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| Универзитет у Крагујевцу**ПРИРОДНО-МАТЕМАТИЧКИ****ФАКУЛТЕТ** | PMF LOGO VER8 CIRILICA | University оf Kragujevac**FACULTY OF****SCIENCE** |
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**DEPARTMENT OF CHEMISTRY**

 **GRADUATE ACADEMIC STUDIES**

**CHEMISTRY**

for obtaining the second higher education degree and professional title

**Master of chemistry**

**Modules:**

**Master of Chemistry – Research and Development Chemist**

**Master of Chemistry – Professor of Chemistry**

**Master of Chemistry – Environmental Chemist**

**Kragujevac, 2017.**

**THE STRUCTURE OF THE STUDY PROGRAM**

**TITLE AND AIMS OF THE STUDY PROGRAM**

Graduate academic studies of CHEMISTRY last one year (2 semesters, 60 ECTS). The study program is structured with aims to educate and train experts for vocational and scientific work in different fields of chemistry. Upon completing this Graduate academic studies of Chemistry, student acquires the professional title:

***Master of Chemistry***

The study program includes two modules:

* **Master of Chemistry – Research and Development Chemist**
* **Master of Chemistry – Professor of Chemistry**
* **Master of Chemistry – Environmental Chemist**

Upon completion of Graduate academic studies of Chemistry, experts are formed, able to perform and manage tasks in different areas where it can be applied the knowledge of chemistry. The acquired level of knowledge provided ease of application in practice and scientific research.

The specific purpose of the graduate study is that students are able to:

* research in developmental chemical, medical and biochemical laboratories and research centers;
* work in public administration and inspection institutions and research centers of various state, private and public companies;
* teaching in primary and secondary schools;
* work in institutions for planning, organization and control of the educational process.

**TYPE AND RESULTS OF STUDIES**

Study program on both of modules consists of obligatory and elevtive courses, research study, school practice and master thesis. Elective courses direct students toward particular chemical discipline, depending on personal needs and preferences.

**ADMISSION REQUIREMENTS FOR THE STUDY PROGRAM**

Application for Graduate academic studies of Chemistry can submit persons with completed undergraduate level with the least of 240 ECTS. Foreign citizens can enroll in a study program on the same conditions as a Serbian candidates, in accordance with the law, with the prior test of knowledge Serbian language.

**MASTER THESIS**

Master thesis is a result of study research of students and represents the final exam for obtaining the professional title MASTER OF CHEMISTRY.

**APENDIX**

A list of obligatory and elective courses per semester, weekly number of classes of lectures, exercises, study and research work, school practice, other forms of teaching and ECTS for each subject at the Graduate academic studies of Chemistry (60 ECTS)

**Labels used:**

 **C** – course code, which is set at the level of institutions

 **S** – semester of the course

Type of course: **AG** - Academic general educational

 **TM** - Theoretical and methodological
                  **SP** - Scientific professional
               **PA** - Professional applicative

Status of the course: **O** - obligative
        **EB** - elective block.

Classes of active teaching: **L** - lectures
 **E** - exercises
  **SR** - Study and Research
 **OFT** - Other forms of teaching (laboratory exercises, seminars, etc., depending on the specifics of the study program).

**A distribution of the study program courses into semesters and academic year**

GRADUATE ACADEMIC STUDIES **CHEMISTRY** **(60 ЕCTS)**

**Module: Master of Chemistry – Research and Development Chemist**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | C | Course Title | S | Course Type | Course Status | Active teaching | ЕSTC |
|  |  |  |  |  |  | L | E | OFT | Other classes |  |
| 1. | C201 | Bioinorganic Chemistry | 1 | AG | О | 2 | 2 | 0 | 0 | 5 |
| 2. |  | Courses of elective block 1(two courses) | 1 | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 3. | C215 | Research study 1 | 1 | SP | O | 0 | 0 | 0 | 8 | 8 |
| 4. |  | Courses of elective block 2(two courses) | 2 | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 5. | C202 | Bioorganic Chemistry | 2 | AG | O | 2 | 2 | 0 | 0 | 5 |
| 6. | C215 | Research study 2 | 2 | SP | O | 0 | 0 | 0 | 8 | 8 |
| 7. | C200 | Master thesis | 2 | SP | O |  | **10** |
|  |  |  |  |  |  | **12** | **12** | **0** | **16** |  |
|  Total classes of active teaching per week   | **40** |
| Total classes of active teaching in year   | **600** |
| Total classes of active teaching for all study years   | **600** |
| Total ESTC | **60** |

**\*** Classes of active teaching depending on the elective courses

**The list of elective courses in the study program**

GRADUATE ACADEMIC STUDIES **CHEMISTRY**

**Module: Master of Chemistry – Research and Development Chemist**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | C | Course Title | Course Type | Course Status | Active teaching | ESTC |
|  |  |  |  |  | L | E | OFT | SR |  |
| **Courses of elective block1** |
| 1. | C203 | Molecular Modelling 2 | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 2. | C204 | Intermediates in Organic Chemistry | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 3. | C205 | Equilibria in Analytic Chemistry | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 4. | C206 | Biochemistry 2 with Enzymology | PA | EB | 2 | 2 | 0 | 0 | 6 |
| **Courses of elective block 2** |
| 1. | C207 | Inorganic Synthesis and Methods of Characterization | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 2. | C208 | Organometallic Chemistry | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 3. | C209 | Hazardous Substances in Waste Management  | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 4. | C210 | Complexes in Medicine | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 5. | C211 | Food Analysis | PA | EB | 2 | 2 | 0 | 0 | 6 |

