



**THE UNIVERSITY OF CRAIOVA
THE FACULTY OF HORTICULTURE
THE DEPARTMENT OF HORTICULTURE AND FOOD SCIENCE**

The University of Craiova– The Faculty of Horticulture

PACKAGE OF COURSES

**TECHNOLOGY OF PROCESSING AGRICULTURAL PRODUCTS
speciality**

**This package of courses for the TECHNOLOGY OF PROCESSING
AGRICULTURAL PRODUCTS speciality from the University of Craiova/
The Faculty of Horticulture/ The Horticulture Department – Food Science,
available for the academic year 2016-2017.**

THE UNIVERSITY OF CRAIOVA

THE FACULTY OF HORTICULTURE

THE DEPARTMENT OF
HORTICULTURE AND FOOD SCIENCE

TECHNOLOGY OF PROCESSING
AGRICULTURAL PRODUCTS

EDUCATIONAL PLAN

UNIVERSITY OF CRAIOVA

Horticulture Faculty

Department: Horticulture and Food Science (D29)

Field of hierarchy: Food engineering

Programul de studii: Technology of Processing Agricultural Products

Duration of studies: 4 years

Form of education: IF

| | | |
|---------------|--------------------------------|----------------|
| Sem. I | | Sem. II |
| | Nr. weeks./sem. if ≠ 14 | |

EDUCATIONAL PLAN TPPA – Year I

| Discipline | Code | F D D S C | O B O P F | Op t. 0/ ≥1 | C1 | S 1 | L 1 | P 1 | CT 1 | FV 1 | C2 | S 2 | L 2 | P 2 | CT 2 | FV 2 |
|------------------------------------|----------------|-----------------------|-----------------------|----------------------|----|--------|--------|--------|---------|---------|----|--------|--------|--------|---------|---------|
| Mathematics | D29TPA L101 | F D | O B | 1 | 1 | 2 | | | 4 | V | | | | | | |
| Electrical Engineering Elements | D29TPA L102 | F D | O B | 1 | 2 | | 2 | | 4 | E | | | | | | |
| Anorganic And Analytical Chemistry | D29TPA L103 | F D | O B | 1 | 2 | | 2 | | 4 | E | | | | | | |
| Physical Chemistry And Colloids I | D29TPA L104 | F D | O B | 1 | 2 | | 1 | | 4 | E | | | | | | |
| Physics | D29TPA L105 | F D | O B | 1 | 2 | | 2 | | 4 | E | | | | | | |
| Geometry and technical design I | D29TPA L106 | F D | O B | 1 | 1 | 2 | | | 4 | V | | | | | | |
| Mechanical Engineering I | D29TPA L107 | D | O B | 1 | 2 | | 1 | | 4 | V | | | | | | |
| English I | D29TPA L108 | C | O B | 1 | | 2 | | | 2 | V | | | | | | |
| Physical Chemistry And Colloids II | D29TPA L208 | F D | O B | 1 | | | | | | | 2 | | 2 | | 5 | V |
| Food Chemistry | D29TPA L209 | F D | O B | 1 | | | | | | | 2 | | 2 | | 5 | E |
| Geometry and technical design II | D29TPA L210 | F D | O B | 1 | | | | | | | 2 | | 2 | | 5 | E |
| Transfer Phenomena | D29TPA L211 | S | O B | 1 | | | | | | | 2 | | 2 | | 4 | V |

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|---------------------------|-------------|---|--------|---|--|---|--|--|---|---------|----------|---|---|---|---|---------|
| Mechanical Engineering II | D29TPA L212 | D | O B | 1 | | | | | | | 2 | | 1 | 1 | 5 | E |
| Applied Informatics | D29TPA L213 | D | O B | 1 | | | | | | | 2 | | 2 | | 4 | E |
| English II | D29TPA L215 | C | O B | 1 | | | | | | | | 2 | | | 2 | V |
| Sports | D29TPA L116 | C | F | 0 | | 1 | | | 1 | A/ R | | | | | | |
| Sports | D29TPA L217 | C | F | 0 | | | | | | | | 1 | | | 1 | A/ R |

UNIVERSITY OF CRAIOVA

Horticulture Faculty

Department: Horticulture and Food Science (D29)

Field of hierarchy: Food engineering

Programul de studii: Technology of Processing Agricultural Products

Duration of studies: 4 years

| | |
|----------------------------|----------------|
| Se m. I | Se m. II |
| Nr. weeks./sem. if ≠ 14 | |

EDUCATIONAL PLAN TPPA – Year

II

Form of education: IF

| Discipline | Cod | F D S C | O B O P F | O p t · O/ ≥ 1 | C1 | S 1 | L 1 | P 1 | C T 1 | F V 1 | C2 | S 2 | L 2 | P 2 | C T 2 | F V 2 |
|---|--------------------|------------------|-----------------------|----------------------------------|----|--------|--------|--------|-------------|-------------|----|--------|--------|--------|-------------|-------------|
| Food Biochemistry I | D29T PAL3 18 | F D | O B | 1 | 2 | | 2 | | 5 | E | | | | | | |
| Food Microbiology I | D29T PAL3 19 | D | O B | 1 | 2 | | 2 | | 5 | E | | | | | | |
| Cold and air conditioning installation in the food industry I | D29T PAL3 20 | C | O B | 1 | 2 | | 1 | | 4 | C | | | | | | |
| Operations And Apparatus In The Food Industry- I | D29T PAL3 21 | D | O B | 1 | 2 | | 2 | | 4 | E | | | | | | |
| Technologies In The Food Industry I | D29T PAL3 22 | D | O B | 1 | 2 | | 2 | | 4 | E | | | | | | |
| Hygiene And Biosecurity In The Food Sector | D29T PAL3 23 | S | O P | 1 | 2 | | 2 | | 4 | V | | | | | | |
| Principles Of Human Nutrition | D29T PAL4 24 | D | O B | 1 | | | | | | | 2 | | 1 | | 4 | E |
| Food Biochemistry II | D29T PAL4 25 | F D | O B | 1 | | | | | | | 2 | | 1 | | 4 | C |
| Food Microbiology II | D29T PAL4 26 | D | O B | 1 | | | | | | | 2 | | 2 | | 4 | E |

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|--|--------------------|---|--------|---|---|---|---|--|---|-------------|--|---|---|---|-------------|---|-------------|
| Cold and air conditioning installation in the food industry II | D29T PAL4 27 | D | O B | 1 | | | | | | | | 2 | | 1 | | 3 | C |
| Operations And Apparatus In The Food Industry- I I | D29T PAL4 28 | D | O B | 1 | | | | | | | | 2 | | 2 | 1 | 4 | E |
| Technologies In The Food Industry II | D29T PAL4 29 | D | O B | 1 | | | | | | | | 2 | | 1 | 1 | 4 | E |
| Raw Materials Of Plant Origin I | D29T PAL4 30 | S | O B | 1 | | | | | | | | 2 | | 2 | | 3 | E |
| Practice (3weeks=90) | D29T PAL4 31 | S | O B | 2 | | | | | | | | | | | 6 , 4 | 4 | V |
| Policies and global strategies | D29T PAL3 32 | D | O P | 0 | 2 | | 1 | | 4 | E | | | | | | | |
| Food toxicology | D29T PAL3 33 | S | O P | 0 | 2 | | 1 | | 4 | V | | | | | | | |
| Sports | D29T PAL3 35 | C | F | 1 | | 1 | | | 1 | A / R | | | | | | | |
| Sports | D29T PAL4 36 | C | F | 1 | | | | | | | | | 1 | | | 1 | A / R |

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|--------------|--|--|--|--|----|---|--------|---|--------|----|----|---|--------|---|--------|--|
| TOTAL | | | | | 14 | 0 | 1 2 | 0 | 3 0 | | 14 | 0 | 1 0 | 2 | 3 0 | |
| | | | | | 26 | | | | | 26 | | | | | | |

UNIVERSITY OF CRAIOVA

Horticulture Faculty

Department: Horticulture and Food Science (D29)

Field of hierarchy: Food engineering

Programul de studii: Technology of Processing Agricultural Products

Duration of studies: 4 years

| | | |
|----------------------------|--|----------------|
| Se m. I | | Se m. II |
| Nr. weeks./sem. if ≠ 14 | | |

EDUCATIONAL PLAN TPPA – Year III

Form of education: IF

| Discipline | Cod | F | O | O | C1 | S1 | L1 | P1 | C | F | C2 | S2 | L2 | P2 | C | F |
|---|--------------------|---|---|---|----|----|----|----|---|---|----|----|----|----|---|---|
| | | D | B | B | | | | | | | | | | | | |
| | | D | O | · | | | | | | | | | | | | |
| | | S | P | ≥ | | | | | | | | | | | | |
| | | C | F | 1 | | | | | | | | | | | | |
| Food Industry Equipment I | D29T PAL5 37 | D | O | 1 | 2 | | 1 | | 4 | C | | | | | | |
| Storage Technology Of Agricultural Products I | D29T PAL5 38 | D | O | 1 | 2 | | 1 | | 4 | E | | | | | | |
| Primary Materials In The Wine Industry | D29T PAL5 39 | S | O | 1 | 2 | | 2 | | 4 | E | | | | | | |
| Technologies In The Wine Industry I | D29T PAL5 40 | S | O | 1 | 2 | | 2 | | 5 | E | | | | | | |
| Technologies In The Canning Industry I | D29T PAL5 41 | S | O | 1 | 2 | | 2 | | 5 | E | | | | | | |
| Primary Materials In The Fruit Conservation Industry | D29T PAL5 42 | S | O | 1 | 2 | | 2 | | 4 | E | | | | | | |
| Automation of technological processes | D29T PAL6 43 | C | O | 1 | | | | | | | 2 | | 1 | | 3 | C |
| Food Industry Equipment II | D29T PAL6 44 | D | O | 1 | | | | | | | 2 | | 1 | 1 | 4 | E |
| Storage Technology Of Agricultural Products II | D29T PAL6 45 | D | O | 1 | | | | | | | 2 | | 2 | | 4 | C |

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|---|--------------|---|-----|---|---|--|---|--|---|---|--|---|--|---|-------|---|---|
| Technologies In The Wine Industry II | D29T PAL6 46 | S | O B | 1 | | | | | | | | 2 | | 1 | 1 | 4 | E |
| Technologies In The Canning Industry II | D29T PAL6 47 | S | O B | 1 | | | | | | | | 2 | | 2 | | 4 | E |
| Technologies In The Milling And Bakery Industry I | D29T PAL6 48 | S | O B | 1 | | | | | | | | 2 | | 2 | | 4 | E |
| Practice (3weeks=90) | D29T PAL6 49 | S | O B | 2 | | | | | | | | | | | 6 , 4 | 4 | |
| Community legislation on food security | D29T PAL5 50 | D | O P | 0 | 2 | | 2 | | 4 | C | | | | | | | |
| Sensorial Analysis | D29T PAL5 51 | D | O P | 1 | 2 | | 2 | | 4 | C | | | | | | | |
| Packaging and design | D29T PAL6 52 | D | O P | 1 | | | | | | | | 2 | | 1 | | 3 | C |
| Psychology of human nutrition | D29T PAL6 53 | D | O P | 0 | | | | | | | | 2 | | 1 | | 3 | C |
| Recovery By-Products From The Food Industry | D29T PAL5 54 | S | F | 1 | 2 | | 1 | | 3 | C | | | | | | | |
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|--------------|--|--|--|--|----|---|---|---|---|---|----|--|----|---|----|---|---|---|---|
| TOTAL | | | | | 14 | 0 | 1 | 2 | 0 | 3 | 0 | | 14 | 0 | 1 | 0 | 2 | 3 | 0 |
| | | | | | | | | | | | 26 | | | | 26 | | | | |

UNIVERSITY OF CRAIOVA

Horticulture Faculty

Department: Horticulture and

Food Science (D29)

Field of hierarchy: Food engineering

Programul de studii: Technology of Processing

Agricultural Products

Programul de studii: Technology of Processing

Agricultural Products

Duration of studies: 4 years

Form of education: IF

| | | |
|----------------------------|--|-------------|
| Se m. I | | Sem . II |
| Nr. weeks./sem. if ≠ 14 | | |

EDUCATIONAL PLAN TPPA – Year IV

| Disciplina | Cod | F D D S C | O B O P F | Op t. 0/ ≥1 | C1 | S 1 | L 1 | P 1 | CT 1 | FV 1 | C2 | S 2 | L 2 | P 2 | CT 2 | FV 2 |
|--|----------------|-----------------------|-----------------------|----------------------|----|--------|--------|--------|---------|---------|----|--------|--------|--------|---------|---------|
| Technologies In The Milling And Bakery Industry II | D29TPAL 755 | S | O B | 1 | 2 | | 2 | | 5 | E | | | | | | |
| Quality Control Of Food I | D29TPAL 756 | D | O B | 1 | 1 | | 2 | | 4 | E | | | | | | |
| Technology Of Meat And Meat Products | D29TPAL 757 | S | O B | 1 | 2 | | 2 | | 5 | E | | | | | | |
| Technologies In The Sugar Industry | D29TPAL 758 | S | O B | 1 | 2 | | 2 | | 4 | E | | | | | | |
| Technologies In The Tobacco Industry And Aromatic Plants | D29TPAL 759 | C | O B | 1 | 2 | | 2 | | 4 | V | | | | | | |
| Additivity and ingredients in the food industry | D29TPAL 760 | D | O B | 1 | 2 | | 1 | | 4 | V | | | | | | |
| Quality Control Of Food II | D29TPAL 861 | D | O B | 1 | | | | | | | 2 | | 2 | | 4 | E |
| Technologies In The Oil Industry | D29TPAL 862 | S | O B | 1 | | | | | | | 2 | | 2 | | 4 | E |
| Milk And Dairy Technology | D29TPAL 863 | S | O B | 1 | | | | | | | 2 | | 2 | | 4 | E |

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|--|-------------|---|-----|---|---|--|---|--|---|---|---|--|-----|----|---|
| Practice For The License Work (4weeks=120) | D29TPAL 864 | S | O B | 2 | | | | | | | | | 8,6 | 10 | V |
| Biotechnologies In The Food Industry | D29TPAL 865 | D | O P | 1 | 2 | | 2 | | 4 | E | | | | | |
| Food innocuity | D29TPAL 866 | D | O P | 0 | 2 | | 2 | | 4 | E | | | | | |
| Design new products in the food industry | D29TPAL 867 | D | O P | 0 | | | | | | | 2 | | 2 | 4 | E |
| Falsification on food products and tracking them | D29TPAL 868 | D | O P | 1 | | | | | | | 2 | | 2 | 4 | E |
| Marketing | D29TPAL 869 | D | O P | 1 | | | | | | | 2 | | 2 | 4 | V |
| Management | D29TPAL 870 | D | O P | 0 | | | | | | | 2 | | 2 | 4 | V |
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|--------------|--|--|--|--|----|---|----|---|----|----|----|---|----|---|----|
| TOTAL | | | | | 13 | 0 | 13 | 0 | 30 | | 10 | 0 | 10 | 0 | 30 |
| | | | | | 26 | | | | | 20 | | | | | |

Ist YEAR OF STUDY

Ist SEMESTER

MATHEMATICS

CODE:D29TPAL101

CREDITS: 4

COURSE COORDINATOR: PhD.Senior Lecturer Cătălin ȘTERBETI

YEAR / SEMESTER: 1st Year / 1st Semester

HOURS PER WEEK: 1 hour of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES: Determination of lengths, areas and volumes of geometric objects

Solving specific problems of linear programming, such as crop distribution, setting feed ration for animal feed and working technology, based on matrix computing techniques

Knowledge of the fundamental concepts of probability theory, probabilistic computation rules, the main probability schemes, the notion of random variable

Knowledge of the main classical distribution laws

Statistical analysis of the phenomenon

Graphical representation of a statistical series

The distribution of statistical data and graphical representation, the synthesis of data with an indicator representing them, the determination of statistical indicators of populations and samples (for example, indicators of the variations and moments)

TOPICS: Measurement of lengths, areas and volumes. Linear programming. The calculus of probabilities.

Elements of mathematical statistics

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to works and homework 30%

ASSESSMENT FORM: verification

REFERENCES.

