THE REPUBLIC OF KENYA

COMPETENCY BASED CURRICULUM

FOR

CARPENTERY AND JOINERY

KNQF LEVEL 4

ISCED PROGRAM CODE: 0722 354B

TVET CDACC

P.O BOX 15745-00100

NAIROBI

BASIC MATHEMATICS

UNIT CODE: CON/CU/CAJ/CC/01/4/B

Relationship to Occupational Standards

This unit addresses the unit of competency: Apply Basic mathematics

Duration of Unit: 40 hours

Unit Description

This unit describes the competencies required applying basic mathematics in carpentry and joinery. It involves applying algebra, applying trigonometry, performing geometrical calculations, carrying out mensuration, applying statistics and applying linear graphs

Summary of Learning Outcomes

1. Apply algebra
2. Apply trigonometry
3. Perform geometrical calculations
4. Carry out mensuration
5. Apply statistics
6. Apply linear graphs

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Apply Algebra	• Simple quadratic equations • Methods of solving quadratic equations • Algebraic expressions • Use of calculator • Solution of equations reduced to quadratic form • Solutions of simultaneous linear equations in one unknown	• Written tests • Oral questioning • Assignments • Supervised exercises

2. Apply Trigonometry	• Tangent • Sine • Cosine • State the tangent, sine and cosine of an angle from a right-angled triangle • Use of tables to find trigonometric ratios • Use of trigonometrical calculations ✓ Lengths of sides ✓ Heights ✓ angles	• Written tests • Oral questioning • Assignments • Supervised exercises
3. Perform geometrical calculations	• Areas of quadrilaterals, triangles and circles • Application of Pythagoras' theorem • Areas of figures ✓ Parallelogram ✓ Trapezium ✓ Circle ✓ Annulus ✓ Sector ✓ Curved surface of a cylinder ✓ Surface area of a pyramid and cones • Volumes of cones and pyramids	• Assignments • Oral questioning • Supervised exercises • Written tests
4. Carry out mensuration	• Common units of measurement ✓ Length in metres (m) ✓ Mass in kilograms (kg) ✓ Time in second (s) • Conversion of units: ✓ Mm to m ✓ M to km	• Written tests • Oral questioning • Assignments • Supervised exercises

	✓ G to kg ✓ Metric to SI • Perimeters, areas and volumes ✓ Perimeters ✓ Surface areas ✓ Volume of solid and hollow figures ✓ Circumference • Sketching of regular figures, solids and nets	
5. Apply statistics	• Data collection • Data organization • Data representation • Median of ungrouped data • Interpretation of data from given charts	• Written tests • Oral questioning • Assignments • Supervised exercises
6. Apply linear graphs	• Plotting linear graphs for given set of data • Using information from given linear graphs • Types of linear graphs ✓ Distance- time ✓ Temperature- time ✓ Area of cross section- volume ✓ Velocity- distance ✓ Ready reckoners	• Written tests • Oral questioning • Assignments • Supervised exercises

Suggested Methods of Instruction

- Group discussions
- Demonstration by trainer
- Exercises by trainee

Recommended Resources

- Scientific Calculators
- Rulers, pencils, erasers
- Charts with presentations of data
- Graph books
- Dice
- Computers with internet connection