



**ATTACHMENT 2 (e)**

**Course Specifications**

**Kingdom of Saudi Arabia**

**The National Commission for Academic Accreditation & Assessment**

**FSN 433**

**Course Specifications  
(CS)**



## Course Specifications

Institution : King Saud University	Date of Report / / 1435
College/Department : <b>College Food and Agricultural Sciences / Food Science and Nutrition</b>	

### A. Course Identification and General Information

1. Course title and code: <b>Dairy Science and Technology / Code : FSN 433</b>			
2. Credit hours : <b>4 (2+2)</b>			
3. Program(s) in which the course is offered: <b>Food Science and Nutrition (College of Food and Agricultural Sciences)</b> (If general elective available in many programs indicate this rather than list programs)			
4. Name of faculty member responsible for the course: <b>Abdurrahman A. Alsaleh</b>			
5. Level/year at which this course is offered <b>eighth</b>			
6. Pre-requisites for this course (if any): <b>FSN 316 Food Chemistry and FSN 322 Food Microbiology.</b>			
7. Co-requisites for this course (if any): <b>No</b>			
8. Location if not on main campus: -			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input type="text" value="28"/>	What percentage	<input type="text" value="100"/>
b. Blended (traditional and online)	<input type="text"/>	What percentage?	<input type="text"/>
c. e-learning	<input type="text"/>	What percentage?	<input type="text"/>
d. Correspondence	<input type="text"/>	What percentage?	<input type="text"/>
f. Other	<input type="text"/>	What percentage?	<input type="text"/>
Comments:			



## B Objectives

<p>1. What is the main purpose for this course?</p> <ul style="list-style-type: none"> <li>• <b>Understanding the Composition and properties of milk</b></li> <li>• <b>Define The major components of milk and milk products</b></li> <li>• <b>Understanding of the Changes in milk during storage and processing</b></li> <li>• <b>Know the loss of biological values of milk protein during processing of milk.</b></li> <li>• <b>Understanding the changes in milk fat during process and storage.</b></li> <li>• <b><u>Applications:</u></b></li> <li>• <b>Measures the physico-chemical properties of milk</b></li> <li>• <b>The methods used to measure the milk adulterations.</b></li> <li>• <b>Preparing and manufacturing some types of cheese.</b></li> <li>• <b>Activation of starter cultures and its using in fermented milk products and cheese.</b></li> <li>• <b>Preparing and manufacturing of ice cream mix and ice cream products.</b></li> <li>• <b>The ability to know and arrange the components of pasteurization plant. a</b></li> </ul>
<p>2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)</p> <ul style="list-style-type: none"> <li>- <b>Development the personal home page that contain more information about the course.</b></li> <li>- <b>Periodic review of the scheduled lectures and update the new information in this field.</b></li> <li>- <b>Prepare workshops for training on the resolving the problems of some milk products.</b></li> </ul>

## C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Composition of milk and factors influencing the composition	2	2
Milk components and their properties; proteins, fat, lactose, salts, and other components	4	4
The role of milk in human nutrition.	1	1
Milk physiochemical properties	1	1
Milk microbiology	2	2



Processing of pasteurized and UHT milk: primary steps,	1	1
Plant equipments,	1	1
Processing steps.	1	1
Recombined milk products	1	1
Starter cultures and their preparations	1	1
Fermented dairy products: Laban, Yogurt, labnah, and sour cream	2	2
Natural cheeses	3	3
Processed cheese	1	1
Milk fat products	2	2
Concentrated milk products	1	1
Dry milk products	1	1
Ice cream	1	1
Dairy plants cleaning and sanitization	1	1
Quality control in dairy plants	1	1



2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	2			4		92
Credit	2			2		64

3. Additional private study/learning hours expected for students per week.	<input type="text"/>
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

**First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.



	<b>NQF Learning Domains And Course Learning Outcomes</b>	<b>Course Teaching Strategies</b>	<b>Course Assessment Methods</b>
<b>1.0</b>	<b>Knowledge</b>		
1.1	Understanding of the factors affecting on milk composition.	Lectures	Periodic and short exam
1.2	Recognition the factors affecting on milk quality.	Lectures	
1.3	Write a report about milk inspection and milk plant.	Work shops	
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	Evaluation reports for plant visits	Report	<b>Discussion</b>
2.2	Compare between different milk mammals.	Report	Evaluation reports of inspection visits
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
3.1	Write a report about the quality control of milk plant		Evaluation the reports
3.2	Evaluate the differences between milk products in the market.		
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1	Illustrate a model for milk pasteurization and UHT plant	Report	
4.2			
<b>5.0</b>	<b>Psychomotor</b>		
5.1			
5.2			

