Mathematics: contents of the course

1. Basic algebraic operations in the set of real numbers, the Newton binomial formula, the Pascal triangle.
2. Absolute value: geometric interpretation, equations, inequalities, applications.
3. Equations (parametric and general) of a line in the plane.
4. Equation of a circle, applications.
5. Elements of mathematical logic, basic set theory.
6. Principle of mathematical induction, examples and applications.
7. The concept of a function: domain, image, graph of a function. Properties of functions: monotonicity, periodicity. Even functions, odd functions. Composed function.
8. Linear function. Quadratic function, properties, graphs. Quadratic equations and inequalities.
9. Polynomials and rational functions, basic properties of polynomials.
10. Trigonometric functions, graphs, equations and inequalities. Trigonometric identities.
11. Exponential and logarithmic functions, properties, graphs and applications.