



STUDY THE FUTURE

# Process Systems Engineering

**bcj**



## Process Systems Engineering

The education in the specialization Process Systems Engineering enables the students to work on the design, operation, and control of complex chemical and biochemical production systems, using computer simulation and optimization tools.

Process Systems Engineering has a great demand in the market as it enables a chemical engineer to acquire all the knowledge necessary not just for designing a chemical plant but also for its simulation, optimization and control. Students learn in a truly international class and work together with fellows from other countries, cultures and backgrounds. Joint work in tutorials, labs and project groups will broaden the horizon and enable to interact productively and respectfully in international teams and organizations.

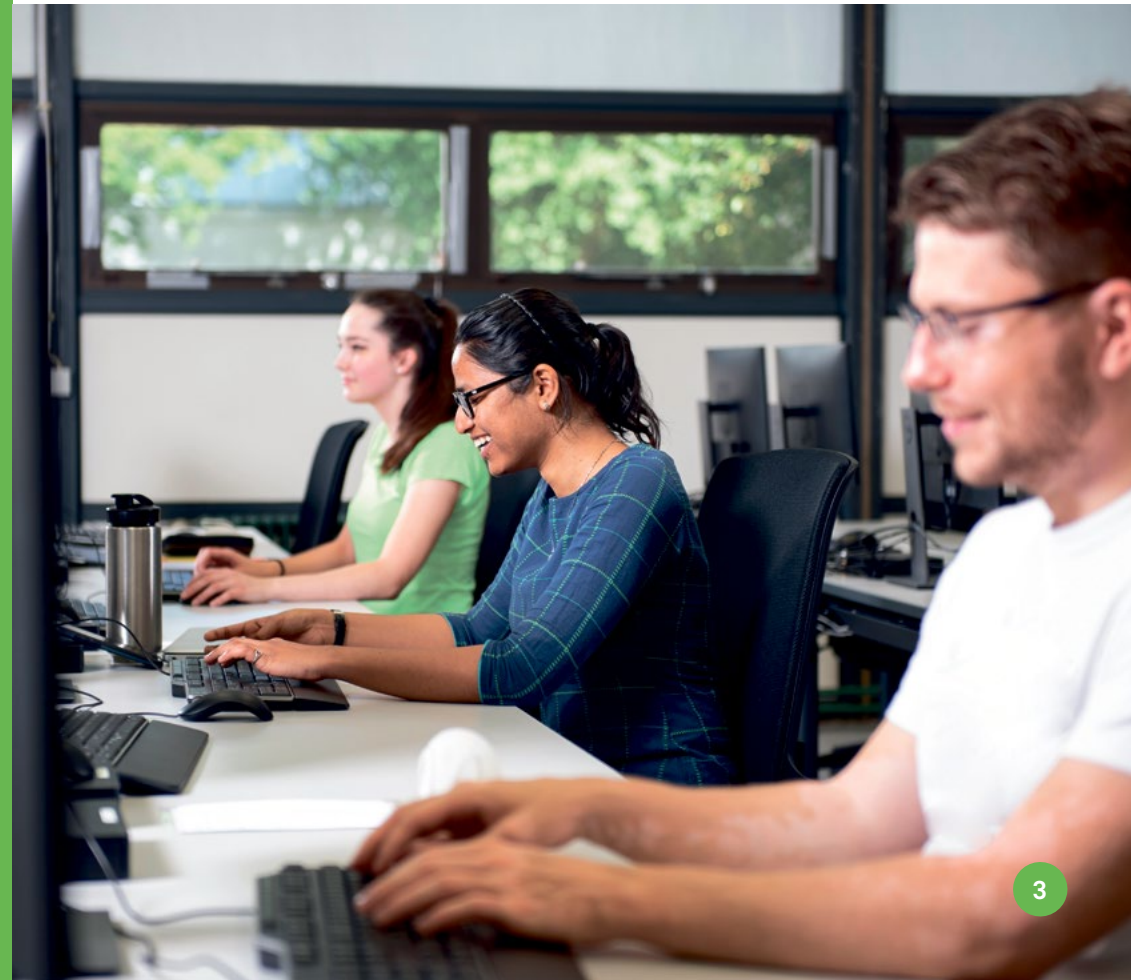
The program includes a review of chemical engineering fundamentals, including process dynamics and control in the pre-semester, then more in-depth knowledge in core chemical engineering subjects and in process modelling and simulation is acquired, including the use of up to date computer tools. There are ample opportunities for specialization. Including the pre-semester, the program takes at least two years to complete. It is intended for students having a Bachelor's degree in chemical engineering or equivalent knowledge.

## Career opportunities

Chemical engineers are active in the fields of research and development, plant design, plant construction, plant operation, production, sales and service, in the official approval and monitoring of plant and processes. They participate in major industrial corporations, small and medium-sized enterprises and the civil service. Graduates with a Master's degree in Process Systems Engineering have excellent job opportunities, as they are best prepared for driving digitalization and automation of the process industries and improving the processes with respect to sustainability and flexibility.

The Department of Biochemical and Chemical Engineering (BCI) in Dortmund enjoys a high reputation in the German and European process industries, resulting in a wide range of choices for industrial placements and excellent employment perspectives.

Alumni of the program have found employment in various large chemical enterprises, in the pharmaceutical industry, as well as in contractors and automation companies..



# Application for English language masters programs



## APPLICATION

Access to the program is possible for students with a Bachelor Degree (B.Sc, B.Eng, B.Tech) in Chemical Engineering or anequivalent education.

## STUDENTS WITH AN INTERNATIONAL (NON-ECTS) BACHELOR'S DEGREE

Interested students meeting the criteria are encouraged to submit their application using the internet form which is accessible from February 1 each year. The deadline for the submission of the application is April, 15, for application for the following winter semester that starts in October.