1. Balan V., Sterbeti C., Capitele de matematici aplicate. Programare liniara.Teoria probabilitatilor. Statistica matematica, Editura Reprograph, Craiova, 2005
2. Ceapoiu N.- Metode statistice aplicate in experimente agricole si biologice, Editura Agro-Silvica, Bucuresti, 1968
3. Hartia S.,Programarea liniara in conducerea fermei agricole, Editura CERES, Bucuresti 1975
4. Holme A., Geometry. Our Cultural Heritage, Editura Springer, 2010
5. Lupescu T., Rosu A., Cerchez M., Programarea Matematica, Editura Militara, 1965
6. Ostermann A., Wanner G., Geometry by Its History, Editura Springer, 2012
7. Rumsinski L.Z.-Prelucrarea matematica a datelor experimentale, Editura Tehnica, Bucuresti, 1974
8. Stillwell J., Mathematics and Its History, Editura Springer, 2010

ELECTRICAL ENGINEERING ELEMENTS

CODE: D29 TPAL102

CREDITS: 4

COURSE COORDINATOR: PhD. Associate Professor. Mihnea GLODEANU

YEAR / SEMESTER: 1st Year / 1st Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: Fundamental

COURSE OBJECTIVES: Knowledge some notions about of electrical and magnetic phenomena: electrostatics; stationary electric power; magnetic field of electric current; electromagnetic induction; alternating current; electric machines.

TOPICS: The intensity of the electric field; electric potential; conductor isolated in electrostatic field, Capacity of the plane capacitor; the grouping of capacitors, Electric current in metallic conductors; electric circuit laws; energy and electrical power; Magnetic field, magnetic flux, The law of electromagnetic induction, AC Circuits, Electric machines: the electric transformer; DC machine; the synchronous machine; induction machine; electric actuators.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to laboratory works 20%

ASSESSMENT FORM: exam

REFERENCES

1. Bala C., 1982, Mașini electrice, Editura Didactică și Pedagogică, București.
2. Câmpeanu A., 1978, Mașini electrice, Editura Scrisul Românesc, Craiova.
3. Feynman R.P., 1970, Fizica modernă, Vol II, Ed. Tehnică, București, 1970.
4. Fransua Al., Măgureanu R., 1986, Mașini și acționări electrice. Elemente de execuție, Editura Tehnică, București.
5. Purcell E. M., 1982, Electricitate și magnetism, Editura Didactică și Pedagogică, București.
6. Răduleț, R., 1981, Bazele electrotehnicii, Editura Didactică și Pedagogică, București.
7. Voncilă I, s.a., 2003, Mașini electrice, Universitatea "Dunărea de Jos" Galați.

ANORGANIC AND ANALYTICAL CHEMISTRY

CODE: D29TPAL103

CREDITS: 4

COURSE HOLDER: Senior Lecturer, PhD, Ileana COJOCARU

YEAR/SEMESTER: 1st year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course

NUMBER OF WEEKS: 14

COURSE TYPE: main subject

COURSE OBJECTIVES:

- Familiarize with the concepts of atom structure and classification of elements;
- Understanding the electronic configuration of the elements, their valence;
- Acquiring knowledge to understand the types of chemical reactions;

THEMES: Atoms. Atomic structure. Classification of elements. Molecules. Chemical links. Chemical thermodynamics. Chemical equipment. Solutions. Ionic balancing. Chemical cinematics. Catalysis. Colloidal status of material. Oxidation and reduction. The basic operations in the laboratory. Reactions and analytical reagents. Qualitative chemical analysis. Chemical quantitative analysis

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 70%, final answers for workshops 10%, periodical assessment through practical tests 10%, continuous assessment throughout semester 5%, activities such as homework/ essays/ papers/ translations/ projects 5%.

ASSESSMENT TYPE: exam

Bibliografie:

- V. Popescu, I. Cojocaru, *Chimie Generală*, Editura Sitech, Craiova, 2009
Cezar Spînu, Maria Pleniceanu, *Chimie generală*, Editura Universitaria, Craiova, 2007.
M. Pleniceanu, C. Spînu, *Chimie generală*, Tipografia Universității din Craiova, 2006.
M. Pleniceanu, M. Isvoranu, *Analize fizico-chimice*, Tipografia Universității din Craiova, 2003.
M. Pleniceanu, *Chimie analitică calitativă și cantitativă*, Editura Universitaria, Craiova, 1995.
M. Pleniceanu, C. Spînu, *Chimie analitică: lucrări practice, întrebări, exerciții și probleme*, Tipografia Universității din Craiova, 2007.
Maria Pleniceanu, Anca Gănescu, *Chimie analitică. Lucrări practice, întrebări, exerciții și probleme*, Tipografia Universității din Craiova, 2008.
Ileana Cojocaru, *Chimie Analitică, Lucrări Practice de Laborator*, Editura Sitech, Craiova, 2009, ISBN 978-606-530-590-8.

PHYSICAL CHEMISTRY AND COLLOIDS I

Code: D29TPAL105

Credits: 4

Holder: Senior lecturer; Luminita Simoiu, Ph.D.

Year/Semester: First year / first semester

Hours/Week: 2 hours of lecture, 1 hour of practical work

Number Of Weeks: 14

Type of scientific field: fundamental field

Course Objectives:

- Understanding and operating with basic notions of colloid chemistry and chemical thermodynamics;
- Deepening the fundamental notions regarding the principles of chemical thermodynamics and their applications in the study of physical and chemical processes;
- Understanding of thermodynamic properties corresponding to chemical reactions and other physical and chemical processes;
- Understanding the notions of chemical equilibrium, interphase equilibrium and operating with specific thermodynamic magnitudes;
- Understanding the mechanical, optical and electrical properties of colloids and their applications;
- Understanding of the surface phenomena and applications;
- Performing experiments, rigorous application of methods of analysis and interpretation of the results, observing the safety norms and working techniques in the laboratory;
- Developing IT skills with applications in physical chemistry: experimental data processing and interpretation.

Course Content :

I. CHEMICAL THERMODYNAMICS

1. Introduction. Thermodynamic system. State parameters and functions. Equations of state. Thermodynamic processes; Steady state. Partial molar properties. Zero law of thermodynamics.

2. First law of thermodynamics. Energy exchange between system and environment. Internal energy. Entalpia. Heat capacities. Applications of the First law to energetic exchange processes without phase transformations: isobar processes, isotherm, adiabatic and politrope transformations, Jules-Thomson effect.

3. Second law of thermodynamics. Carnot cycle, entropy, natural processes spontaneity; Absolute temperature. Thermodynamics potentials. Free energy. Entalpia libera. Applications of principle II of thermodynamics.

4. Third law of thermodynamics. Theorem of heat. Plank's postulate. The absolute entropy of substances.

5. Physical equilibria. Equilibrium criteria. Homogenous system heterogeneous system, phase, independent component, degrees of freedom, equilibrium fundamental equation. Phase law. Clausius Clapeyron equation.

6. Solutions. Ideal solutions, Real solutions, Vapor Pressure, Raoult's Law.

II. CHEMISTRY OF COLOIDS

1.Introduction. The object and importance of the study of colloid chemistry. Colloidal systems. Obtaining & purifying of colloidal systems.

2.Kinetic-molecular and optical properties. Sedimentation, Stokes formula. Sedimentation in centrifugal field. The Brownian Movement. The Tyndall phenomenon. Light diffusion in colloidal systems.

3.General superficial phenomena. Free energy of the superficial layer. Moisture phenomena. Membrane potential.

4.Adsorption phenomena. Coefficient of adsorption. Surface tension of solutions, Gibbs equation. Siskovski equation, the rule of the traube-Duclaux

5.Electrocapillary and electro-kinetic phenomena. Electroosmosis. Electrophoresis

6.Ultramicroheterogeneous systems, emulsions, gels. Sols. Emulsion types, emulsion formation. Association colloids. Gels.

Experimental works.

Specific rules and regulations for conducting experimental works in physical chemistry laboratory;

Graphical representation of experimental data;

Determination of the heat of neutralization of a strong acid with a strong base;

Determination of the equilibrium constant K_c for the esterification reaction of acetic acid with ethyl alcohol;

Preparation and purification of colloidal systems;

Viscosity determination of of agar-agar solution;

Association Colloids: Determination of critical micellar concentration;

Form of evaluation : Written and oral examination

Weighting of final result: 70% exam, 20% experimental works, 10% projects.

References:

D. Everett, Principles of Colloids Science, The Royal Society of Chemistry, 1992;

Emil Chifu, Colloids Chemistry, Editura Didactica si Pedagogica, 1969;

B. G. Kyle, Chemical and Process Thermodynamics, Prentice Hall, N.J, 1999;

P. W. Atkins, Physical Chemistry, Technical Publishing House, Bucharest, 1996;

Michael Morgan, Fundamentals of Engineering Thermodynamics, J.Wiley & Sons, Inc., 1995;

V. Voiculescu, L. Simoiu, Practical Book of Chemical Thermodynamics, Ed. Universitaria 1996.

Language of instruction: Romanian

PHYSICS

CODE: D29TPAL105

CREDITS: 4

COURSE COORDINATOR: PhD. Professor Vily Marius CIMPOIASU

YEAR / SEMESTER: Ist Year / Ist Semester

HOURS PER WEEK: 2 hours of lecture, 2 hours of practical work

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES: Knowing the notions, concepts, laws and principles specific to physics with implications in the phenomena that determine the living structure of the food and its safety. Understanding the physical methods of monitoring, the physical techniques of investigation and exploration of the living. Knowledge of Physical Activity in Assessing Food Technologies. Deepening the knowledge of physics-specific terms to phenomena and laws that determine the properties and characteristics of the food. Knowledge of field-specific applications and recording and research equipment of importance in physics and applied to food science. Discipline aims to explain phenomena, processes, applications and appliances according to the main physical parameters, food characteristics. Students should explain the implication of each physical process in the structure and stability of the food (from the atomic level to the macro level) or interpret the evolution of the food system based on the evolution of the characteristic factors.

TOPICS: Introduction to environmental physics. Matter structure and their organization. Quantum Physics. Elements of spectroscopy. Solar spectrum. Interaction of radiation with matter. Molecule, aggregation states. Molecular biophysics. Contact phenomena between liquid and solid. Molecular transport phenomena. Diffusion and osmosis. Water and its role. Introduction in biological thermodynamics. Radiant energy, characteristics of thermal energy.

TEACHING LANGUAGE: romanian

KNOWLEDGE ASSESSMENT: answers to exam 60 %, periodic answers to practical work 10 %, results to periodic control works 30 %.

ASSESSMENT FORM: exam

REFERENCES:

- 1.TERMODINAMICA, George C. Moisil, Ed. Academiei Romane, București, 1988.
- 2.ELECTRICITATE ȘI MAGNETISM, Al. Nicula, Ed. Didactica și Pedagogică, București, 1982.
- 3.OPTICA, FIZICA PLASMEI, FIZICĂ ATOMICĂ ȘI NUCLEARĂ, Ed. Didactica și Pedagogică, București, 1983.
- 4.CURSUL DE FIZICĂ BERKLEY, C. Kittel et. all., vol.1-5, Ed. Didactica și Pedagogică, București, 1981.
- 5.Elemente si tehnici de biofizica, Cimpoiasu Vily Marius, Editura Universitaria, 2008, Craiova.
- 6.FIZICA GENERALĂ, R. Țițeica, Iovițu Popescu, vol.1-3, Ed. Tehnică, București,1973.
- 7.CURS DE FIZICĂ PENTRU UZUL STUDENȚILOR, Ioan Damian, Universitatea Politehnica din Timișoara, 1995.
- 8.Notiuni de fizica mediului, Cimpoiasu Vily Marius, Editura Alma, 2010, Craiova.

GEOMETRY AND TECHNICAL DESIGN I

CODE: D29TPAL106

CREDITS: 4

COURSE COORDINATOR: PhD. Prof. Dr. Ing. Fănel IACOBESCU

YEAR / SEMESTER: 1st Year / 1st Semester

HOURS PER WEEK: 2 hours of course, 2 hour Sof seminar

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES:

Knowing the methods of descriptive geometry

Knowing the representation techniques of geometric bodies, plane sections in geometric bodies.

TOPICS

Axiomatic bases; Elements of flat geometry; Elements of geometry in space; Conventions, notations, symbols; Point representation; applications; Representation of a straight line; applications; Straight lines on projection planes; applications; Straight lines on bisecting and lateral plane; applications; Particular positions of a straight line; The relative position of a straight line; Representation of a plan; General

considerations; Traces of a plan; applications; Particular positions of a plan; Relative position of two planes; applications; The relative position of a straight line to a plane; applications; Perpendicular line to a plan; applications; Perpendicular planes; applications

Seminar theme and project:

Introduction to the technical drawing; General rules used for drawing technical designs; Projection systems; Representation of parts in view and section; theoretical notions; Representation of parts in view and section; applications; Quotation in industrial design; theoretical notions; Quotation in industrial design; applications

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to seminary works 20%

ASSESSMENT FORM: exam

REFERENCES

1. Precupetu P., Dale C. – Probleme de geometrie descriptiva cu aplicatii in tehnica, Editura Tehnica, Bucuresti 1987
2. Ene Alexandru Ion - Desen tehnic industrial, Editura Avrameanca, Craiova, 1993.
3. Nitulescu Th., Precupetu P. - Desen tehnic pentru constructia de masini, Bucuresti, Reprografia Universitatii, 1990.
4. Ivanceanu, T., etc. - Geometrie descriptiva si desen tehnic, Editura Didactica si Pedagogica, Bucuresti, 1979.

MECHANICAL ENGINEERING I

CODE: D29TPAL107

CREDITS: 4

COURSE COORDINATOR: Associate Professor, PhD. Adrian ROȘCA

YEAR / SEMESTER: 1st Year / 1st Semester

HOURS PER WEEK: 2 hours course, 1 hour practical works

NUMBER OF WEEKS: 14

COURSE TYPE: main subject

COURSE OBJECTIVES: Knowledge of concepts, theories and methods basics of Mechanics and Materials

Strength in understanding the technological issues needed to operate general engineering processes in food industry equipment.

Application of basic engineering principles and methods of Mechanical Engineering (specific for disciplines of Mechanics and Materials Strength) to improve knowledge of the functional and constructive specific issues in food industry equipment.

TOPICS: Mechanics - Introduction: Classification of mechanical macroscopic bodies; Mechanics divisions; Principles of mechanics. Statics: Free material point; Center of gravity; Friction laws; Technical applications of statics. Kinematics: Trajectory, speed, acceleration; Angular speed and acceleration; Particular movements of material point; rectilinear motion of the material point; Rotational movement of the rigid body; Spur gear analysis movement. Dynamics: Mechanical work, energy and power; Kinetostatics of mechanisms with cylindrical spur gear.

Materials Strength - Traction: External and internal forces; Reaction forces; Simple and complex sollicitations; Unitary stress; Deformations and displacements; Relationship between tensile stresses and deformations; Real and conventional characteristic curve; Hooke's law. Bending: Efforts diagrams in straight bar; Defining the bending efforts in straight bar section; Signs convention; Relations between efforts in straight bended bars; Analytical efforts diagrams for straight bars; Dimensional sizing for bended bars; Bended bars deformations. Torsion: Torsional torque calculation; Unitary stresses and deformations in the circular bar; Torsion for thin-wall tubular bars.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to colloquium 50%; final answers to periodical Laboratory Tests 40%; Laboratory Notebook 10%.

ASSESSMENT FORM: colloquium

REFERENCES

1. Buzdugan, Gh., 1980, Materials Strength, Technical Publishing House, Bucharest.
2. Voinea, R., 1984, Mechanics, Didactical and Pedagogical Publishing House, Bucharest.
3. Roșca Adrian, 2010, Mechanics. Materials Strength. Machines Elements, Universitaria Publishing House, Craiova.
4. Roșca Adrian, 2016, Materials Strength. Laboratory Support.

