



MOTORCYCLE AND SMALL ENGINE SERVICING

TECHNICAL-PROFESSIONAL

Grade 12

**Three-Term Budget Of Work (BOW)
for Learning Competencies**

**TECHNICAL-PROFESSIONAL
AUTOMOTIVE AND SMALL ENGINE TECHNOLOGIES
Grade 12**

**Three-Term Budget of Work
For Learning Competencies**

Please note that each Tech-Pro elective is completed within one term if delivered at Grade 12.

Elective	Motorcycle And Small Engine Servicing
Prerequisite	None

Performance Standard	The learners perform driving procedures in motorcycles employing safety precautions.
Content Standard	Demonstrate an understanding of principles in motorcycle driving.

Week	Learning Competency	Suggested Activities
1	Discuss overview of motorcycle driving.	Motorcycle Driving Fundamentals Workshop - This activity introduces learners to the essential components of motorcycle driving, including parts and functions of a motorcycle, basic controls (throttle, clutch, brakes, gear shifter), proper riding posture, traffic rules, safety gear, and defensive driving principles. Through guided discussion, visual presentations, and hands-on

Week	Learning Competency	Suggested Activities
		identification of motorcycle parts, students gain a foundational understanding of how motorcycles operate and how safe riding practices prevent accidents. ○ Participate in a guided discussion and hands-on identification activity to explain the basic parts, controls, safety gear, and fundamental principles of motorcycle driving. ● Safe Riding Scenario Analysis and Simulation ○ Learners analyze real-life road scenarios involving motorcycle riders (e.g., intersections, overtaking, wet roads, night driving, heavy traffic). Students discuss possible hazards, proper responses, and defensive driving strategies. They may role-play or simulate decision-making to demonstrate understanding of road awareness, traffic laws, and responsible riding behavior. ○ Analyze given road scenarios and demonstrate appropriate riding decisions using motorcycle driving principles and safety practices.

Week	Learning Competency	Suggested Activities
	Perform procedures in maintaining and servicing motorcycles.	Basic Motorcycle Preventive Maintenance Practicum - Learners perform routine motorcycle maintenance tasks such as checking engine oil, cleaning or replacing the air filter, inspecting brakes, checking tire pressure, and lubricating the chain to understand proper servicing procedures. - Perform a step-by-step preventive maintenance check on a motorcycle using the standard servicing checklist and safety procedures. Motorcycle Troubleshooting and Servicing Workshop - Learners diagnose common motorcycle issues (e.g., hard starting, weak brakes, unusual engine noise) and carry out proper servicing procedures using appropriate tools and manufacturer guidelines. - Identify a given motorcycle problem and execute the correct servicing procedure following standard safety and operational guidelines.

Week	Learning Competency	Suggested Activities
2	Apply procedures in pre-starting and warm-up of motorcycles.	Pre-Start Inspection Drill - Learners conduct a complete pre-start inspection of a motorcycle, including checking fuel level, engine oil, brakes, lights, tires, side mirrors, and overall safety condition before starting the engine. - Perform a systematic pre-start inspection using a standard checklist while strictly observing safety procedures. Proper Motorcycle Warm-Up Demonstration - Learners demonstrate the correct procedures in starting and warming up a motorcycle engine, including proper positioning, ignition steps, choke use (if applicable), idling time, and monitoring engine response. - Demonstrate the correct starting and warm-up procedure following manufacturer guidelines and safety standards.
	Identify traffic rules and regulations.	Traffic Signs and Road Markings Identification Workshop - Learners study and identify different traffic signs, road markings, and basic

Week	Learning Competency	Suggested Activities
		road rules, including their meanings and proper application in real driving situations. ○ Observe displayed traffic signs and road markings, then correctly name and explain the rule or regulation each one represents. ● Traffic Law Application Role-Play ○ Learners participate in structured role-play scenarios (e.g., intersections, pedestrian crossings, overtaking zones) to determine and demonstrate the correct traffic rules that apply in each situation. ○ Act out assigned road situations and identify the specific traffic rule or regulation that must be followed in each case.
	● Discuss appropriate responses to road emergencies.	● Road Emergency Response Simulation ○ Learners analyze and simulate common road emergencies such as brake failure, tire blowout, minor collisions, or engine overheating, focusing on safe, calm, and systematic responses. ○ Simulate assigned road emergency situations and demonstrate the correct

