

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE**  
**NATIONAL TECHNICAL**  
**UNIVERSITY "KHARKIV POLYTECHNIC INSTITUTE"**

Pulpit	Electric stations
Speciality	141 "Electric power engineering, electrical engineering and electromechanics"
Educational program	Electricity 141-01 "Electric stations"
Form of study	Full-time
Academic discipline	Energy Storage Systems and Maneuvering at the Power Grid
Semester	9

**LIST OF QUESTIONS AND TASKS INCLUDED IN EXAM TICKETS IN  
THE DISCIPLINE**

Number of tickets \_\_\_\_\_

Approved at the meeting of the  
Department  
minutes No. 20

Zav. Department  
\_\_\_\_\_ Oleksandr LAZURENKO

Examiner  
\_\_\_\_\_ Andriy IIVAKHNOV

- The concept of balance in the electric power system, to give all components.
- The concept of maneuvering in the electric power system, to give maneuvering characteristics of different types of power plants.
  - Shunting capabilities of TPP and NPP, to give similar and distinctive features.
  - The shunting capabilities of the hydroelectric power complex and the GTU bring similar and distinctive features.
    - Features of GTU.
    - Types of storage technologies.
    - Mechanical drives of electricity.
    - Electrochemical power storages.
    - Electromagnetic power drives.
    - Principles of hybrid combination of electricity storages.
    - The use of electricity storages in the power system.
    - Causes of balance violation in the electricity system.