## Entry Requirements for foreign students



### ACADEMIC PERFORMANCE

For admission to the Master's program in Process Systems Engineering, a B.Sc. degree in chemical engineering or equivalent knowledge is required. Applicants must have demonstrated a clearly above average previous academic performance.

### GRE AND LANGUAGE TEST

Since Process Systems Engineering is exclusively taught in English, all applicants must provide a Graduate Record Examination (GRE) certificate. A TOEFL/IELTS test will in many cases be asked for by the embassies during the visa process. Therefore we strongly suggest to provide a TOEFL certificate too. Knowledge of German is appreciated but not a prerequisite for admission.

Admission is based on your overall academic performance, recommendation letters, GRE scores, the motivational letter and further qualifications. In the evaluation, courses dealing with fundamentals, process modelling and simulation, process control, and mathematics are weighted higher than others.

Applications of international students are handled via the „uniassist“ platform and by the International Office of TU Dortmund University. Applicants have to make sure that all necessary documents are included and sent before the deadline as only complete applications will be processed. Questions that cannot be answered with the help of the relevant websites of TU Dortmund University may be sent to [zulassungsbereich.referat4@tu-dortmund.de](mailto:zulassungsbereich.referat4@tu-dortmund.de)

### APPLICATIONS OF STUDENTS WITH ECTS BACHELORS

Applications of students from Germany and from European universities which follow the ECTS credit point system are handled by the Prüfungsausschuss.

### YOUR APPLICATION HAS TO INCLUDE THE FOLLOWING DOCUMENTS:

- A copy of school-leaving certificate (A-level or secondary high school)
- A copy of university degree and transcript
- A copy of English language certificate
- A GRE score sheet (no application without GRE certificate - ETS-Codes: Institution Code: 8523, Department Code: 1001) GRE is mandatory. It is sufficient to upload the results, you do not have to have the test results sent via GRE to us. Please take the general test.
- A Curriculum vitae including an actual photography
- A Motivational Letter
- Certificates for additional qualifications (as German language certificates, publications, etc.)
- Two letters of recommendation from senior chemical engineers who are familiar with your studies and capabilities, thereof at least one from a university professor

# Financial matters

## GENERAL

Living in Dortmund is affordable compared to many other cities in Europe. Students may expect a living cost of about € 750 - 850 per month including health insurance. This amount will pay for housing, living and some cultural expenses at a students' level as well as the administrative fee of around € 320 per semester.

Funding for the first semester should be secured before coming to Dortmund. There is only limited time to work besides your studies and your opportunities are restricted by the residence permit ("Aufenthalts-genehmigung").

## HEALTH INSURANCE

For studying in Germany a health insurance is compulsory. German insurance companies offer health insurance for students at a special rate costing around € 110 per month; for students older than

30 years it may be a bit more expensive. The German health insurance offers an excellent service that is well worth the money.



## SCHOLARSHIPS

Sufficient financial means are an important prerequisite for successful studies. There are several scholarships offered either by industrial sponsors or by the German government. For detailed information please contact your local German Embassy or Consulate or the scholarship data base of Deutscher Akademischer Austauschdienst.

Normally students will have to apply for a scholarship from their home country. They should be aware of the fact that the duration of processing a scholarship application can be up to one year.

Scholarships are also offered via TU Dortmund for students with very good performance, but only during the higher semesters, not for 1st semester students. After the first semester, there are also job offers for student assistants (lab work, support for researchers and teaching activities).



## ACCOMODATION

Student accommodation is available either in dormitories located not too far from the campus or in other public student houses that are spread around the city. It is common for students in Germany to live in private accommodation, often in flat sharing communities, which are widely available.

# Regulations



The program starts in October with a preparatory semester for students having passed an ECTS Bachelor's program of less than 7 semesters or a non-ECTS (European Credit Transfer System) Bachelor's program.

Only after the successful completion of the preparatory semester by the end of the following summer semester, students are admitted to further Master's studies in the next semesters.

All courses are taught in English. The numbers in the table indicate the credit points of the modules. One full semester corresponds to 30 credit points. The group project is compulsory for students who have not done a group design project (capstone project) during their Bachelor studies. Otherwise it can be replaced by the same number of credits from elective courses.

# Course Layout

Semester	0	1	2	3	Credits
Introduction to Process Balancing	●				5
Industrial Chemistry	●				4
Fundamentals of Chemical Engineering	●				8
Laboratory course	●				4
Language Course German or English	●				4
Introduction to Process Dynamics and Control	●				5
Fluid Separations		●			4
Reaction Engineering		●			4
Modeling and Simulation		●			10
PSE Lab		●			2
Electives according to module handbook		●●●●●			16 / 26
Particle Technology			●		4
Conceptual Design			●		4
Process Performance			●		5
Group Project			●		10
PSE Lab			●		1
Master Thesis				●	30

# Editor

DEPARTMENT OF BIOCHEMICAL AND

CHEMICAL ENGINEERING

TU DORTMUND UNIVERSITY

Emil-Figge-Straße 66  
D-44227 Dortmund

**Contact:**

Academic Coordinator  
Mrs. Marie-Christine Boos  
Phone: +49 231 755 3389  
marie-christine.boos@tu-dortmund.de

**International Office**

<https://international.tu-dortmund.de/en>

[www.bci.tu-dortmund.de](http://www.bci.tu-dortmund.de)



[bci.tudortmund](https://www.instagram.com/bci.tudortmund)



[@bci.tudortmund](https://www.facebook.com/bci.tudortmund)



Study  
the future