

# DPT FORMATION INITIALE AUX METIERS DE L'INGENIEUR

FIRST CYCLE

INSA Campus LyonTech 8 allée Lumière - Batiment Louis NEEL - 69621 VILLEURBANNE Phone 0472438960

## Chemistry

## Lab work Chemistry 1st year

## AIMS

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

M. GARNIER Vincent vincent.garnier@insa-lyon.fr M. STEYER Philippe philippe.steyer@insa-lyon.fr 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 - TTo observe and report observations; C51 To select and implement well-adapted tools to represent and analyze data; C54 - To interprate 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)

## **INSA LYON**

Campus LyonTech La Doua 20, avenue Albert Einstein - 69621 Villeurbanne cedex - France Phone +33 (0)4 72 43 83 83 - Fax +33 (0)4 72 43 85 00 www.insa-lyon.fr