

Physicist MSc (Responsible: Gábor Takács)

Nuclear Technology Specialization (Responsible: Szabolcs Czifrus)

Legend

Type: C - compulsory, E - elective modules, O - optional

Grading: e - examination, c - coursework grade, a - audit, ce - comprehensive examination

- Proposed semester, *proposed semester of elective courses, @-alternative semester (if the BSc studies covered the prerequisites)

Subject	Type	Eval	Credit	Hours			Semester (spring start)				Semester (fall start)				Semester course active		
				Lect	Prac	Lab	1	2	3	4	1	2	3	4			
GENERAL CURRICULUM																	
CRITERION COURSES			0														
Basic Physics Knowledge NT			C	a	0	0	0	0								every semester	
Internship NT			C	a	0	0	0	0		#		@			#	every fall	
CORE SUBJECTS			13														
Artificial Intelligence in Physics			C	e	5	1	0	2		#			#			every fall	
Physics Laboratory NT			C	c	6	0	0	4		#		@		#		every fall	
Colloquium Series 1			C	c	1	1	0	0		#			#			every semester	
Colloquium Series 2			C	c	1	1	0	0			#			#		every semester	
MANAGEMENT AND COMMUNICATION (one course from the list below)			E	e	3	2	0	0	0	0	3	0	0	3	0	0	
Innovation and Green Finance			E	e	3	2	0	0		*			*			every semester	
English for University Studies B2+			E	e	3	0	2	0		*			*			every spring	
Public Speaking B2+			E	e	3	0	2	0		*			*			every spring	
Academic Writing C1			E	e	3	0	2	0		*			*			every spring	
Professional Speaking C1			E	e	3	0	2	0		*			*			every spring	
Discussing Engineering C1			E	e	3	0	2	0		*			*			every spring	
CORE ELECTIVE PHYSICS COURSE (3 courses from the list below)			E	e	15				15	0	0	0	5	10	0	0	
Statistical Physics			E	e	5	2	1	0		*			*	*		every fall	
Particle Physics			E	e	5	2	1	0		*			*	*		every fall	
Nuclear Physics			E	e	5	2	1	0	*	*			*			every spring	
Quantum Physics of Atoms			E	e	5	2	1	0	*	*	*		*			every spring	
Nanophysics			E	e	5	2	1	0	*	*	*		*			every spring	
Nanotechnology and Materials Science			E	e	5	3	0	0	*	*			*	*		every fall	
Fundamentals of Photonics			E	e	5	2	1	0	*	*			*	*		every fall	
Computer Simulations in Physics			E	e	5	2	0	1	*	*	*		*	*		every spring	
DIPLOMA WORK																	
Diploma Work NT1			C	c	10	0	0	7				#			#	every semester	
Diploma Work NT2			C	c	20	0	0	13				#			#	every semester	
OPTIONAL COURSES (any BME course)			O		6				3	0	3	0	6	0	0	0	
NUCLEAR TECHNOLOGY SPECIALIZATION																	
COMPULSORY FROM THE CORE PHYSICS COURSE BLOCK																	
Nuclear Physics			E	e	5	2	1	0	*		@		*			every spring	
COMPULSORY SPECIALISATION COURSES			C		31												
Seminar NT1			C	c	2	0	2	0	#				#			every semester	
Seminar NT2			C	c	2	0	2	0		#			#			every semester	
Seminar NT3			C	c	2	0	2	0			#			#		every semester	
Project Laboratory NT1			C	c	7	0	0	5		#			#			every semester	
Project Laboratory NT2			C	c	13	0	0	8			#			#		every semester	
Nuclear Power Plant Operation			C	e	5	2	2	0		#				#		every fall	
ELECTIVE SPECIALIZATION COURSES (22 credits from the list below, if not taken)			E		22				10	4	8	0	10	7	5	0	
Elective Project Laboratory NT			E	c	10	0	0	7	*	*	*	*	*	*	*	every semester	
Nuclear Energy subject group																	
Thermal Hydraulics of Nuclear Power Plants			E	c	5	3	1	0	*				*			every spring	
Nuclear Power Plants			E	c	5	3	1	0	*				*			every spring	
Reactor Physics			E	e	5	3	1	0	*			*				every fall	
Safety of Radioactive Wastes			E	e	5	3	0	1	*			*				every fall	
NPP simulations exercises			E	c	3	0	0	2	*			@	*	*		every fall	
CFD Methods and Applications			E	c	4	2	1	0	*			*				every fall	
Nuclear Fuel Cycle			E	c	4	2	1	0	*			@	*	*		every fall	
Reactor Physics Calculations			E	e	5	3	1	0	*			@	*	*		every fall	
Numerical Methods in Computational Reactor Physics			E	e	5	3	1	0	@	*	*		*	*		every spring	
Reactor Instrumentation and Control			E	e	4	2	1	0	*			@	*	*		every fall	
Fusion Technology subject group																	
Introduction to Fusion Plasma Physics			E	e	3	2	0	0	*				*			every spring	
Fusion Devices			E	c	4	2	0	1	*			@	*	*		every fall	
Chapters of High Temperature Experimental Plasma Physics 1			E	e	3	2	0	0	*			@	*	*		every fall	
Chapters of High Temperature Experimental Plasma Physics 2			E	e	3	2	0	0	@	*	*		*	*		every spring	
Fusion Plasma Physics Laboratory Exercises			E	c	3	0	0	2	*			*	*	*		every fall	
Fluid Theories in Plasma Physics			E	e	5	2	2	0	*			@	*	*		every fall	
Collisional Transport in Magnetized Plasmas			E	c	5	1	2	0	*			@	*	*		every fall	
Nuclear Methods subject group																	
Monte Carlo Methods			E	c	5	2	0	1	*			*	*	*		every fall	
Monte Carlo Particle Transport Methods			E	e	3	2	0	0	@	*	*		*	*		every spring	
Neutron and Gamma Transport Methods			E	c	4	2	1	0	@	*	*		*	*		every spring	
Radionuclide Production and Application in Medical Biology			E	e	4	2	0	1	*			*	*	*		every fall	
Migration of Radioactive Species in Environmental and Biological Matter			E	e	4	2	2	0	*			*	*	*		every fall	
Radiation Protection 2			E	e	5	2	0	2	*			*	*	*		every spring	
Nuclear Electrodynamics			E	e	3	2	0	0	*			*	*	*		every fall	
Radioanalytics			E	c	6	3	0	2	*			*	*	*		every spring	
X-ray and gamma spectrometry			E	e	4	2	1	0	*			*	*	*		every fall	
RECOMMENDED OPTIONAL COURSES			O														
Noise Techniques in Nuclear Systems			O	e	3	2	0	0		*			*	*		every spring	
Material Testing in Nuclear Power Plants			O	e	3	2	0	0		*			*	*		every fall	
TOTAL NUMBER OF CREDITS										30	30	30	30	28	30	32	30