



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Micronutrients in Dairy Products							
Course Code		ST411		Couse Level		First Cycle (Bachelor's Degree)			
ECTS Credit	4	Workload	102 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The aim of this course is giving to micro nutrientional contents of milk based products and human milk.							
Course Content		Milk and milk based products biochemistry The changing of micro nutritional content of milk and milk based products with relation the processsing conditions Human milk Plant or milk based infant formulae.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Individual Study					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

Recommended or Required Reading

1	1. Renner, E., 1990. Micronutrients in Milk and Milk Based Food Products. Elsevier Applied Science, London. Packard, V.S., 1992. Human Milk and Infant Formula. Academic Press, New York, 266s. Thompson, Abby; Boland, Mike; Singh, Harjinder 2009. Milk Proteins - from Expression to Food .ElsevierPress
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Week	Weekly Detailed Course Contents	
1	Theoretical	Milk biochemistry and micronutrients
2	Theoretical	Lipids as micronutrients (minor lipids, phospholipids, cholesterol, free fatty acids).
3	Theoretical	Proteins as micronutrients (immunoglobulins,free amino acids, lactoferrin, other minor proteins)
4	Practice	Carbohydrates as micronutrients (glucose and galactose, oligosaccharides)
5	Practice	Minerals and trace elements
6	Practice	Vitamins,enzymes, organic acids, hormones, hormone- like substances
7	Practice	Micronutrients in dairy products and the effect of technological conditions
8	Intermediate Exam	Mid Term exam
9	Practice	Fluid milk
10	Practice	Fermented milk products
11	Practice	Cream, butter and concentrated milk products
12	Theoretical	Micronutrients in human milk
13	Theoretical	Micronutrients in infant formula
14	Theoretical	Goats' and sheep's milk , whey products
15	Theoretical	Cheeses
16	Final Exam	-

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	3	70
Individual Work	14	0	2	28
Midterm Examination	1	0	2	2
Final Examination	1	0	2	2
Total Workload (Hours)				102
[Total Workload (Hours) / 25*] = ECTS				4

*25 hour workload is accepted as 1 ECTS



Learning Outcomes

1	understanding of milk composition
2	knowing of covered characteristics between macro nutrient compounds and minor nutrient compounds
3	demonstrate a basic knowledge on the principles micro nutrients
4	knowing of different processing techniques on the physiological and chemical properties of dairy products
5	understanding of human milk composition

Programme Outcomes (Dairy Technology)

1	Having sufficient infrastructure in basic sciences and engineering subjects and ability to use the theoretical and applied info instantly in this field.
2	Determining the modern techniques, tools and information technologies required for applications related with his field and ability to use them efficiently
3	Ability for planning, projecting, and designing, following up, analyzing and finding target-driven solutions related with his field
4	Ability to have professional ethic and awareness.
5	Ability to work, decide, express opinions orally and in written individually
6	Ability to participate team studies, taking responsibility, making leadership.
7	Ability to conceive Atatürk's principles and reforms, to communicate in Turkish and foreign language.
8	Ability to comprehend the necessity to learn for a life time, to monitor developments in science and technology and continuously renew himself.
9	Having sufficient level of information about production and quality control of milk and dairy products and also product development, increasing product quality and food security fields.
10	Ability to detect, define, solve problems related with his field and to select and apply suitable methods and modeling techniques for this purpose.
11	To be conscious about workplace applications, worker health, work security and environment subjects, to have knowledge about legal results of the engineering applications related with his subject.

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	5	5	5	5	5
P9	5	5	5	5	5

