

UNIVERSITI SAINS MALAYSIA

PUSAT PENGAJIAN SAINS KIMIA

(i) Course Code/Title/Unit: KUT 101/ General Chemistry Practical I /2 Units

(ii) Course Synopsis: The course will cover analytical and inorganic chemistry laboratory:

- (i) Gravimetric Determination of Phosphorous in Plant Food
- (ii) Hydrolysis of Salts and pH of Buffer Solutions
- (iii) Titration Curves of Polyprotic Acids
- (iv) Determination of Solubility – Product Constant for Sparingly Soluble Salts
- (v) Separation of the Components of a Mixture
- (vi) Chemical Formulas
- (vii) Preparation and Reactions of Coordination Compounds: Oxalate Complexes
- (viii) Oxidation-reduction: Titration: Analysis of Bleach
- (ix) Chemical Reactions of Copper and Percent Yield
- (x) Titration of Acids and Bases – Part I: Analysis of Vinegar; Part II: Analysis of Carbonate/bicarbonate Mixture
- (xi) Analysis of Water for Dissolved Oxygen
- (xii) Preparation of Sodium Bicarbonate and Sodium Carbonate

(iii) Course Objectives: To expose students to conduct the basic experiments that cover techniques, observations and data collections in aspects of basic chemistry including analytical, physical, inorganic and organic chemistry. Foster good laboratory practice and develop skills. Promote familiarity with, and use of, safe working practices.

(iv) Learning Outcomes: On completion of this unit the students should be able to:

- (i) Demonstrate competence in appropriate basic laboratory techniques.
- (ii) Interpret data from laboratory observation and measurement.
- (iii) Employ safe laboratory practise
- (iv) Apply theoretical chemistry to solve problems in the practical arena.
- (v) Measure and record clearly, concisely and appropriately.
- (vi) Manipulate and evaluate data.

(v) Course Assessment:

(a) Laboratory:	-	80 %
(i) Attendance:	-	5 %
(ii) Pre-lab preparation:	-	10 %
(iii) Skill:	-	10 %
(iv) Submission of Lab. report:	-	5 %
(v) Lab. Report:	-	50 %
(b) Written Test:	-	20 %
(c) Total:	-	100 %

(vi) Material/References:

J. H. Nelson and K. C. Kemp, "Chemistry the Central Science Laboratory Experiments" (2009), 11 th. Ed., Pearson Prentice Hall, New Jersey.