**Záměr studijního programu Přírodovědecké fakulty UP**

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| **I: Název oblasti vzdělávání** |
| Chemistry |
| **II: Základní tematické okruhy** |
| Physical Chemistry |
| **III: Název studijního programu** |
| Physical Chemistry  – both full-time and combined form of the doctoral study program taught in English |
| **IV: Garant studijního programu** |
| doc. RNDr. Karel Berka, Ph.D. |
| **V: Uplatnění absolventa** |
| The graduate of the doctoral study program is a chemist with extended and detailed theoretical knowledge and practical skills in the field of physical chemistry and applied physical chemistry and is able to develop these disciplines independently. This fact guarantees him a position in state-owned and private institutions operating in the chemical industry sector as an independent professional or for the career of a university teacher. The graduate has all prerequisites to become a leading or organizational worker of basic or applied research teams.  Relevant professions: Researcher, a senior researcher at universities, institutes of the Academy of Sciences, research institutes and control laboratories with chemical, pharmaceutical, agricultural, food, hygiene, clinical, veterinary, environmental, geological, ecological, engineering, construction or other industrial focus.  It is not a regulated profession. |
| **VI: Cíle studia** |
| The aim of the doctoral study program Physical Chemistry is the preparation of highly knowledgeable, independent and practically applicable experts who will possess advanced knowledge and skills in the interdisciplinary area of ​​Physical Chemistry.  Graduates of the study program acquire detailed knowledge and experience with the use and interpretation of the results of a wide range of physicochemical techniques or theoretical and computational approaches designed to study molecules, molecular sets, (nano) materials and surfaces. During their studies, students are encouraged to plan research activities, are able to orientate themselves in modern information technologies and scientific literature and independently prepare scientific grant projects.  Emphasis is placed on the understanding of physicochemical properties of studied systems for their targeted influence within applications. Students will acquire principles, methods of processing and interpretation of results of a wide range of very advanced techniques for characterization of studied systems according to their specialization from computational and simulation methods, through spectroscopic and microscopic methods, to separation and chemical methods. For students, the emphasis is on participation in seminars, conferences and internships abroad, so as to improve as much as possible in expressing and presenting soft skills in English. Graduates of the doctoral program are able to communicate, write and present results in English and establish professional cooperation with foreign partners. The study program enables students to acquire and improve their teaching skills by engaging in the undergraduate and undergraduate study programs implemented at the Department of Physical Chemistry, including the undergraduate or graduate theses.  The study is based on individual study plans prepared individually for each student. The main focus of students' activities lies in their scientific work within the framework of the dissertation work under the guidance of experienced trainers and consultants, where they are engaged in research in selected areas of physical chemistry and related disciplines. Specifically, they deal in their scientific work with topics related to catalysis, electrochemistry and electrocatalysis, optical properties of (nano) materials and (nano) composites, energy storage (supercapacitors and batteries), surface and rheological properties of materials, structure and function of biomacromolecules, etc. |