

# Study programme Chemical Metallurgy

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| <b>Faculty</b>                     | Faculty of Materials Science and Technology            |
| <b>Type of study</b>               | Doctoral   |
| <b>Language of instruction</b>     | English  |
| <b>Code of the programme</b>       | P0715D130002   |
| <b>Title of the programme</b>      | Chemical Metallurgy                                    |
| <b>Regular period of the study</b> | 4 years  |
| <b>Cost</b>                        | 500 CZK per semester                                   |
| <b>Coordinating department</b>     | Department of Chemistry and Physico-Chemical Processes |
| <b>Coordinator</b>                 | prof. Ing. Bedřich Smetana, Ph.D.                      |
| <b>Key words</b>                   |  |

## About study programme

Doctoral study program Chemical metallurgy is modern scientifically oriented, multidisciplinary and interdisciplinary research program. Study is mainly oriented on chemical aspects of preparation, extraction and recycling of metallic materials and characterization of these materials. Furthermore, the study program is focused on study of other inorganic materials in solid and liquid phase. The processes of metals extracting from primary and secondary raw materials, study of ferrous and non-ferrous alloys and also ecological aspects of metallurgical production impact on the environment is studied. Doctoral study program is focused on aspects of industrial technologies arising mainly from chemico-physical basis and on properties study of inorganic materials for broad application area. This study program brings up top quality specialists with creative inventiveness and with the use in the labour market in scientific, research, development, managing and production sphere in given and related branch.

## Graduate's employment

Alumni of this doctor study program can apply as scientific, development, research and pedagogical staff at universities, research and development institutes.

Alumni find apply in the state administration and production companies, mainly in metallurgical, chemical and related industrial fields.

Typical berths are:

- Research and development worker (employee).
- Standalone researcher.
- The leading technologist.
- Plant leader.
- Enterprise leader.
- Production leader.
- Chemical engineer.
- Process engineer.
- Specialist in the chemical metallurgy.
- Manager.

## **Study aims**

The aim of this study program is to bring up top quality specialists with creative inventiveness and with the use in the labour market in scientific, research, development, managing and production sphere in given and related branch.

## **Graduate's knowledge**

Alumni have (gain) deep and systematic knowledge from the branch of physico-chemical aspects of progressive technologies of materials preparation.

Corresponding theoretical basis from thermodynamics, kinetics of heterogeneous processes and electrochemistry is supported by good knowledge from process engineering and transport phenomena.

Study is focused on new metallic and non-metallic materials, materials with specific physical properties, chemical pure materials, etc.

Alumnus has the knowledge regarding the properties of materials, utilization of materials in various industrial applications.

The part of the study are the environmental aspects connected with production of materials, waste treatment and secondary utilization of materials.

## **Graduate's skills**

Alumni can widen the knowledge of professional field by fundamental research and development based on scientific principles gained through the study.

Alumnus is able to develop and evaluate theories, concepts and methods in the field including limiting of various branches or their filling in to the wider professional field.

## **Graduate's general competence**

Alumni of the program will adopt principles of scientific work in the frame of the research field and also are able to solve partial problems of fundamental and applied research and development by their own.

They can formulate scientific and/or technical problem, critically evaluate the obtained results, publish the obtained results in the field, find original solutions and discuss the opinions and ideas with the scientific community and public community in the international scale.