



Specialization Aeronautics



PROPULSION AERONAUTICS

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| Lecturers : 0.0 | TC : 0.0 | PW : 0.0 | Autonomy : 0.0 | Study : 0.0 | Project : 0.0 | Language : AN

Objectives

Design of a turbofan engine, with aerodynamic and mechanical specifications. Multi-disciplinary project organization.

Keywords : turbofan engine, compressor, turbine, aerodynamics, thermodynamics, structural mechanics, shaft dynamics

Programme

- Definition of architecture and thermodynamic cycle.
- Preliminary design of the compression stages.
- Detailed design of the compressor blades. 3D mechanical and flow simulations.
- Shaft dynamics analysis.

Learning outcomes

- Formulate an engineering problem.
- Use knowledge and know-how for the detailed design of a system.

Independent study

Objectifs : Progress on design.

Méthodes : Simulations with different levels of fidelity.

Core texts

N.A. Cumpsty, *COMPRESSOR AERODYNAMICS*, Krieger Pub, 2004
B. Lakshminarayana *FLUID DYNAMICS AND HEAT TRANSFER OF TURBOMACHINERY*, John Wiley and Sons, Inc., 1996
F. F. Ehrich *HANDBOOK OF ROTORDYNAMICS*, 2004

Assessment

Participation, report and oral presentation.