Week	Learning Competency	Suggested Activities
		step-by-step response following safety protocols. • Emergency Action Planning Workshop ○ Learners develop a practical emergency response plan covering accident reporting, basic first aid, use of hazard signals, and coordination with authorities during road incidents. ○ Create and present a clear emergency response plan outlining proper actions to take during different road emergency scenarios.
3	• Perform procedures in motorcycle driving.	• Basic Motorcycle Riding Skills Practicum ○ Learners perform fundamental motorcycle driving procedures such as proper mounting and dismounting, starting and stopping, clutch and throttle control, gear shifting, turning, and proper braking in a controlled environment. ○ Demonstrate basic motorcycle riding procedures in a controlled practice area following standard safety and traffic guidelines.

Week	Learning Competency	Suggested Activities
		• Controlled Riding Course Performance Task ○ Learners navigate a marked riding course (straight path, curves, stop-and-go stations, and obstacle sections) to apply correct driving techniques, balance, coordination, and road discipline. ○ Complete the designated riding course while properly applying motorcycle driving procedures and observing safety rules at all times.
Suggested Performance Tasks	• Individual Performance Task - Safe Motorcycle Riding Demonstration ○ Each learner individually demonstrates proper motorcycle driving procedures in a controlled practice area, including pre-ride inspection, correct mounting, starting, accelerating, turning, braking, stopping, and proper parking while consistently observing safety precautions and wearing complete personal protective equipment (PPE). ○ Individually perform complete motorcycle driving procedures in a controlled course while strictly applying all required safety precautions and proper riding techniques. • Group Performance Task - Team-Based Road Safety Riding Simulation ○ Learners work in groups to plan and execute a simulated riding scenario where members rotate roles (rider, safety observer, traffic controller), demonstrating coordinated motorcycle driving procedures, hazard awareness, and enforcement of safety protocols.	

	Collaboratively conduct a simulated riding activity where each member performs or evaluates motorcycle driving procedures while ensuring full compliance with safety standards.
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Performance Standard	The learners perform procedures in servicing of motorcycle/small engine systems following safety precautions.
Content Standard	Demonstrate an understanding of the principles in motorcycles/small engine systems.

Week	Learning Competency	Suggested Activities
4	Discuss overview of motorcycle/small engine services	Motorcycle/Small Engine Systems Exploration - Learners explore the basic systems of motorcycle and small engines (fuel, ignition, lubrication, cooling, and electrical systems) and discuss their functions and importance in overall engine performance and servicing. - Examine engine system diagrams or actual units and explain the function and servicing importance of each major system. Service Procedures Overview Forum - Learners discuss the general types of motorcycle and small engine services, including preventive maintenance, troubleshooting, repair procedures,

Week	Learning Competency	Suggested Activities
		and the use of appropriate tools and safety practices. Participate in a structured discussion identifying common motorcycle/small engine services and the correct procedures and safety measures involved.
5	Discuss motorcycle/small engine services.	Motorcycle/Small Engine Service Identification Activity - Learners identify and discuss different types of motorcycle and small engine services such as oil change, air filter cleaning, spark plug inspection, carburetor cleaning, and brake adjustment, including their purpose and importance. - Identify various motorcycle/small engine services and explain their function, procedure, and importance in maintaining engine performance. Service Process Flowchart Workshop - Learners create and present a simple flowchart outlining the step-by-step process of a selected motorcycle or small engine service while emphasizing proper tools and safety

