Subject Description Form

Subject Code	ABCT1700
Subject Title	**Introduction to Chemistry**
Credit Value	3
Level	1
Prerequisite	No prerequisite. This subject is intended for students who do not have background in NSS Chemistry.
Objectives	This is a 1-semester introductory course of chemistry. This course surveys the fundamental concepts in chemistry for understanding structure and properties of the material universe. Principles will be illustrated with application to daily life.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Understand the core concepts of chemistry; b. Describe chemical structures and events using standard representations; c. Apply and incorporate the chemical principles and knowledge learned to solve chemical problems and to appreciate modern applications in real life.
Subject Synopsis/ Indicative Syllabus	**Foundation:** Atoms, molecules and ionic compounds; masses of atoms; stoichiometry; naming of chemical compounds; physical properties of compounds; and periodic table. **Chemical Reactions**: Chemical equations; major reaction types; and enthalpy of chemical processes. **Atoms:** Light; electrons; quantum numbers; atomic orbitals; electronic configurations; and general periodic trends in properties among elements. **Chemical Bonding**: Nature of chemical bonding; ionic bond; covalent bond; valence bond theory and hybridization; resonance; molecular shape by VSEPR method; bond polarity; intermolecular forces. **Chemistry of Carbon**: Naming of compounds containing carbon chains and rings; isomerism, regioisomers, and optical isomers; major functional groups: alkanes, alkenes, alcohols, aldehydes, ketones, carboxylic acids, and esters; major reactions and properties of functional groups.

Teaching and Learning Methodology

Lecture: The fundamental principles of chemistry will be explained. Examples will be used to illustrate the concepts and ideas in the lecture. Take-home problem sets will be given, and the students are encouraged to solve the problems before seeking assistance.

Tutorial: Students present their solutions on a set of problems in the tutorial. Students should try the problems before seeking assistance. These problem sets provide them opportunities to apply the knowledge gained from the lecture. They also help the students consolidate and familiarize with what they have learned. Furthermore, students can develop a deeper understanding of the subject through group discussion and self-study.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods / tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)							
		a	b	c	d	e	f	g	h
Continuous assessment	50%	√	√	√					
Examination	50%	√	√	√					
Total	100%								

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Assignments, quizzes and, examinations are used to assess student's learning in key physical concepts in atomic structure, chemical bonding, and chemical reactions. Homework assignments (e.g., end-of-chapter exercises and online assignments) would reinforce student's knowledge in these key topics and practice for their numerical skills and problem-solving skill through analysis of experimental data.

Student Study Effort Expected

Class contact:	
▪ Lecture	33 Hrs.
▪ Tutorial	6 Hrs.
Other student study effort:	
▪ Self-study	71 Hrs.
▪ Problem assignments/homework	16 Hrs.
Total student study effort	126 Hrs.

Reading List and References	**Essential Reading** ▪ Tro, N. J., Introductory Chemistry Essentials, Pearson, 2018.