



## Master Thesis: Student Analog Design

### Job description

The world energy consumption is estimated to grow steadily in the following years, resulting in a forecast of power consumption in 2040 which duplicates the value obtained in the year 2000. Half of this total energy is used in areas related to motion. To overcome this global issue, the energy efficiency regulations force the use of variable speed drives, which can save up to 60% of energy. The use of inverter technology allows to regulate the motor speed resulting in a significant reduction of electricity consumption. At the Infineon "Industrial Power Control" division we are enabling the inverter technology by providing our isolated gate drivers for MOSFET, IGBT and SiC power applications. With these products we offer our customers the capability to perform an efficient control of power transistor arrays in voltage domains up to 1200V, isolating the control – and power voltage domains on a single chip. The increasing demand on accurate and efficient switching promotes the use of new analog driving techniques.

We are seeking for a highly motivated student (f/m/div)\* eager to learn used techniques to drive power transistors via on - chip isolation like transformers and capacitive couplers. Based on this knowledge new circuit concepts shall be elaborated enabling minimum signal propagation delay time from the microcontroller to the power transistors, still preventing from shoot through currents which is crucial for half - and full bridge applications. Since contents of this work are going beyond state of the art analogue power design, it will be perfectly suited for a master thesis. Some potential areas of study are:

- **State of the art circuit concepts**
- **Behavioral simulation**
- **Transistor Level Design**
- **Lab Evaluation**

#### Further Information

Type of employment: Temporary / Full-time (Flexible working hours from Monday to Friday between 6 a.m. and 7 p.m.)  
Duration: min. 6 months

**This thesis has to be written in cooperation with an university.**

### Profile

You are best equipped for this task if you have:

- A Bachelor's degree in **Electrical Engineering**
- Specialization in the field of **power electronics**

### At a glance

Location:

Job ID: **333014**

Start date: **as soon as possible**

Entry level: **0-1 year**

Type: **Full time**

Contract: **Temporary**

Apply to this position online by following the URL and entering the Job ID in our job search. Alternatively, you can also scan the QR code with your smartphone:

Job ID: **333014**  
[www.infineon.com/jobs](http://www.infineon.com/jobs)



### Contact

**Nico Steinhauser**  
Student Talent Attraction Manager



- Basic understanding of **analog simulation tools** (Cadence, Spice)
- **Fluent English skills**, German skills as a plus

This position is subject to the collective agreement for workers and employees in the electrical and electronics industry (full-time), employment group D for master students (<https://www.feei.at/wp-content/uploads/2022/05/minimum-salaries-white-collar-workers-2022.pdf>).

**Please attach the following documents (English or German) to your application:**

- Motivation letter
- CV
- Certificate of matriculation at a university
- Transcript of records
- Highest completed educational certificate
- Reference letter

## Benefits

- **Villach:** Coaching, mentoring networking possibilities; Wide range of training offers & planning of career development; International assignments; Different career paths: Project Management, Technical Ladder, Management & Individual Contributor; Flexible working conditions; Home office options; Part-time work possible (also during parental leave); Sabbatical; Child care in Villach & Klagenfurt; On-site social counselling and works doctor; Health promotion programs; On-site canteen; Private insurance offers; Wage payment in case of sick leave; Corporate pension benefits; Flexible transition into retirement; Performance bonus; Accessibility, access for wheelchairs

## Why Us

**Part of your life. Part of tomorrow.**

We make life easier, safer and greener – with technology that achieves more, consumes less and is accessible to everyone. Microelectronics from Infineon is the key to a better future. Efficient use of energy, environmentally-friendly mobility and security in a connected world – we solve some of the most critical challenges that our society faces while taking a conscientious approach to the use of natural resources.

– **Industrial Power Control (IPC)** empowers a world of unlimited energy –

Power semiconductors play a crucial role in increasing efficiency and reducing energy losses along the whole energy conversion chain.

As the global leader in power semiconductors, Infineon IPC delivers leading products and solutions for smart and efficient energy generation, transmission and consumption. We strive to make this planet a greener place where sufficient energy is accessible to everyone – wherever and whenever they need it.

*\* The term gender in the sense of the General Equal Treatment Act (GETA) or other national legislation refers to the biological assignment to a gender group. At Infineon we are proud to embrace (gender) diversity, including female, male and diverse.*

**Infineon Hub - Connect. Create. Challenge.**

The iHub at TU Wien represents an inspiring tech platform, networking area and event location, connecting Infineon Austria with tech experts, science specialists and young professionals.

Check out our upcoming events:

[Infineon iHub](#)