Week	Learning Competency	Suggested Activities
		practices. Develop and explain a service flowchart that shows the correct sequence and safety precautions in performing a specific motorcycle/small engine service.
	Discuss motorcycle/small engine systems and common troubles procedures.	Engine Systems and Common Troubles Mapping Activity - Learners identify the major motorcycle/small engine systems (fuel, ignition, lubrication, cooling, electrical) and match them with common problems such as hard starting, overheating, misfiring, or power loss, including the basic procedures used to address each issue. - Create a system-to-trouble map that explains common engine problems and the corresponding basic troubleshooting procedures. Troubleshooting Case Study Discussion - Learners analyze given engine trouble scenarios and discuss the possible causes, affected systems, and proper step-by-step troubleshooting procedures following safety

Week	Learning Competency	Suggested Activities
		standards. Examine assigned engine trouble cases and present the correct diagnosis and appropriate troubleshooting procedures for each situation.
6	Perform procedures in servicing the motorcycle/small engine system.	Guided Motorcycle/Small Engine Servicing Practicum - Learners perform actual servicing procedures on a selected motorcycle or small engine system (e.g., fuel, ignition, lubrication, cooling, or electrical), following proper sequence, tool usage, and safety standards. - Carry out the assigned servicing procedure step-by-step using appropriate tools and strictly observing safety and manufacturer guidelines. System-Based Servicing Rotation Activity - Learners rotate through servicing stations where they perform specific procedures such as spark plug cleaning, carburetor servicing, oil changing, brake adjustment, or electrical inspection to develop

Week	Learning Competency	Suggested Activities
		comprehensive hands-on skills. ○ Rotate through assigned stations and correctly perform the required servicing procedures for each motorcycle/small engine system.

Suggested Performance Tasks	● Individual Performance Task - Individual Motorcycle/Small Engine Servicing Task ○ Each learner performs a complete servicing procedure on a selected motorcycle or small engine system (e.g., fuel system, lubrication, brakes, or electrical system) while following the correct steps, using appropriate tools, and observing all safety precautions. ○ Individually perform a full servicing procedure on a motorcycle/small engine system while strictly following safety guidelines and correct operational steps. ● Group Performance Task - Team-Based Servicing Simulation ○ Learners work in small groups to service a motorcycle or small engine, dividing tasks (e.g., pre-inspection, cleaning, adjustment, and testing) while coordinating safety measures and proper tool usage for efficient workflow. ○ Collaboratively perform a complete servicing procedure on a motorcycle/small engine system, ensuring each group member follows safety protocols and correct servicing steps
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Performance Standard	The learners perform procedures in electrical system servicing, and chassis servicing in motorcycle/small engine employing safety precautions.
Content Standard	Demonstrate an understanding of the principles in servicing electrical system and chassis in motorcycle/small engine repair.

Week	Learning Competency	Suggested Activities
7	Discuss concepts and principles of electrical system and chassis servicing in motorcycle/small engine repair.	Motorcycle Electrical System Exploration - Learners study the basic concepts and principles of motorcycle electrical systems, including batteries, wiring, ignition, lighting, and charging, and discuss common electrical issues and their impact on engine performance. - Examine the motorcycle's electrical components and explain their functions, principles, and common issues in small engine repair. Chassis Servicing Concepts Workshop - Learners explore the chassis system of motorcycles, including frame, suspension, steering, brakes, and wheels, discussing proper servicing principles, common faults, and safety considerations. - Identify and explain the key chassis components, their functions, and

Week	Learning Competency	Suggested Activities
		proper servicing procedures while emphasizing safety standards.
7	Discuss electrical system components	Electrical System Component Identification Activity - Learners examine a motorcycle or small engine to identify and discuss key electrical components such as the battery, ignition coil, regulator/rectifier, wiring harness, switches, and lights, including their functions. - Inspect a motorcycle or small engine and correctly identify each electrical component while explaining its function in the system. Electrical Component Function Mapping Workshop - Learners create a diagram or flowchart showing the interconnection and functions of motorcycle electrical components, illustrating how each part contributes to the overall operation of the system. - Draw and explain a diagram that maps all electrical components and their roles in the motorcycle/small engine system.

