

Na izbirnem izpitu bodo trije sklopi nalog: Programiranje (3 naloge), Algoritmi (3 naloge), Matematika (7 nalog).

Seznam tem izbirnega izpita iz področja **programiranja in algoritmov** je isti kot za študij Računalništva in informatike na UL FRI. Katalog znanj je objavljen na: <https://fri.uni-lj.si/sl/dogodek/izbirni-izpit-za-vpis-na-magistrske-studijske-programe>

### **Seznam tem iz matematike:**

- indukcija
- množice, relacije, funkcije
- delna urejenost
- teorija grafov (usmerjeni in neusmerjeni grafi, Eulerjeva formula za ravninske grafe,...)
- algebraične strukture (grupa, kolobar, polje)
- realna in kompleksna števila
- analiza (zveznost, diferencibilnost,...)
- verjetnost (diskretna in zvezna)
- opis, časovna zahtevnost in razumevanje algoritmov
- binarna iskalna drevesa, urejanje
- osnove optimizacije
- linearno programiranje, dualnost v linearnem programiranju
- linearna algebra
- elementarna geometrija evklidskih prostorov

On the Selection exam there will be three types of exercises covering Programming (3 exercises), Algorithms (3 exercises) and Mathematics (7 exercises).

Catalogue of knowledge for the area of **Programming and Algorithms** can be found on: <https://fri.uni-lj.si/en/study-programme/computer-and-information-science-2>

### **List of topics in mathematics:**

- Proof by induction
- Sets, relations and functions
- Partial orders
- Basic graph theory (for directed and undirected graphs, Euler's formula for planar graphs, etc.)
- Algebraic structures (groups, rings, fields)
- Real and complex numbers
- Basic analysis (continuity, differentiability, etc.)
- Basic probability theory (discrete and continuous)
- Description, time complexity and understanding of algorithms
- Binary search trees, sorting
- Basics of optimization
- Linear programming, duality of linear programming
- Basic linear algebra
- Basic geometry in Euclidean spaces