

Science and Technology - Graduate Studies (1200 h, 120 ECTS)

Profiles: Astrophysics ; Material science and nanotechnology ; Molecular biophysics

No.	Name of the course	Total number of hours	First year												Second year											
			Term 1						Term 2						Term 3						Term 4					
			Lect.	Exerc	Labs	Sem.	Att ^e _{st}	ECT _S	Lect.	Exerc	Labs	Sem.	Att ^e _{st}	ECT _S	Lect.	Exerc	Labs	Sem.	Att ^e _{st}	ECT _S	Lect.	Exerc	Labs	Sem.	Att ^e _{st}	ECT
Obligatory courses - A																										
	Selected topics of theoretical physics	60	30	30			E*	6																		
	Molecular Spectroscopy	90													30		60		E	7						
	Modern Solid State Physics	60	30	30			E	6																		
	Foundations to nanotechnology	30							30				E	4												
	Computer programming in science	45	15		30		E	6																		
	Contemporary mathematics	30	30				M	3																		
	Diploma Practicum	60															30		M	3			30		M	3
	Diploma Seminar	30																					30		M	3
	Diploma work and examination	0																							E	9
	Writing of scientific texts	30																			30				M	1
	Philosophy of Science	60	30				M	2		30			M	2												
	Astrobiology (general university lecture)	30													30				M	3						
	Cosmology (general university lecture)	30							30				M	3												
	Foreign language course (Polish for foreigners)	60		30			M	2		30			M	2												
	Sports	30								30			M	1												
Total number of hours in the part A / ECTS		645	135	90	30	0		25	60	90	0	0		12	60	0	90	0		13	0	30	30	30		16
Facultative courses - B																										
	Classical field theory	60							30	30			E	6												
	Quantum field theory	60													30	30			E	6						
	Elementary particle physics	30													30				M	3						
	Relativistic quantum mechanics	60							30	30			E	6												
	Statistical physics	60	30	30			E	6																		
	Contemporary theory of gravity I	60							30	30			E	6												
	Heliophysics and star formations	60																			30	30			E	6
	Contemporary theory of gravity II	60													30	30			E	6						
	Celestial mechanics	90													30	30	30		E	8						
	Solar system and planetary systems	45							30		15		M	4												
	Computational astrophysics	60							30		30		M	5												
	Plasma theory	60	30	30			E	6																		
	Introduction to unification theories	30	30																							
	Relativistic astrophysics	30																			30				M	3
	Seminar on astrophysics	90				30	M	3				30	M	3				30	M	3						
	Bioetics	30	30				M	3																		
	Elements of molecular biology and genetics	30																			30				M	3
	Current topics in life sciences	30																				30			M	3
	Structure of molecules	30	30				M	3																		
	Bioinformatics	60							30		30		E	6												
	Medical Biophysics	60													30		30		E	6						
	Seminar on biophysics	90				30	M	3				30	M	3				30	M	3						
	Biomicroscopy	120																			30		90		M	9
	Experimental methods in solid state physics	60													30	30			E	6						
	Nanotechnology laboratory	90															90		M	6						
	Nanophotonics	30	30				E	6																		
	Computational methods for solids and nanostructure	30													30				E	6						
	Spintronics and nanomagnetism	30							30				M	3												
	Seminar	90				30	M	3				30	M	3				30	M	3						
	Superconductivity and its technological applications	30																			30				M	3
	Advanced functional materials	30																			30				M	3
	Surface physics and nanostructures	30													30				M	2						
	Nanoelectronics and its applications	30													30				M	2						
Total number of hours in the part B / ECTS		1755	180	60	0	90		33	210	90	75	90		45	270	120	150	90		60	180	60	90	0		30
Total A+B		2400	315	150	30	90		58	270	180	75	90		57	330	120	240	90		73	180	90	120	30		46
Minimum number of hours		1200	345						375						330						150					
Obligatory number of the ECTS points in the term		120	30						30						30						30					

* Here E means an examination and M a credit with a mark.
The minimum number of credits for the general university course: 2

The minimum number of credits for the course in humanities or social sciences: 5