ENGLISH I

CODE: D29TPAL108

CREDITS: 4

COURSE COORDINATOR: Ph.D, Senior Lecturer, Bărbuceanu Costina Denisa

YEAR / SEMESTER: 1st Year / 1st Semester

HOURS PER WEEK: 2 hours of seminar

NUMBER OF WEEKS: 14

COURSE TYPE: Fundamental

COURSE OBJECTIVES:

- Improving the ability to understand spoken English and specific vocabulary texts written in English; a reference material especially designed for students of the Faculty of Horticulture, TPPA Specialization, but also for those who want to learn ESP vocabulary in context.
- Practice of important TPPA vocabulary and grammar practice, tackle four skills, reading, listening, speaking and writing, explain specific vocabulary, and grammar lessons which are thought in detail, with exercises that give students useful practice in this particular area. True or false exercises, gap filling, matching the words with their definition, translations, in context dialogues and lessons with key bolded words are really selected for students to understand and use it correctly.
- Deepening the main grammar rules of English in a modern way, problematic, requiring students to learn but also to think.
- Consolidation of skills to dialogue, describe, report;
- Emphasizing the practical nature of learning, the course is ment to stimulate students' interest in written and spoken language, to improve knowledge and communication in English.

TOPICS: Focus on language: Present Tense Simple/ Continuous

Vocabulary: Sterilization - refers to any process that effectively kills or eliminates transmissible agents (such as fungi, bacteria, viruses, spore forms, etc.) from a surface, equipment, article of food or medication, or biological culture medium. Sterilization can be achieved through application of heat, chemicals, irradiation, high pressure or filtration.

Focus on language: Past Tense Simple/ Continuous

Vocabulary :

Canned food –Food preservation: Fungi and ambient bacteria are used in the preparation of fermented and pickled foods such as leavened bread, alcoholic drinks, cheese, pickles, and yogurt. Many cultures eat seaweed, a protist, or blue-green algae (cyanobacteria) such as Spirulina. Additionally, salt is often eaten as a flavoring or preservative, and baking soda is used in food preparation. Both of these are inorganic substances, as is water, an important part of human diet.

Focus on language: Present Perfect Simple/ Continuous

Vocabulary :Fungi- Cultured foods: Human use of fungi for food preparation or preservation and other purposes is extensive and has a long history: yeasts are required for fermentation of beer, wine and bread, some other fungal species are used in the production of soy sauce and tempeh. Mushroom farming and mushroom gathering are large industries in many countries. Many fungi are producers of antibiotics, including β -lactam antibiotics such as penicillin and cephalosporin. Widespread use of these antibiotics for the treatment of bacterial diseases, such as tuberculosis, syphilis, leprosy, and many others began in the early 20th century and continues to play a major part in anti-bacterial chemotherapy. The study of the historical uses and sociological impact of fungi is known as ethnomycology.

Focus on language: Past Perfect Simple/ Continuous Vocabulary :Bacteria, often *Lactobacillus* in combination with yeasts and molds, have been used for thousands of years in the preparation of fermented foods such as cheese, pickles, soy sauce, sauerkraut, vinegar, wine and yoghurt. The ability of bacteria to degrade a variety of organic compounds is remarkable and has been used in waste processing and bioremediation. Bacteria capable of digesting the hydrocarbons in petroleum are often used to clean up oil spills.

TEACHING LANGUAGE : English

KNOWLEDGE ASSESSMENT: exam answers 80%, theoretical and practical checks 20%

ASSESSMENT FORM: Checking

REFERENCES

1. Cerăceanu, Denisa-Costina, English for Biology Students, Editura Universitaria, Craiova, 2007
2. Gălățeanu –Firnoagă, Georgiana; Parks, Debora, Exerciții și teste de gramatică engleză, Editura Paralela 45, București, 2003.
3. Chilărescu, Mihaela; Paidos Constantin, Proficiency in English, Institutul european, 2001
4. Pawlowska, Barbara, Kempinski, Zbigniew, Teste de limba engleză, Editura Teora, București, 1997
5. Nedelcu, Carmen, English Grammar, Editura Universitaria, Craiova, 2004

THE SECOND SEMESTER

PHYSICAL CHEMISTRY AND COLLOIDS II

CODE: D29TPAL106

CREDITS: 5

COURSE COORDINATOR: Lect. dr. Nicoleta Cioateră

YEAR / SEMESTER: I/II

HOURS PER WEEK: course – 2, practical works – 2

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental/mandatory

COURSE OBJECTIVES:

- To acquire fundamentals of chemical kinetics and electrochemistry;
- To correlate the kinetic and electrochemical parameters;
- To develop practical skills and team working skills in physical chemistry lab;
- To interpret the experimental data.

TOPICS:

Introduction; Kinetics of simple and complex reactions; Gas-phase reaction mechanism. Chain reactions; Enzymatic kinetics; Non-equilibrium phenomena in electrolyte solutions; Electrochemistry thermodynamics; Electrochemical system operation: electrolysis and batteries.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: final examination 70 %, practical work evaluation 30%

ASSESSMENT FORM: evaluation

REFERENCES:

1. I. Bâldea, *Cinetică chimică și mecanisme de reacție. Baze teoretice și aplicații*, Presa Universitară Clujeană, Cluj-Napoca, 2002.
2. I.A. Schneider, *Cinetică chimică*, Universitatea Al.I. Cuza, Iași, 1973.
3. S. Sternberg, O. Landauer, C. Mateescu, D. Geană, T. Vișan, *Chimie fizică*, Editura Didactică și Pedagogică, București, 1981.
4. P.W. Atkins, *Tratat de chimie fizică*, Editura Tehnică, 1996.

5. N. Cioateră, A. Dobrițescu, *Cinetică chimică – lucrări practice și probleme*, Editura Universitaria, Craiova, 2007.

FOOD CHEMISTRY

CODE:D29TPAL210

CREDITS: 5

COURSE COORDINATOR: Lecturer doctor DUMITRU MIHAELA GABRIELA

YEAR / SEMESTER: 1st Year / 2st Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: compulsory and fundamental

COURSE OBJECTIVES: Training students as specialists in the field of food chemistry in order to solve specific problems related to this field.

Theoretical and practical foundation of the basic notions of food chemistry and their correlation with the nutritional issues and the orientation of the processing technologies towards the maximum utilization of the raw and auxiliary materials.

TOPICS: Compounds with simple functions present in food, their properties and transformations during processing and their preservation: hydroxylic compounds, carbonylic compounds, carboxylic acids.

Mixed-function compounds: hydroxyacids, hydroxyaldehydes, hydroxycetones, amino acids, proteins; their implications in food and the food industry.

Heterocyclic combinations present in foods or formed during their processing.

General principles of substances that improve the quality of foodstuffs. Flavouring substances, natural antioxidants, antiseptics and stabilizers, natural food colorants, natural emulsifiers, natural sugar substitutes.

Food contaminants: mycotoxins, pesticides, herbicides, fungicides, polycyclic hydrocarbons, nitrozamines.

TEACHING LANGUAGE : romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to laboratory works 20%

ASSESSMENT FORM: exam

REFERENCES

1. Banu C. ș.a. – *Biochimie generală și biochimia peștelui*, Ed. Agir, București, 2004.
2. Bița Mihaela Gabriela, Marinescu Gabriela, *Analize Biochimice*, Ed. Universitaria, Craiova, 2008.
3. Dumitru(Bița) M.G., Marinescu G., *Biochimie metabolică*, ed. Universitaria, Craiova, 2012.
4. Felszeghi E., Abraham A., *Biochimie*, Ed. Didactică și Pedagogică, București, 1972.
5. Glodeanu E., Marinescu G., *Biochimie metabolică*, Ed. Gorjeanul, 1997.
6. Ianculov I., Filimon M., *Analiza biochimică*, Ed. Orizonturi universitare, Timișoara, 2003.
7. Lehninger A.L., *Biochimie vol. I-II*, Ed. Tehnică, București, 1992.
8. Neamțu G., Cîmpeanu Ghe., Socaciu C., *Biochimie vegetală*, Ed. Didactică și Pedagogică, București, 1993.
9. Neamțu G., *Biochimia alimentelor*, Ed. Ceres, București, 1997

GEOMETRY AND TECHNICAL DESIGN II

CODE: D29TPAL211

CREDITS: 6

COURSE COORDINATOR: PhD. Prof. Dr. Ing. Fănel IACOBESCU

YEAR / SEMESTER: 1st Year / II Semester

HOURS PER WEEK: 2 hours of course, 1 hour seminar, 1 hour project

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES:

Knowing the methods of descriptive geometry

Knowing the representation techniques of geometric bodies, plane sections in geometric bodies.

TOPICS

A.COURSE :Method of changing projection planes; applications ; Rotation method. Overlapping plans; applications ; Intersections of geometric bodies with lines; applications ; Intersections between geometric bodies; applications ; Polyhedra development; applications ; Rotary bodies development; applications ; Problems specific to the field of specialization

SEMINAR and PROJECT : Quotation in industrial design ; Representation, quotation and marking of threads ; applications ; Noting the materials ; Overall drawing ; Representation and quotation of geometric bodies specific to the field

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to seminary works 20%

ASSESSMENT FORM: exam

REFERENCES

1. Precupetu P., Dale C. – Probleme de geometrie descriptiva cu aplicatii in tehnica, Editura Tehnica, Bucuresti 1987
2. Ene Alexandru Ion - Desen tehnic industrial, Editura Avrameanca, Craiova, 1993.
3. Nitulescu Th., Precupetu P. - Desen tehnic pentru constructia de masini, Bucuresti, Reprografia Universitatii, 1990.
4. Ivanceanu, T., etc. - Geometrie descriptiva si desen tehnic, Editura Didactica si Pedagogica, Bucuresti, 1979.

TRANSFER PHENOMENA

CODE: D29TPAL211

CREDITS: 4

COURSE COORDINATOR: PhD. Associate Professor. Ion TRANDAFIR

YEAR / SEMESTER: 1st Year / IIst Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: specialized

COURSE OBJECTIVES: Familiarization and understanding of fundamental notions, sizes and parameters specific to technological processes. Knowledge of basic laws for impulse transfer, heat transfer and mass transfer, fundamental physical processes for technological processes in the food industry. Understanding the mechanisms of transfer phenomena and acquiring knowledge to allow an analysis of each phase of a technological process. Explanation of the specific influence of hydrodynamic regime on heat and mass transfer. Presentation of the constructive and functional principle for the main types of machines and apparatuses used in fluid transport and basic thermal processes.

TOPICS: Similarity, dimensional analysis and fluid characterization. General aspects of fluids statics. Fundamentals notions in fluid dynamics. Macroscopic mass and energy balances. Loss of fluid pressure flow. Principles and basic machinery in the transport of fluids and heat transfer. Fundamental notions in mass transfer.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to Laboratory works 20%

ASSESSMENT FORM: exam

REFERENCES

1. Bratu, Em. A., Operations and Apparatus in Chemical Industry, Volume I, II, III, Technical Publishing House, Bucharest, 1984
2. Răşenescu, I., Transfer phenomena, Teaching and Pedagogical Publishing House, Bucharest, 1984.
3. Tudose, R.Z, Physical Process Engineering, Academia Publishing House, Bucharest, 2000
4. Floarea, O., Dima R., Mass Transfer Processes and Specific Equipment, Teaching Publishing House and Pedagogical, Bucharest, 1984
5. Pavlov, C.F. Et al., Processes and Apparatus in Chemical Engineering - Exercises and Problems, Publishing House Technique, Bucharest, 1981.

MECHANICAL ENGINEERING II

CODE: D29TPAL212

CREDITS: 5

COURSE COORDINATOR: Associate Professor, PhD. Adrian ROŞCA

YEAR / SEMESTER: Ist Year / IInd Semester

HOURS PER WEEK: 2 hours course, 1 hour practical works, 1 hour project

NUMBER OF WEEKS: 14

COURSE TYPE: main subject

COURSE OBJECTIVES: Application of basic engineering principles and methods of Mechanical Engineering (specific for discipline of Machines Elements) to improve knowledge concerning the functional and constructive issues needed to operate general engineering processes in food industry equipment.

Knowledge of principles for dimensioning and verification of mechanical assemblies and mechanical transmission components specific in food industry equipment.

TOPICS: Consideration concerning of dimensional and shape accuracy of constituting parts in mechanical transmission: Tolerances and fits; Surface roughness. Permanent assemblies: Welded joints; Riveted joints.

Removable assemblies: Threaded; Nuts; Shaped. Friction transmission: Belt drive transmission; Geometry of the V-belt transmission; Calculation of V-belt transmission. Spur gear transmission: Classification; Materials used for the gears making; Geometry of cylindrical gears; Basic relations for spur gear; Spur gear basic law; Rack reference; Tooth profile; Gears damage; Load cyclogram characteristics; Forces in cylindrical spur gears; Sizing and verification calculation of cylindrical spur gears; General computing for inclined toothed spur gear. Axles and shafts: General; Materials; Shaft resistance calculi. Bearings: Classification; Materials for bearings; Sliding bearings; Rolling bearings; Bearings symbolization; Dynamic load capacity; Equivalent dynamic load. Couplings: Classification couplings; Couplings choosing calculus.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 50%; final answers to periodical Laboratory Tests 30%; Laboratory Notebook and Project Notebook 20%.

ASSESSMENT FORM: exam

REFERENCES

1. Gafiţeanu M., 1981, Machines Elements, Vol. I, II, Technical Publishing House, Bucharest.
2. Roşca Adrian, 2010, Mechanics. Materials Strength. Machines Elements, Universitaria Publishing House, Craiova.
3. Roşca Adrian, 2010, Machines Elements. Laboratory Guidelines, Universitaria Publishing House, Craiova.
4. Roşca Adrian, 2015, Machines Elements. Project Support Guidelines.

APPLIED INFORMATICS

CODE: D29TPAL213

CREDITS: 4

COURSE COORDINATOR: PhD. Associate Professor ROȘCA DOINA

YEAR/SEMESTER: Ist Year / IInd Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental discipline

COURSE OBJECTIVES:

- The use of IT tools to solve problems in the field of specialization
- Making documents in a form as appropriate as possible for the purpose for which they were created
- Approaching, at various levels of complexity, computerized word processing, by way of example;
- Computer modeling of engineering processes;
- Processing and interpreting data using Excel spreadsheets; exemplifying the diversity of areas where Excel can be used

TOPICS:

Microsoft Word: Edit actions: create/save/open/close file; Page Setup: page margins, page sizes, page orientation, header and footer options; View, Print Preview. Move/copy/paste; Select text; Search and replace, move to document. View Document; Header and footer creation, ruler, toolbars. Insert into file: page numbers; Page break/section break; Footnotes; diagram, object, text box. Text Formatting: specifying all formatting attributes; Create lists numbered/with bullets/hierarchies; Applying curbs and shadows. Formatting text in columns, specifying TAB positions and guiding characters. Insert table, work with tables. Drawing toolbar; Inserting equations in the document.

Microsoft Excel: Excel Work Environment; data types; input and edit data. Format spreadsheets.

Working with data: sorting; query/filter; Creating links. Working with formulas. Usage of functions: time and date functions; Mathematical functions; Statistical functions; Financial functions.

Create and edit charts: the Wizard application for chart creation; Types of charts; Editing and formatting charts. Data analysis: pivot tables; scenarios/variants.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to Laboratory works 30%

ASSESSMENT TYPE: exam

REFERENCES:

Doina Roșca *Informatică managerială*, Editura Universitaria, Craiova, 2003

Mircea Băduț *Informatica în management*, Editura Albastră, Cuj apoca, 2003

Steve Johnson, *Microsoft Office Word 2007*, Editura Niculescu, 2008

ENGLISH II

CODE: D29TPAL108

CREDITS: 4

COURSE COORDINATOR: Ph.D, Senior Lecturer, Bărbuceanu Costina Denisa

YEAR / SEMESTER: Ist Year / 2nd Semester

HOURS PER WEEK: 2 hours of seminar

NUMBER OF WEEKS: 14

COURSE TYPE: Fundamental

COURSE OBJECTIVES:

- Improving the ability to understand spoken English and specific vocabulary texts written in English; a reference material especially designed for students of the Faculty of Horticulture,TPPA Specialization, but also for those who want to learn ESP vocabulary in context.
- Practice of important TPPA vocabulary and grammar practice, tackle four skills, reading, listening, speaking and writing, explain specific vocabulary, and grammar lessons which are thought in detail, with exercises that give students useful practice in this particular area. True or

false exercises, gap filling, matching the words with their definition, translations, in context dialogues and lessons with key bolded words are really selected for students to understand and use it correctly.

- Deepening the main grammar rules of English in a modern way, problematic, requiring students to learn but also to think.
- Consolidation of skills to dialogue, describe, report;
- Emphasizing the practical nature of learning, the course is ment to stimulate students' interest in written and spoken language, to improve knowledge and communication in English.

