

CURRICULUM for SEEMOUS

Calculus

1. Real and complex numbers.
2. Sequences and series of numbers.
3. Functions of one real variable: continuity, differentiability, Taylor formula, Riemann integral.
4. Sequences and series of functions: pointwise and uniform convergence; differentiability and integrability term by term.
5. Power series, elementary functions.
6. Improper Riemann integral, functions defined by integrals (Euler integrals).

Algebra and Geometry

1. General notions about some algebraic structures: groups, rings, fields.
2. General properties about polynomials with real and complex coefficients.
3. Finite dimensional vector spaces over real and complex numbers: base and dimension.
4. Linear transformations and matrices; eigenvalues, eigenvectors, diagonal form and applications.
5. Quadratic forms. Plane and solid analytical geometry: lines, planes, conics, quadrics.