

K to 12 TECHNOLOGY AND LIVELIHOOD EDUCATION

**INDUSTRIAL ARTS - AUTOMOTIVE SERVICING
(Exploratory)**

Content Standard	Performance Standard	Learning Competencies	Project / Activities	Assessment	Duration
LESSON 1: USE OF HAND TOOLS					
<p><i>Demonstrate understanding of/on:</i></p> <ul style="list-style-type: none"> • Planning and preparing for task requirements 	<ol style="list-style-type: none"> 1. Tasks to be undertaken are properly identified. 2. Appropriate hand tools are identified and selected according to task requirements. 	<p>LO1. Plan and prepare for tasks to be undertaken</p>	<ol style="list-style-type: none"> 1. Preparing plan and organizing tasks to be undertaken in selecting tools. 2. Classifying tools according to use. <ol style="list-style-type: none"> a. cutting b. bending/holding c. driving d. marking e. measuring f. tightening / loosening 	<ul style="list-style-type: none"> • Written test • Performance test 	<p>2.5 hours</p>
<ul style="list-style-type: none"> • Preparing tools • Identifying procedure in operating hand tools • Observing safety requirements/ procedure in using hand tools • Common faults of hand tools 	<ol style="list-style-type: none"> 1. Appropriate hand tools are checked for proper operation and safety. 2. All safety procedures in using tools are discussed and observed at all times. 	<p>LO2. Prepare hand tools and check for proper operations</p>	<ol style="list-style-type: none"> 1. Utilizing appropriate hand tools <ol style="list-style-type: none"> a. Loosening and tightening bolts /screws and nuts. 2. Inspecting and testing functionality of tools for repair and recycling in preparation for its usability. 	<ul style="list-style-type: none"> • Written test • Performance test 	<p>3.0 hours</p>
<ul style="list-style-type: none"> • Preparing report on malfunctions of hand tools in unplanned or 	<ol style="list-style-type: none"> 1. Malfunction of hand tools in unplanned or unusual events are reported. 	<p>LO3. Accomplish report of malfunction in</p>	<ol style="list-style-type: none"> 1. Conducting an inventory and preparing report of good and damaged tools in 	<ul style="list-style-type: none"> • Written test • Performance test 	<p>2.0 hours</p>

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unusual events		g hand tools equipment.	unplanned or unusual events.		
<ul style="list-style-type: none"> Applying standard operational procedures, principles and techniques in maintaining hand tools 	<ol style="list-style-type: none"> Routine maintenance of tools are undertaken according to standard operational procedures, principles, and techniques. Tools are stored safely in appropriate locations in accordance with manufacturer's specifications or standard operating procedures. 	LO4. Maintain hand tools.	<ol style="list-style-type: none"> Selecting, arranging, and maintaining hand tools Performing operational standard procedures, principles, and techniques in maintaining tools 	<ul style="list-style-type: none"> Written test Performance test 	2.5 hours

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LESSON 2: PERFORMING MEANSURATION AND CALCULATION					
<p><i>Demonstrate understanding of/on:</i></p> <ul style="list-style-type: none"> • Types of measuring instruments and applications • Techniques in measuring and determining tolerance/allowance of parts/components • Methods of calculation/conversion of units of measurement 	<ol style="list-style-type: none"> 1. Objects or components to be measured are identified. 2. Appropriate measuring tool/ instrument is selected as per job requirement. 3. Calculations needed to complete work/task are performed and checked using the fundamental operations of mathematics. 	<p>LO1. Select measuring instrument and carry out measurement and calculations.</p>	<ol style="list-style-type: none"> 1. Selecting and utilizing measuring tools according to required tasks <ol style="list-style-type: none"> a. feeler gauge b. torque wrench c. calipers d. industrial thermometer. 2. Applying specifications to bolts and nuts. 3. Converting the following: Metric system to English system and vice-versa <ul style="list-style-type: none"> - linear measurement - liquid capacity - thermal measurement. 	<ul style="list-style-type: none"> • Written and oral test • Performance test 	<p>3.0 hours</p>
<ul style="list-style-type: none"> • Calibrating, safe handling procedures, and caring of measuring instruments 	<ol style="list-style-type: none"> 1. Measuring instruments are calibrated, safely handled, and cleaned before and after using in accordance with industry standards. 	<p>LO2. Maintain measuring instruments.</p>	<ol style="list-style-type: none"> 1. Cleaning and maintaining measuring tools. 2. Calibrating and storing precision instruments in convenient and safe place. 	<ul style="list-style-type: none"> • Written test • Performance test 	<p>2.5 hours</p>

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LESSON 3: INTERPRET PLANS AND DRAWINGS					
<p><i>Demonstrate understanding of/on:</i></p> <ul style="list-style-type: none"> • Drawing signs, symbols, and abbreviations • Identifying symbols used in plans and drawings • Identifying units of measurements 	<ol style="list-style-type: none"> 1. Signs, symbols, and data are identified according to job specifications. 2. Sign, symbols, data, and abbreviations are determined according to classification or appropriateness in drawings. 	<p>LO1. Analyze signs, symbols and data.</p>	<ol style="list-style-type: none"> 1. Constructing traffic signs and symbols 2. Drawing and labeling pictorial drawing of engine parts. 	<ul style="list-style-type: none"> • Written test • Performance test 	<p>2.5 hours</p>
<ul style="list-style-type: none"> • Basic Technical drawing • Technical plans and Schematic Diagram 	<ol style="list-style-type: none"> 1. Necessary tools, materials, and equipment are identified according to the plan. 2. Components, assemblies, or objects are recognized. 3. Dimensions and specifications are identified according to job requirements. 	<p>LO2. Interpret technical drawings and plans.</p>	<ol style="list-style-type: none"> 1. Drawing and labeling electrical symbols/circuit diagram. 	<ul style="list-style-type: none"> • Written test • Performance test 	<p>2.5 hours</p>