TOPICS: Focus on language: Means of expressing future Vocabulary : Meat : The meat packing industry is an industry that handles the slaughtering, processing and distribution of animals such as cattle, pigs, sheep and other livestock. The industry is primarily focused on producing meat for human consumption, but it also yields a variety of by-products including hides, feathers, dried blood, and, through the process of rendering, fat such as tallow and protein meals such as meat & bone meal.

Focus on language: Plural of Nouns I Vocabulary : Pasteurization is a process which slows microbial growth in foods. The process was named after its creator, French chemist and microbiologist Louis Pasteur. The first pasteurization test was completed by Louis Pasteur and Claude Bernard on April 20, 1862. Unlike sterilization, pasteurization is not intended to kill all pathogenic micro-organisms in the food or liquid. Instead, pasteurization aims to reduce the number of viable pathogens so they are unlikely to cause disease (assuming the pasteurization product is refrigerated and consumed before its expiration date). Commercial-scale sterilization of food is not common because it adversely affects the taste and quality of the product.

Focus on language: Plural of Nouns II Vocabulary : Food irradiation is the process of exposing food to ionizing radiation to destroy microorganisms, bacteria, viruses, or insects that might be present in the food. Further applications include sprout inhibition, delay of Ripening, increase of juice yield, and improvement of re-hydration. Irradiation is a more general term of deliberate exposure of materials to radiation to achieve a technical goal (in this context 'ionizing radiation' is implied). As such it is also used on non-food items, such as medical hardware, plastics, tubes for gas-pipelines, hoses for floor-heating, shrinkfoils for food packaging, automobile parts, wires and cables (isolation), tires, and even gemstones. Compared to the amount of food irradiated, the volume of those every-day applications is huge but not noticed by the consumer.

TEACHING LANGUAGE : English

KNOWLEDGE ASSESSMENT: exam answers 80%, theoretical and practical checks 20%

ASSESSMENT FORM: Checking

REFERENCES

1. Cerăceanu, Denisa-Costina, English for Biology Students, Editura Universitaria, Craiova, 2007
 2. Gălățeanu –Firnoagă, Georgiana; Parks, Debora, Exerciții și teste de gramatică engleză, Editura Paralela 45, București, 2003.
 3. Chilărescu, Mihaela; Paidos Constantin, Proficiency in English, Institutul european, 2001
 4. Pawlowska, Barbara, Kempinski, Zbigniew, Teste de limba engleză, Editura Teora, București, 1997
 5. Nedelcu, Carmen, English Grammar, Editura Universitaria, Craiova, 2004
-

IIST YEAR OF STUDY

IST SEMESTER

FOOD BIOCHEMISTRY I

CODE: D29TPAL318

CREDITS: 5

COURSE COORDINATOR: Professor. Cristina BABEANU

YEAR / SEMESTER: II / I

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: mandatory

COURSE OBJECTIVES: The course aims to study the main classes of food biochemical compounds, to know the biochemical aspects regarding structure, physical and chemical properties and metabolic role, to identify and study the biochemical indices and parameters of food quality.

TOPICS: The composition of the living matter; Carbohydrates; Monosaccharides: structure, isomers, properties; Monosaccharides derivatives; Oligosaccharides; Polysaccharides; Lipids: classification, biochemical role; Fatty acids, acylglycerols waxes, phosphoglycerides, sphingolipids; Amino acids: classification, structure; Proteins; Vitamins: overview; Liposoluble vitamins: biochemical role, structure? Water-soluble vitamins: classification, structure, biochemical role; Enzymes: structure, enzyme catalytic mechanisms, biochemical roles of enzymes, kinetics of enzymatic reactions.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: Written examination 70% + continuous evaluation 20% + report 10%

ASSESSMENT FORM: exam

REFERENCES

1. Babeanu C., Plant Biochemistry, 2003, Universitaria Publishing House, Craiova.
2. Campbell P.N, Smith A. D, Illustrated Biochemistry, 2004, The Romanian Academy Publishing House, Bucuresti.
3. Marinescu G., Glodeanu E., 1995, Biochemistry, Universitaria Publishing House, Craiova,
4. Neamtu G., 1997, Food Biochemistry, Ceres Publishing House, Bucharest.

FOOD MICROBIOLOGY I

CODE: D29TPAL425

CREDITS: 4

COURSE COORDINATOR: Associate prof. PhD. Tuțulescu Felicia

YEAR / SEMESTER: 2nd year / 2nd semester

HOURS PER WEEK: 2 hours of course, 2 hour laboratory

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES: Knowledge of the microflora which is distinctive for the alimentary industry.

THEMES: Description of the main genres and species of the micro-organisms which do hold a role in the alimentary industry. Knowledge of the isolating and identifying techniques able to be applied to the microbic germs that are present within aliments. Knowledge of the parameters which could influe upon the activity of the micro-organisms which are present within aliments. Knowledge of the micro-organisms which are involved to the technology that allows the obtaining of alimentary products.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 85%, final responses sustained upon practical works performed in laboratory: 15%.

ASSESSMENT FORM: exam

REFERENCES

Popa Aurel, Popa Daniela, Dragomir Felicia : *Microbiologie generală*. Ed. Universitaria, 2002.

Dragomir Felicia, Popa Daniela: *Microbiologie practică*. Ed. Universitaria, 2008.

Popa A., Popa Daniela, Dragomir Felicia: *Microbiologie oenologică*, Ed. Universitaria, Craiova, 2004

Felicia Dragomir: *Microbiologia alimentelor*. Ed. Universitaria, Craiova, 2006

COLD AND AIR CONDITIONING INSTALLATIONS IN THE FOOD INDUSTRY I

CODE: D29TPAL320

CREDITS: 4

COURSE COORDINATOR: PhD. lecturer Maria-Magdalena POENARU

YEAR / SEMESTER: IIst Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 1 hour of seminar

NUMBER OF WEEKS: 14

COURSE TYPE: specialized

COURSE OBJECTIVES:

- Understanding the importance of artificial cold in preserving and processing food;
- Knowing the refrigeration processes and understanding the consequences of the irreversibility of these processes in using the artificial cold at maximum efficiency;
- Knowing the construction and the functioning principle of refrigeration installations.
- Explaining the irreversibility of refrigeration processes through the exergetic method;
- Explaining the differences between the ideal cycle and the real cycle of refrigeration installations
- Explaining the methods of obtaining the artificial cold;
- Explaining how to choose the refrigeration installation or the artificial ice depending on the technological and quality requirements for preserving, transporting and processing food products.

TOPICS

A COURSES

Thermodynamic analysis of the irreversible processes in refrigeration installations:

- The exergetic method.
- The Gouy The Stodola Theorem
- The fundamental equation of irreversible processes
- The operating field of refrigeration installations
- Balance and exergy yield

Thermodynamic analysis of the irreversible processes in refrigeration installations:

- The ideal cycle of refrigeration installations
- The real cycle of refrigeration installations

Procedures for obtaining the artificial cold. Processes with refrigerant agent

Procedures for obtaining the artificial cold. Processes without refrigerant agent

Work units of refrigeration installations

Refrigeration installations with one compression stages

- Moisturizing refrigeration installations
- Industrial refrigeration installations

The real cycle of refrigeration installations with mechanical compressors

Refrigeration installations with two compression stages

- Refrigeration installations with one lamination
- Refrigeration installations with two laminations

Refrigeration installations with three compression stages

Cascade refrigeration installations

Gas refrigeration installations
Refrigeration installations with vapor absorbers
Refrigeration installations with ejection
Automatization of refrigeration installations
Key elements of refrigeration installations :
- Refrigeration compressors
- Heat exchangers
Artificial ice
Refrigeration spaces

B. LAB

Measuring equipment, control for refrigeration installations used to measure temperatures, pressures, relative humidity, fluid speed and flows, fluid level
Equipment for the automatization of refrigeration installations
Operating the refrigeration installations
Putting function and shutting down the installations. Direct cooling installations with vaporizers powered through autorecirculation
Putting function and shutting down the installations. Direct cooling installations with vaporizers powered through forced circulation
Principles of exploiting and maintaining the refrigeration installations
Automatic systems used in the cold technique

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to seminary works 20%

ASSESSMENT FORM: exam

REFERENCES

F. Iacobescu - *Tehnica frigului și climatizări*, Editura Universitaria, 1998

F. Iacobescu, M.M.Poenaru – *Instalații de frig și climatizari*

OPERATIONS AND APPARATUS IN THE FOOD INDUSTRY- I

CODE: D29TPAL321

CREDITS: 4

COURSE COORDINATOR: PhD.Associate Professor. Ion TRANDAFIR

YEAR / SEMESTER: IIst Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: specialized

COURSE OBJECTIVES: Understanding the fundamental notions and parameters specific to the processes of separation of heterogeneous systems, mixing of materials and concentration by evaporation, separation by crystallization, pasteurization and sterilization. Analysis of influence factors on the efficiency of separation processes. Explaining the constructive and functional principles for the main types of apparatus for separating heterogeneous systems, evaporators, mixers, crystallization equipment, pasteurisation and sterilization apparatus.

TOPICS: Separation of heterogeneous systems by sedimentation, centrifugal filtration: fundamental aspects, calculation of characteristic sizes, constructive and functional principle of the main types of machinery. Evaporation: definitions, factors of influence, mass balance, thermal balance, variants of the evaporation operation, evaporators. Pasteurization and sterilization: definition, factors of influence, machinery and plant for pasteurization and sterilization specific to food process technology. Crystallization: solid-liquid equilibrium, nucleation, crystallization variants.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to Laboratory works 20%

ASSESSMENT FORM: exam

REFERENCES

1. Banu, C-tin et al. - The manual of the food industry engineer, vol. I, Technical Publishing House, 1998

2. Bratu, Em. A., Operations and Apparatus in Chemical Industry, Volume I, II, III, Technical Publishing House, Bucharest, 1984
3. Jinescu Ghe., Hydrodynamic processes and specific equipment in the chemical industry, Didactic and Pedagogical Publishing House, Bucharest, 1983.
4. Răsnescu, I. - Operations and Equipment in the Food Industry, vol. I and II, Ed. Technical Publishing House, Bucharest, 1972
5. Tudose, R.Z et al., Processes, Operations and Machinery in the Chemical Industry, Didactic and Pedagogical Publishing House, Bucharest, 1977

TECHNOLOGIES IN THE FOOD INDUSTRY I

CODE: D29TPAL322

NUMBER OF CREDITS: 4

COURSE COORDINATOR: Lect. PhD STOICA FELICIA

YEAR OF STUDIES AND SEMESTER: year II/ semester I

NUMBER OF HOURS PER WEEK: Course – 2 hours/ Practical work – 2 hours

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: Obligatory, specialist

COURSE OBJECTIVES:

- Knowledge of general principles, methods and procedures involved in different sectors of the food industry
- Appropriate use of technological methods and procedures in various branches of the food industry: malt and beer industry; the vinegar industry; the distillation industry of spirits and spirits; the fruit juice industry

CONTENTS:

- Appropriate use of technological methods and procedures in various branches of the food industry: malt and beer industry; the vinegar industry; the importance of water in the food industry
- Explaining and interpreting the processes of obtaining malt and beer and vinegar on the technological lines
- Explaining and interpreting chemical and biochemical processes in the various studied industries
- Explaining the different technological processes (alcoholic fermentation, acetic fermentation) from the theoretical and practical point of view
- Laboratory determination of the main quality parameters of the studied food product
- Determination of organoleptic properties by tasting the finished product
- Possibilities to identify food products on the market that are inadequate to the standards in force

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: examination 70%, practical workshops 30%

FORM OF ASSESSMENT: examination

REFERENCES:

1. Banu C., 1998- Manualul inginerului de industrie alimentară, Editura Tehnică, București
 2. Banu C., 2001- Tratat de știința și tehnologia malțului și a berii, vol. I, Editura Agir, București
 3. Stoica Felicia, 2007 – Tehnologii generale în industria alimentară fermentativă, Editura Sitech, Craiova
 4. Stoica Felicia, 2012 – Tehnologii generale în industria alimentară. Procese tehnologice și metode de analiză, Editura Sitech, Craiova
 5. Stoica Felicia, 2016 - Tehnologii generale în industria alimentară. Procese tehnologice și metode de analiză, Ediția a II-a, revizuită și adăugită, Editura Sitech, Craiova
- *** 2004 – Guidelines for Drinking Water – Water quality, third edition, World Health Organization

HYGIENE AND BIOSECURITY IN THE FOOD SECTOR

CODE: D29TPAL333

CREDITS: 4

COURSE COORDINATOR: Associate prof. Tuțulescu Felicia

YEAR / SEMESTER: 2nd year / 1st semester

HOURS PER WEEK: 2 hours of course, 2 hour laboratory

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES: Training of the future engineers vowing to become specialized within the domain of alimentary industry in what does concern the scientific grounds of hygiene norms which are specific to agricultural and alimentary industrial units as well as the knowledge and deepening of the modern methods and techniques through which hygiene could be ensured for the personnel, the equipments, the installations and the devices that are made use of in the domain of alimentary industry.

THEMES: Sanitation and hygiene requirements that concern the designing, the location's choice and the construction of alimentary industrial units. Hygiene ensured within alimentary industrial units. Functional requirements in the ensurance of sanitation and hygiene. Sanitation techniques which concern alimentary products. Sanitation methods and means made use of in the alimentary industry. Hygiene ensuring procedures which concern the water made use of in the alimentary industry. Hygiene ensured for the personnel of alimentary units. Biological security within the domain of aliments'biology. European Union's lawful regulations and other requirements as well as international ones.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 85%, final responses sustained upon practical works performed in laboratory: 15%.

ASSESSMENT FORM: colloquy

REFERENCES

Ioan Berilă și col., 2002 – *Igiena unităților industriale alimentare*, Curs, Ed.Universitară Craiova,

S. J. Forsythe, P. R. Hayes, 2006 - *Food Hygiene, Microbiology and HACCP*, Third Edition, C.H.I.P.S.10777 Mazoch Road Weimar, Texas 78962,

H.L.M.Lelieveld, 2005 - *Handbook of Hygiene Control in Food Industry*, C.H.I.P.S.10777 Mazoch Road Weimar, Texas 78962,

H.L.M. Lelieveld, M.A. Mostert, J. Holah, B. White, 2003 - *Hygiene in Food Processing*, C.H.I.P.S.10777 Mazoch Road Weimar, Texas 78962

STORAGE TECHNOLOGY OF AGRICULTURAL PRODUCTS I

CODE: D29TPAL538

CREDITS: 4

COURSE COORDINATOR: PhD. Associate Professor. Mira Elena IONICĂ

YEAR / SEMESTER: IIIrd Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 1 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: specialized

COURSE OBJECTIVES: •

Characterization of horticultural and agricultural products used as raw material in the food industry.

Description of the main operations of the technological flux of agricultural raw materials

Description of the main types of storehouses in which agricultural raw materials are stored

TOPICS:

Chemical, physical and sensory properties. The main biochemical processes that take place in agricultural products after harvesting.

Transformation of agricultural products as a result of the alteration process

Description of the technological flow of fresh storage of agricultural raw materials

Knowing the main types and methods of agricultural products storage

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to Laboratory works 30%

ASSESSMENT FORM: exam

REFERENCES:

1. Mira Elena Ionică, 2013, Preservation of agricultural and horticultural raw materials used in the food industry, Universitaria Publishing House.
2. Mira Elena Ionică, 2014, Methods of analyzing and controlling the quality of fresh and diverse processed fruits and vegetables, Universitaria Publishing House.

THE SECOND SEMESTER

PRINCIPLES OF HUMAN NUTRITION

CODE: D29TPAL424

CREDITS: 4

COURSE COORDINATOR: PhD Professor Violeta NOUR

YEAR / SEMESTER: 2nd year / 2nd semester

HOURS PER WEEK: 2 hours of course, 1 hour of seminar

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Knowledge of the energy needs of human, of the factors influencing it as well as how to determine the nutritional and energy value of food; Knowledge of the role of proteins, carbohydrates and lipids in human nutrition, the needs in these nutrients and their food sources; Knowledge of concepts related to the nutritional value of food and the role of different food groups to ensure a correct diet

THEMES: Energy metabolism; Metabolism of proteins and amino acids; Lipid metabolism; Beneficial action of unsaturated fatty acids; Digestion and metabolism of carbohydrates; Food fibers; Vitamins; Biomineral compounds; Microelements in human nutrition; Water in the human body; The nutritional characteristics of the main food groups; Influence of technological processes on the nutritional value of food; Food behavior.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 60%, seminar activity 25%; regular testing 15%

ASSESSMENT FORM: exam

REFERENCES

1. Banu C., Nour V., Iordan M., Musteață G. Procesarea materiilor prime alimentare și pierderile de substanțe biologice active. Manual pentru instituțiile de învățământ tehnic superior și suport pentru producătorii de mărfuri alimentare. Editura "TEHNICA" UTM, Chișinău, 2003.
2. Banu C., Nour V., Leonte M., Răsmeriță D., Sahleanu V., Iordan M. Tratat de chimia alimentelor. Editura AGIR, București, 2002.
3. Banu C., Nour V. s.a. Alimentație pentru sănătate. Editura ASAB, București, 2009.

