La Salle College
Form 2 Mathematics Programme Outline 2024-25

1. Course Aims & Objectives

The overall course aims are to develop in students:

a. the ability to think critically and creatively, to conceptualise, inquire and reason mathematically, and to use mathematical skill and knowledge to formulate and solve problems in daily life as well as in mathematical context and other disciplines.

b. the ability to communicate with others and express their views clearly and logically in mathematical language.

c. the ability to manipulate numbers, symbols and other mathematical objects.

d. number sense, symbol sense, spatial sense, measurement sense and the capacity to appreciate structure and patterns.

e. a positive attitude towards mathematical learning and an appreciation of the aesthetic nature and cultural aspects of mathematics.

2. Course Outline

	Topics	Knowledge Covered
Term 1	1: Errors in Measurement	1.1: recognise the concept of errors in measurement 1.2: recognise the concepts of maximum absolute errors, relative errors and percentage errors 1.3: solve problems related to errors 1.4: design estimation strategies in measurement according to the contexts and judge the reasonableness of the results obtained
	2: Identities and Factorization	2.1: understand the concept of identities 2.2: use identities to expand algebraic expressions 2.3: use identities to factorise polynomials
	3: Algebraic Fractions and Formulas	3.1: perform operations of algebraic fractions 3.2: use substitution to find the values of unknowns in the formulae 3.3: change the subject of formulae not involving radical signs
	4: Angles related to Rectilinear Figures	4.1: understand the properties of the interior and exterior angles of triangles 4.2: understand the property of isosceles triangles 4.3: understand the condition for isosceles triangles 4.4: understand the concept of regular polygons 4.5: understand the formula for the sum of the interior angles of a polygon 4.6: understand the formula for the sum of the exterior angles of a convex polygon 4.7: appreciate the triangles, quadrilaterals, and regular polygons that tessellate in the plane
	6: More about Statistical Charts	6.1: interpret statistical charts representing two different sets of data in daily life 6.2: recognise frequency polygons, frequency curves, cumulative frequency polygons and cumulative frequency curves 6.3: interpret frequency polygons, frequency curves, cumulative frequency polygons and cumulative frequency curves
	7: Rate, Ratio and Proportion	7.1: understand the concepts of rates, ratios and proportions 7.2: solve problems involving rates, ratios and proportions

	Topics	Knowledge Covered
Term 2	5: Congruence	5.1: understand the concept of congruent triangles 5.2: recognise the conditions for congruent triangles 5.3: construct angle bisectors, perpendicular bisectors, perpendicular lines, parallel lines, special angles and squares with compasses and straightedge 5.4: recognise the concept of congruent 2-D figures 5.5: explore the angles that can be constructed with compasses and straightedge
	8: Similarity	8.1: understand the concept of similar triangles 8.2: recognise the conditions for similar triangles 8.3: recognise the concept of similar 2-D figures
	9: Linear Equations in Two Unknowns	9.3: solve simultaneous linear equations in two unknowns by the algebraic methods 9.4: formulate simultaneous linear equations in two unknowns from a problem situation 9.5: solve problems involving simultaneous linear equations in two unknowns
	10: Pythagoras' Theorem and Irrational Numbers	10.1: understand the Pythagoras' theorem 10.2: recognise the converse of Pythagoras' theorem 10.3: solve problems related to Pythagoras' theorem and its converse 10.3a: appreciate the ancient Chinese mathematicians' approach to the Pythagoras' theorem 10.4: explore Pythagorean triples 10.5: recognise the concept of n-th root 10.6: recognise the concepts of rational and irrational numbers 10.7: perform mixed arithmetic operations of simple quadratic surds
	11: Areas and Volumes (II)	11.1: understand the formula for arc lengths of circles 11.2: understand the formula for areas of sectors of circles 11.3: solve problems related to arc lengths and areas of sectors of circles 11.4: recognise the Circle Dissection Algorithm of the ancient Chinese mathematician Liu Hui and further recognise Huilu and Tsulu (approximations of π)
	12: Trigonometric Ratios	12.1: understand sine, cosine and tangent of angles between 0° and 90° 12.2: understand the properties of trigonometric ratios

3. Assessment
(Note: Dates are given as an approximate only. Specific dates will be given during the course)

3.1 School-Based Assessment
1st term

Date	Components	Requirements	Assessment Criteria	Weighting
Week 9 – Week 10	Uniform Test : 2A Chapter 1 to Chapter 3	Algebra	Written	12%
	Class-based Tests (at least 3 times)	Class-based	Written	12%
	Homework	Submission on time and complete the correction	Written	6%

2nd term

Date	Components	Requirements	Assessment Criteria	Weighting
Week 34 – Week 35	Uniform Test : 2A Chapter 5 1B Chapter 8, 9.3, 9.4	Congruence and Similarity of Triangles, linear equations in 2 unknowns	Written	10%
	Class-based Tests (at least 3 times)	Class-based	Written	10%
	Homework	Submission on time and complete the correction	Written	5%
	STEAM Project	Submission on time and manipulate of math concept	Presentation and Modelling	5%

3.2 Examinations – Duration and breakdown of marks for different papers in Mid-Year & Final Examinations

Date	Paper	Full Marks	Composition	Weighting	Duration
Jan 2025 (Mid-Year)	Nil	100	Section A: Multiple-choice questions Section B: Short questions Section C: Structural questions	80%	1 hour 30 minutes
June 2025 (Final)	Nil	100	Section A: Multiple-choice questions Section B: Short questions Section C: Structural questions	80%	1 hour 30 minutes