UNIVERSITATEA DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA
Calea Mănăştur 3-5, 400372, Cluj-Napoca
Tel: 0264-596.384, Fax: 0264-593.792
www.usamvcluj.ro

No._____of _____ **USAMV Form 0702030115**

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	Control and expertise of food products
1.7. Form of education	Full time

2. Information on the discipline

2.1. Name of the discipline	General technologies of the animal products 2							
2.2. Course coordinator	Associate Professor dr. eng. Sălăgean Claudiu-Dan							
2.3. Seminar/ laboratory/ project coordinator	Associate Professor dr. eng. Sălăgean Claudiu-Dan							
2.4. Year of study	IV	2.5. Semester	VI	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					20
3.4.2. Additional documentation in the library, specialized electronic platforms and field					5
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					10
3.4.4. Tutorial					4
3.4.5. Examinations					5
3.4.6. Other activities					0
3.7. Total hours of individual study	44				
3.8. Total hours per semester	100				
3.9. Number of credits[4]	4				

4. Prerequisites (if applicable)

4.1. curriculum-related	Unit operations in the food industry, Food industry equipment, Air conditioning and refrigeration equipment; Transfer phenomena
4.2. skills-related	The student should have knowledge on food biochemistry, food microbiology, food additives, principles and methods of food preservation, animal raw materials

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	C1. Identify, describe and use appropriately the specific notions of food science and food safety C1.3. Application of basic principles and methods in food science to solve engineering and technological problems, including those related to food safety C2. Management of general engineering processes, operation of installations and equipment in the meat industry C2.1. Description and use of basic concepts, theories and methods in the field of processes and operation of meat industry installations C2.3. Application of basic engineering principles and methods for solving technological problems in the meat industry 3. Surveillance, management, analysis and design of animal slaughtering technologies as well as meat manufacturing technologies (from raw materials to finished product) C3.3. Monitoring and control of technological processes in the meat 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 slaughtering technology of animals in slaughterhouses, the meat preservation technology, the manufacturing technology of the meat products
7.2. Specific objectives	Understand and know the general and specific technology (with differences depending on the animal species) of animals slaughtering (slaughtering output, calculation the amount of meat and animal by-products in the slaughtering activity, the slaughtering capacity of the slaughterhouses and so on) Learning the technologies of the meat preserving by cold (refrigeration, freezing), salting and smoking (principles, methods, ways , procedures and so on). Assimilation the general and specific technology (the particularities depending on the species) of cutting, boning and meat sorting To acquire general and specific technology (on product groups) of the meat products manufacturing (preparation the technological flow and the manufacturing recipe, monitoring the technological process, including tehnological quality parameters on flow and of the finished products) Knowing the factors which influence the quality and productivity of the meat products

8. Content

8.1. LECTURE	Teaching methods	Notes
Number of hours – 28		1 lecture = 2 hours
Technology of the slaughtering of animals in the slaughterhouse General technology of slaughtering (Preparing animals for slaughtering; Suppression of animal life; Initial processing of animals; Carcasses processing; Calculation of quantities of meat and by-products; Analysis of critical control points for animal slaughter	Lecture	3 lectures
Meat preservation by cold General considerations Meat refrigeration (Refrigeration methods, Refrigerated meat storage, Changes in meat during refrigeration and storage) Freezing of meat (Freezing methods and methods; Freezing systems and processes, Storage of frozen meat,	Lecture	1.5 lectures

Changes in meat during freezing and storage)		
Cuting, boning and meat sorting	Lecture	1 lecture
Beef cutting for industrialization		
Pork cutting for industrialization		
Cuting, boning and sheep sorting		
Meat preservation by salting	Lecture	1.5 lectures
General considerations		
Methods of meat preserving by salting		
Changes in preservation by salting of meat		
Manufacturing technology of the common meat products	Lecture	7 lectures
Classification of the meat products		
Raw materials, auxiliary materials, materials		
General technology of the manufacturing of the meat products in casings (salamies, sausages)		
Manufacturing technology of the fresh meat products, semismoked salamies and sausages		
Manufacturing technology of the pasteurized products		
Manufacturing technology of the smoked products		
Manufacturing technology of the specialties products		
Defects in common meat preparations		
Analysis of critical control points in the manufacture of meat preparations in order to implement the HACCP plan		

