

Where to go in industry?

From Architecture to Zoology – the choice of possible professions is huge. Which sectors are of interest to you? The most popular fields for TUM Graduates.

Before you start looking for a specific job in Germany, you should get an overview of the numerous sectors of industry and occupations you could go for. Below we list the sectors of particular interest to TUM Graduates. While the compilation will give you an initial overview, you're sure to want to do further, more detailed research on individual sectors. The dividing lines between professional fields are often somewhat blurred for the simple reason that work is increasingly interdisciplinary and digitalization is encroaching on all sectors.

A **Architecture, construction, surveying**

The design or construction and fitting out of buildings, transport routes or open spaces belong to this industry sector. For example, architects develop concepts and organize construction work, civil engineers calculate and design components and their support structures, surveyors record geoinformation data and process them to enable new construction projects to get off the ground and urban planners come up with solutions to the challenges of urbanization.

Agriculture, nature, environment

The English term agribusiness not only covers agriculture but the entire value chain from the production of food to its sale to consumers. Animals are bred and cared for, plants cultivated and harvested and these production processes are increasingly computer-controlled. For example, robots are helping to milk cows. Fruit, vegetables, meat or milk are ultimately brought to market. The design of green open spaces, the planning of protective measures to protect nature and the environment or the monitoring of the disposal of waste and wastewater are possible.

areas that can be tackled in this sector. This is a stimulating field for people who study Agricultural and Horticultural Sciences, Agricultural Systems Science or Agricultural Biosciences.

B Business, admin

Management, human resources, marketing, distribution and sales, insurance and real estate, accounting, controlling, tax and auditing or legal and administration: All sectors, companies and institutions need employees in the office to organize, calculate, plan, present, negotiate and administer. This ranges from traditional office management to company management.

C Chemical-pharmaceutical industry

The chemical-pharmaceutical industry produces, for example lacquers, paints, adhesives, fertilizers and personal care products for consumers. Formulas and models are developed for designing products and techniques or for manufacturing pharmaceuticals, plastics or lacquers. Most of the products manufactured are further processed within the industry. The main customers are plastics processors, the mechanical engineering industry, the automotive, packaging and construction industries and textiles.

E Electrical

From smartphones to car production – electrical engineering products and applications are to be found in all corners

of everyday life. This sector is Germany's second largest industrial branch in terms of employees, behind mechanical engineering in first place, and ahead of the automotive industry. Automation, medical engineering, cybersecurity, semiconductors or electrical components – the electrical industry is one of the drivers of innovation. In IT and communications technology, for example, systems are designed, installed and set up for mobile telephony or the Internet. Automation technology is giving rise to complex production systems that have to be programmed.

H Health

Whether in hospitals, rehab clinics or medical practices – with regard to the focus on patients' health, many new lines of work are emerging such as in primary medical care, diagnostics, consultation or treatment. Taking care of people in need of help, conducting medical examinations, prevention through sport, exercise and the right diet, the provision of medical and rehab equipment or the counseling and support given to patients – all of these areas come on top of the organizational and commercial duties in the health sector. The industrial health sector also comprises the production of drugs, medical engineering and medical products as well as trade and distribution with these products. Health insurance companies also form part of the health sector.

IT, computers

The information and communications technology sector includes all installations and systems that facilitate the transmission or exchange of information in digital form and by electronic means. In other words: mainly the Internet. It includes companies that make devices such as computers, mobile phones or TVs or market electronic components. IT consultants and companies that make money from publishing software or repairing such equipment also form part of this sector. Hardware and software developers, for example, design and configure computer systems or program applications and systems. This work also comprises communication with customers and any commercial aspects. The analysis and interpretation of data are growing in importance, both in research and companies. Data analysts and data scientists evaluate these data and deploy them profitably.

Metal, mechanical engineering

Germany is the world's third largest manufacturer of machines. The mechanical engineering and systems engineering sector is dominated by small and medium-sized companies and it is considered the leading sector for exports and innovation.

The focus here is on tools, components, machines or products made from metal – these technically sophisticated preliminary products are used to make complex products for all industries. For example, they are used to mine metallic raw materials or control smelting processes. The mechanical engineering and systems engineering sector focuses on the development, manufacture, assembly and commissioning of machines and systems as well as on operating, setting up, maintaining, servicing and repairing such equipment.

P **Production, manufacture**

Precast concrete parts, clothing, food or musical instruments: Here we find the manufacture of products from many different kinds of materials. Responsibilities in production and manufacture range from development and preparation, the actual manufacturing process to quality control. For example, it includes the textile and clothing industry which produces insulation, dressings or airbags, in addition to clothing. Or the German wood industry which processes wood to make furniture or brooms and brushes.

**TUM
TIP**

The series of events “Berufsfelder im Fokus” by TUM Alumni & Career offers fascinating insights into various sectors and lines of work.
www.community.tum.de/events

Technology, fields of technology

There are numerous special areas within individual fields of technology: for example, biotechnology, genetic engineering, microsystems technology, nanotechnology, optoelectronics and optics or renewable energies. In biotechnology, technical applications are derived from biological structures. In gene technology, we study the genetic material of humans, animals or plants. While in the field of renewable energies, new technologies are researched for generating energy, existing systems maintained and wind turbines or photovoltaic systems constructed.

Transport, distribution

On the road, on water, in the air or on rail, people, products and goods are traded globally. In transport and distribution, the vehicles needed for this purpose are built, driven and maintained. In addition, traffic has to be planned, coordinated and monitored as people and material need to arrive at their destinations safely, punctually and efficiently. Service providers ensure that goods are loaded so as to save cost and time, or that mail and parcels arrive on time. Warehouse capacities need to be utilized to optimum effect.

Possible sources of information about sectors of industry and occupations in Germany:

Books on various subject areas such as "Berufsziel Life Science" by Barbara Hoffbauer or "Big Business und Big Bang. Berufs- und Studienführer Physik" by Max Rauner and Stefan Jorda.

Sometimes it can be useful to start your research from the other direction: Are you interested in a particular product and could you imagine working for the manufacturer? An Internet search with the corresponding product keywords will help you here.

It's also a good idea to get information from trade associations and professional bodies. At Bitkom, for example, for digitalization, the VDI (Association of German Engineers) for Mechanical Engineering and systems or the DPG (German Physical Society) for occupations in the field of Physics. An overview of 14,000 German associations is provided on the www.verbaende.com website.

For a good overview, international workers in particular can visit the website www.make-it-in-germany.de. Here you will find a list of professions that are particularly in demand, as well as information about the German labor market.