Subject Description Form

Subject Code	ABCT1D01/ABCT1301
Subject Title	Chemistry and Modern Living
Credit Value	3
Level	1
Pre-requisite / Co-requisite/ Exclusion	No pre-requisite
Objectives	This subject aims to provide opportunities for students to develop and use chemical concepts and skills, so that the students would understand the chemistry behind some issues and problems that may arise within the community.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) realize the importance of chemical science and technology in our everyday life (b) appreciate the benefits and shortfalls of technology (c) analyze critically current issues in modern technology, including issues in environment, renewable energy, new materials etc.. Please explain how the stated learning outcomes relate to the following three essential features of GUR subjects: Literacy, Higher order thinking, and Skills for life-long learning Literacy: The students are required to read some assigned materials (e.g. news articles, general science literature) before the lectures as a preparation of the lecture topics. A few questions will be raised for each reading materials to help the students to think about the context before the lectures. [Outcomes (a), (b), and (c)] Higher order thinking: This subject is a broad introduction to Chemistry as a way of thinking and knowing. This subject will present key chemical principles on need-to-know basis within a context of modern living. The students will develop these concepts and principles in the lectures, tutorials and laboratory classes. A student completing this subject ought to be empowered by the way of thinking rationally and make judgment based on evidence; and be able to apply it throughout life. [Outcomes (a) (b) and (c)] Life-long learning: Making rational judgment will be an emphasis of this course and students are expected to keep a journal with entries stimulated by the questions after the lectures. Some of the questions will be directed to reflection on whether systematic observations, scientific reasoning and rational judgment are being applied in their own decision making processes in scenarios related to their academic study, career development and personal issues. Students are required to organize into groups to prepare a presentation on selected topics with individual report.

	Literature survey techniques will be introduced to help students identify information and access the credibility of the text based on whether the evidence are supported by experimental data. [Outcomes (a), (b) and (c)]
Subject Synopsis/ Indicative Syllabus	**Topics** — **Contact Hours** The nature of matter – elements, compounds and mixtures; atoms and molecules — 4 Periodic Table and Chemical Bonding — 6 Modern materials –plastics — 4 Chemistry of Air: Acid rain, ozone hole and global w arming — 4 Energy for Today and Tomorrow — 6 Chemistry of Water: Water treatment and recycling — 4 Chemistry in Health and Medicine — 6 Chemistry of Food Chemistry that keep you beautiful and clean — 4
Teaching/Learning Methodology	Lectures: This is the major teaching method used in this subject. A few questions will be asked for each reading materials to help the students think about the context before the lectures. Tutorials: Tutorials will be a venue to engage students in active learning processes through discussing of some chemistry-related issues reported in the newspapers. Students formed groups of four to six students to discuss and express their opinions on some specific questions by invoking the principles and concepts learnt from earlier classes. It is aimed to develop the problem-solving skills of the students with real-world problems. In later stage, each group will be assigned a topic for literature survey and presentation in the tutorial. Laboratory: Chemistry is an experimental science and it is the best way to know the subject. Selected simple and interesting experiments will be conducted by students in groups of two to three. The laboratory allows students to have experiences on collecting data and think about the reliability, accuracy and discuss how to make conclusion from the data. The students are required to submit simple reports as a way to record their observation systematically. This set a good example on making rational decisions based on observations and evidences. Individual Study: Students will be expected to spend two to three hours on reading outside the classroom. Questions will be given to prepare the students on the issues discussed. Since this may be an area of weakness for Hong Kong students, clear guidelines and checks will be in place to ensure that it occurs. Students are required to keep the answers of the questions in a reflective journal which will be collected a few times and marked. The emphasis in this subject on reading comprehension is designed to give the student an essential experience of empowerment in learning to study effectively.

<table>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td colspan="2"><table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td></td><td></td><td></td></tr>
<tr><td>1. Quiz</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>2. Laboratory work</td><td>20%</td><td>✓</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>3. Group presentation</td><td>30%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>4. Assignment/ Reading Exercise</td><td>10 %</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table></td></tr>
<tr><td rowspan="6">Student Study Effort Required</td><td>Class contact:</td><td></td></tr>
<tr><td>▪ Lecture
▪ Tutorial
▪ Laboratory</td><td>26Hrs
13 Hrs
9 Hrs.</td></tr>
<tr><td>Other student study effort (laboratory work, presentation):</td><td></td></tr>
<tr><td>▪ Preparing presentation and literature report
▪ Self study</td><td>16 Hrs
45 – 70 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>109 – 134Hrs.</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Reading List and References</td><td colspan="2">
Lecture notes and supplementary materials (for some special topics) will be given.
A website where students would find some general information on the relevance of chemistry to modern living are available: http://www.chemistryquestion.com/
Chemistry in Context, Applying Chemistry to Society; 5th edition (A Project by American Chemical Society) Lucy Pryde Eubanks, Cathy Middlecamp, Norbert J. Pienta, Carl E. Heltzel, Gabriela C.Weaver, MCGraw Hill, ISBN 0-07-282835-8
On Food and Cooking The Science and Lore of the Kitchen, Revised Edition 2004, Harold McGee, Scribner, ISBN 0-684-80001-2
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