



UNIVERSITI TEKNOLOGI MARA

CHM081: CHEMISTRY I

Course Name (English)	CHEMISTRY I APPROVED
Course Code	CHM081
MQF Credit	4
Course Description	This course will interactively engage students cognitively and scientifically in areas of structure of an atom, mole concept, chemical formulae and chemical equations, aqueous solutions, periodic table, chemical bonding, electrochemistry and introductory organic chemistry. Students will explain concepts and theories, make predictions as to the possible outcome of an event, perform investigations via laboratory work and exercises; and in both verbal and writing, discuss the relationships and results obtained with peers and facilitators. The designated lecture session is used to discuss results of investigations leading to its relation to the existing concept, principles or theories. Lecture sessions employ a mixture of lectures and active learning (self and peer discussions). The outcomes shall be assessed through a variety of tools which include the traditional paper examination, scientific investigation and presentation of assignment.
Transferable Skills	confident
Teaching Methodologies	Lectures, Lab Work, Tutorial
CLO	<p>CLO1 1.Explain the concepts, theories and principles concerning structure of an atom, mole concept, chemical formulae and chemical equations, aqueous solutions, periodic table, chemical bonding, electrochemistry and introductory organic chemistry.</p> <p>CLO2 Respond to the observation and complete laboratory datasheet in experiments concerning areas of stoichiometric chemistry, aqueous solutions, acid-base titration, determination of the atomic mass and electrolysis</p> <p>CLO3 Demonstrate communication skills on a related area/topic either verbally or in writing, or both.</p>
Pre-Requisite Courses	No course recommendations
Topics	
1. Structure of an atom 1.1) 1.1 Definition of atom, ion, molecule, element and compound 1.2) 1.2 Sub particles: proton, electron, and neutron (charge and relative mass of each sub particle) 1.4) 1.3 Atomic/Proton Number and Mass/Nucleon Number (definition) 1.5) 1.4 Isotopes 1.6) 1.5 Electronic structure of an atom	
2. Mole concept 2.1) 2.1 Atomic mass unit (a.m.u), atomic mass, relative molecular mass and molar mass. 2.3) 2.2 Mole concept 2.4) 2.3 Empirical Formula and Molecular Formula	
3. Chemical Formulae and Chemical Equations 3.1) 3.1 Formation of chemical formula 3.2) 3.2 Naming of chemical compounds (ionic, covalent and acids compound) 3.3) 3.3 Writing and balancing chemical equations 3.4) 3.4 Stoichiometry	

4. Aqueous Solutions 4.1) 4.1 Introduction to solutions (Definition of solvent and solute) 4.2) 4.2 Concentration and molarity of solutions 4.3) 4.3 Dilution of solution: $M_1V_1 = M_2V_2$ 4.4) 4.4 Neutralization
5. Periodic Table 5.1) 5.1 Classification of elements based on atomic number 5.2) 5.2 Changes in physical properties of elements moving down the groups and across the periods (group 1 to 17) excluding transition metals. 5.3) 5.3 Changes in chemical properties across period 3
6. Chemical Bonding 6.1) 6.1 Introduction to chemical bonding 6.2) 6.2 Illustrate the formation of electrovalent and covalent bonding based on Lewis 6.3) structure (examples of compound conform to octet rules only and not involving 6.4) polyatomic ions) 6.5) 6.3 Differences in physical properties of electrovalent and covalent compounds.
7. Electrochemistry I 7.1) 7.1 Introduction to electrical conductivity 7.2) 7.2 Electrolysis 7.3) 7.3 Factors affecting the selective discharge of ions
8. Introduction to Organic Chemistry 8.1) 8.1 Definition of organic compounds and hydrocarbon 8.2) 8.2 Introduction to Homologous Series 8.3) 8.3 Alkanes
9. module of assignment 9.1) 9.1 topics are based on syllabus

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	ASSIGNMENT/PRESENTATION IN GROUP TOPICS ARE BASED ON SYLLABUS. LONG SYLLABUS CAN BE DIVIDED INTO MORE THAN 1 GROUP.SUGGESTED 2 STUDENTS/ GROUP.DURATION 5 MIN/GROUP.	10%	CLO1 , CLO3
	Quiz	QUIZ 1	2%	CLO1
	Quiz	QUIZ 2	2%	CLO1
	Quiz	QUIZ 3	2%	CLO1
	Quiz	QUIZ 4	2%	CLO1
	Quiz	QUIZ 5	2%	CLO1
	Test	TEST 1	10%	CLO1
	Test	TEST 2	10%	CLO1
	Written Report	TOGETHER WITH PRACTICAL SKILLS. CHOOSE ONLY 3 BEST REPORT FROM 5 PRACTICALS ACTIVITIES	20%	CLO2 , CLO3

Reading List	Recommended Text	Reference Book Resources
	<ul style="list-style-type: none"> Osman, R., Yusoff, A.M., Musa, M., Abas, M.T. 2006, <i>Basic Chemistry Açâ, -â€œ Pre Science Series</i>, McGraw Hill, Kuala Lumpur 	<ul style="list-style-type: none"> Eng Nguan Hong, Lim Eng Wah & Lim Yean Ching 2008, <i>Focus Super Hot Chemistry</i>, Pelangi. Zumdahl, S.S. & Donald, J.D. 2008, <i>Basic Chemistry</i>, 6 Ed., Houghton Mifflin Company, NY. Osman, R., Yusoff, A.M., Abas, M.T., Atan, R. 2001, <i>Asas Kimia</i>, Mc Graw Hill. Kuala Lumpur. Sim, L.H., Abu Bakar, B., Ho, C.Y., Mohd Shar 2000, <i>Kimia Satu Pengenalan</i>, 1 Ed., Fakulti Sains, UiTM.
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	