

Calea Mănăștur 3-5, 400372, Cluj-Napoca Tel: 0264-596.384, Fax: 0264-593.792

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No.	of	
INO.	01	

USAMV Form 0703040103

SUBJECT OUTLINE

1. Information on the programme

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca
1.2. Faculty	Food Science and Technology
1.3. Department	Food Engineering
1.4. Field of study	Food Engineering
1.5.Education level	Bachelor
1.6.Specialization/ Study programme	Food Engineering
1.7. Form of education	Full time

2. Information on the discipline

2. Information on the a		71111						
2.1. Name of the		Manufac	cturing	technology of	nnology of the semi-preserved and preserved meat products			
discipline	discipline							
2.2. Course coordinator Associate Professor dr. eng. Sălăgean Claudiu-Dan								
2.3. Seminar/ laboratory/ project coordinator				Lecture	Lecturer dr. eng. Melinda Fogarasi			
2.4. Year of study	Year of study IV 2.5. Semester VII 2.6			2.6.		2.7.	Content ²	DS
			Type of	Summative	Discipline			
				evaluation	Summative	status	Compulsoriness ³	DI

3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2.	2	3.3. seminar / laboratory / project	2
3.4.Total number of hours in the curriculum	56	Out of which: 3.5.lecture	28	3.6. seminar / laboratory	28
Distribution of time allotted					hours
3.4.1. Study based on book, textbook, bibliography and notes					25
3.4.2. Additional documentation in the library, specialized electronic platforms and field					10
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					15
3.4.4. Tutorial					4
3.4.5. Examinations					10
3.4.6. Other activities					0

3.7. Total hours of individual study	64
3.8. Total hours per semester	120
3.9. Number of credits ⁴	4

4. Prerequisites (if applicable)

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4.1. curriculum-related	Unit operations in food industry, Food industry equipment, Cold engineering, General and			
	special microbiology, Food biotechnology, Additives and ingredients in Food industry, Meat			
	processing, Hygiene of Food industry units, Plant and animal materials			
4.2. skills-related The student should have knowledge about chemistry and food biochemistry, food tec				
	and quality control of plant and animal origin			

5. Conditions (if applicable)

5.1. for the lecture	The course is interactive, students can ask questions regarding the content of the exposure.		
	Academic discipline enforce time start and end of the course.		
	We do not allow any other activities during the lecture, mobile phones are closed.		
5.2. for the seminar/	Practical work supervisor is compulsory at laboratory, every student will develop an		
laboratory/ project	individual activity based on material and laboratory materials provided, based on the		
	procedure described in the practical work advisor. Academic discipline is imposed for the		
	duration of works.		



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6. Specific acquired competences

onal competences	C2. Management of general engineering processes, operation of installations and equipment in the meat and fish canning and canning industry C2.1. Supervision, management, analysis and design of meat and fish canning and canning manufacturing technologies (from raw materials to finished product) C2.3. Application of basic engineering principles and methods for solving technological problems in the semicanned and canned meat and fish industry C3. Supervision, management, analysis and design of technologies for the manufacture of semi-canned and
Professional	C3. Supervision, management, analysis and design of technologies for the manufacture of semi-canned and canned meat and fish (from raw materials to finished product) C3.3. Monitoring and control of technological processes in the semi-canned and canned meat and fish industry, identification of abnormal situations and proposing solutions
Transversal competences	CT1: Applying strategies of perseverance, rigor, efficiency and responsibility at work, punctuality and taking responsibility for the results of personal activity, creativity, common sense, analytical and critical thinking, problem solving, etc., based on the principles, norms and values of the code professional ethics in food.

7. Course objectives (based on the list of competences acquired)

7. Course objectives (based on the list of competences acquired)				
7.1. Overall course objective	Assimilation knowledge concerning the semi-preserved and preserved meat			
	products manufacturing technology			
7.2. Specific objectives	Learning/ assimilation of the general and the specific manufacturing technology			
	of the semi-preserved and preserved meat products (with differences according			
	to group/assortment of the <i>semi-preserved/preserved</i> meat product)			
	Projection of the technological flow and manufacturing recipes of the semi-			
	preserved and preserved meat products, monitoring of the technological process,			
	including tehnological quality parameters on flow and of the finished products.			
	Knowledge of the factors influencing the productivity and quality of the semi-			
	preserved and preserved meat products			

