|  |  |
| --- | --- |
| **Course title**Environmental fate of organic micropollutants – ERASMUS Mikrozanieczyszczenia organiczne w środowisku – ERASMUS  | **ECTS code**13.3.1264 |
| **Name of unit administrating study** Faculty Chemistry |
| **Studies**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field of study** | **Type** | **Form** |  |
| Chemistry | Bachelor  | Full-time studies  |  |
| Chemistry | Master | Full-time studies |  |
| Environmental sciences | Bachelor | Full-time studies |  |

 |
| **Teaching staff**prof. dr hab. Ewa Siedlecka |
| **Forms of classes, the realization and number of hours**  | **ECTS credits 1**classes 5 htutorial classes 5 hstudent’s own work 15 hTOTAL: 25 h - 1 ECTS |
| 1. **Forms of classes, in accordance with the UG Rector’s regulations**

lecture |
| 1. **The realization of activities**

In-class or on-line |
| 1. **Number of hours**

5 h - lecture |
| **The academic cycle**winter |
| **Type of course**facultative | **Language of instruction**English |
| **Teaching methods**Lecture with multimedia presentation | **Form and method of assessment and basic criteria for evaluation or examination requirements**  |
| **A. Final evaluation, in accordance with the UG study regulations** course completion (with a grade) |
| **B. Assessment methods**Writing test  |
| **C. The basic criteria for evaluation** or exam requirements Evaluation criteria in accordance with the UG Studies Regulations; |
| **Required courses and introductory requirements** no requirements |
| **Aims of education**Students will classify emerging pollutants and their sourcesStudents will describe the physicochemical parameters of emerging pollutantsStudents will describe correlation between physicochemical parameters of micropollutants and their fate in environmentStudents will classify and describe the micropollutants decay processes in environmentStudents will plan and describe micropollutants treatment technologiesStudents will describe efficiency of conventional technologies in micropollutants removal from wastewater**Convergent to**: general chemistry, organic chemistry, analytical chemistry, environmental sciences |
| **Course contents**A summary of the recent occurrence of micropollutants in the aquatic environment including sewage, surface water, groundwater and drinking water, a major pathway for the introduction of micropollutants to surface water, the physicochemical properties of micropollutants responsible for their fate in environment, the processes participated in their removal from water environment, conventional WWTPs as primary barriers against the spread of micropollutants. |
| **Bibliography of literature** Cheremisinoff N.P., Handbook of water and wastewater treatment technologies, Elsevier 2001 Riva G., Foppapedretti E., de Carolis C., Gikoumelos E., Malamatenios C., Signanini P., Giancarlo C., Di Fazio M., Gajdos J., Rucinsky R., Handbook on renewable energy sources, training nahdbook, ENER SUPPLY, 2012 |
| **Knowledge**1. discusses the recent occurrence of micropollutants in the aquatic environment2. lists a major pathway for the introduction of micropollutants3. lists the physicochemical properties of micropollutants responsible for their fate in environment4. lists conventional WWTPs as primary barriers against the spread of micropollutants. |
| **Skills**1. follows established research procedures2. presents the recent occurrence of micropollutants, 3. speaks about chemical and technological issues in an understandable language |
| **Social competence**1. understands the need for further education,2. shows creativity in independent and team work3. is open to suggestions from the leader and colleagues from the group4. complies with the arrangements agreed with the teacher |