The courses taught in English in the Degree Programme in Biotechnology and Food Engineering are shown on the next page. In addition, exchange students can participate research projects under the title ‘Project Work in Bioprocesses’. This is a tailored project where you can choose yourself how large project (5-30 ECTS) you want to make. One credit corresponds to (in average) 27 hours of work: the more credits you want to achieve, the more you have to work. Discuss with your Erasmus coordinator at your home university and please remember to indicate the number of credits needed in your Erasmus Learning Agreement. If you work full days, you can aim at receiving 30 ects per semester (September – December or January – April or February -May). If you wish to have more free time, it is advised to lower your target number of credits.

Exchange student projects are usually linked in ongoing research activities or development works. Topics are mainly dealing with utilization of side streams and by-products from food industry, agriculture and horticulture, or hygiene and safety of food processes. Sometimes also other types of projects, like product development, are available.

### Course Code | Course Title | Course Description | Course Leader | ECTS credits | Date
--- | --- | --- | --- | --- | ---
20030201 | Project Work in Bioprocesses | *Exchange student projects are integrated to ongoing R&D activities. Some of the ongoing/recent project titles:*  
- Utilisation of horticultural by-products or second class raw materials (food, feed, cosmetics and bioenergy applications)  
- Added value from food industry by-products  
- Extraction of collagen from chicken and fish by-products  
- Cultivation, harvestins and utilisation of heterotrophic algae in bioprocesses  
- Use of biochar in composting  
- Design and development of new food product concepts  
- Hygiene and safety in bioprocesses  
- Biogas production from different organic waste materials and monitoring of biogasification  

*The project work contains preparation of a research plan and experimental design, literature survey, implementation of research, analysis and presentation of the results as well as reporting. Number of credits depends on the amount of work done and the student has to perform time tracking. The final decision on the topic for each exchange student will be made after the student have arrived to HAMK, in a meeting between the student and supervising teachers and researchers. It is recommended that the student describes his/her background, competence, interests and wishes in the motivation letter which is attached to the online application. As much as possible, these wishes will be taken into account while tailoring the project work for the student.*

Coordinator: Tuija Pirttijärvi  
Other supervisors: Maritta Kymäläinen, Ulla Moilanen, Jarkko Nummela, Annukka Pakarinen (head of the degree programme)

Individual  
Please indicate your target ECTS number in your learning agreement!
# Degree Programme in Biotechnology and Food Engineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Course Description</th>
<th>Course Leader</th>
<th>ECTS credits</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI06</td>
<td>Sustainable Bioeconomy</td>
<td>In this module the student learns to • understand and manage issues affecting sustainability in the production and processing of food and other biomaterial-based products (environmental impacts, social responsibility) • contribute in making a case project (planning, implementation, reporting, presentation, evaluation) about focusing on sustainability in bioprocesses The language of learning is English. The course is recommended for all exchange students studying at HAMK Biotechnology and Food Engineering during the autumn semester. It is a joint course with other Bioeconomy unit students participating (from Biotechnology and Food Engineering, Horticulture, Agriculture, Forestry, Sustainable Development and Landscape Design degree programmes).</td>
<td>Coordinator at Biotechnology and Food Engineering: Tuija Pirttijärvi</td>
<td>15</td>
<td>November-December</td>
</tr>
<tr>
<td>2003226</td>
<td>Food Hygiene</td>
<td>The basic (online) course (1 ects) covers the hygiene proficiency requirements for those working in food companies, regarding • basic microbiology and food contaminations • food poisonings and hygienic working methods • personal hygiene, cleaning practises • in-house control and food legislation Student can also participate together with the Finnish students the laboratory assignment “Determination of hygienic quality of food or other bioproduct” (5 ects) (mainly taught in Finnish, but supervision and materials are available in English)</td>
<td>Tuija Pirttijärvi</td>
<td>1-6</td>
<td>February – March</td>
</tr>
<tr>
<td>BI0901</td>
<td>Industrial Biotechnology</td>
<td>The course is focusing on industrial biotechnology and bioreactor fermentations. It consists of a controlled laboratory fermentation as well as a theory course. If you don’t want to take part to the practical fermentation work, you can choose only the theory part. Lectures are partly in Finnish but comparable written study materials are provided for exchange students.</td>
<td>Helena Kautola, Tuija Pirttijärvi</td>
<td>(5 ects)</td>
<td>September - October</td>
</tr>
</tbody>
</table>

Usually a course Finnish Language and Culture 3 ECTS is also available for our exchange students in Sep-Dec and in Jan-April, but it must be confirmed by the organizer. Here is an example of a course selection for a Learning Agreement: Project Work in Bioprocesses 10 ECTS + Sustainable Bioeconomy 15 ECTS + Finnish Language and Culture 3 ects = total 28 ECTS.