



COMMERCIAL AIR-CONDITIONING INSTALLATION AND SERVICING

TECHNICAL-PROFESSIONAL

Grade 12

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

**TECHNICAL-PROFESSIONAL
INDUSTRIAL 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	Commercial Air-Conditioning Installation and Servicing
Prerequisite	Domestic Refrigeration and Air-Conditioning Servicing

Content Standard	Understands the concepts and principles of the Commercial Air-Conditioning unit
Performance Standard	The learner performs the installation of the Commercial Air-Conditioning unit with safety precautions.

Week	Learning Competency	Suggested Activities
1 - 2	Perform pre-installation procedure for the commercial air-conditioning units	Site Readiness Inspection - Learners examine a designated installation site to determine if it meets the requirements for installing a commercial air-conditioning unit, including space, electrical provision, ventilation, and safety conditions. - Inspect the assigned installation site using a checklist and identify the necessary preparations before

Week	Learning Competency	Suggested Activities
		installing a commercial air-conditioning unit. • Tools and Materials Preparation Drill ○ Learners identify, organize, and check the tools, equipment, and materials needed for installing commercial air-conditioning units while applying safety procedures. ○ List, gather, and inspect the required tools and materials for air-conditioning installation and demonstrate proper handling.
3 - 4	• Perform installation of commercial air-conditioning units	• Unit Mounting Simulation ○ Learners practice the proper mounting and positioning of commercial air-conditioning units or simulated equipment, ensuring correct alignment, stability, and safety. ○ Install the assigned air-conditioning unit on a mounting frame or designated area following the correct installation procedures and safety precautions. • System Installation Practice ○ Learners perform the step-by-step installation process including positioning the unit, connecting basic

Week	Learning Competency	Suggested Activities
		piping or electrical components, and checking the setup. Follow the installation guide to connect the main components of the commercial air-conditioning unit and demonstrate proper installation procedures.
Suggested Performance Tasks	Individual Performance Task: Safe AC Unit Installation Drill - The learner individually demonstrates the proper installation of a commercial air-conditioning unit or simulated unit, including positioning, mounting, and basic connection of components while strictly following safety precautions and proper tool handling. - Install the assigned commercial air-conditioning unit or mock-up setup following the correct installation procedures while wearing appropriate PPE and observing safety practices. Group Performance Task: “Commercial AC Installation Project” - Learners work collaboratively to plan and perform the complete installation process of a commercial air-conditioning unit, including site preparation, mounting, basic piping or electrical connections, and safety inspection. - In groups, install a commercial air-conditioning unit following the installation guide and demonstrate proper coordination and safety precautions throughout the process.	

Performance Standard	The learner performs maintenance, troubleshooting, and commissioning Commercial Air-Conditioning units with safety precautions.
Content Standard	Understands the concepts and principles of the Commercial Air-Conditioning unit

Week	Learning Competency	Suggested Activities
5 - 6	Perform service and maintenance of the commercial air- conditioning units	Routine Maintenance Practice - Learners perform basic service procedures such as cleaning filters, checking electrical connections, inspecting coils, and ensuring the unit operates efficiently and safely. - Perform routine maintenance on an assigned air-conditioning unit by cleaning components and inspecting parts using proper tools and safety precautions. Maintenance Checklist Application - Learners use a standard maintenance checklist to systematically evaluate the condition of a commercial air-conditioning unit and identify maintenance needs. - Inspect the assigned air-conditioning unit using a maintenance checklist and record the service actions required.

Week	Learning Competency	Suggested Activities
7	Discuss pre-troubleshooting of commercial air-conditioning	AC Problem Analysis Discussion - Learners analyze common air-conditioning problems (e.g., insufficient cooling, unusual noise, or water leakage) and discuss possible causes before performing actual troubleshooting. - Analyze given air-conditioning problem scenarios and discuss possible causes and initial checks before troubleshooting. Pre-Troubleshooting Flowchart Activity - Learners create a simple diagnostic flowchart that outlines the steps to follow before troubleshooting an air-conditioning unit. - Develop a flowchart showing the pre-troubleshooting steps for identifying possible air-conditioning system issues.
8 - 9	Perform troubleshooting of commercial air-conditioning units	AC Fault Detection Simulation - Learners identify and diagnose faults in a simulated or actual air-conditioning unit using diagnostic tools and observation skills. - Inspect the assigned air-conditioning unit, identify the fault using

Week	Learning Competency	Suggested Activities
		troubleshooting procedures, and report the possible cause. • Troubleshooting Procedure Drill ○ Learners follow a structured troubleshooting process to locate system problems such as electrical faults, refrigerant issues, or airflow restrictions. ○ Perform step-by-step troubleshooting on a simulated AC fault while observing proper safety procedures.
10 - 11	• Perform commissioning of commercial air conditioning units	• System Start-Up Verification ○ Learners perform the start-up procedures of a commercial air-conditioning unit and verify that all components operate correctly after installation or servicing. ○ Start the air-conditioning unit following commissioning procedures and observe system performance and safety conditions. • Commissioning Performance Check ○ Learners measure and record operational parameters such as airflow, temperature, and electrical readings to confirm proper system performance.

Week	Learning Competency	Suggested Activities
		Use appropriate tools to measure system performance and complete a commissioning report for the air-conditioning unit.

Suggested Performance Tasks	Individual Performance Task: AC Service and Troubleshooting Drill - The learner individually performs basic maintenance and troubleshooting procedures on a commercial air-conditioning unit, such as cleaning filters, inspecting components, identifying faults, and verifying system operation while observing safety precautions. - Perform maintenance and troubleshoot the assigned air-conditioning unit using proper tools and PPE, then check and record the unit's operational condition. Group Performance Task: "Commercial AC System Commissioning Project" - Learners work collaboratively to conduct maintenance, troubleshooting, and final commissioning of a commercial air-conditioning unit, ensuring that the system operates properly and safely after service. - In groups, service and troubleshoot the assigned AC unit, perform commissioning procedures, and present a brief report of the system's performance and safety checks.
------------------------------------	--