

## Subject Description Form

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

<b>Teaching/Learning Methodology</b>	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																																																									
<b>Assessment Methods in Alignment with Intended Learning Outcomes</b>	<table border="1" data-bbox="492 306 1427 737"> <thead> <tr> <th data-bbox="492 306 760 470" rowspan="2">Specific assessment methods/tasks</th> <th data-bbox="760 306 906 470" rowspan="2">% weighting</th> <th colspan="5" data-bbox="906 306 1427 401">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th data-bbox="906 401 1003 470">a</th> <th data-bbox="1003 401 1094 470">b</th> <th data-bbox="1094 401 1216 470">c</th> <th data-bbox="1216 401 1325 470">d</th> <th data-bbox="1325 401 1427 470">e</th> </tr> </thead> <tbody> <tr> <td data-bbox="492 470 760 537">1. Lab performance</td> <td data-bbox="760 470 906 537">15</td> <td data-bbox="906 470 1003 537">✓</td> <td data-bbox="1003 470 1094 537">✓</td> <td data-bbox="1094 470 1216 537">✓</td> <td data-bbox="1216 470 1325 537"></td> <td data-bbox="1325 470 1427 537">✓</td> </tr> <tr> <td data-bbox="492 537 760 604">2. Lab reports</td> <td data-bbox="760 537 906 604">60</td> <td data-bbox="906 537 1003 604">✓</td> <td data-bbox="1003 537 1094 604">✓</td> <td data-bbox="1094 537 1216 604">✓</td> <td data-bbox="1216 537 1325 604">✓</td> <td data-bbox="1325 537 1427 604">✓</td> </tr> <tr> <td data-bbox="492 604 760 669">3. Lab quiz</td> <td data-bbox="760 604 906 669">25</td> <td data-bbox="906 604 1003 669">✓</td> <td data-bbox="1003 604 1094 669"></td> <td data-bbox="1094 604 1216 669">✓</td> <td data-bbox="1216 604 1325 669">✓</td> <td data-bbox="1325 604 1427 669">✓</td> </tr> <tr> <td data-bbox="492 669 760 737">Total</td> <td data-bbox="760 669 906 737">100 %</td> <td colspan="5" data-bbox="906 669 1427 737"></td> </tr> </tbody> </table> <p data-bbox="492 751 1427 905">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.</p>							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 %																
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<b>Reading List and References</b>	<p data-bbox="492 1472 1427 1570"><u>Essential</u> Clark S, Jung S. Lamsal B. Food processing: principles and applications, Wiley Blackwell, 2016</p> <p data-bbox="492 1608 1427 1675">Robertson, G.L., Food Packaging: Principles and Practice (3<sup>rd</sup> ed.), CRC Press, 2012</p> <p data-bbox="492 1713 1427 1917"><u>Supplementary</u> Fellows, P.J. Food Processing Technology: Principles and Practice (4<sup>th</sup> ed) Woodhead 2017 Hui, Y.H., Handbook of Food Products Manufacturing, John Wiley &amp; Sons, Inc, 2007</p>																																																									