

**International Summer University 2024**  
**Module: Special Food Technologies**  
**Level: Undergraduate/Bachelor - Specialization**



<p><b>Learning objectives (also considering students' soft skill competences):</b></p> <p>The students are able to</p> <ul style="list-style-type: none"> <li>• Evaluate different types of conventional food processing and new alternative technologies on the base of the latest findings</li> <li>• Learn from valuable expert insights into latest developments in food engineering and food innovation</li> <li>• Classify and describe special technologies and use the terminology of selected specialization areas</li> <li>• Evaluate strategies/processes of product development</li> <li>• Demonstrate capability of teamwork</li> <li>• Show experience in procedures for professional problem solving in a research and industrial environment.</li> <li>• Development of communication, self-management and group working skills</li> <li>• Develop critical thinking skills and the ability to formulate critical ideas</li> <li>• Develop the ability to understand academic literature.</li> </ul>
<p><b>Learning Contents</b></p> <ul style="list-style-type: none"> <li>• focus on specific processing techniques in the areas             <ul style="list-style-type: none"> <li>◦ fruit and vegetable processing</li> <li>◦ dairy technology-meat technology</li> <li>◦ cereal processing</li> <li>◦ confectionary products</li> <li>◦ non-thermal and advanced processing techniques</li> </ul> </li> </ul> <p>techniques and equipment will be selected according to the interest of the participants</p> <ul style="list-style-type: none"> <li>• Practical course and group work on specific processing techniques</li> <li>• Introduction to the European and German food market and insights of the latest developments</li> <li>• Academic English, intercultural competence and presentation skills</li> </ul>
<p><b>Skills enhanced include:</b></p> <ul style="list-style-type: none"> <li>• Analytical thinking and problem-solving skills</li> <li>• Reading and comprehension skills of academic literature</li> <li>• Communication skills (e.g. class discussion, presentations, and course paper)</li> <li>• Teamwork in international groups</li> </ul>
<p><b>Teaching methods</b></p> <p>Learning outcomes will be achieved by lectures, group work and other appropriate methods. Besides classical lectures, the course will provide a practical session on pilot scale level. Students will be able to apply what they have learned and perform it in groups in practical trials, e.g. sensory tests, lab work and analytical methods. Apart from lectures students will have the chance to visit food processing companies and attend the cultural program that includes trips to Berlin, Amsterdam and Paris with guided city tours and visits to historic sights.</p>

<b>Requirements/prerequisites</b>	This course is designed for second- or third-year Bachelor students studying Food Production, Food Technology or Food Science. Students should have a study competence in English (B1-Level of the Common European Framework of References for Languages CEFR)
<b>Examination</b>	In-class presentation and oral examination 20-minute group presentation Final exam (oral)
<b>Max. participants</b>	a) 15
<b>Language of lecture</b>	English
<b>Promoter of the module</b>	Prof. Dr. Stefan Töpfl Osnabrück University of Applied Sciences
<b>Module instructor/ Home university</b>	Prof. Dr. Stefan Töpfl Osnabrück University of Applied Sciences Prof. Dr. Kemal Aganovic DIL German Institute of Food Technology, Quakenbrück Guest Lecturers
<b>Hours all in all</b> a) Time spent in classroom b) Time spent outside classroom	Hours all in all: 150 hours a) 60 hours b) 90 hours: Time for preparation: 45 hours, Time for literature studies: 45 hours
<b>ECTS-Credits</b>	5

## Literature recommendations

BARBOSA-CÁNOVAS, G. V., ZHANG, Q. H. (2019): Pulsed electric fields in food processing: fundamental aspects and applications. Boca Raton: CRC Press.

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GOFF, H. D. (2013): Ice Cream. London: Springer.

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LELIEVELD, H. L. M., NOTERMANS, S., DE HAAN, S. W. H. (2007): Food preservation by pulsed electric fields: from research to application. Boca Rotan: CRC Press.

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TOEPFL, S., HEINZ, V., KNORR, D. (2022): Applications of pulsed electric fields technology for the food industry. Boston: Springer, 197 – 221.

TOLEDO, R. R. (2006): Fundamentals of Food Process Engineering. Boston: Springer.