

FBM Industrial practice – Information sheet

The FBM industrial practice (10-15 ECTS) is a particular element in the FBM Master studyline, which aims to provide on-site experiences related to FBM in an industrial environment, to prepare the students for future careers in the FBM industry. It is intended to be carried out as an internship at a hosting company. Still, industrially related projects in DTU facilities (e.g. DTU Fermentation Core, or Pilot-plant) are also possible.

The FBM industrial practice should provide insights into bioproduction or related areas, like e.g. R&D or downstream processing. During the internship, the student should get acquainted with, e.g. relevant equipment, techniques, and procedures. By taking part in the daily FBM activities of the hosting facility, the students will get acquainted with an industrial work environment and learn e.g. how to deal with hygiene, good manufacturing practice (GMP), and other regulations in the FBM industry.

The duration of the stay at the industrial host differs, depending on the weekly hours spent there. A 10 ECTS course requires around 280 hours of commitment in total, where at least 225 hours are supposed to be spent on-site (approx. 6 weeks full-time), and the rest devoted to writing the report. A 15 ECTS course requires around 420 hours of commitment in total, where at least 338 hours are supposed to be spent on-site (approx. 9 weeks full-time), and the rest devoted to writing the report.

Even though the FBM industrial practice is an individual project course for each student, close collaboration with a DTU supervisor ensures that the FBM-requirements and a set of common learning objectives are fulfilled. It is also the DTU supervisor who agrees with the student on the content of the final report, which complements each FBM industrial practice project. More details can be found in the Course Description, Learning Agreement, and the Report Template.

The FBM industrial practice projects are usually carried out in e.g., in the R&D, production, or downstream area of a biotech company, but also other choices are possible if they fulfill the requirements. Students with a student job in a relevant area can combine it with the FBM Industrial Practice by making an agreement about an unpaid extension. **It is not possible to earn ECTS while receiving a salary.**

The FBM industrial practice may be connected with a Master's thesis at the host institution, but it has to remain a separate project.

The FBM Master students are expected to take the initiative and reach out to potential hosts at companies or at DTU. Additionally, information about internships at FBM industry partners is posted in the DTU Inside group of the FBM studyline. The DTU supervisor can be contacted to support the process in case of difficulties.

FBM Industrial Practice Process Guide for students and supervisors

The step-by-step instructions below are meant to guide FBM Master students in the process of individually finding an FBM industrial practice place, registering it as a project course at DTU, and submitting the final report. It outlines a general situation and might be different for individual cases.

- 1) Inform yourself about biotechnology companies in Denmark, and develop an idea where you would like to spend your industrial practice
- 2) Choose a DTU supervisor from the list of approved FBM internship supervisors and inform him/her about your plans for the industrial practice
- 3) Identify a potential host supervisor at the company of interest or a host facility at DTU
- 4) Contact the potential host supervisor, enquire about the possibility of doing the FBM industrial practice with him/her, and send the course information sheet
- 5) If necessary: repeat step 3 and 4 until a positive outcome is reached

- 6) Acquire a short internship description from the host and send it to the DTU supervisor
- 7) Get the approval of the FBM Industrial Practice project from the DTU supervisor
- 8) Agree with the host supervisor on timing and schedule of the internship
- 9) Sign a formal internship agreement/contract with the host
Inform your supervisor in case the host demands additional agreements
- 10) Both supervisors and the student sign the learning agreement
- 11) Agree with the DTU supervisor on the complementary challenge part in the report
- 12) The DTU supervisor registers a project course with the title: "FBM industrial practice - _____".
- 13) Spend the on-site phase of the FBM Industrial Practice at the host
- 14) The DTU supervisor enquires about the student's performance at the host
- 15) Use the template for writing the final report for the FBM Industrial Practice
- 16) The host supervisor checks the final report for confidentiality
- 17) Submit the final report for the FBM Industrial Practice at or before the deadline stated in the project course registration through DTU Inside.
- 18) The DTU supervisor evaluates the final report, discusses it with the student in an online examination, and submits the grade to inside

FBM Industrial Practice - Types and Final Report

Most FBM Industrial Practice projects will fall in one of the four following categories, and each type requires a special section in the report to complement the on-site experience. The details are agreed between DTU supervisor and student, individually. For internships, which don't fall in one of the four categories, individual solutions can be arranged.

1) Internship in the production of an industrial host

Internships in industrial production don't include extended hands-on experience or own research work. Nevertheless, an internship in the FBM production facilities provides valuable experiences and allows insights into the heart of industrial FBM. For this type of internship, the final report has to contain a section where scientific aspects of one of the elements in the production line are described in detail.

2) Internship in the R&D department of an industrial host

Internships in R&D are research-oriented and do not provide deeper insights into industrial production. For this type of internship, the final report has to contain a section about the translation of the results in a production process.

3) Project in DTU Facility (DTU Fermentation Core, pre-pilot-, or pilot-plant)

Projects in the DTU Facilities provide hands-on experience with industrial FBM Equipment, but they do not provide the industrial environment. For this type of internship, the final report has to contain a section about the translation of the results in an industrial production process.

4) Internship in downstream processing at an industrial host

Internships in downstream processing are accepted as well, because of the essential role in the industrial production process. For this type of internship, the final report has to contain a section describing how the downstream process is linked to upstream and the interaction between both.