Fraunhofer IPT

APPLICATION GUIDELINE

Required documents

- Curriculum in German or English (German standards, which includes a picture)
- Cover letter in German or English
- Transcript of records (the transcripts generated by the university system are enough, even if it is in Portuguese)
- Recommendation letter (optional)
- Certificates (optional)

Application Tipps

- Cover Letter

  - Some sentences about yourself
  - Motivation of your application
  - Professional and personal qualifications
  - For each position, there is a **Reference Number**. The students have to express clearly which position or positions they are applying for. It's up to the student how to inform these priorities, whether into the curriculum (for instance creating an additional topic) or into the motivation letter

- Curriculum

  - Max. 2 Pages
  - Add your Picture
  - Personal information: full name, birthday, birthplace
  - Contact data: address, telephone number, email address
  - Education: university, courses
  - Work experience: extra-curricular projects, volunteer work, internship etc.
  - Skills: languages, software
  - Hobbies and Interests
  - For curriculum in German, we recommend (**not mandatory**) to use the available samples provided by the social media XING: https://lebenslauf.com/
  - For curriculum in English, we recommend (**not mandatory**) to follow the German standard formats available in the above-mentioned website, adapting it to English

Preselection

- Additional **obligatory** requirements for **all open positions**:
  - At least the first half of the studies has been completed before the student starts working with us

- **The student must be able to write your Bachelor Thesis at our Institute in combination with the work as Student Assistant**. The Thesis topic will be related to the Student Assistant activities

- The partner university in Brazil cooperates with our Institute implementing a preselection and has autonomy to add any eligibility criteria or even request from the student any other document

Arrival in Aachen

- The student must arrive in Aachen at least 7 working days before the stipulated contract start date

Contract duration

- For all positions it's required to stay at our Institute for around 1 year and 15 days
- It is not possible to extend the work contract for longer than the above-mentioned period

Payment

- The monthly salary is enough to cover all your main basic expenses including rent, food, health insurance, transport etc.

STUDENT ASSISTANT
ULTRA–PRECISION GRINDING

Your Task

- Supervise, take care and operate a state-of-the-art 5-axis ultra-precision grinding machine for grinding of brittle hard materials for optical applications
- Design of experiments for grinding tests
- Conduct and carry out test series on the machine on your own
- Programming tool paths (G-codes, NC)
- Metrological qualification of processed results with tactile and optical devices
- Evaluation, analysis and documentation of machining results
- Modelling and drawing in Siemens NX (CAD)
- Assembly of mechanical components

What we expect from you

- You study Mechanical Engineering, Electrical Engineering, Mechatronics or other related studies
- You are fluent in English
- Basic knowledge in German and the will to further learn German
- Previous experience with operating of CNC machines is a plus
- Good knowledge in CAD modeling
- Very good capacity for work carefully, (self-)organized and independently
- You are curious about new tasks, take initiative and show responsibility

Start on 16st January 2019
End on 16th February 2020

Reference Number: 2019-1-01

STUDENT ASSISTANT

DESIGN OF CUTTING EXPERIMENTS, PRODUCTION OF MANUFACTURE PARTS AND MAINTENANCE

Your Task

- Programming in G-code
- Machining and preparation of workpieces
- Operation of 3 and 5-axis machining centers
- Design and execution of machining experiments
- Handling of measurement devices
- Modelling components with CAD and CAM
- Evaluation and analysis of test results under supervision
- Support maintenance and service of the test facilities
- Construction and assembly of mechanical components

What we expect from you

- You study Mechanical Engineering or other related studies
- You are fluent in German
- You like hands on work
- Basic knowledge in English is a plus
- First experience with CNC machining process is a plus
- First experience programming in G-code is a plus
- Very good capacity for teamwork
- You are curious, proactive and responsible

Start on 16st January 2019
End on 16th February 2020

Reference Number: 2019-1-02

STUDENT ASSISTANT
MACHINING OF ADVANCED MATERIALS

Your Task

- Operating with CNC machining centers and fundamental test bench
- Experimental investigations mainly for machining of aerospace and lightweight materials
- Using innovative metrology for acquisition and evaluation of cutting forces/temperatures, tool wear and surface quality
- Using CAD/CAM software for design of cutting processes

What we expect from you

- You study Mechanical Engineering or Material Engineering
- You are fluent/advanced in English
- German is desired, but not obligatory
- Knowledge in machining technology is a plus
- Very good capacity for teamwork
- You are curious, take initiative and show responsibility

Start on 16th January 2019
End on 31st January 2020

Reference Number: 2019-1-03

STUDENT ASSISTANT
CAM SOFTWARE DEVELOPMENT FOR ADDITIVE MANUFACTURING

Your Task

- Development of algorithms for tool path planning
- Development of automatic processing and analysis of measurement data
- Development of control and adaptation strategies for tool path planning
- Programming of source code
- Implementing of new source code in existing CAM software
- Implementing of database connection and communication
- Testing and evaluation of new software codes
- Bug fixing

What we expect from you

- You study Mechatronics or Mechanical Engineering
- You are fluent in either German or English
- Programming skills especially in C++ or in Matlab
- High level of self-employment

