

Subject Description Form

Subject Code	FSN4421 (ABCT4421)
Subject Title	Food Engineering and Processing II Laboratory
Credit Value	1
Level	4
Pre-requisite	Food Engineering and Processing I (FSN3418 / ABCT3418)
Co-requisite	Food Engineering and Processing II (FSN4420 / ABCT4420)
Exclusion	-
Objectives	This subject aims to allow students to apply and demonstrate the principles and processing techniques introduced in ABCT4420 through practical sessions, which enable students to gain firsthand experience on different processing operations and to directly observe the effects of such operations on food quality and characteristics.
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> Explain the source and variability of raw food materials and their impact on food processing operations. Design processing methods for making safe, high-quality foods. Use unit operations to process or make a given food product in a laboratory. Explain the effects of preservation and processing methods on product quality. List properties and uses of various preservation and processing methods for high quality food products.
Subject Synopsis/ Indicative Syllabus	<ul style="list-style-type: none"> Dehydration: Drying of selected food materials in a tray dryer (Cereal grains or Legumes) Thermal processing: Heat sterilization of canned food Packaging with Metal: Sealing of cans and inspection of double seam Freeze drying of selected food materials Freezing of food materials: effects of pre-treatments and freezing methods on texture and qualities; measurement of freezing curves and freezing rate Demonstration of an ultra-high temperature (UHT) unit for processing of beverages.

Teaching/Learning Methodology	Laboratory classes provide the students the practical skills in food processing, and help to develop their ability to conduct experiment, observe and analyze experimental results and to write scientific reports						
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	e
	1. Lab performance	15	✓	✓	✓		✓
	2. Lab reports	60	✓	✓	✓	✓	✓
	3. Lab quiz	25	✓		✓	✓	✓
	Total	100 %					
	Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes: Class performance is to assess outcome (a),(b),(c) and (e); quiz is used to assess outcome (a), (c),(d) and (e); lab reports are used to assess all outcomes.						
Student Study Effort Expected	Class contact:						
	▪ Laboratory				18 h		
	▪ Tutorials				3 h		
	▪ Quiz				1 h		
	Other student study effort:						
	▪ Report writing				15 h		
	▪ Self-study				15 h		
	Total student study effort				52 h		
Reading List and References	<u>Essential</u> Clark S, Jung S. Lamsal B. Food processing: principles and applications, Wiley Blackwell, 2016 Robertson, G.L., Food Packaging: Principles and Practice (3 rd ed.), CRC Press, 2012						
	<u>Supplementary</u> Fellows, P.J. Food Processing Technology: Principles and Practice (4 th ed) Woodhead 2017 Hui, Y.H., Handbook of Food Products Manufacturing, John Wiley & Sons, Inc, 2007						