

Vanga Teachers College

***SKILLS DEVELOPMENT
PROGRAMME***

BUILDING

and

CABINETMAKING

Course Outline

INTRODUCTION

As development occurs in the Solomon Islands there is increasing pressure at all levels of society for better living conditions and better facilities in which to work. As well as public buildings, such as offices, schools, clinics, and hospitals, many business premises will be required.

It is essential that there be a well trained and skilled workforce to meet these emerging needs. Instructors in Rural Training Centres can play a leading role in delivering these skills to the rural areas of the country.

This course has been developed as a way of improving development in the rural areas of the Solomon Islands.

COURSE OUTLINE

This course is designed to fill the skills and knowledge gap between what VTC students have on entering VTC, and what will be necessary to competently instruct RTC students to an appropriate level.

Integrated into the course is component of MATHS called **Maths for Builders**. This component will cover aspects of maths that are specifically required by the builder

Students will be expected to demonstrate competence in the following areas:

1 BUILDING CONSTRUCTION

- ❖ Safety, basic hand tools, measuring
- ❖ Milling and sizing of timber
- ❖ Site preparation
- ❖ Foundations
- ❖ Architectural and Design Plans
- ❖ Decking and flooring
- ❖ Stairs
- ❖ Wall framing
- ❖ Roofing
- ❖ Interior work
- ❖ Ceilings
- ❖ Walling
- ❖ Finishing and painting
- ❖ Concreting
- ❖ Estimating and Ordering
- ❖ Plumbing and Sanitation
- ❖ Sit the National Trade Test

2 CABINET MAKING

- ❖ Safety
- ❖ Basic hand tools
- ❖ Measuring and marking out
- ❖ Timber
- ❖ Joints
- ❖ Sharpening tools
- ❖ Power tools
- ❖ Reading drawings
- ❖ Joints (cont)
- ❖ Frame and carcass construction
- ❖ Furniture design and dimensions
- ❖ Chair construction
- ❖ Fastening devices
- ❖ Timber finishing
- ❖ Reading Drawings
- ❖ Machinery
- ❖ Milling and machining timber
- ❖ Furniture design and dimensions
- ❖ Manufactured boards
- ❖ Estimating and ordering
- ❖ Cutting lists
- ❖ Sketch plans of projects
- ❖ Planning a project
- ❖ Building various items of furniture

1.2 MATHS FOR BUILDERS

- ❖ Using the calculator
- ❖ Add, Subtract, Multiply and Divide
- ❖ Lengths, areas and volumes
- ❖ Simple ratios, scales
- ❖ Right angle triangles
- ❖ Angles
- ❖ Reading Tables (eg Roofing, Stairs)
- ❖ Costing and quoting

COURSE AIMS BUILDING CONSTRUCTION

THE MAIN AIMS OF THE COURSE ARE:

- ❖ To provide the students with a knowledge of the parts of the building construction
- ❖ To teach the correct and safe use of tools and machines
- ❖ To teach students to mill and prepare timber
- ❖ To provide students with the skills to safely and according to local regulations, construct a timber framed building
- ❖ To provide students with the skills to design, plan and build a building to pre-determined specifications.

GENERAL OBJECTIVES

AT THE CONCLUSION OF THE COURSE THE STUDENTS WILL BE ABLE TO:

- ❖ Safely operate all tools and machines required for the building process
- ❖ Mill timber and size it for the building of a timber framed building.
- ❖ Design and sketch plans for a building - Traditional and Permanent type
- ❖ Build both timber framed and traditional leaf house building, including all steps from site preparation to conclusion.
- ❖ Estimate, cost and order materials required for a building