Start on 1st February 2019
End on 31st January 2020

Reference Number: 2019-1-04

STUDENT ASSISTANT

ADDITIVE MANUFACTURING BY LASER METAL DEPOSITION WITH WIRE

Your Task

- Research on laser processes focusing on additive manufacturing
- Operation of 5-axes CNC machine prototype for additive manufacturing
- Mechanical testing of specimen
- Evaluation and documentation of machining results
- Programming in G-code

What we expect from you

- You study Mechanical Engineering or Materials Engineering
- You are fluent in English or German
- You like hands on work and crafting
- Knowledge in G-code is a plus
- Interest in laser machining processes is a plus
- Previous experience with laser machining process is a plus
- Very good capacity for teamwork
- You are curious, take initiative and show responsibility

Start on 16th January 2019
End on 31st January 2020

Reference Number: 2019-1-05

STUDENT ASSISTANT
WATERJET MACHINING

Your Task

- Experiments for waterjet machining
- Programming in G-code of 3- and 5-Axes CNC-machining
- Operation of 5-Axes CNC Machine
- Documentation of machining- and test results (PowerPoint / Excel)
- Drawing with NX, Rhino
- Maintenance and careful with the machine components

What we expect from you

- You study Mechanical Engineering or Material Engineering
- You are fluent in English or German
- Very good capacity for teamwork
- You are interested in waterjet machining processes
- Basic knowledge in NC-programming
- Good knowledge in CAD drawing, Microsoft Excel, PowerPoint and Word
- Basic knowledge in German is a plus
- Basic knowledge in CNC-machining is a plus
- You are curious, organized, focused, take initiative and show responsibility

Start on 16th January 2019
End on 16th February 2020

Reference Number: 2019-1-06

STUDENT ASSISTANT
HOT EMPOSSING OF NANO- AND MICROSTRUCTURES

Your Task

- Design of experiments for embossing processes and subcomponent tests
- Modelling of test bench components in SolidWorks and assembling
- Evaluation and documentation of machining results
- Simulation with Ansys

What we expect from you

- You study Mechanical Engineering or Mechatronics
- You are fluent in English or German
- You like hands on work and crafting
- First experience with or the drive to learn MatLab
- You are curious, take initiative and show responsibility
- Very good capacity for teamwork

Start on 16th January 2019
End on 31st January 2020

Reference Number: 2019-1-07

STUDENT ASSISTANT

MACHINING DATA PROCESSING FOR A DIGITAL TWIN IN TURBOMACHINERY MANUFACTURING

Your Tasks

- Signal processing of measurement data with MATLAB/Simulink
- Development of Software Plug-Ins for data visualization
- Execution of tests for process monitoring with multi-sensor systems
- Documentation of results

What we expect from you

- You study Mechatronics or Mechanical Engineering
- You are fluent in English
- Good Knowledge of MATLAB, Signal Processing or in Programming in C++
- You are interested in milling and turning processes
- You are curious, take initiative and show responsibility

Start on 1st February 2019
End on 31st January 2020

Reference Number: 2019-1-08

STUDENT ASSISTANT
PRECISION MONTAGE AND AUTOMATION

Your Task

- Assembly/Disassembly of a robotics components
- Maintenance Analysis and Procedures
- Evaluation and documentation of machining results
- CAD Modelling in SolidWorks
- Creating scripts e.g. Python
- Communication with customers and partners
- Electrical wiring

What we expect from you

- You are curious, take initiative and show responsibility
- You study Mechanical Engineering or Mechatronics
- You are fluent/advanced in either English or German
- You like hands on work and crafting
- Pneumatics and Electrical knowledge is a plus
- Good knowledge in Python or other programming language is a plus

Start on 1st February 2019
End on 31st January 2020

Reference Number: 2019-1-09

STUDENT ASSISTANT

MANUFACTURING HIGH PRECISION OPTICS THROUGH INJECTION MOLDING

Your Task

- CAD design, construction and assembly of injection molding tools in SolidWorks
- Injection molding process analysis and optimization
- Operation of electrical and hydraulic injection molding machines
- Design, construction and assembly of robot grabbing systems
- Parts measurement
- Simulation in Autodesk Moldflow

What we expect from you

- You study Mechanical Engineering, Mechatronics
- You are fluent in English
- Basic knowledge in German
- Very good capacity for teamwork
- You are interested in injection molding processes
- You are curious, take initiative and show responsibility

Start on 16th January 2019
End on 31st January 2020

Reference Number: 2019-1-10

STUDENT ASSISTANT
LASER SYSTEM TECHNOLOGY

Your Task

- Design of experiments for laser aided punching process
- Material analysis
- Evaluation and documentation of experiments results
- Modelling in SolidWorks
- Preparation of the punching equipment

What we expect from you

- You study Mechanical Engineering, Material Engineering, Mechatronics
- You are fluent in English
- Basic knowledge in German is a plus
- Very good capacity for teamwork
- You are interested in laser technology processes

Start on 16th January 2019
End on 31st January 2020

Reference Number: 2019-1-11