

<b>Course Title:</b>	Nuclear Spectroscopy 3(3+0+0)
<b>Course Code:</b>	PHYS 687
<b>Program:</b>	PhD degree in Physics – Nuclear Physics program

No	List of Topics	Contact Hours
1	Models of light nuclei	
2	Nuclear magic numbers: new features far from stability	
3	Lifetime measurements	
4	Coulomb excitation	
5	Cross-Section and Polarization Studies of Light Nuclei	
6	Isobaric Analog Studies in Light Nuclei	
7	Basic Principles, Nuclear Magnetic Resonance, Particle Stimulated X-ray Emission	
<b>Total</b>		

<b>Required Textbooks</b>	None
<b>Essential Reference Materials</b>	<p>1 - Nuclear magic numbers: new features far from stability O. Sorlin &amp; M.-G. Porquet, Prog. Part. Nucl. Phys. 61 (2008) 602-673</p> <p>2 – Models of light nuclei M. Harvey and F. C. Khanna, in [JOSEPH_CERNY_(Eds.)] Nuclear Spectroscopy and Reactions, Part D</p> <p>3 – Lifetime measurements D. B. Fossan and E. K. Warburton, in [JOSEPH_CERNY_(Eds.)] Nuclear Spectroscopy and Reactions, Part C, pp 311-378</p> <p>4 – Coulomb excitation F. K. McGowan and P. H. Stetson, in [JOSEPH_CERNY_(Eds.)] Nuclear Spectroscopy and Reactions, Part C, pp 10-61</p> <p>5- Cross-Section and Polarization Studies of Light Nuclei A.D. Bacher, in [JOSEPH_CERNY_(Eds.)] Nuclear Spectroscopy and Reactions, Part B, pp 10-67</p> <p>6 - Isobaric Analog Studies in Light Nuclei (A&lt;65) G. M. Temmer, in [JOSEPH_CERNY_(Eds.)] Nuclear Spectroscopy and Reactions, Part B</p> <p>Kenneth S. Crane 'Introductory nuclear Physics', John Wiley &amp; Sons, 1988, Chaps 3,4,5,10</p> <p>Richard C. Casten 'Nuclear structure from a simple perspective', Oxford University Press, 1990</p>

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Class attendance (attendance / course preparation / Verbal presentation / student is active?)	continuous	30%
2	Quizzes + Assignments (General and nuclear physics level / Verbal and written presentation)	continuous	30%
3	Final exam (questions)	15	10%
4	Final exam (Final report)	15	30%

المبادئ الأساسية , الرنين المغناطيسي النووي، الجسيمات المستحثة لانبعاث الأشعة السينية

Basic Principles, Nuclear Magnetic Resonance, Particle Stimulated X-ray Emission