**III.2.8 ELECTROCHEMISTRY**

**I. Course description**

**1. Credit points: 2 ECTS**

**2. Time commitment**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Items | Lecture | Tutorial/Exercise | Practice/Assignment | Lab-work | Total |
| No. of hours | 14 |  |  | 6 | 20 |

**3. Prerequisites:** Students should have knowledge on fundamental physical chemistry

**4. Recommended background knowledge:** Fundamental knowledge on electrochemistry is needed

**5. Subject description:** The course provides basic knowledge on electrochemical batteries, including fuel cells and their potential applications.

**6. Objectives & Outcome:** *(Knowledge &/ Skills gained via the course)*

Understanding the chemistry of some electrochemical objects, including batteries and fuel cells.

**7. Assessment/ Evaluation**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Component | Attendance/Participation | Presentation | Practical | Reports | Midterm | Final |
| Percentage % | 10 | 20 | 20 |  |  | 50 |

**8. Prescribed Textbook(s): N/A**

**II. Course content**

* Introduction to electrochemistry
* Fundamentals of kinetics and mechanism of electrode reactions
* Kinetics and transport in electrode reactions
* Electrochemical methods
* Application of electrochemistry

**III. Reference Literature:**

Shriver and Atkins, fifth edition, see <http://ukcatalogue.oup.com/product/9780199236176.do>

[1]. Christopher M.A. Brett and Ana Maria Olivia Brett: Electrochemistry: Principles, Methods and Applications, Oxford University Press, 1993.

[2]. Allen J. Bard Larry R. Faulkner,  Electrochemical Methods: Fundamentals and Applications, John Wiley & Sons, Inc., 2001

[3] . V. S. Bagotsky, Fundamentals of Electrochemistry, Second Edition, A John Wiley & Sons, Inc., Publication, 2005

[4]. R.G.Compton, C.E. Banks Understanding Voltammetry, Second Edition, Imperial College Press, 2011