

SYLLABUS

- Name of Course : General Chemistry
- Code Number : KIC – 203
- Credit : 2 credits per semester
- Semester : II
- Course Group : Fundamental Chemistry
- Study Program : Chemistry Ed. / Chemistry
- Course Status : Compulsory
- Pre-requisite Course : --

LECTURER:

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The Department of Chemistry Education,
The Faculty of Mathematics and Natural Sciences
Yogyakarta State University

2013

KIC-203, General Chemistry II (2 sks, semester II)

This course studies the basic concepts of Chemistry that are needed for further studies. The topics of **learning materials** include solutions, acid-base, chemical rate, the structure and the Periodical Table of elements, Radiochemistry, and Organic Chemistry. The **chosen methods** for student learning and teaching are *reasoning* and *problem solving, cooperation, and experimentation*. The **interaction** will be the important part of learning that is most emerged in most 16 times of face-to-face lectures.

– Bended/Hybrid Learning:

- Face-to-face: 16 times of meeting including formative and summative test
- Supporting learning systems: online using Edmodo.com and /or social chat, such as: *YM!*, Google talk, WhatsApp, etc.
 - Each student should:
 - have e-mail address
 - join to edmodo of General Chemistry Class (code is given in the class)
 - Actively participate in the class

Delivery system in this course is a kind of *hybrid learning*, e.i a mixture between face-to-face lecture and online lecture using learning management system (LMS) of edmodo.com. edmodo.com will be most the media of online interaction in which the materials are uploaded, the assignments are given, the online discussions are carried out, the online observations from students' parents can be conducted, and the results/achievements of students are saved and displayed. Online discussion (conference) is sometimes carried out using skype or fb-video-chat when it is expected by students.

References that are used in this lecture mainly are

1. Crys Fajar Partana, Heru Pratomo Al., Karim Th., dan Suharto, Common Textbook (Revisi), IMSTEP JICA, 2003
2. Any General Chemistry Textbooks

1. Identity of Course

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2. Objectives

The objective of this lecture is to develop chemistry skills of students, especially dealing with fundamental concepts of Chemistry. By learning General Chemistry, students will have competences to be ready for the higher level of learning in university. Students will be expected to be eligible

implement the concepts of basic chemistry to daily life phenomena and industrial processes purposes. Specific purposes of learning are:

- To develop an understanding of the atomic and molecular nature of matter and of the chemical reactions that describe their transformations.
- To develop individual and collaborative quantitative skills necessary to solve chemical problems using the concepts of balanced chemical reactions, and stoichiometry.
- To gain an understanding of acids and bases and their reactivity in aqueous solutions.
- To gain an understanding of the periodic table as an organizing concept of chemical properties.
- To develop basic laboratory skills and understand common laboratory practices, procedures, and equipment., including safety issues.

3. Content Description

This course is basic Chemistry as a deeper studies of senior high school chemistry. This course includes

- Solution,
- chemical kinetics
- Oxidation-Reduction Reactions and Electrochemistry
- Periodical System of Elements
- Nuclear chemistry
- Organic and Bio Chemistry

4. Learning Strategy

- Methods : reasoning and problem solving, cooperative, group discussion and presentation, independent assignment
- Assignment : independent through online with LMS edmodo for enrichments
- Media : infocus, materials resources (ppt/pdf, video, digibook, LMS edmodo, online video chat, website).

5. Evaluation

- Independent and group assignment
- Face-to-face and online activities
- Mid-term test
- Post-test (final exam)

6. Learning material for each meeting of lecture

Meeting	Learning Materials
1	: Introduction and overview
2	: Solution, concentration, and solubility
3	: Colligative properties
4	: Acid-base and pH
5	: Indicators and Acid-base titrations
6	: Chemical Kinetics: Rate, order, rate law

Meeting	Learning Materials
7	: Chemical Kinetics: Rate constant, half-life, temperature dependence
8	: Mid-term test
9	: Reduction-Oxidation Reaction
10	: Electrochemistry
11	: Periodical System of Elements: non-metal
12	: Periodical System of Elements: metal
13	: Nuclear Chemistry
14	: Organic Chemistry
15	: Biochemistry
16	: Summative test

7. References

- Crys Fajar Partana, Heru Pratomo Al., Karim Th., dan Suharto, Common Textbook (Revisi), IMSTEP JICA, 2003
- Any General Chemistry Textbooks, such as:
 1. Silberberg, Martin S. (2000), General Chemistry: The Molecular Nature of Matter and Change, B2nd ed., ISBN: 0-07-116832-X, McGraw-Hill, Bon, Boston.
 2. Whitten, Kenneth W., Gailey, Kenneth D., Davis, Raymond E., General Chemistry, 3rd edition, ISBN: 0-03-012818-8, Saunders Golden Sunburst Series, Philadelphia.

**PRINT SCREEN OF
ENRICHMENT AND COLLABORATIVE
ASSISTANCE TROUGH ONLINE LEARNING
USING LMS edmodo**

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