STUDY PROGRAMME

programme: **NANOTECHNOLOGY**
profile: academic
level: 1st degree – BSc
system of studies: full-time
valid from: 2016/17
duration: 6 semesters

Year	Semester	Course name	Course details							
			Hours						Form of assess-ment	ECTS
			lectures	tutorials	classes	seminars	labs	Total		
I	1	Chemical fundamentals of nanotechnology 1	28	28				56	E	**7**
		Physical fundamentals of nanotechnology 1	28	28				56	E	**7**
		Mathematics 1	28	28				56	E	**6**
		Information technology and statistics	14	42				56	C	**5**
		Foreign language (pl, en)*			60			60	C	**2**
		Trainings: Occupational safety and health; Protection of intellectual property and copyright							C	**0**
		total (semester 1):					**hours:**	**284**	**ECTS:**	**27**
	2	Chemical fundamentals of nanotechnology 2	28	14			56	98	E	**8**
		Physical fundamentals of nanotechnology 2	28	28			42	98	E	**8**
		Mathematics 2	28	28				56	E	**5**
		Programming 1					28	28	C	**3**
		Information technology and statistics 2					56	56	C	**4**
		Foreign language (pl, en)*			60			60	E	**5**
		total (semester 2):					**hours:**	**396**	**ECTS:**	**33**
II	3	Physical fundamentals of nanotechnology 3	28	28			42	98	E	**8**
		Organic chemistry with elements of biochemistry	28	28			56	112	E	**9**
		Mathematics 3	28	28				56	E	**5**
		Experimental methods in nanotechnology	28					28	E	**4**
		Laboratory of nanotechnology 1					40	40	C	**4**
		Elective courses **					28	28		**3**
		total (semester 3):					**hours (minimum):**	**362**	**ECTS:**	**33**
	4	Laboratory of nanotechnology 2					56	56	E	**6**
		Elective courses ***	154	70				224		**24**
		total (semester 4):					**hours (minimum):**	**280**	**ECTS:**	**30**
III	5	Introduction to semiconductor physics	28				40	68	E	**7**
		Laboratory of nanotechnology 3					56	56	C	**6**
		Diploma seminar ****				14		14	C	**1**
		Physical education			30			30	C	**1**
		Elective courses **	98	28			14	140		**15**
		total (semester 5):					**hours (minimum):**	**308**	**ECTS:**	**30**
	6	Economic aspects of nanotechnology	14					14	C	**1**
		Laboratory of nanotechnology 4					42	42	C	**5**
		Traineeships *****					3 weeks	0	C	**3**
		Diploma seminar ****				14		14	C	**1**
		Diploma thesis and preparation to final exam						0	E	**10**
		Elective courses ***	56	28			42	126		**12**
		total (semester 6):					**hours (minimum):**	**196**	**ECTS:**	**32**
		TOTAL IN THE COURSE OF STUDIES:					**hours:**	**1826**	**ECTS:**	**185**

Forms of assessment: E – exam, C – credit with grade

* *Polish language for foreigners or English language with B2 level after the course assumed.*

** *The student selects the elective course from the provided list of elective courses for winter semester (semesters 3 and 5). The list of courses (including their content, form of teaching, schedules as well as minimum and maximum number of students in the group) will be established and published by the Dean of the Faculty till May, 30th of the preceding academic year. The present list of elective courses is given below (this list can be modified by the Dean of the Faculty).*

*** *The student selects the elective course from the provided list of elective courses for summer semester (semesters 4 and 6). The list of courses (including their content, form of teaching, schedules as well as minimum and maximum number of students in the group) will be established and published by the Dean of the Faculty till January, 15th of the given academic year. The present list of elective courses is given below (this list can be modified by the Dean of the Faculty).*

**** *The student selects the seminar and the department in which he/she will prepare the BSc thesis from the list provided by the Dean of the Faculty.*

***** *Traineeships can take place at Faculty of Physics and Applied Informatics or Faculty of Chemistry, University of Łódź.*

NANOTECHNOLOGY: List of elective courses

Year	Semester	Course name	Course details							
			Hours						Form of assess-ment	ECTS
			lectures	tutorials	classes	seminars	lab.	Total		
II or III	3 or 5	Chemistry and technology of polymers	28					28	E	**4**
		Electrodynamics	28	28				56	C	**4**
		Classical and relativistic mechanics	28	14				42	C	**3**
		Computational methods in nanotechnology	14	28				42	C	**6**
		Modern methods of total synthesis	28					28	C	**3**
		Programming 2 – C++					28	28	C	**3**
		Programming 2 – Java					28	28	C	**3**
		Project		14			14	28	C	**3**
		Toxicology of nanomaterials	14					14	C	**2**
		TOTAL:					**hours:**	**294**	**ECTS:**	**31**
II or III	4 or 6	Physical chemistry	28				42	70	E	**6**
		Energy storage	28					28	C	**3**
		Physics of atom and molecule	28	28				56	C	**4**
		Statistical physics and thermodynamics	28	28				56	E	**6**
		Physicochemistry of surface	56	28				84	C	**7**
		Crystallography	14	14				28	E	**4**
		Nanoelectronics	28					28	E	**4**
		Nanostructures	28	28				56	C	**6**
		TOTAL:					**hours:**	**406**	**ECTS:**	**40**

This study programme was accepted by the Council of the Faculty of Physics and Applied Informatics on June, 22nd, 2016