Module	**Product and Process Design**
Code	MSLS_V1_2
Degree Programme	Master of Science in Life Sciences (MSLS)
ECTS Credits	5
Workload	150 h: Contact 64 h; Self-study 86 h
Module Coordinator	**Name** Prof. Dr. Tilo Hühn **Phone** +41 (0)58 934 57 05 **Email** tilo.huehn@zhaw.ch **Adress** ZHAW Zurich University of Applied Sciences Life Sciences and Facility Management Campus Reidbach Einsiedlerstrasse 35 CH-8820 Wädenswil
Lecturers	• Prof. Dr. Tilo Hühn • Prof. Dr. Susanne Miescher Schwenninger • Prof. Dr. Selçuk Yildirim • Prof. Dr. Irene Chetschik • Martin Häfele • Dr. Christoph Lustenberger • Dr. Marco Loschi • Other lecturers and guest speakers
Entry Requirements	Students should have a Bachelor's degree or equivalent qualification in food and beverage science or a related field, with an understanding of: • processing of food and beverages • technology in food and beverage production • composition of food and beverage products • food chemistry and food microbiology • quality assurance and food safety • nutritional aspects of food and beverages • practical experiences in food analysis (microbiological, chemical, sensorial analysis)
Learning Outcomes and Competences	After completing the module students will know current and prospective aspects of innovative processes in food and beverage production to meet today's consumer expectations regarding quality, nutritional, health and safety aspects. Students will get to know the Process Design approach to process and product innovation. Students can describe different processes such as in food technology, packaging technology, food- biotechnology and food processing. They develop an understanding for applied research activities in the field of product and process

	design and sharpen their profile how to deal with challenging food processing projects.
Module Content	This module is concerned with the requirements of new and innovative processes and products meeting quality, nutritional, health and safety concerns in food industry. Inputs of different research groups (food technology, packaging technology, bio technology, process engineering) • **T**heory of **I**nventive **P**roblem **S**olving • Technological Theory of Systems • Food Processing and Automation • Intension, Invention, Innovation • Applied Factory Design
Teaching / Learning Methods	**In-class lectures** • Case-studies and literature studies • Experimental studies with laboratory and pilot plant work • Workshops • Exploratory learning • Coaching and Mentoring of R&D group members • Group work • Process Pitch at the final Think Tank Demo Day No self-study before the module is required (if meeting the entry requirements), during the module: • 40% contact lessons • 60% self-study
Assessment of Learning Outcome	Essay of a Process development or optimization during the module including a personal reflection of lessons learned as a developer/inventor
Bibliography	• Hitzmann, B. (2017) Measurement, Modelling and Automation in Advanced Food Processing (Advances in Biochemical Engineering/Biotechnology Book 161), Springer • Ramesh, C. R. (2020) Microbial Biotechnology in Food and Health (Applied Biotechnology Reviews), Academic Press • Altschuller, G.; Altov, H. (1996) And Suddenly the Inventor Appeared: Triz, the Theory of Inventive Problem Solving, Technical Innovation • Petrov, Vladimir (2019) Structural System Analysis: Su-Field Analysis. TRIZ, Indepently published Further important literature will be provided on Moodle. Important lecture notes will be distributed during the lectures.
Language	English
Comments	
Last Update	19.09.2023