

BASIC MATHEMATICS

UNIT CODE: CON/CU/PL/CC/01/5/A

Relationship to Occupational Standards

This unit addresses the unit of competency: Apply Basic mathematics

Duration of Unit: 50 hours

Unit Description

This unit describes the competencies required in applying basic: algebra, trigonometry statistics, indices and logarithms and ratio. It also involves performing geometrical calculations, business calculations, carrying out basic mensuration and plotting simple graphs.

Summary of Learning Outcomes

1. Apply basic algebra
2. Apply basic trigonometry
3. Perform geometrical calculations
4. Carry out basic mensuration
5. Apply basic statistics
6. Plot simple graphs
7. Apply Indices and Logarithms
8. Perform business calculations
9. Apply Ratios

Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Apply basic Algebra	<ul style="list-style-type: none"> • Algebraic expressions • Use of calculator • Simple algebraic operations • Methods of solving quadratic equations • Elimination • Substitution • Solution of equations reduced to quadratic form • Simple quadratic equations • Solutions of simultaneous linear equations of two unknowns 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises
2. Apply basic trigonometry	<ul style="list-style-type: none"> • Terms and concepts • Trigonometric rules • Use of tables to find trigonometric ratios • Use of trigonometrical calculations • Lengths of sides • Heights • angles 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises
3. Perform geometrical calculations	<ul style="list-style-type: none"> • Perimeter of plane figures • Areas of plane figures • Areas of irregular figures • Application of Pythagoras' theorem • Surface area of prisms and pyramid • Volumes of solids 	<ul style="list-style-type: none"> • Assignments • Oral questioning • Supervised exercises • Written tests

<p>4. Carry out basic mensuration</p>	<ul style="list-style-type: none"> • Common units of measurement of • Length • Mass • Time • Conversion of units • Perimeters, areas and volumes of figures and solids • Sketching of regular figures, solids and nets 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises
<p>5. Apply basic statistics</p>	<ul style="list-style-type: none"> • Terms and concepts • Data collection • Data organization • Measures of central tendencies of grouped and ungrouped data • Data presentation • Interpretation of data from given charts 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises
<p>6. Plot simple graphs</p>	<ul style="list-style-type: none"> • Types of graphs • linear graphs • bar graphs • pie chart • pictograph • Plotting graphs for given set of data • Interpreting graphs • 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises
<p>7. Apply Indices and Logarithms</p>	<ul style="list-style-type: none"> • Conversion of numbers from one base to another • Application of laws of indices in solving exponential equations • Application of law of logarithm in solving logarithmic equations 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises

8. Perform business calculations	<ul style="list-style-type: none"> • Exchange rates • Prices and profit • Calculation of average sales • Calculation of incomes • Calculation of taxes 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises
9. Apply Ratios	<ul style="list-style-type: none"> • Difference between rational and irrational numbers • Expression of ratios as percentages • Solving problems involving direct and inverse proportions 	<ul style="list-style-type: none"> • Written tests • Oral questioning • Assignments • Supervised exercises

Suggested methods of instructions

- Discussions
- Demonstration
- visiting Lecturer/Expert
- Industrial Visits

Recommended Resources

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