# **KAZAKH NATIONAL UNIVERSITY**

## after aI Farabi

**Mechanics and Mathematics Faculty Department of mathematics**

## It is confirmed

at session of the faculty's Scientfic Council Protocol № from « » 2022

Faculty's Dean

Final Control program of Course “Ideals and Varieties”

2 course, Spring semester 2022-2023

## Lector's name (Lecture and practical studies): Kaisar Tulenbaev

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1. Principal ideals. Simple rings.
2. Prime ideals. Nilradical
3. Maximal ideals. Jacobson radical
4. Zariski topology.
5. Varieties.
6. A curve on a manifold
7. Mapping of manifolds.
8. Tangent vector. Tangent space.
9. Metamathematical ideals
10. Disjunctive ideals
11. Ideals and homomorphism
12. Varieties of structures
13. Irreducible varieties
14. Pre-ideals and its varieties
15. Differential ideals

Required Reading List

1. M. F. **ATIYAH**, frs. I. G. MACDONALD. Introduction to.**Commutative Algebra**. UNIVERSITY OF OXFORD. ADDISON-WESLEY PUBLISHING COMPANY, 1969
2. Abraham **Robinson**, Introduction to Model Theory and the **Metamathematics** of Algebra. Moscow, 1967
3. David Mumford. The Red Book of Varieties and Schemes. Spinger-Verlag, Berlin, 1999