	Electrical Installation and Maintenance (NC II) (8 sems)			
		*Electrical Power Line Distribution Line Construction (NC II) (4 sems)		
		*Transmission Line Installation and Maintenance (NC II) (4 sems)		
	Machining (NC I)++ (8 sems)			
	*Machining (NC II) (8 sems)			
	Plumbing (NC I) (4 sems)	*Plumbing (NC II) (4 sems)		
	Domestic Refrigeration and Airconditioning Servicing (NC II) (8 sems)			
	*Domestic Refrigeration and Airconditioning Servicing (PACU/CRE) (NC III) (8 sems)			
	Shielded Metal Arc Welding (NC I) (4 sems)	*Shielded Metal Arc Welding (NC II) (4 sems)		
		*Gas Metal Arc Welding (GMAW) (NC II) (4 sems)		
		*Gas Tungsten Arc Welding (GTAW) (NC II) (4 sems)		
	Carpentry (NC II) (8 sems)			
	*Carpentry (NC III) (4 sems)	Construction Painting (NC II) (2 sems)		
	Furniture Making (Finishing) (NC II) + (6 sems)			
	Masonry (NC II) (4 sems)	Tile Setting (NC II) (4 sems)		

* Please note that these subjects have pre-requisites mentioned in the CG.
Other specializations with no pre-requisites may be taken up during these semesters.
Pre-requisites of the subjects to the right should be taken up during these semesters.

\+ CG to be updated by December 2015

++ CG to be uploaded by December 2015

****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.**