



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	<ul style="list-style-type: none"> • Prof. Dr. Simon Kleiner; TI • Dr. Eduard Wyss; HAFL 	
Entry Requirements	None	
Competencies upon Completion	<p>Competencies After completing the module, students will be able to:</p> <ul style="list-style-type: none"> • 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. <p>Outcomes After completing the module, students will be able to understand certain basic concepts and simple theoretical principles in chemistry, physics, and materials science.</p>	
Content	<p><i>Bridging modules</i> are part of the <i>Basic Module Group</i> 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 <i>Technology Bridging module</i> imparts fundamental knowledge in the fields of chemistry, physics, and material science, which is necessary for the subsequent technically oriented modules, notably:</p> <ul style="list-style-type: none"> • Abridged chemistry fundamentals • Abridged physics fundamentals • Power engineering fundamentals • Polymers: basics • Metals: extraction and refining • Relations between microstructure properties of materials and their processing 	
Teaching and Learning Methods	<ul style="list-style-type: none"> • Blended learning • Flipped classroom • Contact teaching 	

Competency Assessment	Final written exam (100%) 3 times 45 minutes for each of the following fields: <ul style="list-style-type: none"> • Chemistry • Physics • Materials Science
Mode of Repetition	Should a student fail the module, they have one more attempt. They may either: <ul style="list-style-type: none"> • Retake a written exam (100%) during the next resit examination session. • Repeat the entire 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	<ul style="list-style-type: none"> • Halliday, D., Resnick, R. and Walker, J. (2014) <i>Fundamentals of Physics</i>. 10th Edition, Wiley and Sons, New York • Giancoli, Douglas C. (1998). <i>Physics: Principles with Applications</i>. Upper Saddle River, N.J., Prentice Hall • Edward W. Pitzer. (2014). <i>Introductory Chemistry</i>, Bookboon, 1st Edition <p>Further literature will be provided before the start of the module.</p>
Language	English
Links to Other Modules	<ul style="list-style-type: none"> • 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	February 2026