

UNIVERSIDADE PRESBITERIANA MACKENZIE



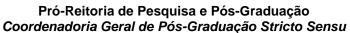
Pró-Reitoria de Pesquisa e Pós-Graduação Coordenadoria Geral de Pós-Graduação Stricto Sensu

SCHOOL PLAN

University Unit: Engineering school			
Graduate program:			
Geospatial Sciences and	Applications		
Curse:			
Academic Master	☐ Professional	l Master's ⊠ Doctorate degree	
Discipline :			
Quantum Mechanics			
Teacher (s):			
Sérgio Szpigel Note:			
14010.			
•		course is a multidisciplinary course encompassing	
		Relations, Astronomy, Particle Physics and others. The	
course subjects reflect the specializes in topics of the	-	rity and often require more than one teacher, who	
Workload:	Credits	Required	
48 h	4	Optional	
		☐ Eleffective	
Description:			
Limits of Classical Physi	ics and experime	ntal foundations of Quantum Physics. Fundamental	
concepts: vector space a	nd operators; Dira	c notation. General structure of quantum mechanics:	
Schrödinger and Heisenb	erg formulations;	postulates of Quantum Mechanics. Simple quantum	
systems. Angular momen	tum and central p	otential: orbital angular momentum and spin, addition	
of angular momentum;	hydrogenic atom	ns, fine and hyperfine structure. Symmetries and	
conservation laws: discrete symmetries, parity and time reversal. Systems of identical particles:			
fermions and bosons. Ap	proximation meth	ods: theory of time independent perturbations, time-	
·	•	al and semi classical methods. Scattering theory:	
•		eximation, methods of partial waves; time dependent	
		s: Klein-Gordon and Dirac equations.	
ioimalation. Notativistic Q	dantam Medianic	3. Nichi-Gordon and Dirac equations.	
Program content:			
Evaluation criteria			
According to the General	Regulation of Stric	cto Sensu Post-Graduation, Art. 98:	
A - excellent: corresponds to grades in the interval between grades 9 and 10;			
B - good: corresponds to	grades in the inter	val between grades 8 and 8.9;	
		erval between grades 7 and 7.9;	
	•	he interval between degrees 0 and 6.9 "	



UNIVERSIDADE PRESBITERIANA MACKENZIE





Bibliography:

Gasiorowicz, S. Quantum Physics (3rd edition), Wiley, 2003.

Sakurai, J. J., Modern Quantum Mechanics, Addison-Wesley, 1994.

Cohen-Tannoudji, C.; Diu, B.; Laloe, F., Quantum Mechanics I e II, Wiley-Interscience, 1996.

Merbacher, E. Quantum Mechanics, Wiley, 1997.

Messiah, A. Quantum Mechanics, Dover, 1999.

Eisberg, R. M e Resnick R., Física Quântica – Átomos, Moléculas, Sólidos, Núcleos e Partículas, MacGraw-Hill, São Paulo, 1990.

Schedule		
Date	Theme	