Module Title	Bridging technology
Code	MCCf026
Degree Programme	Master of Science – Circular Innovation and Sustainability
ECTS Credits	6
Workload	180 hours • 30 hours contact teaching • 150 hours self-study
Module Coordinator	Name: Prof. Dr. Marcel Baak Phone: +41 (0) 32 321 64 17 Email: marcel.baak@bfh.ch Address: BFH – TI, Quellgasse 21, 2501 Biel-Bienne
Lecturers	• Prof. Dr. Simon Kleiner; TI • Dr. Eduard Wyss; HAFL
Entry Requirements	None
Learning Outcomes and Competences	**Competences** After completing the module, students: • have developed generic skills in the context of chemistry, physics and material science which are applicable in many other contexts; • have attained a basic knowledge and competence which is fundamental for subsequent modules. **Outcomes** After completing the module, students will be able to understand certain basic concepts, simple theoretical principles in chemistry, physics, and materials science.
Module Content	Bridging modules are part of the basis category and will take place during the first quarter of the first semester. They lay the ground for interdisciplinary learning and teaching in the subsequent modules. The Bridging module "technology" imparts fundamental knowledge in the fields of chemistry, physics, and material science, which is necessary for the subsequent technically oriented modules. • adapted basics in chemistry • Polymer chemistry: production and properties • Extraction and refining of metals • Processing-Microstructure-Properties relationship of materials • Adapted basics in physics • Fundamental concepts and aspects of power engineering
Teaching / Learning Methods	• Blended learning • Contact teaching • Inverted classroom
Assessment of Learning Outcome	Final written exam (100%)

Conditions of assessment repetition	In case of failure, students can either: • Repeat the competence assessment at next re-examination period (as defined in the "Assessment of Learning Outcome"). • Retake the full module next time it is offered. **NB: in MSc CIS, failed modules can only be repeated once!**
Format	4 lessons per week over 7 weeks
Attendance & Compulsory session	Not compulsory, but strongly recommended
Timing of the module	Autumn Semester
Venue	On-site
Location	Bern
Bibliography	• Halliday, D., Resnick, R. and Walker, J. (2014) *Fundamental of Physics.* 10th Edition, Wiley and Sons, New York • Giancoli, Douglas C. (1998). *Physics: Principles With Applications*. Upper Saddle River, N.J., Prentice Hall • Edward W. Pitzer. (2014). *Introductory Chemistry*, Bookboon, 1st Edition Further literature will be provided before the start of the module.
Language	English
Links to other modules	• MCCf113 Technological cycles: materials and processes • MCCf133 Pathways to net zero GHG emissions in the energy and chemical sectors • MCCf143 Pathways to net zero GHG emissions in the mobility sector • MCCf173 Circular use of materials • MCCf423 Research methods 2: quantitative approaches
Last Update	May 2023