UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
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No._____of _____ **USAMV Form 0701040106**

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	Technology of Agricultural Products Processing
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	Special technologies in the food industry. Technology of the semi-preserved and preserved products							
2.2. Course coordinator	Associate Professor dr. eng. Sălăgean Claudiu-Dan							
2.3. Seminar/ laboratory/ project coordinator	Lecturer dr. eng. Melinda Fogarasi							
2.4. Year of study	IV	2.5. Semester	VII	2.6. Type of evaluation	Summative	2.7. Discipline status	Content[2]	DD
							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. lecture	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					**15**
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	69				
3.8. Total hours per semester	125				
3.9. Number of credits[4]	5				

4. Prerequisites (if applicable)

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 technology 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/ laboratory/ project	Practical work supervisor is compulsory at laboratory, every student will develop an 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.

6. Specific acquired competences

Professional 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 semi-canned and canned meat and fish industry 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)

7.1. 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 *semi-preserved*/*preserved* 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		1 lecture = 2 hours
Technology of the semi-preserved meat products 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	Lecture	4 lectures
Manufacturing technology of the semi-preserved fish 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)	Lecture	4 lectures

Initial thermal processing of fish **(**Blanching of fish; Blanching of the vegetables;Frying of the fish;Fish cooling after heat treatment) Semi-preserved fish products (pasteurized and unpasteurized)		
Manufacturing technology of preserved/canned meat 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	Lecture	4 lectures
Manufacturing technology of preserved fish products General manufacturing technology of canned fish products Types of canned fish products	Lecture	2 lectures

8.2. PRACTICAL WORK **Number of hours – 28**	Theoretical presentation of practical works	1 lab work (2 hours / work)
Manufacture of semi-preserved ham products (pulp, shoulder, pork-loin)	Technological calculations /practical applications	2 lab works
Manufacture of semi-preserved minced pork products (*Chopped/roll pork, Mortadella, Luncheon meat*)	Technological calculations /practical applications	2 lab works
Manufacture of smoked breast pork (bacon)	Technological calculations /practical applications	1 lab work
Manufacture of the semi-preserved fish products (cold marinades, fried marinades and boiled marinades)	Technological calculations /practical applications	2 lab works
Manufacture of canned meat in its own juice (beef/pork)	Technological calculations /practical applications	1 lab work
Manufacture of canned mixed products (pork with beans and pork with rice)	Technological calculations /practical applications	1 lab work
Manufacture of canned paste products (liver pate)	Technological calculations /practical applications	1 lab work
Manufacture of canned baby products (*Baby food, Junior food, Senior food*)	Technological calculations /practical applications	2 lab works
Manufacture of canned fish products in tomato sauce and oil	Technological calculations /practical applications	1 lab work
Verification of the knowledge (throughout the semester)	Template tests /oral	1 lab work

Compulsory bibliography:

1. Banu, C. ş. a., 1997, 2003, Procesarea industrială a cărnii, Ed. Tehnică, Bucureşti
2. Ionescu, Aurelia, 1995, Tehnici şi procedee de conservare a peştelui, Ed. Hypatya, Galaţi
3. Ţibulcă, D. şi Sălăgean, D., 2001, Tehnologia semiconservelor şi conservelor din carne şi peşte, Ed. George

Coşbuc, Bistriţa
4. Sălăgean, C. D., Ţibulcă, D., 2009, Tehnologia semiconservelor şi conservelor din carne şi peşte, Editura Risoprint, Cluj-Napoca

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

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*	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 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)	4 continuous assessments	40%

	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

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)

[1] Level of study- to be chosen one of the following - Bachelor/Post graduate/Doctoral
[2] Course regime (content) – for bachelor level it will be chosen one of the following - **DF** (fundamental subject), **DD** (subject in the domain), **DS** (specific subject), **DC** (complementary subject).
[3] Course regime (compulsory level) - to be chosen one of the following - **DI** (compulsory subject), **DO** (optional subject), **DFac** (facultative subject)
[4] One ECTS is equivalent with 25 hours of study (didactical and individual study).

Filled in on
06.09.2021

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