FOOD PRODUCTS BIOCHEMISTRY II

CODE:D29TPAL424

CREDITS: 4

COURSE COORDINATOR: Lecturer doctor DUMITRU MIHAELA GABRIELA

YEAR / SEMESTER: 2st Year / 2st Semester

HOURS PER WEEK: 2 hours of course, 1 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: Compulsory and fundamental

COURSE OBJECTIVES: Knowledge and understanding of the role of active substances in the regulation of metabolic processes in living organisms.

Acquiring knowledge about the stages of development of key metabolic processes, their regulation and various metabolic interconnections

TOPICS: 1. **Metabolism.** Introductory concepts, bioenergetics, macroergic compounds, examples of intermediary metabolism.

2. **Glucidic metabolism.** *Catabolic processes*:- Glycolysis, stages, energy balance, intermediates for other pathways; Cori cycle; glyoxylic acid cycle.

-Cellular respiration. Oxidative decarboxylation of pyruvate, Krebs cycle, respiratory chain, aerobic and anaerobic fermentation.

Anabolic processes:- Photosynthesis. Light dependent reactions, light independent reactions, metabolic role.

-Gluconeogenesis, stages, metabolic role.

3. **Lipid metabolism.**-Fatty acid biosynthesis and biodegradation. Biosynthesis of triglycerides and glycerol.

4. **Aminoacid and protein metabolism.** Biosynthesis and biodegradation of aminoacids and proteins.

5. **Nucleic acids metabolism.** Biosynthesis and biodegradation of nucleic acids.

TEACHING LANGUAGE : romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to laboratory works 20%

ASSESSMENT FORM: exam

REFERENCES

1. Biță Mihaela Gabriela, Marinescu Gabriela, Analize Biochimice, Ed. Universitaria, Craiova, 2008.

2. Dumitru (Bită) Mihaela Gabriela, Marinescu Gabriela, Biochimie metabolica, Ed. Universitaria, Craiova, 2012.

3. Felszeghy E., Abraham A. Biochimie, Ed. Did. și Ped., București, 1972

4. Gârban Z., Biochimie, Tratat comprehensiv, vol. I, Ed. Did. și Ped., București, 1999.

5. Glodeanu E., Marinescu G., Biochimie metabolică, Ed. Gorjanca, 1997.

6. Ianculov I., Filimon M., Analiză biochimică, Ed. Orizonturi Universitare, Timișoara, 2003.

7. Lehninger A.L., Biochimie vol. I-II. Ed. Tehnică, București, 1992.

8. Murray K.R., Granner K.D., Mayes A.P., Harper's review of biochemistry, Lange Medical Book, California, 1988.

9. Nechifor M., Dănilă Gh., Metabolismul lipidelor biologice active. Centrala Industrială de Medicamente, București, 1984.

10. Ostafe V., Biochimie Practică, Editura Mirton, Timișoara, 1994.

FOOD MICROBIOLOGY II

CODE: D29TPAL425

CREDITS: 4

COURSE COORDINATOR: Associate prof. PhD. Tuțulescu Felicia

YEAR / SEMESTER: 2nd year / 2nd semester

HOURS PER WEEK: 2 hours of course, 2 hour laboratory

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES: Knowledge of the microflora which is distinctive for the alimentary industry.

TOPICS: Description of the main genres and species of the micro-organisms which do hold a role in the alimentary industry. Knowledge of the isolating and identifying techniques able to be applied to the microbic germs that are present within aliments. Knowledge of the parameters which could influe upon the activity of the micro-organisms which are present within aliments. Knowledge of the micro-organisms which are involved to the technology that allows the obtaining of alimentary products.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 85%, final responses sustained upon practical works performed in laboratory: 15%.

ASSESSMENT FORM: exam

REFERENCES

Popa Aurel, Popa Daniela, Dragomir Felicia : *Microbiologie generală*. Ed. Universitaria, 2002.

Dragomir Felicia, Popa Daniela: *Microbiologie practică*. Ed. Universitaria, 2008.

Popa A., Popa Daniela, Dragomir Felicia: *Microbiologie oenologică*, Ed. Universitaria, Craiova, 2004

Felicia Dragomir: *Microbiologia alimentelor*. Ed. Universitaria, Craiova, 2006

COLD AND AIR CONDITIONING INSTALLATIONS IN THE FOOD INDUSTRY II

CODE: D29TPAL426

CREDITS: 4

COURSE COORDINATOR: PhD. lecturer Maria-Magdalena POENARU

YEAR / SEMESTER: II Year / II Semester

HOURS PER WEEK: 2 hours of course, 1 hour of seminar

NUMBER OF WEEKS: 14

COURSE TYPE: specialized

COURSE OBJECTIVES:

- Knowing the principles of automatization of refrigeration installations;
- Knowledge the status diagrams and the simple and complex changes of wet air;
- Knowing the requirements for ensuring the microclimate conditions;
- Knowing and understanding the principle of construction and functioning of the air conditioning systems
- Explaining the air conditioning and climatization techniques, and the air treatment;
- Explaining the influence of external and internal factors on the microclimate of the climate space;
- Explaining how to choose air-conditioning installations according to the production requirements of the industrial and effort microclimate.

TOPICS:

A. Course

Automatization of refrigeration installations

Theoretical basics of climatization. Status diagrams of wet air

Theoretical basics of climatization. Simple transformations of wet air

Complex treatment of air

- Air treatment during summer

- Air treatment during winter

Microclimate conditions

Considerations regarding the balance of air-conditioned spaces

Considerations regarding the complex treatment of air

Climatization installations. Autonomous conditioning aggregates

Climatization installations. Dependent conditioning aggregates

Cold processing technologies of food products. Refrigeration

Cold processing technologies of food products. Freezing

Cold processing technologies of food products. Lyophilization
Performance characteristics of refrigeration technologies. The cooling rate of products and the duration of the technological process
Performance characteristics of refrigeration technologies. The need for cold
Refrigeration technologies specific to the main categories of food products. Products of animal origin
Refrigeration technologies specific to the main categories of food products. Vegetables and fruits
Refrigeration technologies specific to the main categories of food products
Drinks based on fermentation

B. Lab

Determining the state parameters of wet air. Measuring the temperature with thermocouples. Calibration and verification of thermocouples

Determining the state parameters of wet air. Measuring the temperature with thermometers. Calibration and verification of thermometers.

State transformations of wet air

- Dimensioning the heat radiators
- Automatic adjustment of the heating process

State transformations of wet air

- Cooling process of the wet air with condensation
- Operating modes of air coolers

The caloric balance of climatized spaces

- The amount of heat introduced or removed into / out of the refrigerated space
- Input or heat loss resulting from endothermic or exothermic reactions
- Input or heat loss due to pipes that go through the climatized space

The caloric balance of climatized spaces

- The amount of heat changed on exploiting climatized space

The humidity balance of climatized spaces. Calculation of the balance sheet elements

The humidity balance of climatized spaces. Calculation of the coefficients of thermohumidity and drawing them on the h-x diagram. Calculation and selection of pipes and ventilators

REFERENCES:

F. Iacobescu - *Tehnica frigului și climatizării*, Editura Universitaria, 1998

2. F. Iacobescu, MM.Poenaru – *Instalații de frig și climatizări în industria alimentară, Aplicații* – Editura Sitech, ISBN 978-606-530-112-2, 2008

OPERATIONS AND APPARATUS IN THE FOOD INDUSTRY- II

CODE: D29TPAL428

CREDITS: 4

COURSE COORDINATOR: PhD.Associate Professor. Ion TRANDAFIR

YEAR / SEMESTER: IIst Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works, 1 hours project

NUMBER OF WEEKS: 14

COURSE TYPE: specialized

COURSE OBJECTIVES: Approach and understanding of the interphase mass transfer laws and separation principles for homogeneous mixtures by absorption, distillation, rectification and extraction. Knowledge of basic notions and specific parameters for the drying process of food products. Analysis of factors and parameters influencing specific mechanisms and separation efficiency in the processes of absorption, extraction, distillation, rectification and drying. Explication of constructive and functional principles for the absorption, rectification columns, solid-liquid extractors and the main types of dryers.

TOPICS: Absorption: fundamental notions. Distillation-rectification: vapor-liquid equilibrium, simple distillation, rectification operation calculation, azeotropic rectification, vapor entrainment. Rectification columns. Extraction liquid-solid. Drying: general aspects, convective, conductive, spray and freeze drying and the main types of driers.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to Laboratory works 20%

ASSESSMENT FORM: exam

REFERENCES

1. Banu, C-tin et al. - The manual of the food industry engineer, vol. I, Technical Publishing House, Bucharest, 1998
2. Bratu, Em. A., Operations and Apparatus in Chemical Industry, Volume I, II, III, Technical Publishing House, Bucharest, 1984
2. Floarea, O., Dima R., Mass Transfer Processes and Specific Equipment, Teaching Publishing House and Pedagogical, Bucharest, 1984
3. Mamăligă, I., Petrescu, S., 2007, Mass Transfer Machines and Specific Equipment, Cerami Publishing House, Iasi, 2007
5. Răsnescu, I. - Operations and Equipment in the Food Industry, vol. I and II, Technical Publishing House, Bucharest, 1972

TECHNOLOGIES IN THE FOOD INDUSTRY II

CODE: D29TPAL428

NUMBER OF CREDITS: 4

COURSE COORDINATOR: Lect. PhD STOICA FELICIA

YEAR OF STUDIES AND SEMESTER: year II/ semester II

NUMBER OF HOURS PER WEEK: Course – 2 hours/ Practical work – 1 hours, Technological project - 1

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: Obligatory, specialist

COURSE OBJECTIVES:

- Knowledge of general principles, methods and procedures involved in different sectors of the food industry
- Appropriate use of technological methods and procedures in various branches of the food industry: malt and beer industry; the vinegar industry; the distillation industry of spirits and spirits; the fruit juice industry

CONTENTS:

- Proper use of methods and technological processes in different branches of food industry: industry spirits and distilled spirits natural; natural fruit juice industry
- Explanation and interpretation on the technological lines of the processes for obtaining ethyl alcohol, natural alcoholic beverages and natural fruit juices
- Explanation and interpretation on the technological lines of the processes for obtaining ethyl alcohol, natural alcoholic beverages and natural fruit juices
- Explaining the different technological processes (alcoholic fermentation, distillation) from the theoretical and practical point of view
- Laboratory determination of the main quality parameters of the studied food product
- Determination of organoleptic properties by tasting the finished product
- Possibilities to identify food products on the market that are inadequate to the standards in force

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: examination 70%, practical workshops 30%

FORM OF ASSESSMENT: examination

REFERENCES:

1. Banu C., 1998- Manualul inginerului de industrie alimentară, Editura Tehnică, București
2. Stoica Felicia, 2007 – Tehnologii generale în industria alimentară fermentativă, Editura Sitech, Craiova
3. Stoica Felicia, 2012 – Tehnologii generale în industria alimentară. Procese tehnologice și metode de analiză, Editura Sitech, Craiova
4. Stoica Felicia, 2016 - Tehnologii generale în industria alimentară. Procese tehnologice și metode de analiză, Ediția a II-a, revizuită și adăugită, Editura Sitech, Craiova

ROW MATERIALS OF PLANT ORIGIN I

CODE:D29TPAL430

CREDITS: 3

COURSE COORDINATOR: Senior Lecturer, PhD, Nicolae LASCU

YEAR / SEMESTER: IInd Year / IInd Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: specialized

COURSE OBJECTIVES: Knowledge of the object of study, general aspects of vegetable raw materials, cereals and technical plants related to production, harvesting and exploitation technology, general trends in use and their classification according to the criteria of origin and use;

Knowledge of plants raw materials (vegetable, cereal and technical plants) as vegetative and generative anatomo-morphological parts of plants, nutritional value and elements that define their quality..

TOPICS: Knowledge the importance of crop plants in the supply of vegetal raw materials processing industry, current trends in the production and utilization of vegetal raw materials. Structure of plant production. Classification of vegetal raw materials according to certain criteria (technological, organisms, perishability and use). Physical properties of vegetal raw materials and their importance in technological practice. Vegetal raw materials represented by metamorphosed roots, tubers, bulbs, fruits (solanaceae, cucurbitaceae), cereals, oil, legumes (for beans and pods), aromatic and seasoning.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 60%, regular practical testing during the semester 40%.

ASSESSMENT FORM: verification

REFERENCES

1. Bîlteanu Gh., 1998 – *Fitotehnie, Vol I. Cereale și leguminoase pentru boabe*. Edit. Ceres, București.
2. Bîlteanu Gh., 2001 – *Fitotehnie, Vol II* Edit. Ceres, București
3. Bodea, C., 1984 - *Tratat de biochimie vegetală. Partea a II. Compoziția chimică a principalelor plante de cultură*. Vol. V. Editura Academiei, București
4. Boyeldieu, Jacques 1991 - *Produire des oleagineux et proteagineux*. Lavoisier – TEC & DOC
5. Ciofu Ruxandra și colab., 2004 – *Tratat de Legumicultura*, Edit. Ceres, București
6. Grădilă Marga, 1998 – *Cultura plantelor tehnice și medicinale*. Ed. M.A.S.T.
7. Gherghi A., 1994 - *Tehnologia valorificării produselor horticole. Vol II.*, Edit. Paideia, București.
8. Lascu N. 2006 - „*Materii prime legumicole*” Ed. Sitech, Craiova, 2006
9. Radu I.F., - *Tratat de tehnologia fructelor și legumelor*. Edit. Scrisul Românesc, Craiova, 1983

PRACTICE

CODE: D29TPAL431

CREDITS: 4

COURSE COORDINATOR Associate professor.dr. Muntean Camelia

YEAR / SEMESTER: IInd Year / IInd Semester

HOURS PER WEEK: 6 Hours/day

NUMBER OF WEEKS: 3

COURSE TYPE: obligatory / specialized

COURSE OBJECTIVES: Practical acquiring of knowledge related to specialized subjects taught in the second year

TOPICS: Acquiring the practical aspects of verifying and observing hygiene rules for the above-mentioned raw materials and finished products; Acquiring rules for checking the quality of packaging and packaging; Acquiring practical skills in labeling food products; Acquiring techniques to verify the authenticity and quality of additives and ingredients;

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 100%

ASSESSMENT FORM: verification

REFERENCES

1. Banu Constantin, Calitatea și controlul calității produselor alimentare, Editura Agir. București, 2002
2. Scorei Romulus, Rolul aditivilor și auxiliarelor alimentare în asigurarea calității alimentelor. Editura Sitech. 2004
3. Scorei Romulus, Ambalaje și design în industria alimentară. Editura Agora 1999
4. R. Scorei, Rolul esteticii industriale în asigurarea calității alimentelor, Editura Info Craiova, 2006

POLICIES AND GLOBAL STRATEGIES

CODE: D29TPAL331

CREDITS: 4

COURSE COORDINATOR: PhD. lecturer Maria-Magdalena POENARU

YEAR / SEMESTER: II Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 1 hour of lab

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES:

Capacity to collect, process and analyze data on food security, nutrition and poverty problems which remaining law in many developing countries

TOPICS

1. Introduction to food security European policy on food security: What is the European Union? The aquis community. Institutions of the European Union. European Food Safety Authority.
2. Introduction to food security Legislative framework. Codex Alimentarius. White Book on Food Safety.
3. Consumer protection policies: Consumer education. Consumer rights. Consumer protection.
3. Food security : concepts and measurement
4. Impact of market access on food security – aplicatiuni de factor analyses
5. Nutrition Policy Analyses

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to seminary works 20%

ASSESSMENT FORM: exam

REFERENCES

1. **Suresh C. Babu, Prabuddha Sanyal, FOOD SECURITY, POVERTY AND NUTRITION POLICY ANALYSIS A statistical Methods and Applications, International Food Policy Research Institute, Washington DC, an imprint of ELSEVIER, ISBN 978-0-12-374712-9**
2. **WHITE PAPER ON FOOD SAFETY** , presented by the Commission, Brussels, 12.1.2000, COM (1999) 719 final

IIIST YEAR OF STUDY

I ST SEMESTER

FOOD INDUSTRY EQUIPMENT I

CODE: D29TPAL537

CREDITS: 4

COURSE COORDINATOR: Associate Professor, PhD. Adrian ROȘCA

YEAR / SEMESTER: IIIrd Year / Ist Semester

HOURS PER WEEK: 2 hours course, 1 hour practical works

NUMBER OF WEEKS: 14

COURSE TYPE: main subject

COURSE OBJECTIVES: Knowledge of basic engineering principles and methods to understand the specific constructive and technological issues in food industry equipment. Working principles knowledge of the most representative food industry equipment. Designing principles knowledge and application of specific constructive and functional / technological sizing for food industry equipment.

