

Bioprocess engineering

Apply now

WHAT DO BIOPROCESS ENGINEERS DO?

You do research on the borderline between biotechnology and process technology. Like a chef you create a menu from individual ingredients and select the equipment you need for the job. Bioprocess engineers develop, design and operate manufacturing processes for sustainable materials such as foodstuffs, biochemical, biofuels or novel medications. Nature uses other strategies than the ones that classical chemistry uses. Interdisciplinary work on process development enables you to develop new, sustainable, industrially scalable processes and, as the name says, you create bioprocess-engineered products. They must, of course, be competitive if they are to take the place of established processes. Just as in a restaurant not only the taste but also the price must be right if guests are to come again.

Here is an example of biocatalysis at the TU Hamburg for a sustainable skin cream production process: <https://biotechall.rz.tuhh.de> And a film that explains what aerogels are and their role in food: <https://www.youtube.com/watch?v=gDzjCKnuqis>

HOW CAN I SHAPE THE FUTURE WITH BIOPROCESS ENGINEERING?

Are you interested in climate and environmental protection? In how CO₂ from fossil combustion processes can be put to meaningful use or how it can best be replaced by renewables? Would you like to produce vegan food or artificial meat in order to feed the world's population

better? Or are you looking for a way to cure diseases with new medications and vaccines? Bioprocess engineering at the TU Hamburg does all of that. It develops new, bio-based processes for intelligent use of CO₂ and conducts research on novel, cell-based foods and medical therapies for an aging society. At the same time research investigates new source materials such as synthetic gas from biomass or process uses of 3D printing. Shape the future with processes that go easy on the environment. And do it on the basis of our motto, which is that it is technically feasible!

WHAT DO I LEARN ON THE COURSE AND WHERE DO I LATER FIND A JOB?

On the bachelor's study course you will learn, in addition to the scientific and technological basics, a lot about the different methods and equipment for understanding and calculating production processes and biochemical reactions. A special focus—in contrast to pure process technology—is on the use of cells (microorganisms and animal cells) or enzymes to manufacture products. Studying bioprocess engineering at the TU Hamburg also involves a whole lot of laboratory practicals in which you can put what you have learned into practice in a small group. Bioprocess engineers are in demand in many industries. You can work as an engineer in plant construction for energy or food technology, in chemicals or pharmaceuticals and in research and development or project planning.

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Tala Allababidi

BIOPROCESS ENGINEERING

I am Tala Allababidi, a fourth-semester student of bioprocess engineering. I come from Damascus in Syria and have been in Germany for four years. After school I didn't know at first which subject might be a good match for me to study. Then I thought hard about what specially interested me and looked for a combination of technology and biology because I have always been interested in them. That's why I decided to study bioprocess engineering.

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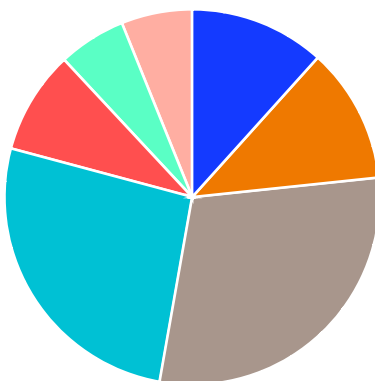
HOW IS THE PROGRAM STRUCTURED?

You have classes in chemistry and biochemistry, microbiology and molecular biology, math, mechanics, fluid mechanics, thermodynamics, and the basics of biotechnology and process technology. You spend a third of your time each learning the fundamentals of natural science, engineering science and bioprocess engineering.

FURTHER STUDIES?

The following master's programs are suitable as follow-ons from a B.Sc. in Bioprocess Engineering:

- [Process Engineering](#)
- [Bioprocess Engineering](#)
- [Chemical and Bioprocess Engineering](#)
- [Joint European Master in Environmental Studies: Cities and Sustainability](#)
- [International Management and Engineering](#)



- Technical subjects
- Non-technical subjects
- Mechanics
- Thesis
- Bioprocess engineering
- Mathematics
- Scientific Basics