Syllabus 2024-2025
Class: IX

MATHEMATICS (CODE NO. 041)
COURSE STRUCTURE

Total Time: 3 Hrs   Total Marks: 80

SI. No.	UNIT NAME	MARKS
I	Number Systems	10
II	Algebra	20
III	Coordinate Geometry	4
IV	Geometry	27
V	Mensuration	13
VI	Statistics & Probability	6
	TOTAL	80

UNIT- NUMBER SYSTEMS

1. NUMBER SYSTEM

Review of representation of natural numbers, integers, rational numbers on the number line. Rational numbers as recurring/ terminating decimals.Operations on real numbers.

1. Examples of non-recurring/non-terminating decimals. Existence of non-rational numbers (irrational numbers) such as, 2, 3 and their representation on the number

2. Rationalization (with precise meaning) of real numbers of the type and $\frac{1}{a+b\sqrt{x}}$ and their combinations) where x and y are natural numbers and a and b $\frac{1}{\sqrt{x}+\sqrt{y}}$ are integers

3. Recall of laws of exponents with integral powers. Rational exponents with positive real bases (to be done by particular cases, allowing learner to arrive at the general laws.)

UNIT-ALGEBRA

2. LINEAR EQUATIONS IN TWO VARIABLE

Recall of linear equations in one variable. Introduction to the equation in two variables. Focus on linear equations of the type ax+by+c=0. Explain that a linear equation in two variables has infinitely many solutions and justify their being written as ordered pairs of real numbers, plotting them and showing that they lie on a line. Graph of linear equations in two variables. Examples, problems from real life with algebraic and graphical solutions being done simultaneously

UNIT-COORDINATE GEOMETRY

3. COORDINATE GEOMETRY

The Cartesian plane, coordinates of a point, names and terms associated with the coordinate plane, notations, plotting points in the plane.

UNIT-GEOMETRY

4. LINES AND ANGLES

1. (Motivate) If a ray stands on a line, then the sum of the two adjacent angles so formed is 180˚ and the converse.
2. (Prove) If two lines intersect, vertically opposite angles are equal.
3. (Motivate) Results on corresponding angles, alternate angles, and interior angles when a transversal intersects two parallel lines.
4. (Motivate) Lines which are parallel to a given line are parallel.
5. (Prove) The sum of the angles of a triangle is 180˚.
6. (Motivate) If a side of a triangle is produced, the exterior angle so formed is equal to the sum of the two interior opposite angles.

5. TRIANGLES

1. (Motivate) Two triangles are congruent if any two sides and the included angle of one triangle is equal to any two sides and the included angle of the other triangle (SAS Congruence).
2. (Motivate) Two triangles are congruent if any two angles and the included side of one triangle is equal to any two angles and the included side of the other triangle (ASA Congruence).
3. (Motivate) Two triangles are congruent if the three sides of one triangle are equal to three sides of the other triangle (SSS Congruence).
4. (Motivate) Two right triangles are congruent if the hypotenuse and a side of one triangle are equal (respectively) to the hypotenuse and a side of the other triangle. (RHS Congruence)
5. (Prove) The angles opposite to equal sides of a triangle are equal.
6. (Motivate) The sides opposite to equal angles of a triangle are equal.
7. (Motivate) The sides opposite to equal angles of a triangle are equal.

UNIT-MENSURATION

6. HERON'S FORMULA

Area of a triangle using Heron's formula (without proof)

UNIT-STATISTICS & PROBABILITY

7. STATISTICS

Introduction to Statistics: Collection of data, presentation of data — tabular form, ungrouped/ grouped, bar graphs, histograms

INTERNALASSESSMENT	MARKS	TOTAL MARKS
Pen Paper Test and Multiple Assessment (5+5)	10	
Portfolio	5	20
Lab Practical (Lab activities to be done from the prescribed books)	5	

MATHEMATICS-Standard
QUESTION PAPER DESIGN
CLASS – IX (2022-23)

S. No.	Typology of Questions	Total Mark	% Weightage (approx.)
1	**Remembering:** Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	43	54
2	**Applying:** Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	19	24
3	**Analysing:** Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations **Evaluating:** Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. **Creating:** Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions	18	22
	TOTAL	**80**	**100**