

SULTAN QABOOS UNIVERSITY COURSE OUTLINE PROGRAM: FSN

1. Course Code	FSHN4106					
2. Course Title	Food Processing II					
3. Credits	3					
4. Pre-requisite Course(s)	FSHN30	76 or FSHN3102				
5. Co-requisite Course(s)	None					
6. Equivalent Course(s)	None					
7. Incompatible Course(s)	None					
8. Course Category	University Requirement University Elective					
	College Requirement College Elective					
	🗌 Depa	rtment Requirement	Department Elective			
	Specialization Requirement Specialization Elective					
	Other (specify):					
9. Course Owner	College:	CAMS	Department: FSN			
10. Course Type	Lectu	re	🛛 Lecture/Lab			
	🗌 Lectu	re/Seminar	Lecture/Studio			
	🗌 Lectu	re/Tutorial	Lecture/Lab/Tutorial or Seminar			
	Tutor	ial	Laboratory (Practical)			
	🗌 Field	or Work Placement	Studio			
	Semi	nar	Internship			
	U Work	shop	Project			
11. Language of Instruction	English					
12. Course Description						
This is a course that deals with the overall food processing principles in order to develop shelf stable food products. The major goal is to demonstrate selected food processing methods and their stability, such as hurdle technology, water activity and glass transition methods, state diagram, overview on new innovative processing methods (such as Ohmic heating, high pressure treatment, light energy, pulsed electric field, and innovative food packaging). The overall course objective is to provide the student the purpose of processing, mode of preservation, equipments used, operating conditions affecting the						
13. Teaching/Learning Strategies						
Essential contents will be introduced through lectures. Practical examples and problems will be used to illustrate the principles. After class, students will be assigned with homework exercises and problems. Learning outcomes will be assessed continually through written assignments, quizzes and tests. Laboratory experiments will be performed by students to improve their understanding of the principles and their problem-solving ability.						
14. Assessment Components and Weight [%]						
Quizzes 10		Practical 10	Other (specify):			
Homework assignments 5		Project				
☐ In-term examination(s) 35		Final examination 40				
15. Grading Method						
A-F Scale Pass/Not passed						
16. Textbook(s) and Supplemental Material						
Rahman, M. S. 2007. Handbook of Food Preservation, Second Edition. CRC Press, Boca Raton, FL. Ahmed, J., Rahman, M. S. 2012. Handbook of Food Process Design. Wiley-Blackwell, New York. Valentas, K. J., Rotstein, E., and Singh, R. P. editors. 1997. Handbook of Food Engineering Practice. CRC Press, Boca Raton, FL						

17.	17. Matching Course Objectives with Program Outcomes and SQU Graduate Attributes					
	SQU Graduate Attributes					
 A. SQU graduates should be able to: apply the knowledge and skills relevant to the specialization communicate effectively and use information and communication technologies critically analyze complex information and present it in simple clear manner work ethics intellectual ind teamwork ski leadership qua 			 ates possess al communication skills and with culture of international ket to assist them in practical iving successfully motivation for independent nd engagement in lifelong d research s and positive values, and independence and autonomy skills and display potential qualities C. SQU graduates should relish good citizensh qualities, be conscious their national identi and be social responsible, engage community affairs an be mindful contemporary issues. 			
#	Intended Student Learning Outcome		Relevant Program Outcome(s)		Applicable	
1.	Ability to understand clearly the effects major		An ability to apply knowledge of physics,		A.1, C	
2.	Ability to determine conditions for safety and quality when an individual hurdle (such as water activity) is used		An ability to apply knowledge of food sciences (b)		A.1	
3.	Ability to determine the synergistic and antagonistic effects on processing if combined methods are used		An ability to apply food processing and engineering (c)		A.1, A.3	
4.	Ability to predic water activity of any food from its available composition		Ability to integrate (a), (b), (c)		A.1	
5.	Ability to apply fundamental concepts (such as glass transition and water activity) in food processing for their stability		Ability to integrate (a), (b), (c)		A.1	
6.	Skills to use state diagram to determine the stability of foods during their processing and storage		Ability to integrate (a), (b), (c)		A.1, B.3, B.4,	
7.	Skills to understand guidelines as developed by authorities for food stability and safety		Ability to integrate (a), (b), (c)		A.1, B.2, C	
8.	Ability to design Ohmic heating process for foods		Ability to integrate (a), (b), (c)		A.1, A.2, B.2	
9. 10	Ability to design high pressure proc	cessing for foods	Ability to integrate (a), (b), (c	2)	A1, A2	
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16. Student Responsibilities

It is the student's responsibility to know and comply with all University Academic Regulations relevant to participation in this course. These regulations specifically include attendance requirement and students' academic code of conduct.

For attendance, it is the student's responsibility to be punctual and to attend all classes.

Students are expected to perform their work with honesty and avoid any academic misconduct, which is defined as the use of any dishonest or deceitful means to gain some academic advantage or benefit. This can take many forms, including but not limited to, the following: copying, plagiarism, collusion and forging documents. For full details, please refer to the Undergraduate Academic Regulations and to the Student Academic Misconduct Policy.

Additionally, this course requires that you:

COURSE INFORMATION					
Course Code		FSHN4106	Course Title	Elements of Food Engineering	r
Semester/Year		Fall 2018	Section(s)	1	
Day, T	ime, and Pla	ce Monday (12:00-1:5	0 pm), AGR/120R and	Wednesday (12:00-1:50 pm), Cl	MT/B15
Course	• Coordinato	r M. Shafiur Rahman			
Office Location		FSN 2023	Office Hours	8:00 am-4:00 pm	
Office Tel. Ext.		1273	Email	shafiur@squ.edu.om	
Tarteting Calendada					
week	Lecture #		Topic/Material to be covered		
1	Topic I	Basis Rules for Individual Hurdle in Food Preservation and Processing			
2	Topic 1	Basis Rules for Individual Hurdle in Food Preservation and Processing			
3	Topic 2	Hurdle Technology: Overview			
4	Topic 2	Hurdle Technology: Overview			
5	Topic 3	Fundamental Concepts in Food Preservation			
6	Topic 3	Fundamental Concepts in Food Preservation			
7	Topic 4	Prediction of Water Activity			
8	Topic 4	Prediction of Water Activity			
9	Topic 5	State Diagram in Food Processing			
10	Topic 5	State Diagram in Food Processing			
11	Topic 6	Progress in Developing Guidelines for Food Stability and Safety			
12	Topic 6	Progress in Developing Guidelines for Food Stability and Safety			
13	Topic 7	Ohmic Heating in Food Processing			
14	Topic 7	Ohmic Heating in Food Processing			
15	Topic 8	High Pressure in Food Processing			
16					
17					

APPENDIX A: INSTRUCTORS OF MULTIPLE SECTIONS					
Section	Instructor	Day, Time, and Place	Office Location and Extension	Email	Office Hours

APPENDIX B: ADDITIONAL INFORMATION

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