

**P r o g r a m m e**  
**of the International Doctoral Studies**  
**at the Institute of Physical Chemistry of the Polish Academy of Sciences**  
(valid for studies held under: *"the Interdisciplinary Nanoscience School: From Phenomenology to Applications"*)

## **1. General provisions**

**1.1.** The Institute of Physical Chemistry of the Polish Academy of Sciences (IPC) provides 4-year doctoral studies "Interdisciplinary NANoscience School: from phenoMENology to applicationS (hereinafter referred to as: NaMeS) within the framework of the IPC International Doctoral Studies and European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 711859 (hereinafter referred to as: NaMeS grant agreement). The programme, concerning the nano- and microstructure of matter, combines chemistry, physics, mathematics, biology and material science.

**1.2.** In the course of their studies, doctoral students carry out experimental or theoretical research aimed at the preparation of doctoral dissertations. They also take part in classes and other activities ensuring the acquisition of knowledge, skills and competence required to be awarded the academic degree of *doktor nauk chemicznych* (PhD in chemical sciences).

**1.3** A part of the research programme is carried out by the students during their secondments to cooperating foreign scientific institutions, as specified in the NaMeS grant agreement.

## **2. Course of the studies**

**2.1.** The framework programme of the studies is shown in Table 1.

**2.2.** The research advisor or supervisor, together with the co-supervisor (hereinafter referred to as: the Tutors) shall direct the doctoral student's research and the course of his/her doctoral studies.

**2.3.** The doctoral student shall receive a credit book to record all completed classes as provided by the programme of the studies, including the grades in examinations. These results shall also be recorded in the Academic Year Completion Card (AYCC), together with completion or lack of completion of a given year of doctoral studies.

**2.4.** A necessary precondition for completion of the NaMeS doctoral programme shall be to complete consecutive years of study according to the rules as set out in Section 8.

Table 1. Framework NaMeS programme.

	ECTS credits				Form of completion	ECTS sum
	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year		
Basic Physical Chemistry <sup>1)</sup> : 1) <i>Quantum chemistry and spectroscopy</i> 2) <i>Thermodynamics</i> 3) <i>Kinetics of chemical reactions</i> 4) <i>Structure of matter</i> 5) <i>Electrochemistry</i>	6	6	3	-	Examination by the lecturer	15
4 specialised lecture courses <sup>2)</sup>						3
Lectures in additional subject <sup>3)</sup> , (Options: <i>Philosophy</i> or <i>Economy</i> )	1				Credit awarded by the lecturer	1
Specialised seminar or conference presentation (min. 2 presentations; see Item 5.5.)	1		1		Credit awarded by the Tutor	2
Doctoral seminars (4 presentations in total)	1	1	1	1	Credit awarded by the Head of PhD Studies	4
Research reports (see item 5.1.) <sup>4)</sup>	0.5	0.5	0.5	0.5		2
Course on grant application writing	1				Credit awarded by the lecturer	1
Lectures on intellectual property protection and patenting practice	1					1
Coaching towards effective career management	0.5					0.5
Soft skills training <sup>5)</sup>	0.5					0.5
Laboratory internship <sup>6)</sup> (see Section 6.)	2				Credit awarded by the respective research team leader	2
TOTAL <sup>7)</sup>						41

- 1) Lecture courses organised annually. Attendance at lectures is recommended to be in the order presented in the Table. For each completed lecture course, 3 ECTS credits are granted.
- 2) Selection of lectures shall be consistent with individual Career Development Plans (CDP). For each completed lecture course, organised at IPC PAS, 3 ECTS credits are granted. Courses organised outside of IPC PAS, worth at least 2 ECTS credits, are accepted; the minimal total number of ECTS credits awarded for specialised lectures is therefore 8.
- 3) Lecture courses organised annually, provided a minimum of 4 students declare their participation.
- 4) Every year, 3 seasonal reports are required, due on dates specified by the Head of PhD Studies.
- 5) Selection of courses shall be consistent with individual CDPs.
- 6) Internships organised by IPC research teams. Selection shall be consistent with individual CDPs.
- 7) On account of footnote No. 2, a doctoral students shall collect not less than 37 ECTS credits in total.

### 3. Lecture courses

**3.1.** Five 30-hour Basic Physical Chemistry lecture courses are organised by the Head of PhD Studies. The attendance is compulsory. Each lecture course shall be completed by an examination. The lecturer may, after having consulted the Tutor, permit a doctoral student who has not attended classes but declares appropriately advanced knowledge in a given field, to sit the examination.



**3.2.** A doctoral student must attend 4 specialised lecture courses (a minimum of 15 hours each, in-house or outside IPC, completed by examinations), in line with his/her individual CDP.

**3.3** A doctoral student must complete a selected lecture course in an additional subject (*Philosophy* or *Economy*) in preparation for a respective doctoral exam before an examination board.

**3.5.** A doctoral student must complete the courses on grant application writing, intellectual property protection, and on effective career management, organised by the Head of PhD Studies.