**A distribution of the study program courses into semesters and academic year**

GRADUATE ACADEMIC STUDIES **CHEMISTRY** **(60 ЕCTS)**

**Module: Master of Chemistry – Professor of Chemistry**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | C | Course Title | S | Course Type | Course Status | Active teaching | ЕSTC |
|  |  |  |  |  |  | L | E | OFT | Other classes |  |
| 1. | C212 | Methods in Chemistry Teaching in Work with Talented Students | 1 | AG | О | 2 | 2 | 0 | 0 | 5 |
| 2. |  | Courses of elective block 1(two courses) | 1 | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 3. | C215 | Research study 1 | 1 | SP | O | 0 | 0 | 0 | 8 | 8 |
| 4. |  | Courses of elective block 2(two courses) | 2 | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 5. | C213 | Modern Aspects in Chemistry Teaching | 2 | AG | O | 2 | 2 | 0 | 0 | 5 |
| 6. | C215 | Research study 2 | 2 | SP | O | 0 | 0 | 0 | 8 | 8 |
| 7. | C200 | Master thesis | 2 | SP | O |  | **10** |
|  |  |  |  |  |  | **12** | **12** | **0** | **16** |  |
|  Total classes of active teaching per week   | **40** |
| Total classes of active teaching in year   | **600** |
| Total classes of active teaching for all study years   | **600** |
| Total ESTC | **60** |

**\*** Classes of active teaching depending on the elective courses

**The list of elective courses in the study program**

GRADUATE ACADEMIC STUDIES **CHEMISTRY**

**Module: Master of Chemistry – Professor of Chemistry**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | C | Course Title | Course Type | Course Status | Active teaching | ESTC |
|  |  |  |  |  | L | E | OFT | SR |  |
| **Courses of elective block1** |
| 1. | C203 | Molecular Modelling 2 | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 2. | C205 | Equilibria in Analytic Chemistry | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 3. | C206 | Biochemistry 2 with Enzymology | PA | EB | 2 | 2 | 0 | 0 | 6 |
| **Courses of elective block 2** |
| 1. | C207 | Inorganic Synthesis and Methods of Characterization | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 2. | C208 | Organometallic Chemistry | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 3. | C209 | Hazardous Substances in Waste Management | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 4. | C210 | Complexes in Medicine | PA | EB | 2 | 2 | 0 | 0 | 6 |

**A distribution of the study program courses into semesters and academic year**

GRADUATE ACADEMIC STUDIES **CHEMISTRY** **(60 ЕCTS)**

**Module: Master of Chemistry – Environmental Chemist**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | C | Course Title | S | Course Type | Course Status | Active teaching | ЕSTC |
|  |  |  |  |  |  | L | E | OFT | Other classes |  |
| 1. | C214 | Methods of Handling Chemical Accidents | 1 | PA | О | 2 | 2 | 0 | 0 | 4 |
| 2. |  | Courses of elective block 1(two courses) | 1 | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 3. | C215 | Research study 1 | 1 | SP | O | 0 | 0 | 0 | 8 | 8 |
| 4. |  | Courses of elective block 2(two courses) | 2 | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 5. | C209 | Hazardous Supstances in Waste Management | 2 | PA | O | 2 | 2 | 0 | 0 | 6 |
| 6. | C215 | Research study 2 | 2 | SP | O | 0 | 0 | 0 | 8 | 8 |
| 7. | C200 | Master thesis | 2 | SP | O |  | **10** |
|  |  |  |  |  |  | **12** | **12** | **0** | **16** |  |
|  Total classes of active teaching per week   | **40** |
| Total classes of active teaching in year   | **600** |
| Total classes of active teaching for all study years   | **600** |
| Total ESTC | **60** |

**\*** Classes of active teaching depending on the elective courses

**The list of elective courses in the study program**

GRADUATE ACADEMIC STUDIES **CHEMISTRY**

**Module: Master of Chemistry – Environmental Chemist**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | C | Course Title | Course Type | Course Status | Active teaching | ESTC |
|  |  |  |  |  | L | E | OFT | SR |  |
| **Courses of elective block1** |
| 1. | C203 | Molecular Modelling 2 | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 2. | C205 | Equilibria in Analytic Chemistry | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 3. | C206 | Biochemistry 2 with Enzymology | PA | EB | 2 | 2 | 0 | 0 | 6 |
| **Courses of elective block 2** |
| 1. | C207 | Inorganic Synthesis and Methods of Characterization | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 2. | C211 | Food Analysis | PA | EB | 2 | 2 | 0 | 0 | 6 |
| 3. | B228 | Biophysical systems and Environment | PA | EB | 2 | 2 | 0 | 0 | 6 |