8. Content

8.1. LECTURE	Teaching methods	Notes
Number of hours – 28	C	1 lecture = 2 hours
Technology of the semi-preserved meat products	Lecture	3.5 lectures
manufacturing		
Manufacturing technology of ham semi-preserved		
products (pulp, shoulder, pork-loin)		
Manufacturing technology of minced pork semi-		
preserved products (chopped pork and ham, pork roll		
and ham, Mortadella, Luncheon meat)		
Manufacturing technology of smoked breast pork		
(bacon)		
Semi-preserved meat products with gelatin		
Beef ham semi-preserved products		
Freshsausages semi-preserved products		
The defects of the semi-preserved meat products		
Manufacturing technology of the semi-preserved fish	Lecture	3.5 lectures
products		
Sorting of fish		
Cleaning of fish scales		
Cutting and washing the fish		
Preservation of fish by salting (Alterations that occur in		
the flesh of salting fish; Methods of salting; Maturation		
of salted fish; Defects and pests of the salted fish)		
Preservation of fish by smoking (Methods of smoking;		
Defects of the smoked fish products)		
Initial thermal processing of fish (Blanching of fish;		
Blanching of the vegetables; Frying of the fish; Fish		
cooling after heat treatment)		



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Semi-preserved fish products (pasteurized and unpasteurized)		
Thermal sterilization of the products	Lecture	1 lecture
General considerations		
Microflora that cause spoilage of the canned products		
Survival curve		
Thermal destruction curve		
Factors that influence the sterilization process		
Manufacturing technology of preserved/canned meat	Lecture	4.5 lectures
products		
Classification of canned products		
General technology of the manufacturing		
Reception of the raw materials, auxiliaries and		
packaging materials		
Preparation of the raw materials, auxiliaries and		
packaging materials		
Preparing the sauces and soups		
Filling the cans and exhausting		
Closing the cans		
Sterilization the canned products		
Cooling the canned products		
Thermostatting the canned products		
Sorting and cleaning the canned products		
Labelling and packaging		
Storing the canned products and defects that can		
occur during the storage		
Types of canned meat products		
Canned meat in its own juice		
Canned mixed products		
Canned paste products (liver pasta)		
Dietetic canned meat products		
Canned baby products		
Manufacturing technology of preserved fish products	Lecture	1.5 lectures
General manufacturing technology of canned fish		
products		
Types of canned fish products		

8.2. PRACTICAL WORK	Theoretical presentation of	1 lab work (2 hours / work)
Number of hours – 28	practical works	
Manufacture of semi-preserved ham products (pulp,		1 practical work
shoulder, pork-loin)	Technological calculations	
Manufacture of semi-preserved minced pork products	/practical applications	1 practical work
(Chopped/roll pork, Mortadella, Luncheon meat)	Technological calculations	
Manufacture of smoked breast pork (bacon)	/practical applications	1 practical work
	Technological calculations	
Manufacture of the pasteurized fish products	/practical applications	1 practical work
	Technological calculations	
Manufacture of the semi-preserved fish products (cold	/practical applications	1 practical work
marinades and delicates marinades)	Technological calculations	
Manufacture of the semi-preserved fish products (fried	/practical applications	1 practical work
marinades)	Technological calculations	
Manufacture of the semi-preserved fish products (boiled	/practical applications	1 practical work
marinades)	Technological calculations	
Manufacture of the semi-preserved fish products	/practical applications	1 practical work
(marinades in oil)	Technological calculations	
Manufacture of canned meat in its own juice (beef/pork)	/practical applications	1 practical work
	Technological calculations	
Manufacture of canned mixed products (pork with	/practical applications	1 practical work
beans and pork with rice)	Technological calculations	
Manufacture of canned paste products (liver pate)	/practical applications	1 practical work



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	Technological calculations	
Manufacture of canned baby products (Baby food,	/practical applications	1 practical work
Junior food, Senior food)	Technological calculations	
Manufacture of canned fish products in tomato sauce	/practical applications	1 practical work
and oil	Technological calculations	
Verification of the knowledge (throughout the semester)	/practical applications	1 practical work
	Template tests /oral	

Compulsory bibliography:

- 1. Banu, C. ş. a., 1997, 2003, Procesarea industrială a cărnii, Ed. Tehnică, București
- 2. Ionescu, Aurelia, 1995, Tehnici și procedee de conservare a peștelui, Ed. Hypatya, Galați
- Ţibulcă, D. şi Sălăgean, D., 2001, Tehnologia semiconservelor şi conservelor din carne şi peşte, Ed. George Cosbuc, Bistrita
- 4. Sălăgean, C. D., Țibulcă, D., 2009, Tehnologia semiconservelor și conservelor din carne și pește, Editura Risoprint, Cluj-Napoca

