CARPENTRY

TECHNICAL-PROFESSIONAL

Grade 12

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

TECHNICAL-PROFESSIONAL
CONSTRUCTION AND BUILDING TECHNOLOGIES
Grade 12

Three-Term Budget Of Work
For Learning Competencies

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

Elective	**Carpentry**
Prerequisite	**None**
Content Standard	Demonstrate an understanding of the concepts and principles in structural carpentry.
Performance Standard	The learners perform a batter board set up in structural carpentry with safety practices.

Week	Learning Competency	Suggested Activities
1	• Identify principles of structural carpentry.	• **Load Path Investigation Project** ○ Learners analyze a small-scale wooden structure model (e.g., wall frame or roof truss) to identify how loads are transferred from the roof to the foundation. ○ Learners construct or examine a framed model, trace and label the load path (dead/live loads), and explain how structural principles like compression, tension, and proper member spacing ensure stability.

Week	Learning Competency	Suggested Activities
		• **Structural Member Identification and Framing Layout Workshop** ○ Learners interpret a basic framing plan and physically mark out (layout) structural components on lumber following standard carpentry measurements. ○ Using a sample plan, students identify and label key structural members (studs, joists, rafters, beams), apply correct layout spacing (e.g., 16" O.C.), and justify how each component contributes to strength and load distribution.
	• Prepare tools, equipment, consumables and PPEs used in structural carpentry.	• **Tool & PPE Readiness Drill** ○ Learners inspect, classify, and prepare structural carpentry tools, equipment, consumables, and personal protective equipment before a simulated framing task. ○ Learners conduct a pre-work inspection checklist, select appropriate hand/power tools, prepare consumables (nails, screws, adhesives), and correctly wear and adjust PPE according to safety standards before beginning a mock

Week	Learning Competency	Suggested Activities
		framing setup. • **Workstation Setup and Safety Simulation** ○ Learners organize and prepare a structural carpentry workstation following proper safety, efficiency, and operational procedures. ○ Learners set up a complete carpentry workstation by arranging tools and equipment properly, checking tool functionality, staging materials and consumables, and demonstrating correct PPE use while explaining safety compliance steps.
2	• Discuss specifications and tolerance in structural carpentry.	• **Blueprint Specification Breakdown** ○ Learners examine a sample structural framing plan to identify specifications such as dimensions, material grades, spacing, and allowable tolerances. ○ Learners analyze a framing blueprint, highlight specified measurements and material requirements, interpret tolerance limits, and present how deviations may affect structural integrity and safety. • **Tolerance Testing and Measurement**

Week	Learning Competency	Suggested Activities
		Workshop ○ Learners perform actual measurements on cut lumber and framing layouts to compare results with given specifications and tolerance limits. ○ Learners measure, record, and compute allowable deviations from required dimensions, then discuss whether outputs fall within acceptable tolerance and explain the impact of over- or under-measurement on structural performance.
	• Discuss the purpose of structural carpentry temporary structures.	• **Temporary Structures Case Study Analysis** ○ Learners analyze real-life construction scenarios where temporary structures (e.g., scaffolding, formwork, shoring) are used and explain their purpose in ensuring safety and support. ○ Learners review construction case scenarios, identify the type of temporary structure used, and discuss how it provides support, safety, alignment, and stability during different construction phases. • **Mini Temporary Structure Design**

Week	Learning Competency	Suggested Activities
		Challenge ○ Learners design and build a small-scale model of a temporary structure (e.g., scaffolding or bracing system) to demonstrate its function. ○ Working in groups, students plan, sketch, and construct a simple model of a temporary support system, then present how it distributes loads, prevents collapse, and ensures worker safety during construction.
3	• Perform basic 4-corner batter board set up.	• **4-Corner Layout Simulation Activity** ○ Learners perform an actual 4-corner batter board setup on a designated outdoor or workshop area following given building dimensions. ○ Learners measure and stake out the building footprint, install batter boards at four corners, stretch string lines, check squareness using the 3-4-5 method or diagonal measurement, and verify level and alignment before finalizing the layout. • **Accuracy and Alignment Challenge** ○ Learners work in teams to set up a batter board layout within a specified

