1.Functions. Equivalence relations and partitions

2. Binary operations. Groups, subgroups, group homomorphisms

3. Rings and fields, subrings and subfields, ring homomorphisms

4. Vector spaces, examples. Subspaces. Linear maps

5. Linear dependence and independence. Bases, dimension. Steinitz theorem

6. Bases and coordinates. Dimension related formulas

Books:

1. N. Both, S. Crivei, Culegere de probleme de algebra, Lito UBB Cluj-Napoca, 1996.

2. S. Crivei, Basic abstract algebra, Casa Cartii de Stiinta, Cluj-Napoca, 2002, 2003.

3. I. Purdea, C. Pelea, Probleme de algebra, Editura EIKON, Cluj-Napoca, 2008.