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LESSON 4: PERFORMING SHOP MAINTENANCE					
<p><i>Demonstrate understanding of/on:</i></p> <ul style="list-style-type: none"> Workshop policies and service procedures Standard safe handling of tools, materials, and equipment Types and usage of cleaning chemicals 	<ol style="list-style-type: none"> Tools, equipment, and work area are inspected and cleaned free from dust, grease, and other substances. Cleaning solvent used as per workshop cleaning requirements is observed. Work area is checked and cleaned. 	LO1. Inspect/clean tools and shop equipment.	<ol style="list-style-type: none"> Inspecting and evaluating the existing condition of tools, equipment, and work area. 	<ul style="list-style-type: none"> Written test Performance test 	2.5 hours
<ul style="list-style-type: none"> Personal safety and labeling procedures and techniques Principles of total quality management (TQM) and 5S 	<ol style="list-style-type: none"> Corresponding labels for containers and waste materials are posted and made visible. Tools quality management is followed. 	LO2. Store/ arrange tools and shop equipment	<ol style="list-style-type: none"> Arranging, labeling and securing tools and equipment. Performs 5S in workplace. 	<ul style="list-style-type: none"> Written test Performance test 	3.0 hours
<ul style="list-style-type: none"> Waste management <ul style="list-style-type: none"> Cleaning chemicals / materials Effects of automotive wastes on men and the environment 	<ol style="list-style-type: none"> Waste and used materials are disposed in accordance with the standard operational procedures and environmental regulations. Personal safety in disposing waste and used materials are observed. 	LO3. Dispose waste/used lubricants	<ol style="list-style-type: none"> Surfing internet on Environment Protection Policies. 	<ul style="list-style-type: none"> Written test Performance test 	3.0 hours

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LESSON 5: PRACTICING OCCUPATIONAL HEALTH AND SAFETY PROCEDURES					
<p><i>Demonstrate understanding of/on:</i></p> <ul style="list-style-type: none"> Hazards and risks identification and control Organizational safety and health protocol 	<ol style="list-style-type: none"> Workplace hazards and risks are identified and clearly explained. Hazards/risks and their corresponding indicators are identified in accordance with the company procedures. Contingency measures are recognized and established in accordance with organizational procedures. 	LO1. Identify hazards and risks	<ol style="list-style-type: none"> Preparing workplace in good and orderly condition Making contingency measures in line with standard organizational procedures 	<ul style="list-style-type: none"> Written test Performance test 	3.0 hours
<ul style="list-style-type: none"> Philippine OHS Standards regulations and indicators Effects of hazards in the workplace Ergonomics 	<ol style="list-style-type: none"> Effects of hazards are determined. OHS /ECC issues and concerns are identified in accordance with workplace requirements and legislation. OHS procedures for controlling hazards and risk are strictly followed. OHS personal records are filled up in accordance with workplace requirements. Design of facilities/fixtures in human facilities is recognized 	LO2. Evaluate hazards and risks	<ol style="list-style-type: none"> Listing down problems and make necessary solutions to hazardous and risky workplace condition Reporting the following: <ol style="list-style-type: none"> common accidents in the workplace standard size of tables, space of work area human convenience to workplace physical design of shop facilities/fixture. 	<ul style="list-style-type: none"> Written test 	2.5 hours

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<ul style="list-style-type: none"> • Clean Air Act <ul style="list-style-type: none"> ○ Exhaust emission • Electrical and fire safety code • Disaster preparedness and management 	<ol style="list-style-type: none"> 1. Procedures in dealing with workplace accidents, fire and emergencies and provision of appropriate assistance in the workplace emergencies are identified and followed in accordance with the organization's OHS policies. 2. Personal Protective Equipment (PPE) is correctly used and maintained in accordance with the organizations OHS procedures and practices. 	LO3. Control hazards and risks	<ol style="list-style-type: none"> 1. Conducting inventory and using of: <ol style="list-style-type: none"> a. PPE b. fire fighting equipment c. emergency/ first aid kit/ materials d. waste disposal bin. 2. Video presentation on Disaster Risk Reduction Program. 3. Conducting DRRP drills. 	<ul style="list-style-type: none"> • Written test • Performance test • Evaluation report on DRRP drills 	2.5 hours
<ul style="list-style-type: none"> • Emergency-related drills and training 	<ol style="list-style-type: none"> 1. Procedures in emergency-related drills are strictly followed in line with the established organization guidelines and procedures. 2. OHS personal records are filled up in accordance with workplace requirements. 3. PPE is maintained in line with organization guidelines and procedures. 	LO4. Maintain occupational health and safety awareness	<ol style="list-style-type: none"> 1. Conducting OHS awareness. 2. Making OHS visual aids. 3. Simulating OHS practices. 	<ul style="list-style-type: none"> • Written test • Performance test 	2.5 hours
					40 hours