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AIRBUS

## Master Thesis within Parametric Aerodynamic Design of Curved Engine Intake Ducts

Reference Code 10434714 NU EN EXT 1

- Site:	Airbus Defence and Space Manching
- Target Group:	Student
- Work Contract Type / Working Time:	Final-year thesis / Full time
- Work Experience:	No work experience
- Functional Area:	X / Other
- Education:	Degree 4 Years / Engineering / Aerospace Engineering Degree 4 Years / Engineering / General Engineering

*Airbus is a global leader in aeronautics, space and related services. In 2017, it generated revenues of € 67 billion and employed a workforce of around 130,000. Airbus offers the most comprehensive range of passenger airliners from 100 to more than 600 seats. Airbus is also a European leader providing tanker, combat, transport and mission aircraft, as well as Europe's number one space enterprise and the world's second largest space business. In helicopters, Airbus provides the most efficient civil and military rotorcraft solutions worldwide. Our people work with passion and determination to make the world a more connected, safer and smarter place. Taking pride in our work, we draw on each other's expertise and experience to achieve excellence. Our diversity and teamwork culture propel us to accomplish the extraordinary - on the ground, in the sky and in space.*

### Description of the job

Are you looking for a master year project? Would you like to discover the work within Parametric Aerodynamic Design? Then apply now! We look forward to you joining us!

Location: Manching  
Start: Spring 2019  
Duration: 3 - 6 months

#### General:

Many multidisciplinary requirements and constraints are posed on the design of a future fighter engine intake duct. The internal layout of the aircraft, low-observability characteristics, and area distribution are only a few of a variety of major aspects, which need to be considered in the design process of the intake duct. The objectives of this thesis are to obtain a holistic view on the topic and gather relevant sensitivities for the design of curved engine intake ducts.

### Tasks

Your exciting topic:

- Literature review of the aerodynamic behavior of S-ducts
- Generation of one or more parametric CATIA models enabling a fast and efficient study of different duct parameters
- Setup of a computational framework in order to automate the parametric studies including evaluations of the effect of the computational mesh and the numerical setup (e.g. turbulence model)
- Computational Fluid Dynamics (CFD) investigations to understand the influences of:
  - S-shape of the duct
  - Duct area distribution
  - Diffusion ratio
  - Local disturbances
  - Secondary inlets within the intake duct on the intake performance (total pressure recovery) and flow quality (intake-engine compatibility).
- Documentation of the investigated influences and resulting design guidelines

This job requires an awareness of any potential compliance risks and a commitment to act with integrity, as the foundation for

the Company's success, reputation and sustainable growth.

## Skills

You offer:

- Enrolled student (m/f) within Aerospace Engineering, Mechanical Engineering, Engineering/Avionics or similar field of study
- Sound basic knowledge of CATIA shape design is mandatory
- Experience in Computational Fluid Dynamics (CFD)
- Knowledge of at least one programming language (e.g. Python)
- Strong interest in aerodynamic design and fighter aircraft
- English: negotiation level
- German: advanced

You are a good team player, have excellent communication skills, and are able to work independently.

## Contact

Does this job description fit your objectives and profile? Take the next step in your career and come and join us!

How to apply:

Online via [www.jobs.airbusgroup.com](http://www.jobs.airbusgroup.com)

Reference number 10434714

Please provide the following documents: cover letter, C.V., relevant certificates, current certificate of enrolment

You can direct your cover letter to: Mr. Unterreitmeier

Should you have general questions regarding this position you can write an E-Mail to: [students.germany@airbus.com](mailto:students.germany@airbus.com)

Airbus is committed to achieving workforce diversity and creating an inclusive working environment. We welcome all applications irrespective of social and cultural background, age, gender, disability, sexual orientation or religious belief.