

6.0 credits	45.0 h + 22.5 h	1q
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Teacher(s) :	Ringeval Christophe ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	<ul style="list-style-type: none"> <li>- Wave mechanics : principals, Schrödinger equation, example</li> <li>- Quantum mechanics : principals; quantum dynamics, symmetry</li> <li>- Disturbance theory</li> <li>- Particule in a central potential</li> <li>- Quantum Mechanics formalism</li> <li>- The angular momentum</li> <li>- The hydrogen atom</li> <li>- The spin</li> <li>- Addition of angular momenta</li> <li>- Time independent perturbation theory</li> <li>- Fine and hyperfine structure of the hydrogen atom</li> <li>- Time dependent perturbation theory</li> <li>- Quantum dynamics</li> <li>- Introduction to path integral</li> </ul>
Aims :	<p>This course for students who already received an introduction to quantum ideas and to 1D wave mechanics will include a systematic exposition to non-relativist quantum mechanics, - who establishes it on strong but not too formal theoretical bases and - that offer a tool useful for the study of fields like atomic and molecular physics, nuclear and solid state physics.</p> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Other infos :	<p>Prerequisites: General physics II, 2nd part: Quantum - Mathematical methods of physics II</p> <p>Support: This course is based on the book of E. Merzbacher, Quantum Mechanics, J. Wiley, N.Y. (1970), chapters 4, 8-10, 12-18. DIRAC P., The principles of quantum mechanics, 4th edition, Oxford, 1967. PAIS A., Inward Bound of Matter and Forces in the Physical World, Oxford, 1986. GALINDO A., PASCUAL P., Quantum Mechanics I, Springer Verlag, 1990. GALINDO A., PASCUAL P., Quantum Mechanics II, Springer Verlag, 1991. GASIROWICZ S., Quantum Physics, Wiley, 1974. MANDL F., Quantum Mechanics, Wiley, 1992.</p>
Cycle and year of study :	<ul style="list-style-type: none"> <li>&gt; <a href="#">Bachelor in Mathematics</a></li> <li>&gt; <a href="#">Master [120] in Physical Engineering</a></li> <li>&gt; <a href="#">Bachelor in Geography : General</a></li> <li>&gt; <a href="#">Bachelor in Economics and Management</a></li> <li>&gt; <a href="#">Bachelor in Engineering</a></li> <li>&gt; <a href="#">Bachelor in Physics</a></li> </ul>
Faculty or entity in charge:	PHYS