**3.6.** A soft-skills training, in line with the doctoral student's individual CDP, is obligatory.

**3.7.** The Tutor may recommend the attendance at additional lecture courses.

#### **4. Examinations**

**4.1.** A doctoral student must pass five examinations concluding the Basic Physical Chemistry lecture courses, and four examinations in the specialised lectures, according to the schedule listed in Table 1, with the reservation of the possibilities indicated in Items 8.5 and 8.6.

**4.2.** A doctoral student must notify the Head of PhD Studies about his/her attendance at a specialised lecture course within the framework of the NaMeS programme, before sitting for the examination. After the examination, he/she must ensure the grade is entered in the credit book as well as in the AYCC.

**4.3.** A doctoral student shall sit for an examination on the date set by the person conducting the class, however, no later than before the end of the academic year in which the lecture was delivered.

**4.4.** Prior to the defence of his/her doctoral dissertation, the doctoral student must pass all the statutory doctoral examinations; the doctoral examination in the basic subject shall comprise an examination in physical chemistry with particular focus on the specialised area of the doctoral dissertation.

#### **5. Project milestones, seminars and scientific conferences**

**5.1.** Every 4 months, due on dates specified by the Head of PhD Studies, a doctoral student shall present the current progress of his/her research work: by submitting a written report to the Head of PhD Studies and by giving a brief oral summary at the NaMeS work meeting.

**5.2.** A doctoral student shall systematically and actively participate in the doctoral students' seminar organised by the Head of PhD Studies. The completion of a full year of study shall require the delivery by the doctoral student of a seminar presentation related to his/her own research work.

**5.3.** A doctoral student shall attend general IPC seminars.

**5.4.** Scientific results obtained by the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year doctoral students shall be presented, in the form of posters, at the annual IPC PAS Microsymposia.

**5.5.** According to the guidance of the research advisor or supervisor, a doctoral student shall participate in specialised seminars (in-house or outside the IPC), and in national or international scientific events. During his/her studies, the doctoral student must, at least twice, present the outcome of his/her own research in oral presentations at specialised seminars, conferences or scientific symposia.

#### **6. Laboratory internship**

**6.1.** A doctoral student must complete, at IPC, a laboratory internship *not* directly related to his/her own research work, but in line with the individual CDP.

**6.2.** The choice of an internship is made from the offer compiled by the Head of PhD Studies.

**6.3.** The internship shall be preceded by verifying if the doctoral student possesses the appropriate theoretical knowledge. A written report, documenting the course of the internship and accepted by the person providing guidance to the student, is subject to the awarding of a credit by the leader of the involved IPC research team.

## **7. Foreign language classes**

The Tutor or the Head of PhD Studies may require a doctoral student to attend English language classes and to present completion of the classes.

## **8. Rules for completion of each year of study**

**8.1.** A necessary prerequisite for completing a year of study is that a doctoral student presents reports on the progress of his/her research work (item 5.1), together with a positive opinion of his/her Tutor(s). In addition, to complete a year of study (as confirmed by the Head of PhD Studies with respective credit book and AYCC entries) the student is required to meet the conditions listed in the items 8.2-4 and 8.7 below, as well as in items 5.3-4.

**8.2.** A first year doctoral student must complete at least two of the five required lecture courses covering the principal branches of physical chemistry. Additionally, he/she must complete at least one specialised lecture course, and give a talk at the doctoral seminar (Item 5.2).

**8.3.** In total, during the first and second years of study, a doctoral student must pass examinations in at least four Basic Physical Chemistry lecture courses and two specialised lecture courses. The student must also present his/her research findings in two talks given at the doctoral seminar and in at least one talk given at a specialised seminar or conference (Item 5.5).

**8.4.** In total, during the first three years of study, a student of the International Doctoral Studies must pass examinations in all Basic Physical Chemistry lecture courses and three specialised lecture courses. The student must also deliver three talks at the doctoral seminar and at least one talk at a specialised seminar or conference.

**8.5.** The completion dates, as follows from Items 8.2, 8.3, and 8.4, may be rescheduled in justified cases on the Tutor's request, after obtaining acceptance by the Head of PhD Studies.

**8.6.** In exceptional cases, at the request of the doctoral student, approved by the Tutor, the Head of PhD Studies may conditionally complete a year of study if the student has no more than one outstanding partial credit – with regard to lecture courses, English language classes or seminar/conference presentations. The doctoral student must then acquire the missing credit at a later date, during the following academic year.

**8.7.** During the fourth year of study, the doctoral student should write a doctoral dissertation and present it to the Tutors. He/she should also obtain all credits of the NaMeS programme, as listed in Tab. 1 of Section 2.

**8.8.** The doctoral student may apply for extension of the International Doctoral Studies beyond four years, pursuant to § 2.6. of the Regulations of the International Doctoral Studies at the IPC PAS.

## **9. Transitory and final provisions**

**9.1** This Programme of the International Doctoral Studies at the IPC PAS, valid for the studies held under: *“Interdisciplinary Nanoscience School: From Phenomenology to Applications”* was adopted by the Scientific Council of the IPC PAS at its 278<sup>th</sup> meeting on the 11<sup>th</sup> October, 2016.

9.2 This Programme shall take effect as of the day it is approved.

Przewodniczący Rady Naukowej



*Prof. dr hab. Aleksander Jabłoński*