MATHEMATICS II
Syllabus

1. Transformations:
Translations, reflections, and stretches of functions. Combinations of transformations.

2. Exponential and Logarithmic Functions:
The exponential functions and their properties, the logarithmic functions and their properties, exponential and logarithmic equations, modelling with exponential and logarithmic functions with applications.

3. The Conic Sections:
The parabola, the ellipse, the hyperbola, translated conic sections, the general quadratic relation of a translated conic (or degenerate).

4. Trigonometric Functions:
Angles and their measure, trigonometric functions of acute angles, trigonometric functions of real numbers, graphing the sine and cosine functions, verifying trigonometric identities, basic trigonometric identities: sum and difference, double and half-angle identities with applications, trigonometric equations with or without domain restrictions.

5. Counting Techniques:
Introduction, tree diagrams, the multiplication rules, permutations and combinations with applications.

6. Sequences and Series:
Definitions, arithmetic sequences and series, geometric sequences and series, the binomial theorem.

7. A Brief Introduction to Probability and Statistics:
Sample space and events, probability of an event, addition and multiplication rules for probability. Introduction to descriptive statistics and organization of data, measures of central tendency (mean), measures of variations (variance, and standard deviation), measures of position (the z-scores), the normal distribution with applications.

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