

## Chemistry

### Lab work Chemistry 1st year

#### IDENTIFICATION

CODE : PC-S2-CH-TF  
ECTS : 2.0

#### HOURS

Lectures : 0.0 h  
Seminars : 7.0 h  
Laboratory : 22.0 h  
Project : 0.0 h  
Teacher-student  
contact : 29.0 h  
Personal work : 16.5 h  
Total : 45.5 h

#### ASSESSMENT METHOD

continuous assessment

#### TEACHING AIDS

Handout of Chemistry Hands 1  
Fact sheets for the minutes  
Moodle platform chemistry 1st year  
all sectors

#### TEACHING LANGUAGE

French

#### CONTACT

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#### AIMS

The main competencies covered by this chemical education are:

C23 - To estimate errors induced by the model implementation ; C32 - To acquire experimental data by identifying and evaluating acquisition limits; C33 - To observe and report observations; C51 To select and implement well-adapted tools to represent and analyze data; C54 - To interpret data in the context of a model; C61 - To structure a speech associated to a logical and argued reasoning, aiming at clearly identified objectives

#### CONTENT

The student engineer will work on and be assessed on the following knowledge:

Determination of the composition of a complex system according to the acid-base or RedOx properties of the species present:

- Identification of the possible reaction,
- Prediction of the evolution of a system [3 cases: no evolution, partial or total],
- Establishment of a material balance and of the quantitative proportions between the different species, including but not limited to the case of a relationship at equivalence.

Use correctly the appropriate measuring instruments to prepare a solution of given concentration, to measure a physico-chemical property, by colorimetry, pHmetry or spectrophotometry.

- Weigh a solid,
- Dilution with a volumetric glassware,
- Measurement of a volume, of the pH, of the absorbance of a solution

Give a result with the associated measurement uncertainties by using experimental measurements.

- take into account the uncertainty associated with experimental measurements
- Use measurements to obtain a result
- Calculate the confidence interval associated with a result [i.e. display a result with an uncertainty]

#### BIBLIOGRAPHY

Handout of Chemistry Hands 1  
Fact sheets for the minutes  
Moodle platform chemistry 1st year all sectors

#### PRE-REQUISITE

Laboratory safety, knowledge of glasswork and its use

Knowledge of major classes of materials

Redox reaction equilibrium, oxidation

Notions of strong / weak acid, pKa, buffer solution, colored indicators

low energy interactions between molecules (polarity, van der Waals bonds, hydrogen bonding)