

SCOPE OF THE QUALIFICATION EXAMINATION - PHYSICAL SCIENCES



Doctoral School of
Exact and Natural
Sciences

1. Classical mechanics of a material point and a rigid body.
2. Basics of fluid mechanics (buoyancy, pressure, incompressible fluid flow).
3. Special relativity. Lorentz transformation, collisions of particles.
4. Classical electrodynamics. Electric circuits.
5. Vibrations and waves.
6. Interaction of electromagnetic waves with matter.
7. Non-relativistic quantum mechanics. Photon.
8. Thermodynamics with elements of classical and quantum statistical physics.
9. Radioactivity, nuclear processes, ionizing radiation.
10. Basic experimental methods. Data analysis and statistical inference.

The exam sheet contains a list of the most important constants. Candidates may not use aids other than a scientific calculator during the exam.