The Midterm Exam program
on the discipline « **The theory of elementary particles**» for students of the fourth year of the specialty «6M060400 – Physics»

The proposed MidtermExam program on discipline« **The theory of elementary particles** » is made according to the discipline syllabus. The program determines the requirements for the levels of mastering the academic discipline: what the student should have *an idea* after studying the course for 7 weeks, which should know what *skills* and *habits* should be formed.

At MidtermExam, students will be asked two theoretical questions and one task.

Midterm addresses the following questions:

1. Particles and fields.
2. Brief overview of empirical material.
3. Elementary particles.
4. Elementary particles and the universe.
5. Cosmological singularity.
6. Evolution of the Universe.
7. Relic radiation.
8. Evolution of the Universe.
9. Regularities of fundamental interactions.
10. Quantum properties of particles. Spin.
11. Quantum properties of particles. Isospin.
12. Elementary particles and stars.
13. Properties of neutrinos.
14. Neutron stars.
15. Collapse of the star.

BIBLIOGRAPHY

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6. Y. Nagashima, Elementary Particle Physics. Wiley. Vol. 1: Quantum Field Theory, 2010. Vol. 2: Foundations of the Standard Model, 2013.
7. R. Cahn, G. Goldhaber, The Experimental Foundations of Particle Physics, Cambridge Univ. Press, 2009