APPROVED

AGRI S7020: Food Processing

Module Details

Module Code:	AGRI S7020
Full Title:	Food Processing APPROVED
Valid From::	Semester 2 - 2021/22 (January 2022)
Language of Instruction:	English
Duration:	1 Semester
Credits::	5
Module Owner::	• Breda Brennan • Joe McKeever
Departments:	Agriculture, Food and Animal Health
Module Description:	This module outlines the various manufacturing operations involved in primary food processing and factory management.The various primary unit food processing operations for milk and meat products can be evaluated by the student.

Module Learning Outcome	
On successful completion of this module the learner will be able to:	
#	**Module Learning Outcome Description**
MLO1	Demonstrate and apply the theory involved in the various unit operations used in food processing.
MLO2	Apply the basic food technology and production management techniques used in the manufacture of quality assured, safe food products.
MLO3	Discuss the concepts and associated stages involved in the development of new sustainable food products.
MLO4	Perform and record laboratory tests on ingredients and final products
MLO5	Interpret and report the results for chemical, sensory, and microbiological tests.

Pre-requisite learning
Module Recommendations *This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named DkIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).*
No recommendations listed

Module Indicative Content
Unit Operations Brief introduction to size reduction, separation etc with respect to milk assembly.
Food Technology Manufacture of butter, cream, liquid milk, cheese, yogurt & ice cream. Primary processing of beef. Introduction to fermentation.
Production Management Production management including key performance indicators (KPI) such as unit cost reduction, net margin, profit, overall equipment efficiency (OEE), yield. Introduction to Lean Manufacture, Waste Elimination and Six Sigma Production.
Food Product Development Packaging, regulations, safety,traceability and labelling requirements for existing and new food products, including genetically modified products.
Consumer Assurance Food law, ISO, HACCP, quality assurance schemes at factory.
Introduction to Food Analysis Brief overview of traditional food & instrumental methods of analysis. Traditional anlaysis such pH, density, soxhlet etc. Brief introduction to instrumental methods of analysis eg UV spectroscopy, HPLC etc. Brief introduction to micro analysis.
Laboratory Testing and Food Analysis Some of the following may be used: Proximate analysis of food, for moisture, dry matter, crude protein, fat, carbohydrate. Milk tests for butterfat, total solids, solids non-fat, acidity, pH, and antibiotics. Organoleptic assessment and taste panel analysis of existing and new food products. Microbiological tests; Total Bacterial Count (TBC), coliform, E. coli, yeast and moulds, Staphylococcus aureus.

Module Assessment

Assessment Breakdown	%
Course Work	30.00%
Practical	20.00%
Final Examination	50.00%

Module Special Regulation

Assessments

Part Time On Campus

Course Work

Assessment Type	Written Report	**% of Total Mark**	30
Marks Out Of	0	**Pass Mark**	0
Timing	Week 10	**Learning Outcome**	1,2,3
Duration in minutes	0		

Assessment Description
Written report on food production and operational management.

No Project

Practical

Assessment Type	Practical/Skills Evaluation	**% of Total Mark**	20
Marks Out Of	0	**Pass Mark**	40
Timing	n/a	**Learning Outcome**	4,5
Duration in minutes	0		

Assessment Description
Food technology and food analysis practicals and/or industrial visits.

Final Examination

Assessment Type	Formal Exam	**% of Total Mark**	50
Marks Out Of	0	**Pass Mark**	0
Timing	End-of-Semester	**Learning Outcome**	1,2,3,5
Duration in minutes	0		

Assessment Description
End-of-Semester Final Examination

Reassessment Requirement

A repeat examination
Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.

Reassessment Description
Resubmit assignments/ reattend practical if necessary/ repeat exam as decided by the Exam Board.

Module Workload

This module has no Full Time On Campus workload.

Workload: Part Time On Campus					
Workload Type	*Contact Type*	*Workload Description*	*Frequency*	*Average Weekly Learner Workload*	*Hours*
Lecture	Contact	Face to Face	Every Week	1.00	1
Lecture	Contact	Online Lecture	Every Week	1.00	1
Practical	Contact	Food manufacture and analysis	Every Week	0.50	0.5
Online Contact	Contact	Online supported activity	Every Second Week	0.50	1
Directed Reading	Non Contact	No Description	Every Week	2.00	2
Independent Study	Non Contact	No Description	Every Week	2.00	2
				Total Weekly Learner Workload	7.00
				Total Weekly Contact Hours	3.00

Module Resources

Recommended Book Resources

Stephanie Clark. (2014), Food Processing, 2nd. John Wiley & Sons, p.592, [ISBN: 9780470671146].

TETRA PAK INTERNATIONAL S.A.. (2015), Dairy Processing Handbook, 3rd. TETRA PAK INTERNATIONAL S.A., [ISBN: 9789176111321].

Norman N. Potter. (1995), Food science, Springer, p.608, [ISBN: 0412064510].

Food Safety Autority of Ireland. (2007), The Labelling of Food in Ireland, 2nd. FSAI, Dublin, [ISBN: 1-904465-52-8].

Lawrie, R.A, Ledward,D.A.. (2006), Meat Science.(6th Ed), 7th. Woodhead Publishing Ltd, Lund, Sweden, [ISBN: 978-1-84569-159-2].

Kirk, R.S. and Sawyor. R.. (1991), Pearson's Composition and Analysis of Food, 2nd. Blackwell Synergy, [ISBN: 10:047021693X].

Taiichi, O., Miller, J. (2007), Workplace Management, Mc Graw Hill.

S. Suzanne Nielsen. (2017), Food Analysis, Springer, p.649, [ISBN: 978-3-319-45776-5].

Supplementary Book Resources

Roberts,D. Greenwood, M. (2002), Practical Food Microbiology. Blackwell Publishing, 2nd. Blackwell Publishing Ltd, [ISBN: 978-1-4051-0075-5].

Oakland, J.S. (2003), Total Quality Management, (3rd Ed). Elsevier.

Department of Agriculture. Department of Agriculture (2001) The Safe Food Chain……Every Link is Vital..

Food Safety Authority of Ireland. Food Safety Authority of Ireland (1999) Food Safety and Genetically Modified Food..

Recommended Article/Paper Resources

KENNETH MARSH AND BETTY BUGUSU. (2007), Food Packaging—Roles, Materials, and Environmental Issues, JOURNAL OF FOOD SCIENCE, Vol. 72, Nr. 3, 2007.

Other Resources

Website, (2018), Teagasc,
http://www.teagasc.ie

Website, (2018), Bord Bia,
http://www.bordbia.ie

Website, (2018), Irish Dairy Board,
http://www.idb.ie

Website, (2013), Dept. of Agriculture, Food & the Marine,
http://www.agriculture.gov.ie

Link, Library Catalogue,
http://tinyurl.com/nujllfr