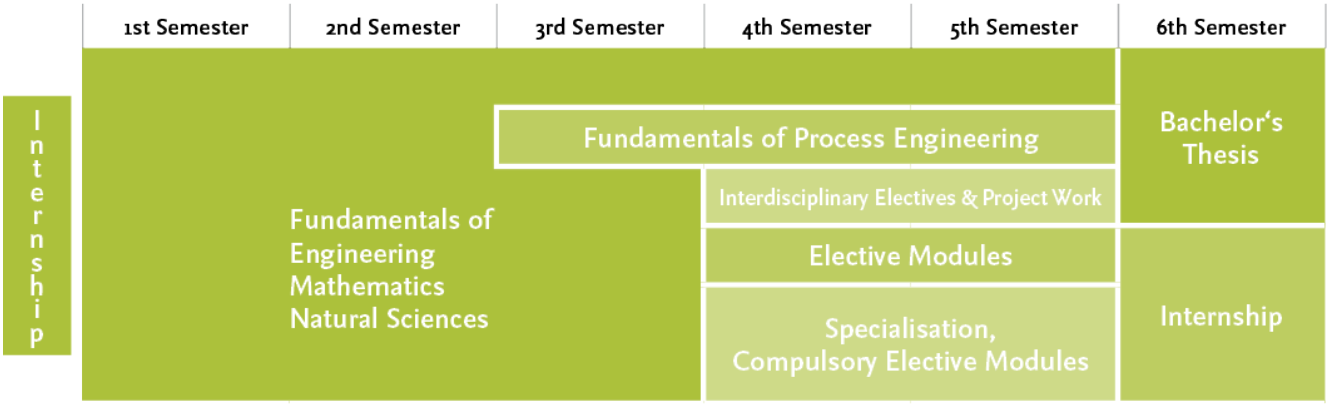
Biochemical, Chemical and Pharmaceutical Engineering (B.Sc.)

Overview of the structure of the degree programme BEFORE winter semester 2022/23 (PO 2014)/

Start of study BEFORE Winter semester 2022/23

Structure of the Bachelor's degree programme

The chart below shows the structure of the study programme. The curriculum gives you an exact idea of the subjects and possibilities included in the study programme. A complete and detailed description of all subjects included in the programme can be found in the module handbook (Modulhandbuch/MHB) see page ""Documents".



Structure of the Bachelor's programme Biochemical, Chemical and Pharmaceutical Engineering

Fundamentals

In the first semesters of the Bachelor's programme, the **fundamentals of Engineering** and **Natural Sciences** as well as the practice-related **fundamentals of Process Engineering** are taught. The subjects in the Bachelor's programme Biochemical, Chemical and Pharmaceutical Engineering include:

- Mathematics,
- Anorganic and Organic Chemistry, Microbiology, etc. (fundamentals of Natural Sciences),
- Mechanics, Thermodynamics, Construction Engineering, etc. (fundamentals of Engineering),
- as well as Bioprocess Engineering, Fluid Process Engineering, Mechanical Process Engineering, Chemical Process Engineering and Pharmaceutical Process Engineering (fundamentals of Process Engineering).

Elective modules

The subject profile is supplemented by elective modules, which the students choose freely – according to their interests – from a given catalogue in addition to their specialisation.

Internship

After completion of the pre-study internship, an engineering internship of 10 weeks must be proven during the Bachelor's degree programme. The internship guidelines provide more detailed information on the areas and duration of the internship:

General Downloads

The engineering internship gives you the opportunity to get to know the professional environment and the professional requirements for an engineer working in industry already during your studies.

Internship

Bachelor's thesis

The Bachelor's programme is completed by the final module. This module includes the preparation of a written paper, the **Bachelor's thesis** (12 CP), and the **presentation** of the results (2 CP). Both parts must be passed separately. The processing time is 3 months. Only those who have completed at least 142 CP and successfully passed the project work can be admitted to the Bachelor's thesis. The Bachelor's thesis should demonstrate the student's ability to write a scientific paper. In addition, this module trains the documentation and communication of scientific results and enables the students to successfully apply these working methods in their future field of work.

Specialisation, Compulsory Elective Modules

From the third semester onwards, students specialise in **Bioengineering**, **Chemical Engineering** or **Pharmaceutical Engineering**. In each specialisation there are three compulsory modules that convey the core skills of the respective discipline:

Bioengineering: Applied Microbiology, Bioprocess Kinetics, Biochemistry

Chemical engineering: Heat and Mass transfer, Interface science, Technical Chemistry

Pharmaceutical engineering: Fundamentals of Anatomy and Physiology, Synthetic Drugs, Biogenic Drugs

Interdisciplinary Electives and Project Work

The **Interdisciplinary Electives** ensure that you will dare to "think outside the box" during your studies. Here, the focus is on interdisciplinary skills, the so-called "soft skills" such as presentation techniques, teamwork, project management, etc. It is formed by a **compulsory course in English (**English for the Process Industries, 2 CP), a **non-technical elective module** (2 CP) and the **Project Work**. The English course, for which a placement test is required at the Language Centre of TU Braunschweig, is designed to provide you with the necessary basics to access international specialist literature. The elective module gives you the freedom to choose from a wide range of courses that best fits your personal profile. As these subjects are part of your certificate, you should use the opportunity to prove the acquisition of corresponding competences in your certificate.

The **Project Work** (6 CP) promotes the ability to develop, implement and present concepts. Students should acquire the ability to define goals for a larger task and to develop interdisciplinary solutions and concepts. It is a group work in which students prepare a topic theoretically and present it at the end of the semester. Since a successfully completed project work is a prerequisite for the registration of the Bachelor's thesis, it is not recommended to do the project work in the last semester. The topics, which change each semester, are usually announced six weeks before lectures begin. More informations are provided on the respective pages of the institutes and on the common page of the Energy and Process Engineering Institutes.

Laboratory

Some modules include a laboratory internship. These can be bundled together as a block course or in various individual experiments spread over several weeks during the semester. The dates will be announced at the beginning of the semester. Please inform yourself before the beginning of the semester on the websites of the respective institutes.

Consecutive Master's programmes

Building on the Bachelor's degree in Biochemical, Chemical and Pharmaceutical Engineering, we offer two alternative, in-depth Master's degree programmes:

- **Master's programme Biochemical and Chemical Engineering**: In the Master's programme Biochemical and Chemical Engineering, modules with a specialisation in bioengineering or chemical engineering are selected in the compulsory area. In addition, numerous other courses are selected from extensive catalogues.
- **Master's programme Pharmaceutical Engineering**: In the Master's programme Pharmaceutical Engineering, the manufacturing processes of various drugs and forms of drugs are the central topics. In addition to the processes, however, the legal requirements and regulations necessary for production are also studied. In the elective area, specific interests and talents can also be deepened.

In addition to the two Master's programmes mentioned above, other Master's programmes of the Faculty of Mechanical Engineering are also available. Special admission requirements must be observed.

Service and advice
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