TOPICS: Food and non - food produces action on materials: Considerations concerning different types of corrosion. Metallic materials recommended for food packaging and food industry equipment making: General steels; Steel alloy; Non-ferrous alloys. Plastics materials recommended for food packaging and food industry equipment making: Classification; Physical-chemical and technological characteristics. Metallic vessels for food industry equipment: thin / thick wall vessels; Cylindrical vessels subjected to the internal pressure action (constructive / functional description of the representative equipment); Constructive / technological designing. Solids bulk materials transport equipment: Bulk materials characteristics; Types of conveyors action (constructive / functional description of the representative equipment); Constructive / technological designing. Equipment for liquids transport and processing: Centrifugal pumps; Axial pump; Volumic pumps; Vacuum pumps (constructive / functional description of the representative equipment); Constructive / technological designing. Equipment for compressible liquids transport and processing: Compressor; Fans (constructive / functional description of the representative equipment); Constructive / technological designing. Constructions and installations for water supply: Water supply diagram; Groundwater / surface wate supply; Centrifugal pumps mounting (constructive / functional description of the representative equipment). Water treatment, filtration and disinfection installations: Water - treatment plants; Water filtering equipment; Water disinfection equipment. Washing / cleaning equipment: Middle / large washing machines (constructive / functional description of the representative equipment); Utilities consumption estimation; Constructive / technological designing. Dosing and packaging equipment: Dosing solids / liquid / paste equipment; Bottles removing / loading equipment; Labeling equipment (constructive / functional description of the representative equipment).

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to colloquium 50%; final answers to periodical Laboratory Tests 40%; Laboratory Notebook 10%.

ASSESSMENT FORM: colloquium

REFERENCES:

1. Banu C., 1998 / 2002, Compendium for food industry engineer, Vol. I și II, Technical Publishing House, Bucharest.
2. Roșca Adrian, 1999, Food industry equipment. Course, University Reprography Craiova.
3. Roșca Adrian, 2004, Modern design for food industry equipment, Universitaria Publishing House, Craiova.
4. Roșca Adrian, 2015, Food industry equipment I. Course Support.
5. Roșca Adrian, 2016, Food industry equipment I. Laboratory Support.

STORAGE TECHNOLOGY OF AGRICULTURAL PRODUCTS I

CODE: D29TPAL538

CREDITS: 4

COURSE COORDINATOR: PhD. Associate Professor. Mira Elena IONICĂ

YEAR / SEMESTER: IIIrd Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 1 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: specialized

COURSE OBJECTIVES: •

Characterization of horticultural and agricultural products used as raw material in the food industry.

Description of the main operations of the technological flux of agricultural raw materials

Description of the main types of storehouses in which agricultural raw materials are stored

TOPICS:

Chemical, physical and sensory properties. The main biochemical processes that take place in agricultural products after harvesting.

Transformation of agricultural products as a result of the alteration process

Description of the technological flow of fresh storage of agricultural raw materials

Knowing the main types and methods of agricultural products storage

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to Laboratory works 30%

ASSESSMENT FORM: exam

REFERENCES:

3. Mira Elena Ionică, 2013, Preservation of agricultural and horticultural raw materials used in the food industry, Universitaria Publishing House.
4. Mira Elena Ionică, 2014, Methods of analyzing and controlling the quality of fresh and diverse processed fruits and vegetables, Universitaria Publishing House.

PRIMARY MATERIALS IN THE WINE INDUSTRY

CODE: D29TPAL539

NUMBER OF CREDITS: 4

COURSE COORDINATOR: Associate Professor PhD MUNTEAN CAMELIA

YEAR OF STUDIES AND SEMESTER: year III/ semester I

NUMBER OF HOURS PER WEEK: Course – 2 hours/ Practical work – 2 hours

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: Obligatory, specialist

COURSE OBJECTIVES:

- Knowledge the main production lines for grapes
- Knowledge the main varieties of table grapes and apirines
- Knowledge the main grape varieties for wine

CONTENTS:

- Explaining and interpreting the main technological indices that characterize the grape varieties
- Explaining and interpreting the main quality parameters of raw grapes for winemaking during the ripening process
- Determining the main qualitative parameters of table grapes, apricots and grapes for wine
- Determination of technological indices of different grape varieties
- Making calculations and interpreting them according to the grape variety studied

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: examination 70%, practical workshops 30%

FORM OF ASSESSMENT: examination

REFERENCES:

1. Cichi Daniela Doloris, Popa Camelia, Necula Cezarina, 2010 – Ghid ampelografic al soiurilor de struguri pentru masă, Editura Universitaria, Craiova
1. Muntean Camelia, 2001 - "Materii prime pentru industria vinicolă", Editura Sitech, Craiova
2. Muntean Camelia, Ionică Laura, 2006 - "Struguri de masă și materii prime pentru industria vinicolă", Editura Sitech, Craiova
3. Muntean Camelia 2015 Suport curs electronic
4. Olteanu I. și col., 2002 - "Viticultura specială. Zonare, ampelografie, tehnologii specifice", Editura Universitaria, Craiova

TECHNOLOGIES IN THE WINE INDUSTRY I

CODE: D29TPAL540

NUMBER OF CREDITS: 5

COURSE COORDINATOR: Associate Professor PhD MUNTEAN CAMELIA

YEAR OF STUDIES AND SEMESTER: year III/ semester I

NUMBER OF HOURS PER WEEK: Course – 2 hours/ Practical work – 2 hours

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: Obligatory, specialist

COURSE OBJECTIVES:

- Knowledge of the main constituents present in grape must
- Knowing the main constituents present in the various categories of wines
- Knowledge of the main chemical, physicochemical and biochemical phenomenon that occur during the transformation of must into wine
- Explaining the main chemical, physico-chemical and biochemical phenomenon that occur during the conversion of the must to wine

CONTENTS:

- Interpretation of the main chemical, physicochemical and biochemical phenomenon occurring during the transformation of must into wine
- Determining the main qualitative parameters of fresh grape must
- Determination of the main constituents of wine

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: examination 70%, practical workshops 30%

FORM OF ASSESSMENT: examination

REFERENCES:

1. COTEA D. V., POMOHACI N., GHEORGHÎȚĂ M. - "Oenologie", Ed. Didactică și Pedagogică, București - 1982.
2. COTEA D.V. - "TRATAT DE OENOLOGIE", Vol. I și II, Ed. Ceres, 1985 (vol.I), 1988 (vol. II).
3. GHEORGHÎȚĂ M., Camelia MUNTEAN, Constantin BĂDUCĂ CÎMPEANU - "Oenologie 2" , Ed.Sitech, Craiova , 2002.
4. GHEORGHÎȚĂ M., Camelia MUNTEAN, BĂDUCĂ C., GIUGEA N. - "Oenologie 1", Editura Sitech, Craiova, 2006
5. MUNTEAN Camelia – Tehnologii în industria vinicolă. Vinuri stricto-sensu, Editura Sitech, Craiova, 2012
6. Muntean Camelia – Suport de curs electronic

TECHNOLOGIES IN THE CANNING INDUSTRY I

CODE: D29TPAL541

CREDITS: 5

COURSE COORDINATOR: PhD Professor Violeta NOUR

YEAR / SEMESTER: 3rd year / 1st Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: speciality

COURSE OBJECTIVES: Knowledge of the food preservation methods: scientific bases, technological processes and specific equipments, applications in the vegetable and fruit processing industry

THEMES: Clasificarea metodelor de conservare; Conservarea prin congelare; Conservarea prin tratament termic; Conservarea prin fermentație lactică; Conservarea prin marinare; Conservarea cu antiseptice; Controlul calității în industria conservelor de legume și fructe

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, activity at Laboratory works 15%; regular testing 15%

ASSESSMENT FORM: exam

REFERENCES

1. Nour V. Tehnologii și utilaje în industria conservelor de legume și fructe. Editura Reprograph, Craiova, 2002.
2. Nour V., Ionică M.E. Controlul calității în industria conservelor de legume și fructe. Editura Universitaria, Craiova, 2004.
3. Nour V. Procesarea industrială a legumelor și fructelor. Editura Sitech, Craiova, 2014.

PRIMARY MATERIALS IN THE FRUIT CONSERVATION INDUSTRY

CODE: D29TPAL542

NUMBER OF CREDITS: 4

COURSE COORDINATOR: Associate Professor PhD MUNTEAN CAMELIA

YEAR OF STUDIES AND SEMESTER: year III/ semester I

NUMBER OF HOURS PER WEEK: Course – 2 hours/ Practical work – 2 hours

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: Obligatory, specialist

COURSE OBJECTIVES:

- Knowledge the characteristics of the fruit trees, the classification of the temperate climate and the importance of these aspects for the use of fruit in the process of preservation and processing.
- Presentation of the physical, sensory and chemical composition of the fruit materials in the processing direction.
- Knowing the influence of different biotic and abiotic factors on the growth, maturation and processing of fruit trees.
- Presentation of the characteristics of the raw materials of the main tree species.

CONTENTS:

- Defining the principles of methods for assessing the quality of fruit trees.
- Organizing the process of harvesting, conditioning and capitalizing on fruit trees.
- Description of specific and non-specific influences on the quality of horticultural products.
- Assess the olfactory-gustatory possibilities and the quality of the fruit trees using specific methods and techniques.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: examination 70%, practical workshops 30%

FORM OF ASSESSMENT: examination

REFERENCES:

1. Baciu A., 2000 – *Materii prime pentru industria conservelor din fructe* – Edit. Universitaria, Craiova.
2. Vieru R. și colab., 1981 – *Cartea preparatorului de conserve din fructe* – Editura Tehnică.

SENSORIAL ANALYSIS

CODE: D29TPAL551

CREDITS: 4

COURSE COORDINATOR: PhD. Associate Professor. Constantin BADUCA

YEAR/SEMESTER: IIIst Year/ Ist Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: discipline area

COURSE OBJECTIVES: Developing skills to characterize the relationships between the physico-chemical and sensory properties of food. Developing the ability to use sensory analysis as a tool for assessing the naturalness and typicality of foods

COURSE CONTENT: The definition of tasting and tasting types, the physiological bases of the tasting. Sensory organs participating in the tasting. Tasting alcoholic beverages, tasting dairy products and meat preparations. Tasting of confectionery and pastry products.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to Laboratory works 20%

FORM OF ASSESSMENT: Continuous assessment/colloquium

REFERENCES:

1. Băducă Cîmpeanu C., 2008 – *Degustarea vinului. Bazele științifice ale degustării*. Editura Sitech, Craiova.
2. PEYNAUD. E., BLOUIN J., 2006 – *Le goût du vin. Le grand livre de la dégustation*. 4^e édition. *Édition Dunod, Paris*.
3. STOIAN V., 2001 – *Marea carte a degustării vinurilor. Degustarea pe înțelesul tuturor*. *Editura Artprint, București*.

THE SECOND SEMESTER

AUTOMATION OF TECHNOLOGICAL PROCESSES

CODE: D29TPAL643

CREDITS: 3

COURSE COORDINATOR: PhD Professor Nicu BÎZDOACĂ

YEAR/SEMESTER: IIIrd year/ IInd semester

HOURS PER WEEK: 2 hours of course, 1 hour of practical works

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: fundamental

COURSE OBJECTIVES: Knowledge and appropriate use of electronic components, devices and circuits used in the implementation of automated systems and subsystems

- Knowledge and understanding of the role of the subsystems that are part of an automated system
- Knowledge and proper use of the automated system concept
- Explanation and correct interpretation of basic electronic circuits that make up the family of fundamental logic gates
- Explanation and correct interpretation of the functions performed by the subsystems involved in the automation systems
- Explanation and correct interpretation of performances provided by an automatic adjustment system

COURSE CONTENT:

Electronics for automation

- DC electrical circuits
- AC power circuits
- Magnetic and electromagnetic circuits
- diode and transistor
- switching circuits

- linear algebra
 - logical gates, integration technologies
- Automation with electromechanical elements
- electromechanical devices
 - command schemes
- Pneumatic and electropneumatic automation
- the basic pneumatic system
 - actuators and controls
 - electropneumatic components and circuits
- Control and automation schemes
- Combination command schemes
 - logical functions, canonical forms, minimal forms
 - sequential command schemes
 - methods of synthesis of control schemes in different technologies

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: examination 80%, practical workshops 20%

FORM OF ASSESSMENT: colloquium

REFERENCES:

1. M. Ivănescu, I. Caușil - *Automate industriale*, ESR, 1985
2. M. Ivănescu - *Robotica*, Editura Universitaria, 1995
3. T.R. Blackslee - *Proiectarea cu circuite logice MSI si LSI standard*, ET, 1988
4. D. Teorescu - *Automatizari microelectronice*, ET, 1988
5. M. Ivănescu, I. Diaconu, I. Smarandache, *Automatizari industriale - indrumar laborator*, Reprografia Universitații din Craiova, 1989

FOOD INDUSTRY EQUIPMENT II

CODE: D29TPAL644

CREDITS: 4

COURSE COORDINATOR: Associate Professor, PhD. Adrian ROȘCA

YEAR / SEMESTER: IIIrd Year / IInd Semester

HOURS PER WEEK: 2 hours course, 1 hour practical works, 1 hour project

NUMBER OF WEEKS: 14

COURSE TYPE: main subject

COURSE OBJECTIVES: Knowledge of basic engineering principles and methods to understand the specific constructive and technological issues in food industry equipment. Working principles knowledge of the most representative food industry equipment. Designing principles knowledge and application of specific constructive and functional / technological sizing for food industry equipment.

TOPICS: Sifting, sizing and sorting equipment: Constructive / functional description of the representative equipment; Constructive / technological designing. Grinding equipment: Constructive / functional description of the representative equipment; Constructive / technological designing. Mixing equipment: Constructive / functional description of the representative equipment; Constructive / technological designing. Centrifugal equipment: Constructive / functional description of the representative equipment; Constructive / technological designing. Filtering equipment: Constructive / functional description of the representative equipment. Food produces sterilizing equipment: Constructive / functional description of the representative equipment. Vegetables and fruits thermal processing equipment: Constructive / functional description of the representative equipment; Constructive / technological designing. Vegetables and fruits preserving equipment: Constructive / functional description of the representative equipment; Constructive / technological designing. Mixing and kneading equipment for meat products industry: Constructive / functional description of the representative equipment. Thermal processing equipment for meat and meat products: Constructive / functional description of the representative equipment. Sausages and salami processing equipment: Constructive / functional description of the representative equipment. High pressure / vacuum conservation equipment: Constructive / functional description of the representative equipment.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to colloquium 50%; final answers to periodical Laboratory Tests and Project Tests 30%; Laboratory Notebook and Laboratory Notebook 20%.

ASSESSMENT FORM: exam

REFERENCES:

1. Banu C., 1998 / 2002, Compendium for food industry engineer, Vol. I și II, Technical Publishing House, Bucharest.
2. Roșca Adrian, 1999, Food industry equipment. Course, University Reprography Craiova.
3. Roșca Adrian, 2004, Modern design for food industry equipment, Universitaria Publishing House, Craiova.
4. Roșca Adrian, 2015, Food industry equipment II. Course Support.
5. Roșca Adrian, 2016, Food industry equipment II. Laboratory Support.
6. Roșca Adrian, 2015, Food industry equipment II. Project Support.

