



The version you're consulting is not final. This course description may change. The final version will be published on 1st June.

6.00 credits	45.0 h + 15.0 h	Q1 and Q2
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Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	The knowledge of the discipline to be taught, i.e., the physics content related to the 2nd and 3rd levels of secondary education in general sciences.
Main themes	<ul style="list-style-type: none"> • Programs and standards • Science resources (textbooks, digital tools, educational kits) • The didactic triangle: teaching and learning • Didactic transposition and desyncretization • Initial conceptions and epistemological obstacles • The value and use of experimental activities • Didactic specificities of a physics teaching sequence at the 2nd level (D2) and the 3rd level (D3) • Problematization and modeling in D2 and D3 • The epistemology of physics • Assessment of learning • Concepts that are challenging to teach in physics at D2 and D3
Learning outcomes	<p>At the end of this learning unit, the student is able to :</p> <p>At the end of this teaching unit, the student will be able to:</p> <ol style="list-style-type: none"> 1 <ul style="list-style-type: none"> • Apply disciplinary didactics and epistemology to guide pedagogical actions in physics courses for the 2nd and 3rd degrees. • Transform scholarly knowledge into teachable content for physics education at the 2nd and 3rd degrees. • Design and plan teaching-learning (TL) situations in three stages (contextualization, decontextualization, and recontextualization) tailored to the students' needs and aligned with competency frameworks and curricula. • Demonstrate mastery of new disciplinary and interdisciplinary knowledge relevant to the curriculum. • Explore innovative disciplinary, interdisciplinary, and technological pedagogical approaches and tools, such as textbooks, digital tools, and teaching kits. • Design, conduct, and evaluate experimental teaching sequences. • Reflect on and challenge their own initial representations and conceptions to foster personal growth. • Identify students' initial spontaneous representations and conceptions, integrating and evolving them within a teaching sequence. • Adopt a reflective attitude toward their teaching practices, grounded in didactic and pedagogical principles as well as insights from educational research. <p>Contribution of the Teaching Unit to the Programme's AA Competency Framework</p> <p>This teaching unit contributes to the development and acquisition of the following competencies, aligned with the initial training program for physics teachers:</p> <p>AA3: Skills in organizing and supporting learning within a dynamic and evolving framework.</p> <p>AA.3.1: Mastering disciplinary content, its epistemological foundations, its scientific and technological developments, as well as its didactics and teaching methodology.</p> <p>AA.3.2: Understanding learning processes and the research underpinning various teaching models and theories.</p> <ol style="list-style-type: none"> 2 <p>AA.3.5: Acting as a collaborative educator within the classroom and school environment by:</p> <ul style="list-style-type: none"> • AA.3.5.1: Designing and implementing diverse teaching approaches to strengthen students' motivation, self-confidence, creativity, initiative, and collaboration. • AA.3.5.2: Selecting, designing, and utilizing teaching materials, textbooks, digital tools, and other educational resources. • AA.3.5.3: Creating and applying observation and evaluation tools, emphasizing formative and comprehensive assessment to foster student responsibility and engagement in their learning process.

	<ul style="list-style-type: none"> • AA.3.5.4: Developing and implementing differentiated teaching practices and personalized student support, taking into account prior achievements, individual learning profiles, and, when necessary, specific needs—leveraging co-teaching or collaborative pedagogical strategies. • AA.3.5.5: Promoting interdisciplinary learning through the development of integrated activities. <p>AA.3.6: Integrating digital technologies effectively into teaching practices.</p> <p>AA.3.7: Addressing cross-cutting themes, including media literacy, EVRAS (education for relational, emotional, and sexual life), and gender equality.</p> <p>AA.3.8: Establishing a supportive relational framework to foster communication with students, their families, and colleagues.</p> <p>AA.3.9: Managing classroom dynamics in a manner that is educationally stimulating, structurally sound, and emotionally reassuring.</p> <p>AA4: Reflective Practitioner Skills</p> <p>AA.4.1: Critically analyze the results of scientific research in education and didactics, drawing inspiration from these findings to inform and enhance teaching practices. Leverage insights from various disciplines within the human sciences to evaluate and act effectively in professional situations.</p> <p>AA.4.2: Engage in critical and rigorous observation and analysis of one's own teaching practices—both individually and collaboratively with peers. Assess the impact of these practices on students to adapt and improve teaching strategies and conditions, ensuring greater efficiency and equity.</p>
Faculty or entity in charge	SC

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [60] of Education, Section 5 : Engineering	DSIR2M5	4		
Master [120] of Education, Section 4 : Biology	BIOL2M4	4		
Master [60] of Education, Section 5 : Biology	BIOL2M5	4		
Master [120] of Education, Section 4 : chemistry	CHIM2M4	4		
Master [60] of Education, Section 5 : Chemistry	CHIM2M5	4		
Master [120] of Education, Section 4 : Geography	GEOG2M4	4		
Master [60] of Education, Section 5 : Geography	GEOG2M5	4		
Master [120] of Education, Section 4 : Mathematics	MATH2M4	4		
Master [60] of Education, Section 5 : Mathematics	MATH2M5	4		
Master [120] of Education, Section 4 : Physics	PHYS2M4	6		
Master [60] of Education, Section 5 : Physics	PHYS2M5	6		