

List of questions related to the subjects of the entrance examination
for the academic year **2024/2025**
study program **Space Engineering**
(oral form)

1. Torque and balance of forces, inertial mass and momentum of inertia, Newton's laws, input and out power, kinetic and potential energy, momentum and angular momentum conservation laws.
2. Frequency, period and wavelength, harmonic and damped oscillations, resonance.
3. Heat and temperature, Pascal law, hydrostatic pressure, Archimedes law, heat transfer, pressure and temperature in gasses.
4. Structure of matter (atoms and molecules), molarity.
5. Kepler's laws, parabolic and hyperbolic trajectories of massive bodies in gravitational field.
6. Semiconductor (n-type, p-type), metal and insulator.
7. Principle of operation of basic electronic semiconductor elements (diodes and transistors) and their characteristics.
8. Ohm's law, series and parallel circuitry of resistors, capacitors and coils.
9. Spectrum and wave propagation of optical radiation, quantities characterizing optical radiation, photons, photoelectric effect.
10. Principle of operation, basic properties and characteristics of photodetectors and LED.