Program:

1. matrices and vectors. Linear space, its size and base. And subspaces layer. (4 hours).
2. The system of linear equations, Kronecker-Capelli. Method of elimination. (4 hours).
3. Linear transformations, the transformation matrix. Determinant. (4 hours).
4. Bilinear and quadratic forms. The matrix form. (6 hours).
5. Orthogonal Base. Orthogonalization. (4 hours).
6. Groups and their properties. Quotient groups. Construction of Zn. Proposition # Lagrange. Fermat's little theorem. (4 hours).
7. Orbit and stabilizers. (2 hours.)
8. rings and bodies: basic definitions and examples. (2 hours.)