8.2. PRACTICAL WORK		1 lab work (2 hours / work)
Number of hours – 28		
1. Technology for slaughtering animals (cattle, pigs, sheep) and obtaining carcasses	Slaughter movie; technological calculations	0.5 lab work
2. Calculation of quantities of meat and by-products resulting from the slaughter of animals	Technological calculations	0.5 lab work
3. Determining the slaughter capacity of slaughterhouses	Technological calculations	0.5 lab work
4. Calculations for melting animal fats	Technological calculations	0.5 lab work
5. Preservation of meat by cold		
Determination of storage capacity in cold spaces	Technological calculations	0.5 lab work
Cold calculations when preserving meat in the cold	Technological calculations	0.5 lab work
6. Slicing, boning and selection of beef and pork for industry	Cutting movie, practical applications , technological calculations	1 lab work
7. Slicing, boning and selection of sheep and by-products	Cutting movie, practical applications , technological calculations	0.5 lab work
8. Preservation of meat by salting Salting methods (dry, wet, mixed)	Salting movie, practical applications , technological calculations	0.5 lab work
9. Manufacturing technology of common meat preparations - Determination of production capacity for meat preparations; Calculation of raw materials and semi - finished products in the production of meat preparations	Technological calculations	1 lab work
10. Fresh products manufacturing technology	Manufacturing movie ; practical applications , technological calculations	1 lab work
11. Manufacturing technology of semi-smoked salamis and sausages	Manufacturing movie ; practical applications , technological calculations	1 lab work
12. Manufacture of the pasteurized products	Manufacturing movie ; practical applications , technological calculations	1 lab work
13. Smoked products manufacturing technology	Manufacturing movie ; practical applications ,	1 lab work

14. Specialty products manufacturing technology	technological calculations Manufacturing movie ; practical applications , technological calculations	3 lab works
15. Verification of knowledge (ongoing checks)	Template tests /oral	1 lab work

Compulsory bibliography:
1. Sălăgean, C. D., Ţibulcă, D., 2009, *Tehnologia produselor din carne*, Editura RISOPRINT, Cluj-Napoca
2. Sălăgean, C. D., 2011, *Tehnologia şi controlul calităţii pe fluxul tehnologic de fabricaţie a produselor din carne*, Editura RISOPRINT, Cluj-Napoca
3. Sălăgean, C.D., Ţibulcă, D., 2015, *Tehnologia produselor de origine animală (carne)*, Editura MEGA, Cluj-Napoca

Optional bibliography:
1. *Banu, C. ş.a., 1999, Biotehnologii în industria alimentară, Ed. Tehnică, Bucureşti*
2. *Banu, C., 1998 şi 1999, Manualul inginerului de industrie alimentară, vol.I, II, Editura Tehnică, Bucureşti*
3. *Banu, C. ş.a., 1997, 2003, Procesarea industrială a cărnii, Ed. Tehnică, Bucureşti*
4. *Bărzoi, D., şi Apostu, S., 2002, Microbiologia produselor alimentare, Ed. Risoprint, Cluj-Napoca.*
5. *Georgescu, Gh. (coordonator), Banu, C., 2000, Tratat de producerea, procesarea şi valorificarea cărnii, Ed. Ceres, Bucureşti*
6. Laslo, C. şi colab., 2008, *Controlul calităţii şi igiena produselor alimentare de origine animală*, Editura Risoprint, Cluj-Napoca
7. Ţibulcă, D., Sălăgean, D., 2000, *Tehnologia cărnii şi a produselor din carne*, Volumul I, II, Editura RISOPRINT, Cluj – Napoca
8. ***, A.A.-C.O.C.P.C.I.A., 1991, *Colecţie de standarde de ramură-preparate din carne*, Bucureşti
9. ***, 1994, *Standarde de stat şi norme tehnice de calitate. Carne şi preparate 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 of animal slaughter technologies Knowledge of meat preservation technologies Knowledge of meat manufacturing technologies	Oral exam	60%
10.5. Seminar/Laboratory	Learning how to calculate the quantities of meat and by-products resulting from slaughtering animals, the slaughtering capacity of slaughterhouses Learning how to calculate the storage capacity in cold spaces and the cold storage conditions for meat Recognition of anatomical parts resulting from the cutting of carcases / half-carcases / quarters of sheep / pigs / cattle carcasses Knowledge and application of specific salting methods and calculation of salting substances of various raw materials used in the manufacture of meat preparations Ability to draw up a technological	4 continuous assessments	40%

	flow for obtaining a meat preparation (scheme and technological recipe for manufacturing) Ability to monitor the technological process of manufacturing meat preparations (technological parameters)		

10.6. Minimum performance standards

Mastery of scientific information transmitted through lectures and practical papers at an acceptable level.
Preparation of general technological schemes for slaughtering animals as well as those for manufacturing meat preparations (specifying the technological parameters);
Learning how to calculate the quantities of meat and by-products resulting from slaughtering animals;
Learning the method of calculating the raw and auxiliary materials used in the manufacture of meat preparations;
Obtaining the passing grade 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] 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).
[4] 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
06.09.2021

Course coordinator
Associate Professor dr. eng. Dan Sălăgean

Laboratory work/seminar coordinator
Associate Professor dr. eng. Dan Sălăgean

Subject coordinator
Associate Professor dr. eng. Dan Sălăgean

Approved by the Department on
22.09.2021

Head of the Department
Prof. PhD, Sevastiţa Muste

Approved by the Faculty Council on
28.09.2021

Dean
Prof. PhD, Elena Mudura