

**"GHEORGHE ASACHI" TECHNICAL UNIVERSITY OF IAȘI**

**Faculty of Mechanical Engineering**

**Department of Mechanical and Automotive Engineering**

Competition for **professor** position, item **2** in the payroll list of the **Department of Mechanical and Automotive Engineering**

Courses: Compressors  
Thermodynamics of Compressible Fluids  
Unconventional thermal machines

**COMPETITION TOPICS**

for **professor** position, item 2 in the payroll list of the **Department of Mechanical and Automotive Engineering**

1. Centrifugal compressors. Operation, velocity triangles, thermodynamic diagrams, one-stage theoretical centrifugal compressor
2. Axial compressors. Elementary stage operation, velocity triangles, thermodynamic diagrams, types of elementary stages
3. Convergent-divergent nozzle. Model. Functioning at various working regimes
4. Normal shock wave. Connection between input velocity and output velocity. Prandtl's relation  
Correlation between pressures and densities when passing through the normal shock wave
5. Physico-mathematical models for Stirling engines

**References:**

1. Pimsner V., Mașini cu palete (Machines with blades). Editura Tehnică, București, 1988.
2. Stamatescu C., Tașcă D., Grigoriu Marieta, Compresoare volumice. Teoria, calculul și construcția (Volumetric compressors. Theory, calculus and construction). Editura Tehnică, București, 1965.
3. Ștefănescu D., Marinescu M., Ganea I., Termogazodinamica tehnică (Technical thermo-gas dynamics). Editura Tehnică, București, 1986.
4. Țurcanu Liudmila, Dinamica gazelor în mașini termice și pneumatice (Gas dynamics in thermal and pneumatic machines). Editura Academica, Galați, 2001.
5. Popescu Gh., Mașini Stirling (Stirling machines). Editura BREN, București, 2001.

Dean,  
Assoc.prof. Gelu Ianuș, PhD



Head of the Department  
Assoc.prof. Ioan Băisan, PhD