



**PHYSICS PhD Program (on MSc) (yeni)**

<b>REMEDIAL COURSES</b>				
<b>Dept.</b>	<b>Code</b>	<b>Course Name</b>	<b>CR.</b>	<b>ECTS</b>
PHYS	102	Physics II	NC	
PHYS	104	Physics III	NC	
PHYS	203	Statistical Physics	NC	
PHYS	204	Classical Mechanics	NC	
PHYS	205	Introduction to Optics	NC	
PHYS	206	Mathematical Methods in Physics	NC	
MATH	241	Differential Equations	NC	
PHYS	303	Introduction to Metrology	NC	
PHYS	306	Photonics	NC	
PHYS	311	Quantum Mechanics	NC	
PHYS	317	Electromagnetism	NC	
PHYS	319	Modern Physics	NC	
PHYS	412	Condensed Matter Physics	NC	
PHYS	401	Metrology and Calibration Lab.	NC	
PHYS	408	Nuclear and Plasma Physics	NC	
PHYS	409	Medical Physics	NC	
<b>PROGRAM COURSES</b>				
<b>Dept.</b>	<b>Code</b>	<b>Course Name</b>	<b>CR.</b>	<b>ECTS</b>
PHYS	5/6xx	Departmental Elective I	3	10
PHYS	5/6xx	Departmental Elective II	3	10
PHYS	5/6xx	Departmental Elective III	3	10
PHYS	5/6xx	Departmental Elective IV	3	10
PHYS	5/6xx	Departmental Elective V	3	10
	5/6xx	Free Elective I	3	10
	5/6xx	Free Elective II*	3	10
PHYS	690	PhD Seminar	NC	2
PHYS	691	Independent Study for Qualifying Exam	NC	30
PHYS	700	PhD Dissertation	NC	150
		<b>TOTAL</b>	<b>21</b>	<b>252</b>
<b>EXTRA/NON-DEGREE COURSES</b>				
<b>Dept.</b>	<b>Code</b>	<b>Course Name</b>	<b>CR.</b>	<b>ECTS</b>
		Extra/Non-degree	NC	

\* If a student did not take a research methods/methodologies course during MS work, he/she shall take one of the courses in Research Methodologies instead of Free Elective II.

<b>Course Group</b>	<b>Description</b>
Departmental Elective I - V	Any course that is in the department courses pool of the Physics: PHYS531, PHYS535, PHYS536, PHYS554, PHYS561, PHYS511, PHYS512, PHYS522, PHYS 544, PHYS 553 (or MPHYS542), PHYS 523, PHYS 547, PHYS 685, PHYS541, PHYS 542, PHYS 556, PHYS 551, PHYS 521, PHYS 514, PHYS 611, PHYS612, PHYS621, PHYS632, PHYS644, PHYS 651, PHYS654, PHYS656, or any other two courses with MPHYS code (MPHYS511, MPHYS512, MPHYS523, MPHYS527, MPHYS532, MPHYS535)
Free Elective I - II	Unrestricted, by approval of Physics Department
Research Methodologies	PHYS 514 (or other "Research methods/methodologies" in the courses pool of the institute)
Extra/Non-degree	Optional non-credit (NC) courses that are not part of the program
Remedial Courses	Undergraduate level courses offered by department.

### **PhD in PHYSICS-Area Electives**

PHYS 544	Radiation Detection and Measurement
(PHYS 553 or MPHYS542	Selected Topics in Diagnostic & Therapeutic Medical Physics Radiotherapy Physics (3+2+0)4 10)
PHYS 523	Diagnostic Applications in Medical Physics
PHYS 547	Monte Carlo Modelling in Physics
PHYS 541	Statistical Physics and Thermodynamics
PHYS 542	Advanced Metrology
PHYS 556	Standards & Traceability
PHYS 551	Applied Physics
PHYS 521	Quantum Mechanics I
PHYS 522	Quantum Mechanics II
PHYS 514	Research Methods
PHYS 536	Solid State Physics
PHYS 561	Mathematical Methods and Classical Mechanics
PHYS 511	Electromagnetism I
PHYS 512	Electromagnetism II
PHYS 621	Electromagnetism & Plasma Physics
PHYS 632	Advanced Quantum Mechanics
PHYS 654	Advanced Theoretical Physics
PHYS 656	Photonics
PHYS 685	Critical Thinking and Scientific Method
PHYS 611	Particles & Interactions
PHYS 651	Nanotechnology and Materials
PHYS535	Fundamentals of Nuclear Medicine Dosimetry
PHYS644	Nanophysics and Nanotechnology
PHYS612	Advanced Statistical Mechanics
PHYS531	Classical Mechanics
PHYS554	Advanced Optics (and Laser)

or

MPHYS511,MPHYS512,MPHYS523,MPHYS527,MPHYS532,MPHYS535 (max. two courses with MPHYS code)