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	Identify electrical system components' malfunction using tools and equipment.	Electrical Troubleshooting with Multimeter - Learners use a multimeter to check and diagnose common electrical malfunctions in motorcycle or small engine components such as the battery, ignition coil, fuses, and wiring circuits. - Use a multimeter to test electrical components and identify faults while following proper safety procedures. Fault Detection and Diagnostic Workshop - Learners work in pairs or small groups to systematically inspect electrical components using diagnostic tools like test lights, continuity testers, and voltmeters to locate and analyze common malfunctions. - Perform step-by-step electrical testing using appropriate tools to detect and document component malfunctions safely and accurately.
8	Perform assembling/ disassembling procedures in electrical system components.	Electrical Component Disassembly Practicum - Learners practice safely disassembling

Week	Learning Competency	Suggested Activities
		motorcycle or small engine electrical components, such as ignition coils, batteries, wiring harnesses, and switches, while observing proper handling and safety procedures. ○ Carefully disassemble assigned electrical components step-by-step, following safety guidelines and proper tool usage. ● Electrical Component Assembly Workshop ○ Learners reassemble previously disassembled electrical components, ensuring correct connections, proper placement, and functional testing to confirm the system operates as intended. ○ Reassemble electrical components accurately, checking all connections and functionality while adhering to safety standards.
Suggested Performance Tasks	● Individual Performance Task - Individual Electrical System Servicing Task ○ Each learner performs a full servicing procedure on a motorcycle/small engine electrical system, including testing, disassembling, cleaning, replacing, and reassembling components, while observing all safety precautions.	

	- Individually service a motorcycle/small engine electrical system step-by-step, ensuring correct procedures and strict adherence to safety standards. Group Performance Task - Team-Based Chassis Servicing Project - Learners work in groups to inspect, diagnose, and service the chassis system of a motorcycle/small engine, including brakes, suspension, steering, and wheels, coordinating tasks while maintaining safety measures. - Collaboratively perform a complete chassis servicing procedure, ensuring each team member follows proper steps, tool use, and safety precautions.
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Performance Standard	The learners perform procedures in electrical system servicing, and chassis servicing in motorcycle/small engine employing safety precautions.
Content Standard	Demonstrate an understanding of the principles in servicing electrical system and chassis in motorcycle/small engine repair.

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8	Discuss the component parts of the motorcycle/small engine chassis.	Motorcycle/Small Engine Chassis Component Identification - Learners examine a motorcycle or small engine to identify and discuss the main chassis components, including frame, suspension, wheels, steering, brakes, and handlebars, and their functions in supporting safe operation. - Inspect the motorcycle/small engine

Week	Learning Competency	Suggested Activities
		chassis and correctly identify each component while explaining its function and importance. • Chassis Component Diagram Workshop ○ Learners create labeled diagrams of the motorcycle or small engine chassis, showing each component, its location, and its function, to reinforce visual understanding of the system. ○ Draw and label a complete chassis diagram, indicating all major parts and describing their roles in the motorcycle/small engine system.
8	• Apply the procedures in diagnosing and troubleshooting chassis faults in motorcycles and small engine.	• Chassis Fault Inspection Practicum ○ Learners perform hands-on inspection of motorcycle or small engine chassis components, such as suspension, brakes, steering, and wheels, to detect common faults like misalignment, worn parts, or loose connections. ○ Systematically inspect the chassis components to identify faults while following proper diagnostic and safety procedures. • Chassis Troubleshooting Simulation ○ Learners analyze given scenarios of

Week	Learning Competency	Suggested Activities
		chassis-related problems, determine possible causes, and demonstrate step-by-step troubleshooting procedures to correct issues safely. ○ Apply diagnostic procedures to simulated chassis problems and perform corrective troubleshooting while adhering to safety standards.
Suggested Performance Tasks	● Individual Performance Task - Individual Electrical System Servicing Task ○ Each learner performs a full servicing procedure on a motorcycle/small engine electrical system, including testing, disassembling, cleaning, replacing, and reassembling components, while observing all safety precautions. ○ Individually service a motorcycle/small engine electrical system step-by-step, ensuring correct procedures and strict adherence to safety standards. ● Group Performance Task - Team-Based Chassis Servicing Project ○ Learners work in groups to inspect, diagnose, and service the chassis system of a motorcycle/small engine, including brakes, suspension, steering, and wheels, coordinating tasks while maintaining safety measures. ○ Collaboratively perform a complete chassis servicing procedure, ensuring each team member follows proper steps, tool use, and safety precautions.	