TECHNOLOGY OF AGRICULTURAL PRODUCTS II

CODE: D29TPAL645

CREDITS: 4

COURSE COORDINATOR: PhD. Associate Professor. Mira Elena IONICĂ

YEAR / SEMESTER: IIIrd Year / IInd Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: specialized

COURSE OBJECTIVES: •

Knowing the technologies of fresh storage of agricultural raw materials

TOPICS:

Knowledge of fresh storage technology of vegetables by species.

Knowledge of fresh storage technology of fruit by species.

Knowledge of fresh storage technology of agricultural products by species.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to Laboratory works 30%

ASSESSMENT FORM: colloquy

REFERENCES:

1. Mira Elena Ionică, 2013, Preservation of agricultural and horticultural raw materials used in the food industry, Universitaria Publishing House.
2. Mira Elena Ionică, 2014, Methods of analyzing and controlling the quality of fresh and diverse processed fruits and vegetables, Universitaria Publishing House.

TECHNOLOGIES IN THE WINE INDUSTRY II

CODE: D29TPAL646

NUMBER OF CREDITS: 4

COURSE COORDINATOR: Associate Professor PhD MUNTEAN CAMELIA

YEAR OF STUDIES AND SEMESTER: year III/ semester II

NUMBER OF HOURS PER WEEK: Course – 2 hours/ Practical work – 1 hours, Technological project - 1

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: Obligatory, specialist

COURSE OBJECTIVES:

- Knowledge of the main constituents present in grape must
- Knowing the main constituents present in the various categories of wines

- Knowledge of the main chemical, physicochemical and biochemical phenomenon that occur during the transformation of must into wine
- Explaining the main chemical, physico-chemical and biochemical phenomenon that occur during the conversion of the must to wine

CONTENTS:

- Interpretation of the main chemical, physicochemical and biochemical phenomenon occurring during the transformation of must into wine
- Determining the main qualitative parameters of fresh grape must
- Determination of the main constituents of wine

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: examination 70%, practical workshops 30%

FORM OF ASSESSMENT: examination

REFERENCES:

1. COTEA D. V., POMOHACI N., GHEORGHITĂ M. - "Oenologie", Ed. Didactică și Pedagogică, București - 1982.
2. COTEA D.V. - "TRATAT DE OENOLOGIE", Vol. I și II, Ed. Ceres, 1985 (vol.I), 1988 (vol. II).
3. GHEORGHITĂ M., Camelia MUNTEAN, Constantin BĂDUCĂ CÎMPEANU - "Oenologie 2" , Ed.Sitech, Craiova , 2002.
4. GHEORGHITĂ M., Camelia MUNTEAN, BĂDUCĂ C., GIUGEA N. - "Oenologie 1", Editura Sitech, Craiova, 2006
5. MUNTEAN Camelia – Tehnologii în industria vinicolă. Vinuri stricto-sensu, Editura Sitech, Craiova, 2012

TECHNOLOGIES IN THE CANNING INDUSTRY II

CODE: D29TPAL647

CREDITS: 4

COURSE COORDINATOR: PhD Professor Violeta NOUR

YEAR / SEMESTER: 3rd year / 2nd semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: speciality

COURSE OBJECTIVES: Knowledge of the food preservation methods: scientific bases, technological processes and specific equipments, applications in the vegetable and fruit processing industry

THEMES: Preservation by concentration; Tomato juices and tomato juice concentrates production technology; Technology of the manufacture of fruit juice concentrates; Fruit juice concentrates production; Preservation of fruitd with sugar; Manufacture of jams, marmalades, preserves, and conserves; Preservation of foods by dehydration; Dehydration of fruits and vegetables; Food preservation using ionizing radiation; Mustard production technology; Pectin manufacturing technology; Production of protein isolates and concentrates

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%; activity at Laboratory works 15%; regular testing 15%

ASSESSMENT FORM: exam

REFERENCES

1. Nour V. Procesarea industrială a legumelor și fructelor. Editura Sitech, Craiova, 2014.
2. Nour V. Tehnologii și utilaje în industria conservelor de legume și fructe. Editura Reprograph, Craiova, 2002.
3. Nour V., Ionică M.E. Controlul calității în industria conservelor de legume și fructe. Editura Universitaria, Craiova, 2004.

TECHNOLOGIES IN THE MILLING AND BAKERY INDUSTRY

CODE: D29TPAL648

CREDITS: 4

TITULAR OF THE COURSE: Associate Professor PhD Ana Maria DODOCIOIU

YEAR / SEMESTER: III/ II

HOURS PER WEEK: 2 hours course, 2 hours practical works

NUMBER OF WEEKS: 28

COURSE TYPE: specialized

COURSE OBJECTIVES:

Knowledge of the main issues that require milling process:

-raw materials used in milling and their quality

-storage areas and equipment used

-technological schemes for preparing grains for grinding wheat

-grain-grinding

THEMES: Cereals, chemical composition, physical properties; Storage spaces; Separation of impurities from corn mass; Grain peeling, Conditioning of the cereals. Technological schemes for preparing wheat for milling, Grinding cereals

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE EVALUATION: answers to exam 80%, final answers to Laboratory works work 20%

EVALUATION FORMS: Oral examination

BIBLIOGRAPHY

1. Costin I, 1983-Tehnologii de prelucrare a cerealelor in industria moraritului, Editura Tehnica, Bucuresti
2. Tucu D., David I., 1994-Utilaje si instalatii pentru morarit si panificatie. Editura Tehnica, Timisoara
3. Banu Constantin et al, 2002-Manualul inginerului din industria alimentara. Editura Tehnica, Bucuresti.
4. Despina Bordei, 2007-Controlul calitatii in industria panificatiei-Metode de analiza. Editura Academica, Galati

SPECIALTY PRACTICE

CODE: D29TPAL648

CREDITS: 4

COURSE COORDINATOR:

YEAR / SEMESTER: IIIth Year / IInd Semester

HOURS PER WEEK: 6 Hours/day

NUMBER OF WEEKS: 3

COURSE TYPE: obligatory / specialized

COURSE OBJECTIVES: Practical acquiring of knowledge related to specialized subjects taught in the third year

TOPICS: Knowledge of the chemical and biochemical characteristics of food; Knowledge of chemical, microbiological and biochemical processes defining food quality; Acquisition of practical ways of receiving and storing and processing raw materials and finished products (cheese, yoghurt, kefir, sour, butter, oilseeds - refined oil, margarine, meat - salami, sausages, meat specialties, Bread specialties, pasta, grapes - wine, distilled, vinegar); Acquiring rules for verifying the quality of the batch of food.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 100%

ASSESSMENT FORM: verification

REFERENCES

- Banu Constantin – *Manualul inginerului de industrie alimentară*. Vol II. Editura Tehnică. București, 1999
- Căpruciu Ramona- *Tehnologii utilizate în industria uleiului*. Editura Sitech. Craiova, 2011
- Căpruciu Ramona-*Biotehnologii în industria alimentară*. Editura Sitech. Craiova, 2013
- Felicia Dragomir, *Microbiologia alimentelor*. Editura Universitaria Craiova,2006
- Mira Elena Ionică- *Păstrarea materiilor prime agricole si horticole utilizate in industria alimentară*, Ed. Reprograph, Craiova, 2002
- Nour Violeta, *Tehnologia cărnii și produselor din carne*. Ed. Universitaria, Craiova, 2008.
- Muntean Camelia, *Tehnologii în industria vinicolă*. Editura Sitech, 2012
- Stoica Felicia, *Tehnologii generale în industria alimentară. Procese tehnologice și metode de analiză*. Editura Sitech, 2012

PACKAGING AND DESIGN

CODE:D29TPAL652

CREDITS: 3

COURSE COORDINATOR: Professor, PhD Scorei Romulus

YEAR / SEMESTER: IIIth Year / IIst Semester

HOURS PER WEEK: 2 hours of course, 1 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: domenium

COURSE OBJECTIVES: Design of packaging products in the food industry, Packaging design in the food industry, Composition and physico-chemical control of packaging to avoid risks of food alteration, Design involvement in new product development, Design reflection in manufacturing costs

TOPICS: Considerations on design concept and activity, Industrial aesthetics in the case of foodstuffs, Two-component product system - packaging in the design concept, Modern labeling and labeling of foods, Modern labeling of food products, Food packaging, Raw materials and materials used in the industry Packaging, packaging used for main food groups, methods of food packaging, specific aspects of food packaging in relation to consumer protection.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to Laboratory works 30%.

ASSESSMENT FORM: colloquy

REFERENCES

1. R: SCOREI - „Rolul esteticii industriale in asigurarea calitatii alimentelor”, Ed. Info, Craiova, 2006
2. R: SCOREI - „Ambalaje și design în industria alimentară”, Ed. Agora, Craiova, 1999
3. MARIETA OLARU, RODICA PAMFILIE, ANCA PURCAREA-„, Fundamentele stiintei marfurilor” , Ed. Economica, 2005.

RECOVERY BY-PRODUCTS FROM THE FOOD INDUSTRY

CODE: D29TPAL554

NUMBER OF CREDITS: 3

COURSE COORDINATOR: Lect. PhD STOICA FELICIA

YEAR OF STUDIES AND SEMESTER: year III/ semester II

NUMBER OF HOURS PER WEEK: Course – 2 hours/ Practical work – 1 hours

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: Specialized and optional discipline

COURSE OBJECTIVES:

- Knowledge and understanding of general technologies for obtaining different categories of foods
- Knowledge of the main by-products obtained from the processing of various raw materials

CONTENTS:

- Explanation and interpretation on the technological lines of procedures for obtaining natural distilled alcoholic beverages, spirits and natural juices from fruits, beer, canned fruits and vegetables, sugar and oil
- Determination of main parameters of by-products in the food industry
- Laboratory determination of the main quality parameters of the product obtained from the processing of the various by-products, with particular reference to the by-products of each type of industry and the possibilities for capitalizing them

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: examination 70%, practical workshops 30%

FORM OF ASSESSMENT: examination

REFERENCES:

1. Banu C., 1998- Manualul inginerului de industrie alimentară, Editura Tehnică, București
2. Banu C., 2001- Tratat de știința și tehnologia malțului și a berii, vol. I, Editura Agir, București
3. Cojocaru C. și colab., 1965 - Valorificarea deșeurilor din industria alimentară. Ed. Tehnică, București
4. Gheorghită M. și colab., 2002 – Oenologie 2, Editura Sitech, Craiova
5. Pomohacl N. și colab., 2002 – Țuica și rachiurile naturale, Editura Ceres, București
6. Razuvaev N. I., 1980 – Prelucrarea complexă a produselor secundare de la vinificație, Editura Ceres, București
7. Stănciulescu GH., 1973 – Fabricarea băuturilor alcoolice naturale, Editura Tehnică, București

IV ST YEAR OF STUDY

I ST SEMESTER

TECHNOLOGIES IN THE MILLING AND BAKERY INDUSTRY II

CODE: D29TPAL755

CREDITS: 5

TITULAR OF THE COURSE: Associate Professor PhD Ana Maria DODOCIOIU

YEAR / SEMESTER: IV/ I

HOURS PER WEEK: 2 hours course, 2 hours practical works

NUMBER OF WEEKS: 28

COURSE TYPE: specialized

COURSE OBJECTIVES:

Knowledge of the main aspects of the bakery process:

- raw material and its quality
- preparation and fermentation of dough
- baking dough
- storage and preserving of bakery products

THEMES Raw materials and additives used in the bakery industry, Storage of raw materials and auxiliary, Preparation of raw materials and additives in order to manufacture, Preparation of dough, Kneading. Kneading machinery, Dough fermentation, Final proofing, Pre-baking operations of dough pieces, Baking, Storage and Preservation of bakery products.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE EVALUATION: answers to exam 80%, final answers to Laboratory works work 20%

EVALUATION FORMS: Oral examination

BIBLIOGRAPHY

1. Banu Constantin et al, 2002-Manualul inginerului din industria alimentara. Editura Tehnica, Bucuresti.
2. Despina Bordei, 2005-Tehnologia moderna a panificatiei, Editura AGIR
3. Mihaly Anca Cozmuta, Pop Flavia, 2008-Tehnologia panificatiei, Editura Agraria.
4. Despina Bordei, 2007-Controlul calitatii in industria panificatiei-Metode de analiza. Editura Academica, Galati

QUALITY CONTROL OF FOOD I

CODE: D29TPAL861

CREDITS: 4

COURSE COORDINATOR: Senior Lecturer, PhD, Ramona CĂPRUCIU

YEAR / SEMESTER: IVth Year / Ist Semester

HOURS PER WEEK: 1 hour of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: obligatory / training in the field

COURSE OBJECTIVES: Knowledge of general methods and techniques for assessing food quality characteristics

TOPICS:: Student's knowledge and correct learning of food quality control and quality assurance; Understanding the concepts of modern concept on quality; The evolution of the concept of quality; Current guidelines on quality definition;

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, regular practical testing during the semester 15%, final answers to Laboratory works 15%.

ASSESSMENT FORM: exam

REFERENCES

1. R. Scorei, "Calitatea în industria alimentară" -Editura Sitech , Craiova, 2004
2. Banu Constantin, Calitatea și controlul calității produselor alimentare. Editura Agir, București, 2002

TECHNOLOGY OF MEAT AND MEAT PRODUCTS

CODE: D29TPAL757

CREDITS: 5

COURSE COORDINATOR: PhD Professor Violeta NOUR

YEAR / SEMESTER: 4th year / 1st Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: speciality

COURSE OBJECTIVES: Knowledge of raw materials, conservation principles, technological processes, machinery and finished products in the meat industry

THEMES: Raw materials for slaughter; Technology of animal processing in slaughterhouse; Morphological structure, chemical composition and meat quality; Changes occurring in the

muscle after the slaughter of the animal; Preservation of meat by refrigeration and freezing; Preserving meat by salting; Thermal treatments used in the meat industry; Meat processing; Sausage manufacturing and technology; Technology of canned meat products

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, activity at Laboratory works 15%; regular testing 15%

ASSESSMENT FORM: exam

REFERENCES

1. Banu C., Alexe P., Vizireanu C. Procesarea industrială a cărnii. Editura Tehnică, București, 1997.
2. Nour V. Tehnologia cărnii și produselor din carne. Editura Universitaria, Craiova, 2008.
3. Nour V. Metode de analiză și control în industria cărnii și produselor din carne. Editura Sitech, Craiova, 2004.

TECHNOLOGIES IN THE SUGAR INDUSTRY

CODE:D29TPAL758

CREDITS: 4

COURSE COORDINATOR: PhD.Associate Professor. Petre SAVESCU

YEAR / SEMESTER: IVth Year / 1st Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: specialized

COURSE OBJECTIVES: Knowledge and learning of the stages of the process of obtaining sugar. Knowledge and exploitation of plants and equipment which are used in the sugar products industry.

TOPICS: Sugar beet - raw material: morphology and anatomy of sugar beet; chemical components of sugar beet. Preparation of sugar beet for processing process. Extracting sugar from beet. Purification of the diffusion juice. Evaporation. Sugar crystallization. Drying and sifting of sugar. Utilization of by-products. Processing of raw sugar. Learning of sugar legislation in Romania.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 60%, periodic testing of practical skills throughout the semester 20%, final answers to Laboratory works 20%

ASSESSMENT FORM: exam

REFERENCES

1. Petre Savescu, 2008, Sugar beet technology, SITECH Publishing House, Craiova,
2. Petre Savescu, 2009, The modern methods of physico-chemical analysis used in the sugar production process, Universitaria Publishing House, Craiova
3. Al. Stroia ; E. Aved ; M. Angelescu, 1994, Biochemistry and technological quality of sugar beet Editura Tehnic Publishing House, București
4. Roy L. Whistler, James N. BeMiller, 2004, Carbohydrate Chemistry for Food Scientists, C.H.I.P.S., Mazoch Road, Weimar, Texas;
5. Piotr Tomasik, 2004, Chemical and Functional Properties of Food Saccharides, C.H.I.P.S., 10777 Mazoch Road, Weimar, Texas;
6. Kevin J. Yarema, 2005, Handbook of Carbohydrate Engineering, C.H.I.P.S., 10777 Mazoch Road, Weimar, Texas;

TECHNOLOGIES IN THE TOBACCO INDUSTRY AND AROMATIC PLANTS

CODE:D29TPAL759

CREDITS: 4

COURSE COORDINATOR: Senior Lecturer, PhD, Nicolae LASCU

YEAR / SEMESTER: IVth Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: complementary

COURSE OBJECTIVES: Knowledge of the stages in the technological process used in the production of tobacco products and aromatic plants.

