Subject Description Form

Subject Code	FSN3102
Subject Title	Food Chemistry and Analysis Laboratory
Credit Value	1
Level	3
Pre-requisite	FSN2001 Organic Chemistry for Food Science
Co-requisite	FSN3101 Food Chemistry and Analysis
Objectives	This subject aims to familiarize students with the principles of food chemistry and techniques of food analysis by using laboratory instruments. Another objective of this subject is to develop students' abilities to apply their knowledge and skills acquired to solve real-world problems associated with food analysis and food labelling.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. recognize clearly the principles behind the analytical methods associated with food chemistry and analysis; b. select an appropriate analytical technique when presented with a practical problem; c. demonstrate practical proficiency in a food testing laboratory; d. demonstrate abilities in analytical and critical thinking as well as teamwork and communication skills.
Subject Synopsis/ Indicative Syllabus	1. Principles of Gas Chromatography (GC) and High-Performance Liquid Chromatography (HPLC) and their applications in food analysis. 2. Principles of atomic and molecular spectrophotometry and applications of instruments in food analysis. 3. Principles of sample preparation and cleanup for various techniques in food sample analysis. 4. AOAC methods for carbohydrates, protein and moisture content determination for food samples.
Teaching/Learning Methodology	<u>Practical classes:</u> Students will develop their practical skills and learn to apply different instrumental and analytical techniques for food chemistry and analysis. Students will also develop teamwork and communication skills and learn how to analyze experimental results/data in their practical work.

<table>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>1. Class performance</td><td>20%</td><td></td><td></td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>2. Lab report</td><td>80%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="6"></td></tr>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Students will need to work in groups to complete their lab work. Such practical training provides a good platform for students to develop their teamwork and communication skills and apply different instrumental/analytical techniques for food chemistry and analysis.

Class performance is to assess outcome (c) and (d); quiz is used to assess outcome (a) and (b); lab report is used to assess outcome (a), (b) and (c).
</td></tr>
<tr><td>Student Study</td><td>Class contact:</td><td></td></tr>
<tr><td rowspan="6"></td><td>▪ Laboratory</td><td>18 hours</td></tr>
<tr><td>▪ Tutorial</td><td>1 hours</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self-study</td><td>12 hours</td></tr>
<tr><td>▪ Report writing</td><td>12 hours</td></tr>
<tr><td>Total student study effort</td><td>43 hours</td></tr>
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Reading List and References	Essential		
	Coultate, T.P	Food: The Chemistry of Its Components (6th ed.)	RSC 2016
	Nielsen, S.S. (Ed.)	Food Analysis – Food Science Texts Series (5th ed.)	Springer 2017
	Nielsen, S.S. (Ed.)	Food Analysis Laboratory Manual – Food Science Texts Series (2nd ed.)	Springer 2010
	Skoog, D.A., Holler, F.J. andCrouch, S.R.	Principles of Instrumental Analysis (7th ed.)	Thomson 2018