UNIVERSITI TEKNOLOGI MARA

SPC561: INTRODUCTION TO ORGANIC AND INORGANIC CHEMISTRY

Course Name (English)	INTRODUCTION TO ORGANIC AND INORGANIC CHEMISTRY APPROVED
Course Code	SPC561
MQF Credit	3
Course Description	This course aims to provide a general understanding and introduces the pertinent concepts in both organic and inorganic chemistry to primary school science teachers. Primarily, focus will be given on mastery of basic principles and skills which fundamental to solve problems related to above mentioned chemistry fields. The applications of organic and inorganic compounds in daily life will also be emphasized throughout this course. The topics discuss in this course include acids and bases, salts, redox reactions and carbon compounds.
Transferable Skills	Independent and critical thinker & expert in the field
Teaching Methodologies	Lectures, Blended Learning, Tutorial, Web Based Learning, Discussion
CLO	CLO1 explain the basic principles in organic and inorganic chemistry CLO2 demonstrate ability to solve problems related to organic and inorganic chemistry topics CLO3 discuss the applications of organic and inorganic compounds in their daily life CLO4 utilize the knowledge gained from this class to educate others about organic and inorganic compounds
Pre-Requisite Courses	No course recommendations

Topics
1. CHAPTER 1 : ORGANIC & INORGANIC CHEMISTRY 1.1) • A Brief Historical Background of Organic Chemistry and Inorganic Chemistry 1.2) • Organic and Inorganic compounds 1.3) • How to differentiate organic and inorganic compounds 1.4) • Uses of organic and inorganic compounds in daily lives
2. CHAPTER 2 : ACID AND BASES 2.1) • Arrhenius Acids and Bases 2.2) • Strong and Weak Acids/Bases 2.3) • The pH scale 2.4) • Calculation of pH and pOH 2.5) • Reactions of Aqueous Strong Arrhenius Acids and Aqueous 2.6) Strong Arrhenius Bases 2.7) • Acid-Base Neutralization (Quantitative Studies) 2.8) • Preparation of Standard Solution 2.9) • Applications of Neutralization Reactions
3. CHAPTER 3 : SALTS 3.1) • Definition of salts 3.2) • Soluble and insoluble salts (sulphate, nitrate, chloride and carbonate) 3.3) • Physical properties of salts – colour, electrical conductivity etc 3.4) • Chemical and Ionic Equations 3.5) • Preparation of specific salts
4. CHAPTER 4 : OXIDATION AND REDUCTION 4.1) • Oxidation and Reduction – Definition and examples 4.2) • Redox reaction 4.3) • Half equation and balancing redox reaction 4.4) • Reactivity series of metal and its applications

5. CHAPTER 5 : INTRODUCTION TO ORGANIC COMPOUNDS 5.1) • Empirical, Molecular and Structural Formulae 5.2) • Functional groups and Homologues series 5.3) • Classification carbon atoms (Primary, Secondary, Tertiary) 5.4) • IUPAC naming system for organic compounds 5.5) • Organic chemical reactions
6. CHAPTER 6: ALKANES 6.1) • Aliphatic and Cycloalkanes 6.2) • Preparation of alkanes 6.3) • Chemical properties of alkanes
7. CHAPTER 7 : ALKENES 7.1) • Preparation of of alkenes 7.2) • Chemical properties of alkenes
8. CHAPTER 8 : ALCOHOL 8.1) • Classification of alcohol (Primary, Secondary, Tertiery) 8.2) • Preparation of alcohols 8.3) • Chemical properties of alcohols
9. CHAPTER 9 : CARBOXYLIC ACID AND ESTERS 9.1) • Chemical properties of carboxylic acid and ester 9.2) • Physical properties of ester and its uses
10. SUMMARY & DISCUSSION 10.1) n/a

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Discussion	Students need to demonstrate participation in i-class by carry out discussion related to the weekly topics.	10%	CLO1 , CLO2 , CLO3 , CLO4
Portfolio/Log Book	Students will produce a compilation of personal notes based on their readings and exercises related to the topics covered in the course individually and based on their creativity.	20%	CLO1 , CLO2 , CLO3 , CLO4
Test	Students will be able to recall/ apply/ explain/ discuss the main concepts/ idea in organic and inorganic chemistry and also will be able to apply acquired skills to solve related problems.	30%	CLO1 , CLO2 , CLO3 , CLO4

Reading List

Recommended Text

- **Carey, F.A. 2000, *Organic Chemistry*, Fourth Edition Ed., McGraw Hill Higher Education New York**
- **Catherine, E. H. & Alan, G. S. 2008, *Inorganic Chemistry.*, New Jersey: Pearson Education Upper Saddle River**

Reference Book Resources

- **Clayden, J., Greeves, N., Warren, S., Wothers, P. 2001, *Organic Chemistry*, First Edition Ed., Oxford University Press**
- **McMurry 2008, *Organic Chemistry*, Seventh Edition Ed., Thomas Higher Education. New York**
- **Raymond, C. 2010, *Inorganic Chemistry*, Tenth Edition Ed., McGraw-Hill Education. New York**
- **Raymond, C. & Overby, J. 2010, *General Chemistry: The Essential Concepts*, McGraw-Hill Education New York**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources