Załącznik nr 3

# LEARNING OUTCOMES FOR THE THIRD DEGREE (PhD) COURSE

**Run by the Faculty of Chemistry**

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| **Area of education: exact sciences**<br>**Branch of science: chemical sciences**<br>**Scientific discipline: chemistry**<br>**Mode of study: full-time** | |
| **Symbol** | **Upon completion of the PhD course, the graduate will:** |
| **K_W01** | Have extensive knowledge in the selected specialty within which his/her PhD thesis is written. |
| **K_W02** | Have in-depth knowledge of selected important branches of chemistry and of the importance of chemistry for the progress of exact and natural sciences as well as for the cognition of the world and development of civilization. |
| **K_W03** | Know the fundamentals and possibilities of the most important research techniques and have broader knowledge on the selection of methods used in studying matter. |
| **K_W04** | Know the essential research trends in important branches of chemistry. |
| **K_W05** | Have broader knowledge of physical chemistry. |
| **K_W06** | Have basic knowledge necessary to solve defined research problems. |
| **K_W07** | Have necessary knowledge of methods and techniques for conducting classes. |
| **K_U01** | Be able to plan and conduct research designed to solve scientific problems in the selected specialty and related specialties. |
| **K_U02** | Be able to use his/her knowledge to solve problems with a medium or high level of complexity, both theoretically and practically. |

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| **K_U03** | Be able to draw conclusions from experiments and calculations performed. |
| **K_U04** | Have the ability to prepare oral presentations, supported by computer graphics, both in his/her native language and in a foreign language. |
| **K_U05** | Have the ability to prepare papers on a selected topic in his/her specialty, both in his/her native language and in a foreign language. |
| **K_U06** | Be able to present in a concise and logical manner the essential facts from the basic fields of chemistry. |
| **K_U07** | Be able to use databases and selected computer programs. |
| **K_U08** | Be able to plan classes in the area represented by his/her field of science and to conduct them with first and second degree students. |
| **K_U09** | Be able to correlate the knowledge acquired in his/her specialization with the knowledge from other, not only related, fields of science. |
| **K_U10** | Be able to independently search for information in the literature, also foreign literature. |
| **K_U11** | Know at least one foreign language at a level that will allow him/her to communicate freely, to present research results, to translate and understand scientific texts. |
| **K_U12** | Be able to formulate issues that will serve to further deepen his/her knowledge. |
| **K_U13** | Be able to use modern methods and techniques for conducting classes. |
| **K_K01** | Be aware of the need to continually enhance his/her professional and personal competencies. |
| **K_K02** | Be able to inspire the learning process in others, not only in the field of exact sciences. |
| **K_K03** | Be able to work in a team and understand the need of teamwork in research in the field of modern chemistry. |

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| **K_K04** | Appreciate and understand the importance of ethical conduct in any problems associated with the practice of the profession of chemist. |
| **K_K05** | Understand the social and environmental aspects of the development of science and its practical application. |
| **K_K06** | Show willingness to help others in understanding his/her knowledge. |

Explanation of the symbol designations

K_W – knowledge; K_U – skills; K_K –personal and social competencies.