

# Statistical Mechanics

**86-216-01**

**Lecturer:** Dr. Stas Burov

**Course type:** Lecture + Practice

**Date:** 2019-2020

**semester:** A

**weekly hours:** 3L + 1P

## **Aim of the course:**

Class Objectives : Learning Statistical Mechanics.

## **Details of subjects to be covered:**

1. Fundamental Thermodynamics
2. Conditions for Equilibrium and Stability
3. Statistical Ensembles and Partition Function
4. Many Body, non-Interacting Systems
5. Modern Theory of Phase transitions
6. Monte-Carlo Methods
7. Classical Fluids
8. Statistical Mechanics of out of Equilibrium Systems

During the Class: The material will be presented by oral lectures and discussion with students.

## **Prerequisites:**

Thermodynamics and Statistical Mechanics I.

## **Course mandatories:**

Weekly home assignments and two quizzes during the semester.

## **Grading:**

Exam – 67%, home assignments – 11%, quizzes-22%.

Exam material: all material covered during lectures and practical training.

**Bibliography:**

**(Optional)**

Reif: Fundamentals of Statistical and Thermal Physics

Landau and Lifshitz: Statistical Physics

Callen: Thermodynamics