

2303. Αεροδυναμική

- laminar to turbulent flow transition)– airfoil performance characteristics (lift/drag).
- Steady and unsteady low speed external aerodynamics. Equations and boundary conditions of the potential incompressible flow.
- Generation of lift (Kutta-Joukowski theorem).
- Linear 2D airfoil theory
- Steady 2D flow around airfoils.
- Unsteady 2D flow around airfoils – wake development (Theodorsen).
- Vorticity theorems.
- Linear 3D wing theory – Prandtl's lifting line method and applications.
- Actuator disc – blade element theory for the calculation of the propeller performance.
- Numerical application of lifting line theory for the analysis of the 3D fixed and rotating wing problems.
- The numerical boundary element (BEM) method. Application in 2D and 3D problems.
- Viscous-inviscid interaction methods
- Grid based CFD methods for the analysis of external aerodynamics problems
- 2D airfoil performance measurements in the wind tunnel.

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