#### Suggested Guidelines for Learning Outcome Verb, Assessment, and Teaching

<b>NQF Learning Domains</b>	<b>Suggested Verbs</b>
<b>Knowledge</b>	list, name, record, define, label, outline, state, describe, recall, memorize, reproduce, recognize, record, tell, write
<b>Cognitive Skills</b>	estimate, explain, summarize, write, compare, contrast, diagram, subdivide, differentiate, criticize, calculate, analyze, compose, develop, create, prepare, reconstruct, reorganize, summarize, explain, predict, justify, rate, evaluate, plan, design, measure, judge, justify, interpret, appraise
<b>Interpersonal Skills &amp; Responsibility</b>	demonstrate, judge, choose, illustrate, modify, show, use, appraise, evaluate, justify, analyze, question, and write



<b>Communication, Information Technology, Numerical</b>	demonstrate, calculate, illustrate, interpret, research, question, operate, appraise, evaluate, assess, and criticize
<b>Psychomotor</b>	demonstrate, show, illustrate, perform, dramatize, employ, manipulate, operate, prepare, produce, draw, diagram, examine, construct, assemble, experiment, and reconstruct



Suggested **verbs not to use** when writing measurable and assessable learning outcomes are as follows:

Consider      Maximize      Continue      Review      Ensure      Enlarge      Understand  
Maintain      Reflect      Examine      Strengthen      Explore      Encourage      Deepen

Some of these verbs can be used if tied to specific actions or quantification.

**Suggested assessment methods and teaching strategies are:**

According to research and best practices, multiple and continuous assessment methods are required to verify student learning. Current trends incorporate a wide range of rubric assessment tools; including web-based student performance systems that apply rubrics, benchmarks, KPIs, and analysis. Rubrics are especially helpful for qualitative evaluation. Differentiated assessment strategies include: exams, portfolios, long and short essays, log books, analytical reports, individual and group presentations, posters, journals, case studies, lab manuals, video analysis, group reports, lab reports, debates, speeches, learning logs, peer evaluations, self-evaluations, videos, graphs, dramatic performances, tables, demonstrations, graphic organizers, discussion forums, interviews, learning contracts, antidotal notes, artwork, KWL charts, and concept mapping.

Differentiated teaching strategies should be selected to align with the curriculum taught, the needs of students, and the intended learning outcomes. Teaching methods include: lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, guest speakers, memorization, humor, individual presentation, brainstorming, and a wide variety of hands-on student learning activities.

**5. Schedule of Assessment Tasks for Students During the Semester**

	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	<b>Lab reports</b>	weekly	10 %
2	<b>Lab exams I</b>	<b>7</b>	<b>10 %</b>
3	<b>Lab exams 2</b>	<b>14</b>	<b>10 %</b>
4	<b>Major exams I</b>	<b>7</b>	<b>15 %</b>
5	<b>Major exams 2</b>	<b>14</b>	<b>15 %</b>
6	<b>Final exam</b>	<b>16</b>	<b>40 %</b>
7			
8			





#### D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
  - **(6 hours /week)**
  - **Personal electronic mail**
  - **Office telephone.**

#### E. Learning Resources

1. List Required Textbooks  
Wong et al. 1988. Fundamentals of Dairy Chemistry  
Kosikowski and Mistry.1999. Cheese and Fermented Milk Foods  
Recommended Books and Reference Material  
Robinson ( Ed.). 1996. Modern Dairy Technology .
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)  
**Journal of Dairy Science**  
**Journal of Dairy Research**
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
  - **Personal home pages**
  - **Some sites on electronic networks in terms of Dairy technology**  
**<https://www.uoguelph.ca/foodscience/content/dairy-education-series>**
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
  - **Standard specifications for milk and milk products.**
  - **Regulations issued by the FDA concerning milk and milk products.**

#### F. Facilities Required

- Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
    - **Classroom equipped with a display port (Data show), Screen, laptop computer, - Network explorer connection**
    - **Cameras- Thermometers- pH Meter to measure acidity.**
    - **Instruments for measuring the quality of milk products.**



2. Computing resources (AV, data show, Smart Board, software, etc.) <ul style="list-style-type: none"><li>- <b>Data show</b></li><li>- <b>Smart Board</b></li><li>- <b>Internet outlet</b></li></ul>
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) <ul style="list-style-type: none"><li>- <b>Antibiotic kits for detection the presence of antibiotic in milk</b></li><li>- <b>Kits for detection the activity of some milk enzymes in treated milk (i.e. alkaline phosphatase enzyme)</b></li></ul>

## G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching  The distribution of questionnaires to students at the end of the semester to get the special assessment decision
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
3 Processes for Improvement of Teaching <ul style="list-style-type: none"><li>- <b>Increase Discussion sessions</b></li><li>- <b>Use animated movies to declare some points through lectures</b></li></ul>
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)



5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- **Review the course and updated reference to the latest developments in this field.**

**Faculty or Teaching Staff:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date Report Completed:** \_\_\_\_\_

**Received by:** \_\_\_\_\_ **Dean/Department Head**

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_