

The main objectives of the MPE study programme are:

- Strengthen students' engineering skills in future-oriented areas of process engineering,
- Promote a holistic understanding of the global socio-economic environment by teaching economic aspects and intercultural competence,
- Preparing students either for a career at home or abroad in science and research or for management positions in the private sector or public service.

Technical competence acquisition:

Fundamentals of Process Engineering (VTG)

Process engineering means material conversion technology. In the Master MPE, students learn to transfer the laboratory knowledge acquired primarily in the Bachelor's programme to the technical scale. Therefore, the focus of the modules MPE 12 to MPE 14 is on the scale up to production processes.

Subject-specific basics (FG)

The students know the common terminologies of process engineering and can apply them. They are familiar with the structure of the process engineering sector in Germany. The students have background knowledge to assess the effects of current developments in industry, politics, legislation, etc. on the process engineering sector.

Subject-specific specialisation (FV)

Students can selectively deepen the areas of biotechnology or renewable energies as current topics in process engineering.

Through MPE-12, students are focused on biotechnical processes. They are able to dimension a fermenter. For this purpose, they can apply their knowledge of the reaction kinetics of biochemical processes, the mixing processes in stirred tank reactors and the scale-up of laboratory and production fermenters. In the pilot plant, students can carry out the fermentation processes.

In the module MPE-13, students are focused on thermochemical conversions in which synthesis gases are used to obtain fuels, for example. They are familiar with the processes of pyrolysis, gasification and combustion based on the mass and energy balances of the chemical processes. A pilot plant is also part of the training here.

With the module MPE-14, the students have consolidated applied process engineering as a basis for the knowledge gained in the above-mentioned modules MPE-12 or MPE-13. They have learned how thermal separation processes, i.e. distillation and rectification, mass transport and heat exchange, function in production plants of the chemical industry. The students have learned about safety technology in the chemical industry and applied it practically in a pilot plant with relevant experiments. The students are familiar with the aspects of drinking water treatment and the basics of process control technology.

Supra-disciplinary acquisition of competences

Overarching contents =ÜI

Through various event formats (project work, presentations, workshops, laboratories, seminars, etc.), the students are able to

- work independently and take responsibility for their own areas of work,
- to work on projects systematically with the help of project management methods,
- use rhetoric in lectures, discussions and in working with other people (including subject representatives),
- work in a team and assume responsibility in a team.

They have valuable language skills and intercultural competences - qualifications that are often crucial in the increasingly multicultural environment of process engineering and biotechnology.

Project work = Pr

Students are able to collect, evaluate and interpret relevant information using the theoretical and practical knowledge acquired during their studies. Particularly in the context of their Master's thesis, they learn to design concepts against the background of social, scientific and ethical knowledge and to defend them argumentatively using scientific methods. In doing so, the students deepen their specialised knowledge and methodological competence.