Performance Standard	The learners perform procedures for overhauling motorcycle engines with safety precautions and compute servicing total costs for the motorcycle/small engine services.
Content Standard	The learners demonstrate an understanding of the principles in overhauling and elements of costing for motorcycles/small engine services.

Week	Learning Competency	Suggested Activities
9	Discuss procedures in motorcycle/ small engine overhauling based on the service manual.	Service Manual Procedure Hunt - Learners examine a motorcycle/small engine service manual to identify and discuss the correct overhauling procedures, tools, and safety precautions. - Read the assigned section of the service manual and present the step-by-step overhauling procedure to the class. Engine Overhauling Demonstration - Learners demonstrate proper motorcycle/small engine overhauling procedures by following the sequence and specifications found in the service manual. - Perform the assigned overhauling task while following and explaining the procedures indicated in the service manual.

Week	Learning Competency	Suggested Activities
	Perform procedures in overhauling motorcycle engine.	Motorcycle Engine Disassembly Workshop - Learners practice the proper procedures in dismantling motorcycle engine components using the correct tools and safety practices. - Disassemble the assigned motorcycle engine parts following the correct sequence and safety procedures. Engine Reassembly and Inspection Activity - Learners perform engine reassembly and inspection procedures to ensure proper fitting, alignment, and operation of motorcycle engine components. - Reassemble and inspect the motorcycle engine components according to standard overhauling procedures and specifications.

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10	Perform procedures in testing and inspections of engine performance.	Engine Performance Testing Activity - Learners perform basic engine performance tests to evaluate the condition and operation of a motorcycle/small engine using appropriate testing tools and procedures. - Conduct the assigned engine performance test and record the results based on standard procedures. Motorcycle Engine Inspection Workshop - Learners inspect motorcycle engine components to identify wear, damage, leaks, and other issues affecting engine performance. - Inspect the assigned engine parts and report the observed condition using an inspection checklist.

Week	Learning Competency	Suggested Activities
	Discuss service cost of motorcycle/small engine servicing.	Motorcycle Service Cost Computation - Learners identify and compute the estimated cost of motorcycle/small engine servicing, including labor, parts, and materials. - Compute the total service cost based on the given servicing scenario and price list. Service Cost Analysis and Discussion - Learners discuss the factors that affect motorcycle/small engine servicing costs such as parts replacement, labor charges, and maintenance needs. - Analyze the given servicing case and explain the factors contributing to the total service cost.

Week	Learning Competency	Suggested Activities
	• Calculate total labor and materials costs for motorcycle/small engine servicing.	• Labor and Materials Cost Computation ○ Learners calculate the total labor and materials costs involved in motorcycle/small engine servicing using given service rates and parts prices. ○ Compute the total servicing cost using the provided labor charges and materials price list. • Service Invoice Preparation Activity ○ Learners prepare a simple service invoice showing the breakdown of labor, materials, and total servicing expenses. ○ Prepare a service invoice based on the assigned motorcycle/small engine servicing task.

Suggested Performance Tasks	• Engine Overhaul and Cost Computation ○ Each learner performs a complete engine overhaul on a motorcycle or small engine, including disassembly, inspection, cleaning, repair/replacement of worn parts, reassembly, and testing, while calculating the total cost of parts, labor, and materials used. ○ Individually overhaul a motorcycle/small engine following proper procedures and safety precautions, then compute the total servicing cost accurately. • Group Performance Task - Team-Based Engine Servicing and Cost Estimation Project ○ Learners work in small groups to collectively overhaul a motorcycle/small engine, divide tasks among members, document all parts and labor used, and prepare a total service cost computation report. ○ Collaboratively perform an engine overhaul, ensuring each team member follows proper procedures and safety measures, and compute the total service cost together.
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