

Field of study: *Physics (Studies in English)*

2-year second cycle programme, full-time

Academic year: 2023/2024

Specialization: **Physics of Condensed Matter and Semiconductor Nanostructures**

First year, semester 1

Course name/group of courses	Course code	Type of course	Option A		Option B		Verification of learning outcomes
			Number of hours	Number of ECTS points	Number of hours	Number of ECTS points	
Physics Laboratory, 2nd Level A1 or Physics Laboratory, 2nd Level A2	1100-4PLA1 or 1100-4PLA2	lab	45	5	45	5	grade
Courses selected from the list Statistical physics	1100-4SPA or 1100-4SPB	lecture	45	7	45	7	written or oral exam
		exercises	45		45		
Intellectual property and entrepreneurship or Intellectual property and entrepreneurship with team project (Option A or Option B)	1100-4IPE or 1100-4AF16	lecture	30	2	30	5	written exam
		team project	0	0	75		project
Courses selected from the list Numerical analysis			30	3	30	3	written exam or grade
Introduction to solid state physics	1100-4ISSP	lecture	30	6	30	6	written exam
		exercises	30		30		
Selected specialization seminar		seminar	30	2	30	2	grade
OGUN (General University Courses)*			30	3	30	3	written exam or grade
In total			315	28	390	31	

*5 ECTS points should be obtained from general courses unrelated to physical sciences, i.e. humanities and social sciences

First year, semester 2

Course name/group of courses	Course code	Type of course	Number of hours	Number of ECTS points	Verification of learning outcomes
Introduction to Philosophy	1100-IP	seminar	30	3	grade
Courses selected from the list Numerical analysis			30	3	written exam or grade
Low-dimensional systems	1100-4LDS	lecture	30	6	written or oral exam
		exercises	30		
Magnetism and superconductivity	1100-4MSC	lecture	30	3	written or oral exam
Experimental methods in semiconductor physics	1100-4EMSP	lecture	30	3	written or oral exam
Physics Laboratory, 3rd Level	1100-4PL3	lab	120	12	grade
Selected specialization seminar		seminar	30	2	grade
In total			330	32	

Second year, semester 3

Course name/group of courses	Course code	Type of course	Option A*		Option B		Verification of learning outcomes
			Number of hours	Number of ECTS points	Number of hours	Number of ECTS points	
Team project**	1100-TP or 1100-ZPS2	project	75	5	0	0	grade
Optical properties of semiconductors	1100-OPS	lecture	30	6	30	6	written or oral exam
		exercises	30		30		
Bose-Einstein condensation and superfluidity	1100-BECSST	lecture	30	3	30	3	written or oral exam
Selected specialization courses			30	3	30	3	written exam or grade
Selected specialization seminar		seminar	30	2	30	2	grade
Proseminar Physics of Condensed Matter and Semiconductor Nanostructures	1100-PMSN	seminar	30	3	30	3	grade
Laboratory in condensed matter physics I	1100-LCMP1	workshop	120	10	120	10	grade
OGUN (General University Courses)***			30	3	30	3	written exam or grade
In total			405	35	330	30	

*Option A is obligatory for those students who did not complete any team project during the first year

** Team project can be taken as a separate course or as a part of the course that requires teamwork

***5 ECTS points should be obtained from general courses unrelated to physical sciences, i.e. humanities and social sciences

Second year, semester 4

Course name/group of courses	Course code	Type of course	Number of hours	Number of ECTS points	Verification of learning outcomes
Work placement	1100-WP	internship	80	4	grade
Proseminar Challenges of the modern times	1100-PCMT	seminar	20	2	grade
Diluted magnetic semiconductors	1101-4`DMS	lecture	30	3	written or oral exam
Selected specialization seminar		seminar	30	2	grade
Laboratory in condensed matter physics II	1100-LCMP2	workshop	210	19	pass/fail (no grade)
In total			370	30	

In total	Option A		Option B	
	Number of hours	Number of ECTS points	Number of hours	Number of ECTS points
1 year	645	60	720	63
2 year	775	65	700	60
1 and 2 year	1420	125	1420	123