TOPICS: Knowledge of tobacco and aromatic species and varieties for the development and use of production technologies; Knowledge of the systematics and chemical composition of tobacco and aromatic plants; Establishing differentiated technologies according to the biological characteristics of the varieties, as well as in relation to the technological offer; Establishing the main ways of using aromatic plants and tobacco in the food industry, Acquiring control legislation for tobacco and aromatic plants in Romania.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, regular practical testing during the semester 15%, final answers to Laboratory works 15%.

ASSESSMENT FORM: verification

REFERENCES

1. Nicolae F. Aniția și col. – *Fiziologia și biochimia tutunului*. Ed. Tehnică-București, 1993
2. Ovidiu Bojor – *Ghidul plantelor medicinale și aromatice* de la A la Z. Ed. Fiat Lux, 2011
3. Emilia Constantinescu, 1999- *Plante medicinale și aromatice*. Ed. Sitech. Craiova
4. N. Hodișan – *Cultura tutunului*, Editura GrafNET, 2006
5. Leon Sorin Muntean și col. – *Fitotehnie*. Ed. AcademicPres Cluj-Napoca, 2008

ADDITIVES AND INGREDIENTS IN FOOD INDUSTRY

CODE:D29TPAL760

CREDITS: 4

COURSE COORDINATOR: Professor, PhD Scorei Romulus

YEAR / SEMESTER: IVth Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: domenium

COURSE OBJECTIVES: Knowledge and use of additives in the food industry, Conditions for the use of food additives, International regulations on the fields of use and maximum admissible food additives

TOPICS: The importance and necessity of the use of additives in the food industry, the national and international regulations on the fields of use and the maximum permissible doses for food additives, The role of additives, ingredients and technological auxiliaries in improving the quality of foodstuffs, Classification of food additives and auxiliaries, Preservatives and antioxidants, Sealing, stabilizing, buffering, hardening and sintering, water retention agents, clarifying and stabilizing agents, foam forming agents, baking agents, dough conditioning substances, baking yeast, enzymes, flavorings, flavorings And flavor enhancers, Food colorants, Acid sweeteners, Sweeteners, Emulsifiers, Texturing agents: hydrocolloids

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to Laboratory works 30%.

ASSESSMENT FORM: colloquy

REFERENCES

1. **R. Scorei** - "*Rolul aditivilor și auxiliarelor alimentare în asigurarea calității alimentelor*", - Editura Sitech , Craiova, 2004
2. **R. Scorei**, Mihaela Mitruț, V. Cimpoiașu, I. Petrișor, I. Olteanu, I. Brad "*Utilizarea aditivilor și auxiliarelor în industria agro-alimentară*", Editura Agora, 1999.
3. **R. Scorei** - "*Calitatea în industria alimentară*" -Editura Sitech , Craiova, , 2004

4. C. Banu - "Aditivi si ingrediente pentru industria alimentara, Ed. Tehnica, Bucuresti, 2000

5. Elena Oranescu - "Aditivi alimentari- necesitate si risc", Ed. Semn E, Bucuresti , 2005

THE SECOND SEMESTER

QUALITY CONTROL OF FOOD

CODE: D29TPAL861

CREDITS: 4

COURSE COORDINATOR: Senior Lecturer, PhD, Ramona CĂPRUCIU

YEAR / SEMESTER: IVth Year / IInd Semester

HOURS PER WEEK: 1 hour of course, 2 hours of practical works

NUMBER OF WEEKS: 10

COURSE TYPE: Compulsory / training in the field

COURSE OBJECTIVES: Deepening modern methods and techniques for assessing food quality

TOPICS: Deepen knowledge of food quality control, Deepening knowledge of the food quality and safety system: HACCP system

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, regular practical testing during the semester 15%, final answers to Laboratory works 15%.

ASSESSMENT FORM: exam

REFERENCES

1. R. Scorei, "Calitatea în industria alimentară" -Editura Sitech , Craiova, 2004

2. Banu Constantin, Calitatea și controlul calității produselor alimentare. Editura Agir, București, 2002

TECHNOLOGIES IN THE OIL INDUSTRY

CODE: D29TPAL862

CREDITS: 4

COURSE COORDINATOR: Senior Lecturer, PhD, Ramona CĂPRUCIU

YEAR / SEMESTER: IVth Year / IIst Semester

NUMĂR ORE PE SĂPTĂMÎNĂ: 2 ore curs, 2 ore lucrări practice

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 10

COURSE TYPE: obligatory / specialized

COURSE OBJECTIVES:: Knowing and acquiring the stages of the technological process of oil production

TOPICS: Knowledge of the main properties of vegetable oils, Undertaking technological processes for obtaining crude oils from different raw materials; Crossing the stages of the oil refining process, Data on the qualitative aspects of vegetable oils.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, regular practical testing during the semester 15%, final answers to Laboratory works 15%.

ASSESSMENT FORM: exam

REFERENCES

1. Banu Constantin – *Manualul inginerului de industrie alimentară*. Vol II. Editura Tehnică. București, 1999

2. Căpruciu Ramona- *Tehnologii utilizate în industria uleiului*. Editura Sitech. Craiova, 2011

3. Căpruciu Ramona- *Metode de analiză și control în industria uleiului*. Editura Sitech. Craiova, 2016

MILK AND DAIRY TECHNOLOGY

CODE: D29TPAL863

CREDITS: 5

COURSE COORDINATOR: PhD. Associate Professor. Petre SAVESCU

YEAR / SEMESTER: IVth Year / IInd Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 10

COURSE TYPE: specialized

COURSE OBJECTIVES: Knowing and acquiring the stages of the technological process of obtaining drinking milk and technological processes for obtaining dairy products.

TOPICS: Knowledge of dairy raw materials to design, develop and use of production technologies; The chemical composition of milk. The factors which influence the chemical composition and characteristics of the milk. Qualitative and quantitative milk reception. National and European requirements. Primary treatments for milk. Milk for drink technology. Dietary acidic dairy products. The technology of obtaining of consumption cream. Butter manufacturing technology. The used technologies in cheese production. Technology of manufacture of special cheeses. Ice Cream Making Technology. SWOT analysis for a milk processing plant.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 60%, periodic testing of practical skills throughout the semester 20%, final answers to Laboratory works 20%

ASSESSMENT FORM: exam

REFERENCES

1. Petre Săvescu, Mircea Preda, 2009, Study on improving redox processes that occur in milk processing, Universitaria Publishing House, Craiova,
2. Walstra P., Jenness R., 1984, Dairy Chemistry and Physics, Wiley&Sons Publishing, New York;
3. Alfa Xenia Lupea, Dorina Ardelean, Mirabela Padure, 2000, Chemistry and control of food of animal origin, Politehnica Publishing House, Timisoara
1. Mircea Leonte, Traian Florea, 1998, Food Chemistry, vol I, Pax Aura Mundi Publishing House, Galati;
2. Traian Florea, 2001, Food Chemistry, vol II, Academiei Publishing House, Galati;
3. Belitz E., Grosch M, 1999, Food Chemistry, SpringerVerlag, Berlin;
4. Lelia Musca, 1979, Biochemistry of animal food products, University of Galati Publishing House, Galati;
5. Fox P.F., McSweeney P., 1998, Dairy chemistry and biochemistry, Aspen Publ.;

PRACTICE FOR THE LICENSE WORK

CODE: D29TPAL864

CREDITS: 4

COURSE COORDINATOR: Associate prof. PhD. Tuțulescu Felicia

YEAR / SEMESTER: IVth Year / IInd Semester

HOURS PER WEEK: 6 Hours/day

NUMBER OF WEEKS: 3

COURSE TYPE: obligatory / specialized

COURSE OBJECTIVES: Knowledge of the principles and methodology of drafting and editing the license work

TOPICS: Knowledge of the working methods specific to the subject in which the license is being prepared

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: project 100%

ASSESSMENT FORM: project

BIOTECHNOLOGIES IN THE FOOD INDUSTRY

CODE: D29TPAL865

CREDITS: 4

COURSE COORDINATOR: Senior Lecturer, PhD, Ramona CĂPRUCIU

YEAR / SEMESTER: IVth Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: Optional / training in the field

COURSE OBJECTIVES: Knowledge of the subject matter and biotechnological research methods. Products obtained. Applications

TOPICS: Presentation of the main applications in food biotechnology, Knowledge of micro-organisms of biotechnology interest; Description of Organic Biocatalyst Enzymes Elaborated by the Living Cell, Traceability of biotechnological aspects in technological processes of obtaining food products

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, regular practical testing during the semester 15%, final answers to Laboratory works 15%.

ASSESSMENT FORM: exam

REFERENCES

1. Ramona Căpruciu, *Implicarea biotehnologiilor în industria alimentară*. Editura Sitech, 2013
2. Banu Constantin, Nicolae Butu, Viorel Sahleanu, Doruleț Răsmeriță, Antoaneta Stoicescu, Traian Hopulele, *Biotehologii în industria alimentară*. Ed. Tehnică. București, 2000
3. Felicia Dragomir, *Microbiologia alimentelor*. Editura Universitaria Craiova, 2006
4. Popa Aurel, Giurgiulescu Liviu, *Bazele biotehnologiilor în industria alimentară*, Ed. Universitaria, Craiova, 2007

FALSIFICATION OF FOOD PRODUCTS AND TRACKING THEM

CODE: D29TPAL868

CREDITS: 4

COURSE COORDINATOR: Prof.univ.dr.ing.Dr.h.c. Iacobescu Fanel

YEAR / SEMESTER: IV Year / II Semester

HOURS PER WEEK: 2 hours of course, 2 hours of lab

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES:

Understanding food risk.

Food quality control. Food Expertise.

Assimilation of techniques and methods of analysis used in order to track falsification of food products of animal and non-animal origin.

Understanding the HACCP principles according to "Codex Alimentarius".

TOPICS

A. Course

Food: notion definition, food matrix.
Food information.
The authenticity and traceability of food
Food risk analysis. Risk assessment principles of food and drinking water, related to human health.
Food risk analysis. Chemical risk assessment.
Control of the food quality. Food Expertise.
Food frauds.
Assessing the safety of genetically modified food.
Food falsification. Water falsification.
Falsification of food products of animal origin: meat, minced meat, meat preparations, food fats.
Falsification of animal food products
Falsification of food products of non-animal origin
Applying HACCP principles according to Codex Alimentarius.
HACCP food safety management system. Hazard analysis, determination of critical control points.

B. Lab

Research of monounsaturated fatty oils in virgin olive oil: application to oil research in oil residue
Identification of arabic-robust mixtures in soluble coffee
Preservation mode may have an effect upon the consistency and composition of Cymbopogon citrates oil
Dosing glucose acid in honey by CZE a new criterion for analyzing honey characteristics.
Physical and chemical characteristics of deb Nyons oil.
Assessment of vanilla qualities
Tracking falsifications on dairy products (milk and derivatives).
Tracking falsifications on meat and derived products.
Physico-chemical control of cereals and cereal derivatives (bread)
Physico-chemical control of alcoholic beverages.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to seminary works 20%

ASSESSMENT FORM: exam

REFERENCES

1. *** **Annales des falsifications, de l'expertise chimique & toxicologique**, publiées par La Société des expertis-chimistes de France, nr. 961, ISSN 0242 6110
2. **CHRISTISN J. DUCAUZE**, Fraudes alimentaires. Ed Tec & Doc, collection STAA, ISBN: 2-7430-0598-X
3. **MENCINICOPSCI G., PISCOI P.** (2004) - Analiza riscului- Aditivi alimentari – Calitate si Management 4, 43-47.
4. **MENCINICOPSCI G.** (2004) – Autenticitatea si Trasabilitatea alimentelor – Calitate si Management, 3, 45-47.
5. FAO/WHO, Criteria for evaluating acceptable methods of analysis for Codex purposes, CX/MAS 95/3

MARKETING

CODE:D29TPAL869

CREDITS: 4

COURSE COORDINATOR: PhD.Associate Professor. Radu Lucian PÂNZARU

YEAR / SEMESTER: IVst Year / IIst Semester

HOURS PER WEEK: 2 hours of course, 2 hours of seminar

NUMBER OF WEEKS: 10

COURSE TYPE: field

COURSE OBJECTIVES: Planning, organizing and coordinating agro-food marketing activities; Interpretation of legislation in the food industry as well as basic notions of food; Marketing, strict adherence to the principles of human nutrition and current regulations on food additives; Using basic knowledge to interpret marketing projects; Applying the principles of human nutrition and involvement in

the selection of information necessary for the creation and completion of databases in the food industry; Objective evaluation of how to develop and implement the marketing strategy; Developing a marketing project with application in the food industry.

TOPICS: Introductory Marketing, Organizing Marketing Services, Agribusiness Market, Elements of Consumer Psychology, Segmentation of Markets, Marketing Forecast, Marketing Mix, Market Making of the Economic Agent - An Integral Part of Marketing Strategy.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to Laboratory works 30%

ASSESSMENT FORM: verificare

REFERENCES

1. Constantin M. și colab., 2009, Marketing of agro-food production, Agro Tehnica Editorial house, București;
2. Lendrevie J., Lindon D., 1993, Mercator, Theorie et pratique du marketing, Edition Dalloz, Paris;
3. Manole V., Stoian Mirela, 2001, Agromarketing, ASE Editorial house, București ;
4. Meghișan M., Nistorescu T., 1998, The basics of marketing, Editura Scrisul Românesc publishing, Craiova ;
5. Oancea Margareta, 2007, Management of economic management and strategy of agricultural units Ceres Editorial house, București;
6. Pană D., Pană D. D., 1995, Practical Guide to Management and Marketing in the Food Industry,. Sitech publisher, Craiova;
7. Pânzaru R.L., 1999, Agro-food marketing, Universitatea din Craiova;
8. Pânzaru R.L., Medelete D. M., Ștefan G., 2007, Elements of management and marketing in agriculture, Universitaria Editorial house, Craiova;
9. Pânzaru R. L., 2017, Marketing – course notes, University of Craiova;
10. Ștefan G., Bodescu D, Toma A.D., Pânzaru R.L., 2007, The economy and the agri-food products, Alfa publisher, Iași.

MANAGEMENT

CODE:D29TPAL870

CREDITS: 4

COURSE COORDINATOR: PhD.Associate Professor. Radu Lucian PÂNZARU

YEAR / SEMESTER: IVst Year / IIst Semester

HOURS PER WEEK: 2 hours of course, 2 hours of seminar

NUMBER OF WEEKS: 10

COURSE TYPE: field

COURSE OBJECTIVES: Knowledge of the notions of the economic agent in terms of its organization, its functionality, the way of implementation of the modern management techniques and methods.

TOPICS: The role of the food industry in the production of food for human consumption, Introductory management, Running management in modern management, Production capacity and optimal ways of use in the food industry, Creation and development of technical-material basis in the food industry, Organization and management of production Nutrition, Organization of food industry production by types of enterprises, Technical and economic forecasting in the food industry, Human resource management in the food industry, Labor normalization in the food industry

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to seminars 30%

ASSESSMENT FORM: verification

REFERENCES

1. Koontz h., 1984, Management, Mc. Graw Hill Book Company;
2. Manolescu Gh., 1995, Financial Management, Economic Editorial house, București;
3. Neagu Cibela , 2004, Company's management, Tritonic publisher, București;
4. Mullis L., 1995, Management and Organisational Behaovir – Pitman, London;

5. Oancea Margareta, 2007, Management of economic management and strategy of agricultural units Ceres Editorial house, București;
6. Pană D., Pană D. D., 1995, Practical Guide to Management and Marketing in the Food Industry,. Sitech publisher, Craiova;
7. Pânzaru R.L., Medelele D. M., Ștefan G., 2007, Elements of management and marketing in agriculture, Universitaria Editorial house, Craiova;
8. Pânzaru R. L., 2017, Management – course notes, University of Craiova;
9. Ursachi I., 2001, Management, ASE publisher, București;
10. X X X, 2001, Guide to Economic Indicators, Teora Editorial house, București.