Optional bibliography:

- 1. Banu, C., 1998 și 1999, Manualul inginerului de industrie alimentară, vol.I, II, Editura Tehnică, București
- 2. Bărzoi, D., și Apostu, S., 2002, Microbiologia produselor alimentare, Ed. Risoprint, Cluj-Napoca
- 3. Bogatu, D. ş. a., 1980, Piscicultură, E.D.P., București
- 4. Georgescu, Gh., Banu, C., ş.a., 2000, Tratat de producerea, procesarea și valorificarea cărnii, Editura Ceres, București
- 5. Laslo, C. și colab., 2008, Controlul calității și igiena produselor alimentare de origine animală, Editura Risoprint, Cluj-Napoca
- 6. Sălăgean, C. D., 2011, Tehnologia și controlul calității pe fluxul tehnologic de fabricație a produselor din carne, Editura Risoprint, Cluj-Napoca
- 7. ***, 1997, Institutul Român de Standardizare, Culegere de standarde române comentate (conserve de carne), București

9. Corroborating the course content with the expectations of the epistemic community representatives, of the professional associations and of the relevant stakeholders in the corresponding field

In order to identify ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems teachers participate in various workshops (with guests from the economic environment), trade exhibition for agriculture and food industry (eg . Agraria) food festivals (eg "Food Festival" - exhibition of products made by students in their final years in order to support project graduation) and meetings of professional associations (eg, Association of Food Industry specialists Romania - ASIAR) where they meet teachers from different universities, engineers and managers in the economic environment being debated current issues and future of food production in Romania and Europe.

10. Assessment

Type of activity	10.1. Assessment criteria	10.2. Assessment methods	10.3. Percentage of the final grade
10.4. Lecture	Knowledge/assimilation of the manufacturing technologies of the semi-preserved and preserved meat products	Oral exam	60%
10.5. Seminar/Laboratory	Learning technological schemes / recipes and technological process of the manufacturing of the semipreserved/cannned meat products Calculation of the quantities of the raw and auxiliary materials for the production of various types of semi and canned meat products Calculation of the material balance on the flow of manufacturing of the semipreserved/canned meat products Knowledge and application of specific salting methods and calculation of the substances / salting mixtures specific for different raw materials used in the manufacturing	4 continuous assessments	40%



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	process of the semipreserved/canned			
	meat products			
	Ability to elaborate the manufacturing			
	flow of different types /kinds of			
	semipreserved/ canned meat products			
	(flowchart, recipe, manufacturing			
	technological process)			
	Monitoring capacity of the			
	manufacturing technological process			
	of the semipreserved/tinned meat			
	products (technological parameters on			
	the flow)			
	Ability to check the quality of the			
	finished product (quality parameters)			
	Knowing the defects of the			
	semipreserved/canned meat products			
10.6 Minimum performance standards				

10.6. Minimum performance standards

Mastery of scientific information transmitted through lectures and practical papers at an acceptable level.

Preparation of a technological flow for the manufacture of some types / assortments of semi-canned and canned meat Calculation of the quantities of raw and auxiliary materials necessary for the manufacture of various varieties of semi-canned and canned meat

Obtaining the pass mark for the ongoing checks is a condition of passability.

The final grade is the weighted average of the exam and the colloquium on practical work and must be equal to or greater than 5 (five)

- Education levels- choose of the three options: Bachelor * Master/Ph.D.
- ² Discipline status (content)- for the undergraduate level, choose one of the options:- **FD** (fundamental discipline), **BD** (basic discipline), **CS** (specific disciplines-clinical sciences), **AP** (specific disciplines-animal production), **FH** (specific disciplines-food hygiene), **UO** (disciplines based on the university's options).
- 3/ Discipline status (compulsoriness)- choose one of the options CD (compulsory discipline) OD (optional discipline) ED (elective discipline).
- One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

^{5/*} Disciplines: AK- Advanced knowledge, CT- Complementary Training, S- Synthesis

Filled in on 08.09.2021

Course coordinator Associate Professor dr. eng. Dan Sălăgean Laboratory work/seminar coordinator Lecturer dr. eng. Melinda Fogarasi

Subject coordinator Associate Professor dr. eng. Dan Sălăgean

Approved by the Department on 22.09.2021

Head of the Department Professor dr. Sevastiţa Muste

Approved by the Faculty Council on 28.09.2021 Dean Professor dr. Elena Mudura