

Level	Level - 04					
Course Synopsis Course Code	CYU4302					
Course Title	Practical chemistry II					
Credit value	03					
Core/Optional	Core and Optional					
Prerequisites	(Pass/valid OCAM in CYU3302) AND (Pass/valid OCAM/CR in CYU4301 and CYU4303)					
Hourly breakdown	Theory		Practical hours	Independent Learning	Assessments	Total hrs
	05 sessions x 02 hrs = 10 hrs	1 DS x 08 hrs = 08 hrs	10 days lab x 07 hrs = 70 hrs	05 sessions x 3 hrs + 39 hrs Online / Audio- visual materials and other learning resources = 54 hrs	04 rs CA + 04 hrs PA = 08 hrs	
Course Aim/s.	Develop the ability in using knowledge in relevant theory in making decisions on relevant experimental techniques and plan and perform an experiment in reaction kinetics, in determining the thermodynamic solubility product of a salt, in constructing the phase diagram of a mixture of two miscible liquids, in conductimetry, involving a pH meter, in colourimetry and in infrared spectroscopy using a spectroscopic simulator, to work in small groups in performing tasks to achieve goals, to engage in tasks with desirable attitudes; punctuality, resourcefulness and courage, to engage in interactive peer group discussion in planning reaction methodology and to develop the practical skills in performing basic laboratory techniques of recrystallization, melting point determination, solvent –solvent extraction, chromatography and distillation.					
PLOs addressed by course	<p>PLO1: Knowledge: Explain the fundamental, principles and broader knowledge pertaining to the chosen science disciplines offered for the BSc degree.</p> <p>PLO2: Practical Knowledge and Application. Acquire competency in practical skills and the necessary knowledge to appropriately use these skills.</p> <p>PLO3: Communication: Communicate reliably, efficiently and effectively to present information, ideas and concepts to the scientific community as well as to the wider society.</p> <p>PLO4: Individual Work, Team Work and Leadership: Function effectively as an individual, and as a team member, sharing work and experiences, leading and managing assigned tasks to completion on time, demonstrating leadership to address situations in diverse and multi-disciplinary environments in day to day life.</p> <p>PLO5: Creativity and Problem Solving: Identify problems and argue out and analyze such problems using qualitative and/or quantitative practical approaches in scientific methodology to provide valid conclusions</p> <p>PLO6: Adaptability and Flexibility: Develop appropriate strategies to adapt to changing environments.</p> <p>PLO8: Vision for Life: Identify where one wants to be and develop long term goals maintaining competency to conduct scientific investigations and proceed to undertake further studies.</p> <p>PLO9: Lifelong Learning: Foresee new trends and recognize their impact, and update knowledge and develop new skills to meet future changes and challenges-</p>					
Course Learning Outcomes (CLO)	CLO 1: Using knowledge in relevant theory make decisions on relevant experimental techniques and plan through peer group discussion and perform an experiment in reaction kinetics, in determining the thermodynamic solubility product of a salt, in constructing the phase diagram of a mixture of two miscible liquids, in conductimetry, involving a pH meter, in colourimetry					

	<p>and in infrared spectroscopy using a spectroscopic simulator. (PLO 01, 02, 03, 04, 05, 06, 08 and 09)</p> <p>CLO 2: Work in small groups in performing tasks to achieve goals. (PLO 01, 02, 03, 04, 05 and 06)</p> <p>CLO 3: Engage in tasks with desirable attitudes; punctuality, resourcefulness and courage. (PLO 08 and 09)</p> <p>CLO 4: Demonstrate practical skills in performing basic laboratory techniques of recrystallization, melting point determination, solvent-solvent extraction, chromatography and distillation. (PLO 01, 02 and 04)</p> <p>CLO 5: Engage in interactive peer group discussion in planning reaction methodology. (PLO 01, 02, 03, 04, 05 and 06)</p> <p>CLO 6: Demonstrate the ability to be a self-directed learner. (PLO 08 and 09)</p>	
Content (Main topics, sub topics)	<p>Practical session 1 Experiments in reaction kinetics, in determining the thermodynamic solubility product of a salt, in constructing the phase diagram of a mixture of two miscible liquids, in conductimetry, involving a pH meter, in colourimetry and in infrared spectroscopy using a spectroscopic simulator.</p> <p>Error analysis</p> <p>Practical session 2 Hands on experience on recrystallization, melting point determination, liquid-liquid extraction, thin layer chromatography (TLC) and distillation. Experiments in purifying impure samples and products of a simple synthesis, identification of compounds by melting point and mixed melting point determinations, calculating partition coefficients of compounds, separation of acid, base and neutral compound mixtures, chromatographic separation of simple mixtures and identification of constituents on TLC using authentic samples.</p>	
Teaching Learning methods (TL)	<p>Self-Learning/Independent learning of Self-study</p> <ul style="list-style-type: none"> • Instructional Material (IL) • Online Activities (OL) <p>Compulsory contact sessions</p> <ul style="list-style-type: none"> • Compulsory day-school (CDS) • Practical Sessions (PR) • Assessments (AS) and feedback- MCQs (MCQ); Structured Essay (SEQ); Essay Questions (ES); Reports (RE); Practical Assessment (PA). 	
Assessment strategy	Overall Continuous Assessment Mark (OCAM): 40%	Final Assessment: 60 %
	Continuous Assessment (CA): 0.5xPractical session 1 assessment mark + 0.5xPractical session 2 assessment mark (8 hrs)	Final Evaluation Theory: 100% (02 hrs)
Recommended Readings:	<ol style="list-style-type: none"> 1. Units I, II, III and IV of CYU4301. 2. Unit III of CYU4303 3. Brian F. S., (2004), Vogel's textbook of practical organic chemistry, Pearson Education, 5th ed. 	