Module Title	Bridging Technology
Code	MCCf026
Degree Programme	Master of Science – Circular Innovation and Sustainability
ECTS Credits	6
Workload	180 hours
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
Competencies upon Completion	**Competencies** After completing the module, students will be able to: • demonstrate generic skills in the subjects of chemistry, physics and material science which are applicable in many other contexts; • apply basic knowledge and skills which are fundamental for subsequent modules. **Outcomes** After completing the module, students will be able to understand certain basic concepts and simple theoretical principles in chemistry, physics, and materials science.
Content	*Bridging modules* are part of the *Basic Module Group* and take place during the first quarter of the first semester. They lay the ground for interdisciplinary learning and teaching in the subsequent modules. The *Technology Bridging module* imparts fundamental knowledge in the fields of chemistry, physics, and material science, which is necessary for the subsequent technically oriented modules, notably: • Abridged chemistry fundamentals • Abridged physics fundamentals • Power engineering fundamentals • Polymers: chemistry, production and properties • Metals: extraction and refining • Relations between microstructure properties of materials and their processing
Teaching and Learning Methods	• Blended learning • Flipped classroom • Contact teaching

Competency Assessment	Final written exam (100%) → 3 times 45 minutes for each of the following fields: • Chemistry • Physics • Materials Science
Mode of Repetition	Should a student fail the module, they have one more attempt. They may either: • Retake a written exam (100%) during the next resit examination session. • Repeat the full module next time it is offered.
Format	4 lessons per week over 7 weeks
Attendance	Not mandatory, but strongly recommended
Module Type	Compulsory
Timing of the Module	Autumn Semester, Calendar Weeks 38 to 44
Venue	On-site | Brückenstrasse 73, 3005 Bern
Literature	• Halliday, D., Resnick, R. and Walker, J. (2014) *Fundamentals 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 • MCCf153 Pathways to Net Zero GHG Emissions in the Food Sector • MCCf173 Circular Use of Materials • MCCf423 Research Methods 2: Quantitative Approaches
Last Update	June 2024