

Gheorghe Asachi Technical University of Iași  
Faculty of Electrical Engineering  
Power Engineering Department  
Competition for Associate Professor, position 12, Academic Year 2024-2025  
Disciplines: 1. High Voltage Engineering I  
2. General Energetics

### **Competition Topics**

#### **For the position of Associate Professor**

1. High voltage AC Testing installations.
2. Impulse voltage impulse generators. Constructive types and working principles.
3. High voltage measurement techniques.
4. Gas breakdown processes in uniform and non-uniform electrical fields.
5. Discharge processes over insulating surfaces.
6. Propagation of voltage waves through a nodal point with transverse capacitance, respectively with longitudinal inductance.
7. Propagation of voltage waves through a short power line.
8. Overvoltages due to single-phase faults in power systems.
9. Neutral point treatment in medium voltage grids (working principles, particularities, applicability).
10. Criteria for equating primary energy quantities.
11. The nuclear power reactor. Neutron flux evolution in a nuclear power reactor.
12. Dynamic operating regime of a nuclear power reactor. Burning of nuclear fuel.
13. Photoelectric conversion of solar energy (photoelectric effect, types of cells, electrical parameters of the photovoltaic cell, influence of external factors).
14. Thermal conversion of solar energy (principles, types of solar collectors, applicability).
15. Wind parameters. Electrical parameters of wind turbines.
16. Wind turbines positioning.
17. Hydropower resources development.
18. Power system – structure and operating principles.
19. Electric energy storage – direct and indirect methods.

#### **Bibliografie**

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Dean,  
**Prof., Ph.D Dorin Lucache**

Head of Department,  
**Prof., Ph.D. Marcel Istrate**