Week	Learning Competency	Suggested Activities
		tolerance and time limit, focusing on precision and teamwork. ○ Groups interpret a layout plan, establish corner posts and batter boards, align and level string lines, confirm right angles through diagonal checking, and evaluate their setup based on accuracy, squareness, and proper procedure.
Suggested Performance Tasks	• **Individual Performance Task - Batter Board Setup Challenge** ○ Each learner independently sets up a complete 4-corner batter board layout for a small building footprint, ensuring accuracy and safety. ○ The learner measures and marks the site, installs corner stakes and batter boards, stretches and aligns string lines, checks squareness and level, and demonstrates safe handling of tools and equipment throughout the process. • **Group Performance Task - Team Batter Board Layout Project** ○ A group of learners collaboratively sets up batter boards for a larger-scale mock construction site, coordinating tasks to achieve accuracy, efficiency, and safety compliance. ○ Team members divide responsibilities—measuring, staking, installing batter boards, and aligning strings—while verifying level, squareness, and safety measures, then present a completed layout demonstrating teamwork and adherence to safety standards.	

Content Standard	Understand procedures in formworks preparations in rough carpentry.
Performance Standard	The learners perform procedures in wooden foundation and column formworks with safety.

Week	Learning Competency	Suggested Activities
3	• Discuss importance and applications of formworks.	• **Formwork Application Case Analysis** ○ Learners examine different construction scenarios (e.g., column, beam, slab, and footing works) to identify the type and purpose of formworks used. ○ Learners analyze construction images or case situations, determine the appropriate formwork system required, and explain how formworks ensure proper concrete shape, alignment, strength development, and safety during curing. • **Mini Formwork Model Demonstration** ○ Learners design and assemble a small-scale wooden formwork model for a basic concrete element (e.g., column or footing) to understand its components and function. ○ Working in groups, students plan, assemble, brace, and present a simple formwork model, then discuss how it supports wet concrete,

Week	Learning Competency	Suggested Activities
		maintains dimensions, prevents deformation, and ensures structural accuracy.
4	• Prepare tools, materials and equipment in wooden formwork.	• **Wooden Formwork Preparation Checklist Drill** ○ Learners identify, inspect, and organize the complete set of tools, materials, and equipment required for constructing a wooden formwork. ○ Learners use a preparation checklist to select and inspect hand tools (hammer, saw, level, tape measure), power tools (circular saw, drill), materials (plywood, lumber, nails, tie wires), and safety equipment, ensuring all items are serviceable and ready before mock assembly. • **Formwork Workstation Setup Simulation** ○ Learners set up a safe and efficient workstation for wooden formwork fabrication following proper safety and operational procedures. ○ Working in teams, students arrange tools and equipment systematically, stage lumber and plywood according to plan specifications, verify tool

Week	Learning Competency	Suggested Activities
		functionality, wear appropriate PPE, and demonstrate readiness for formwork construction.

	• Perform working drawing plan for wooden form.	• **Wooden Formwork Working Drawing Drafting Activity**
		  ○ Learners create a detailed working drawing of a simple wooden form (e.g., column, footing, or beam form) including dimensions, labels, and material specifications.
		  ○ Learners interpret given structural data, draft a scaled working drawing with complete dimensions, labels, sectional views, and material callouts, ensuring accuracy and adherence to drafting standards.
		• **Blueprint Interpretation and Layout Translation Task**
		  ○ Learners translate a basic concrete structural plan into a complete wooden formwork working drawing ready for fabrication.
		  ○ Working individually or in pairs, students analyze a structural plan, extract required measurements, prepare a neat and properly scaled working drawing of the wooden form,

Week	Learning Competency	Suggested Activities
		and explain how the drawing guides accurate construction.
5	• Prepare wooden foundation and column form for fabrication.	• **Foundation Form Preparation Workshop** ○ Learners prepare and cut materials for a wooden footing (foundation) form based on a given working drawing and specifications. ○ Learners interpret the working plan, measure and mark plywood and lumber accurately, cut components to size, inspect materials and tools, and organize all parts systematically before assembly. • **Column Form Fabrication Readiness Task** ○ Learners prepare complete components and layout for a wooden column form prior to final assembly. ○ Working in teams, students verify dimensions from the drawing, measure and cut side panels and stiffeners, check squareness and alignment, stage fasteners and tools, and demonstrate readiness for safe and accurate column form fabrication.

