


 FPMIPA UPI	<b>SILABUS</b>	No. Dok. : FPMIPA-SE-SL-23 Revisi : 00 Tanggal : 19 Januari 2011 Halaman : 1 dari 3
	<b>LABORATORY WORK IN CHEMISTRY</b> SE308, 2 credits, 4 <sup>th</sup> Semester IPSE	
Dibuat Oleh :  Kurnia, Ph.D. (Dosen Pengampu)	Diperiksa Oleh :  Dr. Diana R., M.Ed. (Ketua GKM)	Disetujui Oleh :  Dr. phil. Ari Widodo, M.Ed. (Ketua Program Studi IPSE)

### Description

This course is designed to introduce students to chemistry by doing laboratory experiments related to principles of chemistry in our environment, broadening knowledge through scientific thinking, and sharpening critical thinking skills through laboratory activities. The approaches in conducting the course are constructivism, inquiry and scientific process skills, meanwhile the methods are problem solving, discussion and experiments. The evaluation is based on participation, experimental reports, and laboratory tests.

### Syllabus

#### 1. Identity of Course


- |                         |   |
|-------------------------|---|
| a. Name                 | : Laboratory Work in Chemistry                          |
| b. Code                 | : SE 308  |
| c. Semester Credit Unit | : 2   |
| d. Grade                | : 2 <sup>nd</sup> of grade, on 4 <sup>th</sup> semester |
| e. Classification       | : Workshop  |
| f. Program              | : International Program on Science Education (IPSE)     |
| g. Statue               | : Compulsory  |
| h. Prerequisite         | : Fundamental Chemistry                                 |
| i. Lecturer             | : H. Kurnia, PhD<br>Dr. H. Wahyu Sopandi, M.A.          |

#### 2. Goal

By the end of the course, students are expected to gain improvement in terms of their understanding of chemistry through lab work.

#### 3. Content

This course aims to provide students with knowledge about the principles of chemistry and how to apply those concepts to solve relevant and specific issues. This course will also improve student's understanding about chemistry through concepts of chemistry to develop laboratory skills. The topics of the course includes: separation and purification, stoichiometry reaction, chemical reactions, rate of reactions,

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chemical equilibrium, acids-bases, thermochemistry, electrochemistry, organic analysis, metals detergents and soap, and glue.

#### 4. Learning activities

Approaches : Constructivism and Inquiry

Methods : Experiment, discussion, and problem solving


Media : Sets of experiments

#### 5. Assessment

Evaluation will consider presence, pretest, journal, Laboratory reports, semester final exam, and lecturer's policy.

#### 6. Course Agenda

No	Topics	Activities
1-2	Separations and purification, sublimation and recrystallization	Lab work
3	Chemical reactions	Lab work
4	Stoichiometry reaction	Lab work
5	Oxidation reduction	Lab work
6	Rate of reaction	Lab work
7	Chemical equilibrium	Lab work
8	Acids-bases	Lab work
9	Thermochemistry	Lab work
10	Electrochemistry	Lab work
11	Spectrophotometric analysis	Lab work
12	Detergents and soap	Lab work
13-14	Presentation	Presentation
15-16	Discussion	Discussion

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## 7. References

1. Macaulay, D.B. et al, Laboratory Manual: General, Organic, and Biological Chemistry, An Integrated Approach
2. Brady, J.E. and Humiston, General Chemistry: Principles and Structure, 5<sup>th</sup> Edition, John Wiley & Sons, Inc., New York, 1990.