AVICENNA INTERNATIONAL COLLEGE

MATHEMATICS ACADEMIC CALENDAR

SYLLABUS

ALGEBRA

Session	Topic	Lecturer
1	Algebra and numerical sets Natural numbers, integers, rational and real numbers	
2	Sorting and comparison, scales and scientific notation	
3	Operations and their properties	
4	Proportions and percentages	
5	Powers with whole and rational exponents and their properties Roots and their properties	
6	Logarithms (base 10 and base e) and their properties	
7	Elements of combinatorics	
8	Algebraic and polynomial expressions	
9	Special products of binomials, n the power of a binomial, factorisation of polynomials. Algebraic fractions	
10	Algebraic equations and inequalities of the first and second order	

FUNCTIONS

Session	Topic	Lecturer
11	Systems of equations Functions	
12	Basic concepts of functions and their graphical representations (domain, codomain, sign, maxima and minima, increasing and decreasing, etc.)	
13	Elementary functions: whole and fractional algebraic functions, exponential, logarithmic and trigonometric functions	
14	Composite functions and inverse functions	
15	Trigonometric equations and inequalities	
16	Function transformations	

GEOMETRY

Session	Topic	Lecturer
17	Geometry Polygons and their properties, Pythagorean theorem	
18	Circle and circumference Measurement of length, area and volume	
19	Isometries, similarities and equivalences in the plane	
20	Geometric loci Measure angles in degrees and radians	

TRIGONOMETRY

Session	Topic	Lecturer
21	Sine, cosine, tangent of an angle and their significant values	
22	Trigonometric formulas. Solving triangles. Cartesian reference system in a plane	

COORDINATE GEOMETRY

Session	Topic	Lecturer
23	Distance between two points and the midpoint of a segment Equation of a line	
24	Concepts of parallel and perpendicular	
25	Distance of a point from a straight line	
26	Equation of the circle, the parabola, hyperbola, ellipse and their representation in the Cartesian plane	

PROBABILITY AND STATISTICS

Session	Topic	Lecturer
27	Probability and Statistics Frequency distributions and their graphic representations	
28	Concepts of random experiments and of events Probability and frequency	