SPECIFIC OBJECTIVES - BUILDING CONSTRUCTION

- ❖ Know and understand the importance of safe work practices on the building site and in the workshop.
- ❖ Know and understand the correct use of basic hand tools and machines
- ❖ Demonstrate the correct use of tools and machines
- ❖ Know the names of measuring instruments
- ❖ Use measuring instruments on the building site
- ❖ Use the portable sawmill
- ❖ Size timber using the thicknesser/planer
- ❖ Understand the requirements of a building site
- ❖ Select and prepare a building site
- ❖ Know the requirements for foundations
- ❖ Mark out and prepare foundations for a building
- ❖ Understand the theory of stair construction including local regulations
- ❖ Build a set of external stairs to a building.
- ❖ Understand the design rules for buildings in the Solomon Islands
- ❖ Read all plans required for buildings, including site, foundation, floor roofing and service plans
- ❖ Sketch plans for buildings including site plans
- ❖ Identify names of the parts of decking (bearers, joists, floor boards)
- ❖ Identify the correct selection of timbers for good flooring
- ❖ Know the correct spacings for members
- ❖ Calculate the number of pieces (eg bearers, joists, floor boards)
- ❖ Construct the flooring for a building according to specifications
- ❖ Describe ways of assembling floors
- ❖ Identify the parts of a timber wall
- ❖ Construct the timber wall frame
- ❖ Identify different types of wall cladding (inside and outside)
- ❖ Construct wall frames for timber frame building and fix internal and external cladding
- ❖ Identify the various roof covering materials
- ❖ Identify the various roof types
- ❖ Identify and describe the different roof carrying systems
- ❖ Name the members of the roof structure
- ❖ Design roof trusses
- ❖ Calculate the length of rafters
- ❖ Know SI regulations for roof construction
- ❖ Construct roof for timber frame building
- ❖ Name the types of doors and their usage
- ❖ Demonstrate basic construction principles
- ❖ List and explain various door hardware
- ❖ Hang a door
- ❖ Name the types of windows used in S.I.
- ❖ Know basic dimensions for glass windows
- ❖ Calculate opening sizes for louvre windows
- ❖ Fit glass louvre windows
- ❖ Construct timber louvre windows
- ❖ Name the different parts of wall panelling
- ❖ Fix wall panelling
- ❖ Identify materials and name construction parts of a ceiling
- ❖ Construct a levelled ceiling to be fixed under beams
- ❖ Prepare various surfaces for painting
- ❖ Define and select correct types of paint
- ❖ Know different types of paint and their uses
- ❖ Know the ingredients for cement
- ❖ Mix, place and finish cement
- ❖ Understand the importance of reinforcing
- ❖ Make a concrete slab
- ❖ Make a concrete post
- ❖ Carry out all technical mathematics required for construction
- ❖ Identify the simple rules for calculating quantities
- ❖ Calculate quantities of all materials required to construct and finish a building
- ❖ Order material
- ❖ Work out quotation for construction of a building including labour and business costs
- ❖ Build a timber framed building
- ❖ Sit the National Trade Test Basic Examination for Building and Carpentry.

ASSESSMENT

Assessment is competency Based.

Practical assessment will be competency based and will be carried out during each stage of the cycle. Each student will be required to complete the set practical exercises to the standard required by the instructor. Such standards will be made known to the students at the start of the cycle.

A record of competency achievement will be kept for each student. The record sheet will correspond to the specific objectives listed for each Term.

COURSE AIMS - CABINET MAKING

- ❖ To provide the students with a knowledge of the parts of the cabinet construction
- ❖ To teach the correct and safe use of tools and machines
- ❖ To teach students to mill and prepare timber
- ❖ To provide students with the skills to safely construct and fit furnishings to a variety of situations
- ❖ To provide students with the skills to design, plan and build furniture to pre-determined specifications.

GENERAL OBJECTIVES

AT THE CONCLUSION OF THE COURSE THE STUDENTS WILL BE ABLE TO:

- ❖ Safely operate all tools and machines required for the building furniture
- ❖ Mill timber and size it for the building of a timber furniture.
- ❖ Design and sketch plans for a furniture
- ❖ Build various items of furniture and fittings for buildings
- ❖ Estimate, cost and order materials required for furnishings.

<h3>SPECIFIC OBJECTIVES - FURNITURE MAKING</h3>
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| <ul style="list-style-type: none">❖ Know and understand the importance of safe work practices in the workshop.❖ Know and understand the correct use of basic hand tools❖ Demonstrate the correct use of tools❖ Know the names of measuring instruments❖ Use measuring instruments in the workshop❖ Recognise various timber joints and their applications❖ Make appropriate timber joints❖ Mark out and make timber joints❖ Understand the structure and growth of timber❖ Know the correct methods of seasoning, storing and preserving timbers❖ Season, stack and preserve timber❖ Understand the application of various glues❖ Read a drawing to interpret the dimensions, shape and construction method of a piece of furniture❖ Understand the safety requirements of power tools used in the workshop❖ Use safely the power tools - drill, sander, jigsaw, circular saw, router❖ Understand the uses of various fastening devices.❖ Correctly use a variety of fastening devices appropriate to furniture construction | <ul style="list-style-type: none">❖ Understand the ergonomics of chair construction❖ Design a chair using the principles of ergonomics❖ Understand the processes and products for finishing timber❖ Apply an appropriate finish to timber surface to a required standard❖ Understand the types of carcass construction❖ Make frames for various furniture pieces.❖ Read a drawing of complex furniture pieces❖ Know the safety requirements for carpentry shop machinery - bench saw, planer, pedestal drill, radial arm saw, grinder❖ Use the machinery in the workshop in a safe manner❖ Mill timber to required dimensions using appropriate machinery❖ Understand the principles and ergonomics of furniture design - beds, tables, shelves cupboards❖ Design items of furniture (eg Chair, Food safe, Cupboards, Built in Furniture)❖ Make items of furniture (eg Chair, Food safe, Cupboards, Built in Furniture)❖ Know the types of manufactured boards and their uses❖ Mark out and cut manufactured boards |
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