Week	Learning Competency	Suggested Activities

6	• Apply wooden foundation and column form process.	• **Foundation Form Assembly and Installation Activity**
		  ○ Learners assemble and install a wooden foundation (footing) form following approved working drawings and safety procedures.
		  ○ Learners position and assemble pre-cut form panels, secure corners and braces, check level and squareness, reinforce joints, and verify alignment according to plan specifications before simulated concrete pouring.
		• **Column Form Erection and Bracing Simulation**
		  ○ Learners apply proper procedures in assembling, erecting, and bracing a wooden column form to ensure structural stability.
		  ○ Working in teams, students assemble column panels, fasten and clamp joints, install stiffeners and braces, check plumb and alignment, and perform final inspection to ensure the form is secure and ready for concrete placement.

Week	Learning Competency	Suggested Activities
	• Strip / disassembly wooden foundation and column form.	• **Foundation Form Stripping Exercise** ○ Learners safely remove wooden footing forms after simulated or cured concrete placement to inspect integrity and usability of materials. ○ Learners carefully remove nails, clamps, and braces, disassemble panels without damaging the form, and organize reusable materials while following safety protocols. • **Column Form Disassembly and Material Recovery Task** ○ Learners dismantle wooden column forms, ensuring structural safety and preserving materials for future use. ○ Working in pairs or small teams, learners loosen fasteners, remove bracing and panels systematically, check for material damage, and sort components for storage or recycling.

Suggested Performance Tasks	• **Individual Performance Task - Wooden Formwork Assembly**
	  ○ Each learner independently prepares, assembles, and braces a small wooden foundation or column form according to working drawings and safety standards.
	  ○ The learner measures and cuts lumber/plywood, assembles the formwork panels, installs braces, checks level and plumb, and follows proper PPE and tool-handling protocols throughout the process.
	• **Group Performance Task - Foundation and Column Formwork Fabrication**
	  ○ A group of learners collaboratively constructs a larger-scale wooden foundation or column form, coordinating tasks to ensure accuracy, structural stability, and safety compliance.
	  ○ Team members divide responsibilities—cutting, assembling, bracing, and checking alignment—while verifying level, plumb, and squareness, and applying safety measures to complete a properly fabricated formwork ready for concrete placement.

Content Standard	Demonstrate an understanding of concepts in carpentry.
Performance Standard	The learners perform procedures for installation of framing works (wall, floor, window and jambs) with safety practices.

Week	Learning Competency	Suggested Activities
7	• Perform operations for walling works.	• **Timber Wall Frame Assembly Activity** ○ Learners construct a simple timber wall frame to practice layout,

Week	Learning Competency	Suggested Activities
		fastening, and alignment techniques. ○ Learners measure, cut, and assemble studs, plates, and braces according to plan, ensure level and plumb alignment, and secure joints while following safety procedures. • **Masonry Wall Laying Simulation** ○ Learners perform basic brick or concrete block walling operations on a small-scale or mock setup to practice bonding and leveling. ○ Learners mix mortar (or simulate it), lay blocks/bricks according to the layout plan, check horizontal and vertical alignment, maintain consistent joints, and ensure structural stability throughout the walling process.
	• Apply flooring installation procedures.	• **Wooden Flooring Installation Workshop** ○ Learners practice installing a small-scale wooden floor panel system, focusing on layout, fastening, and finishing. ○ Learners measure, cut, and arrange floorboards, ensure proper spacing and alignment, secure boards using

Week	Learning Competency	Suggested Activities
		nails or screws, and check for levelness and stability throughout the installation. • **Tile or Vinyl Flooring Simulation** ○ Learners simulate laying tile or vinyl flooring on a prepared surface to learn alignment, adhesive application, and finishing techniques. ○ Learners prepare the base, apply adhesive or underlayment, lay tiles or vinyl sheets according to layout, maintain straight lines and uniform spacing, and perform final trimming and finishing.
	• Perform doors, windows, and trim installation.	• **Door Frame Installation Workshop** ○ Learners assemble and install a wooden door frame, including proper alignment, squaring, and securing of the frame. ○ Learners measure and mark the opening, position the door frame, check plumb and level, fasten securely, and test operation to ensure proper fit and alignment. • **Window and Trim Fitting Simulation** ○ Learners install a window unit and attach interior trim or molding to

