

Subject Description Form

Subject Code	ABCT3625
Subject Title	Chromatographic Analysis Laboratory
Credit Value	1
Level	3
Co-requisite	Chromatographic Analysis
Objectives	The aims of this subject is to enable students to understand the separation techniques for biological and chemical agents as well as related analytical problems
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) understand the basic operation principles of chromatographic separation of paper and column chromatography; (b) recognize the basic sample preparation and purification; (c) monitor the use of instrument operation, such as gas chromatography, high-performance liquid chromatography as well as ion chromatography; (d) appreciate the cooperation, team work and skills on knowledge integration
Subject Synopsis/ Indicative Syllabus	<ol style="list-style-type: none">1. Separation of color pigments by paper and column chromatography2. Derivation of fatty acids and their determination by gas chromatography3. Analysis of sugars in beverages using high performance liquid chromatography equipped with reflective index detector4. Analysis of vitamins by high performance liquid chromatography equipped with fluorescent detector5. Analysis of aromatic compounds by high performance liquid chromatography6. Determination of metal ions in soft drink using ion chromatography
Teaching/Learning Methodology	<p>Students will develop their practical skills and learn to apply sample preparation, chromatographic separation and analysis using instrumental and analytical techniques during the practical sessions.</p> <p>Students will also develop teamwork and communication skills and learn how to analyze experimental data in their practical work. Report writing is intended to develop the students' ability in technical and scientific writing.</p> <p>Laboratory manuals with descriptions on the basic background, objectives and stepwise instructions of the designed experiments. Teaching staff will help students to operate complicated instruments, and students have to hand in written reports and answers to specific questions raised by the teaching staff and in the laboratory manual.</p>

Assessment Methods in Alignment with Intended Learning Outcomes	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				
			a	b	c	d	
	1. Lab reports	60	✓	✓	✓	✓	
	2. Laboratory Performance	20	✓	✓	✓	✓	
	3. Lab quiz	20	✓	✓	✓	✓	
Total	100 %						
<p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>Students will be assessed by their (1) laboratory reports, (2) performance during the practical sessions and (3) laboratory quiz, which will be monitored by teaching staff.</p> <p>Attendance is Mandatory. Students MUST attend at least 75 % laboratory classes in order to pass the subject. Failure to meet attendance requirements will result in FAILING from the subject.</p>							
Student Study Effort Expected	Class contact:						
	▪ Laboratory		18 Hrs.				
	Other student study effort:						
	▪ Pre-Lab		10 Hrs.				
	▪ Laboratory reports		16 Hrs.				
	Total student study effort		44 Hrs.				
Reading List and References	<p>Essential:</p> <p>Skoog, D. A.; Holler, F. J. and Nieman, T. A. Principles of Instrumental Analysis (6th ed.) Brooks/Cole 2007.</p> <p>Robinson, J.W.; Eileen, MSF.; George, M. Undergraduate instrumental analysis (7th ed.) CRC Press, Taylor & Francis Group 2014.</p> <p>Larry, G.H. Analytical Chemistry: Principles and Techniques. Prentice-Hall 1988.</p>						