UCL Université catholique de Louvain

LPHY1322

2015-2016

Quantum Physics 2

6.0 credits	45.0 h + 22.5 h	1q

Teacher(s) :	Ringeval Christophe ;
Language :	Français
Place of the course	Louvain-la-Neuve
Prerequisites :	*The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes :	- Wave mechanics : principals, Schrödinger equation, example - Quantum mechanics : principals; quantum dynamics, symmetry - Disturbance theory Particule in a central potential - Quantum Mechanics formalism - The angular momentum - The hydrogen atom - The spin - Addition of angular momenta - Time independent perturbation theory - Fine and hyperfine structure of the hydrogen atom - Time dependent perturbation theory - Quantum dynamics - Introduction to path integral
Aims :	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. *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".*
Other infos :	Prerequisites: General physics II, 2nd part: Quantum - Mathematical methods of physics II 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.
Faculty or entity in charge:	PHYS

Programmes / formations proposant cette unité d'enseignement (UE)

Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Minor in Physics	LPHYS100I	6	-	
Bachelor in Physics	PHYS1BA	6	LPHY1222	
Additionnal module in Mathematics	LMATH100P	6	-	