<table>
<tr><th>Week</th><th>Learning Competency</th><th>Suggested Activities</th></tr>
<tr><td></td><td></td><td>practice finishing and aesthetic alignment.
○ Learners position and secure the window frame, check for level and squareness, apply caulking if needed, and fit trim accurately around edges to ensure a clean, professional finish.</td></tr>
<tr><td colspan="2">Suggested Performance Tasks</td><td>• Individual Performance Task - Wall and Floor Framing Installation
○ Each learner independently constructs a wall frame with floor layout, installs studs, plates, and ensures alignment and squareness while observing safety practices.
○ The learner measures, cuts, and assembles wall and floor framing components, installs them according to the plan, verifies plumb, level, and alignment, and follows PPE and safe tool-handling procedures throughout the activity.
• Group Performance Task - Window and Jamb Framing Installation Project
○ A group of learners collaboratively installs window openings and jambs in a framed wall section, ensuring structural accuracy, alignment, and safety compliance.
○ Team members coordinate to measure, cut, and assemble window frames and jambs, check squareness and level, fasten securely, and maintain safety procedures, demonstrating teamwork and adherence to framing standards.</td></tr>
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Content Standard	Understand the concepts and principles in structural carpentry.
Performance Standard	The learners perform construction process for roof, ceiling, and build – in cabinet in structural carpentry with safety practices.

Week	Learning Competency	Suggested Activities

8	• Perform operations for roofing works.	• **Roof Framing and Truss Installation Workshop**
		  ○ Learners assemble and install a small-scale roof truss or rafter system to understand load distribution and proper alignment.
		  ○ Learners measure, cut, and assemble trusses or rafters according to plan, position them accurately on the structure, secure joints, and verify level, alignment, and spacing for proper roof support.
		• **Roof Sheathing and Covering Simulation**
		  ○ Learners practice installing plywood or other sheathing panels and applying roofing materials like shingles or metal sheets on a mock roof surface.
		  ○ Learners attach sheathing panels to the framed roof, maintain proper overlap and alignment, fasten securely, and apply roofing material while ensuring water drainage,

Week	Learning Competency	Suggested Activities
		stability, and adherence to safety standards.
9	• Perform process in ceiling works.	• **Suspended Ceiling Frame Installation Workshop** ○ Learners construct a small-scale suspended ceiling frame to practice layout, leveling, and support installation. ○ Learners measure and mark ceiling layout, install main runners and cross tees, secure suspension wires, and check level and alignment before attaching ceiling panels. • **Ceiling Panel Fitting and Finishing Simulation** ○ Learners Students install ceiling panels (e.g., gypsum board, plywood, or fiberboard) on a pre-prepared frame to practice fitting, fastening, and finishing techniques. ○ Learners position panels, fasten them to the frame with screws or nails, ensure alignment and gaps are consistent, and perform finishing tasks such as joint taping or sanding to achieve a clean surface.

Week	Learning Competency	Suggested Activities
10	• Perform build – in cabinet fabrication.	• **Base Cabinet Fabrication Workshop** ○ Learners construct a small-scale base cabinet, practicing accurate measuring, cutting, assembly, and joint fastening. ○ Learners measure and cut plywood/lumber to size, assemble the cabinet box using appropriate joints and fasteners, check squareness, and ensure stability and alignment before finishing. • **Wall or Overhead Cabinet Build Simulation** ○ Learners fabricate a wall-mounted or overhead cabinet to practice precise layout, assembly, and fitting techniques. ○ Learners interpret the cabinet plan, cut and assemble components, install mounting supports, verify level and plumb alignment, and attach doors or shelves to complete a functional built-in cabinet.

Suggested Performance Tasks	• **Individual Performance Task - Built-In Cabinet Fabrication and Installation**

	○ Each learner independently constructs and installs a small built-in cabinet, demonstrating precise measurement, cutting, assembly, and finishing while observing safety practices. ○ The learner measures, cuts, and assembles cabinet components, installs the cabinet in its designated location, checks alignment and level, and follows PPE and safe tool-handling procedures throughout the process. • **Group Performance Task - Roof and Ceiling Installation Project** ○ A group of learners collaboratively constructs a small-scale roof and ceiling system, ensuring proper framing, sheathing, alignment, and adherence to safety standards. ○ Team members divide responsibilities—assembling trusses/rafters, installing ceiling frames and panels, checking plumb, level, and alignment—while following PPE and safe handling practices to complete a structurally sound roof and ceiling assembly.