APPLY BASIC MATHEMATICS

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

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.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT These describe the key outcomes which make up workplace function.	PERFORMANCE CRITERIA These are assessable statements which specify the required level of performance for each of the elements. (***Bold and italicized terms are elaborated in the Range***)
1. Apply basic algebra	1.1 Calculations involving Indices are performed based on the concept 1.2 Linear equations are represented based on the concept 1.3 Scientific calculator is used in solving mathematical problems in line with manufacturer's manual 1.4 Simultaneous equations are performed based on mathematical rules 1.5 Simple algebraic equations are formed based on the concept 1.6 Simple algebraic equations are solved based on the concept
2. Apply basic trigonometry	2.1 Trigonometric ratios are derived based on trigonometric rules. 2.2 Calculations are performed based on trigonometric rules

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3. Perform geometrical calculations	3.1 Areas of regular figures are calculated based on the given formulae 3.2 Areas of irregular figures are calculated based on concept 3.3 Apply Pythagoras' theorem based on the concept
4. Carry out basic mensuration	4.1 Various ***units of measurements*** are identified based on the course requirements 4.2 Units are converted based on best practices 4.3 Perimeter and areas of regular ***figures*** are obtained based on known formulae 4.4 Area of irregular figures are obtained based on best practice 4.5 Volume and Surface area of solids are obtained based on given formulae
5. Apply basic statistics	5.1 Grouped and ungrouped data is identified and interpreted based on given sample 5.2 Ungrouped data is organized based on the concept 5.3 Data is represented in frequency tables based on the concept 5.4 The median, mode and mean of grouped and ungrouped data is calculated based on the concept 5.5 Data is presented in a chart form based on the concept

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6. Plot simple graphs	6.1 A *graph* is plotted for given set of data based on data 6.2 Information from a given graph is interpreted based on data
7. Apply Indices and Logarithms	7.1 Converted numbers from one base to another 7.2 Applied the laws of indices in solving exponential equations 7.3 Applied the laws of logarithms in solving logarithmic equations
8. Perform business calculations	8.1 Converted one currency to another 8.2 Calculated exchange rates 8.3 Calculated income 8.4 Calculated of taxes 8.5 Calculated average sales

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9. Apply Ratios	9.1 Differentiated between rational and irrational numbers 9.2 Expressed ratios as percentages 9.3 Solved problems involving direct and inverse proportions

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

Variable	Range
1. Units of measurement may include but not limited to:	• Millimetres • Centimetres • Metres • Kilometres
2. Figures may include but not limited to:	• square • rectangle • triangle • polygons

	• circles
3. graph may include but not limited to:s	• linear graphs • bar graphs • pie chart • pictograph

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:
- Logical thinking
- Problem solving
- interpersonal
- Drawing
- sketching
- measuring skills

Required knowledge

The individual needs to demonstrate knowledge of:
- Fundamental operations (addition, subtraction, division, multiplication)
- Calculating area and volume
- Types and purpose of measuring instruments
- Units of measurement and abbreviations
- Rounding techniques
- Types of fractions
- Types of angles
- Types of tables and graphs

- Presentation

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required skills, knowledge and range.

1. Critical aspects of Competency	Assessment requires evidence that the candidate:
	1.1 Demonstrated ability to apply basic trigonometry appropriately
	1.2 Carried out mensuration correctly
	1.3 Applied basic algebra appropriately

	1.4 Performed geometrical calculations correctly
	1.5 Demonstrated knowledge of applied basic statistics appropriately
	1.6 Plotted simple graphs correctly
2. Resource Implications	The following resources should be provided:
	2.1 Access to relevant or appropriately simulated environment where assessment can take place
	2.2 Measuring equipment
	2.3 Materials relevant to the proposed activity or tasks
2. Methods of Assessment	Competency in this unit may be assessed through:
	1.1 Written tests
	1.2 Practical Tests
	1.3 Oral Questioning
Context of Assessment	Competency may be assessed individually in the actual workplace or through accredited institution or during industrial Attachment
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

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