Chemistry1

Syllabus Number 3F141
Basic Major Subjects
Elective 2 credit
YANAGIHARA, Naohisa

1. Course Description

Chemistry is the science that focuses on learning the characteristics and structure of all matter of which the universe is composed. Chemistry is central to nature and our everyday life. The learning objectives of this course will first focus on becoming familiar with looking at nature form with a chemical viewpoint as well as acquiring an understanding of chemistry. Subsequently, by looking at materials and phenomena that are integral to our life, students will gain a fundamental understanding of basic chemistry. By participating in this course, each student will improve her/his knowledge of chemistry and scientific methods, strengthen problem-solving skills, and learn to communicate in a scientific manner.
The lecture is planned to be in line with the text content while using OHC and board book in combination. In addition, although this class is mainly lecture type, we will shortly discuss questions on exercise problems or lecture contents within the lecture time.
In this lecture, you will be able to acquire the knowledge and the ability to DP3 of the Department of Information and Electronic Engineering.

2. Course Objectives

(1) By understanding the structure of the atom, you can acquire the concept of ion and molecule.
(2) By understanding the fundamentals of the chemical bond, you can acquire knowledge about the property of the materials.
(3) By understanding the concept of the amount of substance (mol), you can acquire the ability on the chemical stoichiometry.
(4) By understanding the concept of acid and base, you can acquire the knowledge about each property.

3. Grading Policy

(1) Attendance confirmation is taken in each time, and students who do not attend more than 2/3 classes are not allowed to take the regular exam.
(2) The results of the mid-term exam and the regular exam will be 50% each, and they will be combined into the final evaluation.
(3) It is planned to answer and explain the exercises in the textbook and handouts, and also to confirm the degree of progress of understanding appropriately.

4. Textbook and Reference

Textbook
Chemical Society of Japan Kagaku Nyumon-hen (Introduction to Chemistry) Kagaku Doujin
Reference
Not particularly. We will distribute prints as appropriate.

5. Requirements(Assignments)

(1) Please be sure to enter the room at least within 30 minutes. Students who are late more than 30 minutes are allowed to attend, but will be considered as absent.
(2) Eating and drinking during lectures and unnecessary entry and exit are not permitted.
(3) It is prohibited to shoot the content written on the blackboard or taking the video material of PowerPoint with a mobile phone or smartphone.

6. Note

7. Schedule

[1] What is a substance?: Mixtures and Pure Substances
[2] The particles that make up the substance: Atoms and Molecules
[3] Substances Around Us: Inorganic and Organic Compounds
[4] Properties of Matter: Boiling Point and Melting Point
[5] The Three States of Matter
[6] Change of State and Energy: Thermal Motion of the Particles
[7] Elements and The Periodic Table: Periodic Properties of Elements
[8] Mid-term Exam.
[9] The structure of the Atom: The Elementary Particles that make up the Atom
[10] The Chemical Bond: Covalent Bond, Ionic Bond and Metallic Bond
[11] The Properties of Gases: The Gas Laws
[12] The Properties of Solutions: The Ideal Solutions
[13] The Chemical Equation: Stoichiometric Calculations
[14] Acids and Bases: Definition of Acid and Base
[15] Summary and Exams