Transilvania University of Braşov, Romania

Study program: Food Engineering

Faculty: Food and Tourism
Study period: 4 years (bachelor)

1st Year

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Mathematics	MAT	5	2	2		

Course description (Syllabus): sets. elementary functions. analytic geometry; vector calculation; sequences and series of real numbers; definitions; convergence of sequences; Cauchy's criterion; series with nonnegative terms; absolute convergence; alternating series; functions of a real variable; limit of a function; continuity of a function; derivative of a function; application of derivatives and Taylor's series; functions of several real variables: functions of two variables (limits. continuity; partial derivative; higher order partial derivatives (homogeneous functions. Taylor's theorem); maximum and minimum values of functions; indefinite integrals; definite integrals; improper integrals; improper integrals of the first kind; improper integrals of the second kind; beta and gamma functions; improper integrals involving a parameter; double integrals; first order differential equations.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Chemistry	CHIM	4	2	-	2	-

Course description (Syllabus): general notions of chemistry(atom, molecules, mole, equivalent gram); classification of chemical elements; chemistry laws; chemical bonds; water, metals, fuels, chemical sources for electricity.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Physics	FIZ	5	2	-	2	-

Course description (Syllabus): mechanic phenomena: principles and fundamental lows; oscillations and waves; wave phenomena; gases and gaze's laws; liquids: hydrostatics and hydrodynamics; surface and transport molecular phenomena; thermodynamics**;** optics; electric and electromagnetic fields. spectroscopy; atomic and nuclear physics; radioprotection; physical methods used in food engineering, control and expertise.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Computer programing and programing language I	PCLP1	5	3	-	2	-

Course description (Syllabus): main hardware and software computer components; operating systems; peripherics; specific software applications for food industry; web browsing.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Elements of Mechanical Engineering I	EIM1	4	2	-	2	-

Course description (Syllabus): systems of forces. polar moment of a force. the moment of a force around an axis; equivalent systems of forces; geometry of masses. centre of mass; equilibrium of a rigid body subjected to ideal connections; equilibrium of systems of rigid bodies subjected to ideal connections. trusses; equilibrium of rigid bodies and systems of rigid bodies subjected to real connections (frictions); kinematics of rigid bodies; dynamics of rigid bodies.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Ecology and environment protection	EPM	4	2	-	1	-

Course description (Syllabus): ecology, environment engineering, and human activity; structure and functionality of eco-systems, principles of environmental protection in agriculture and food; pollution in human eco-systems; technological remodeling;

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language (English)	LE1	2	1	1	-	-

Course description (Syllabus): substantive, adjective, article, noum, pronoum, verb, adverb, prepoziton.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Academic Writing	SA	1	1	-	-	-

Course description (Syllabus): Academic writing: text, discourse writer, reader. Importance of ethics in scientific research. Drawing the reader's attention; Paraphrasing texts; Academic structures used in scientific texts. I. Citing and combining cited sources; Academic structures used in scientific texts II. Organizing texts, extracting information, writing abstracts; Academic structures used in scientific texts III. Identifying sources to write scientific texts.; Using databases; Academic structures used in scientific texts IV. Writing references. Common referencing styles; Academic structures used in scientific texts V. Writing academic texts (technical reports, instructions, procedures, manuals); Academic structures used in scientific texts VI.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Theory of Probabilities and mathematical statistics	TPSM	5	2	2	-	-

Course description (Syllabus): The course is aimed at students in the economic and engineering field. It has two parts. The first part deals with the study of probability theory and the second part with statistics. Students will acquire skills for solving practical situations using probabilistic methods, forecasting, etc.

After completing the course, students should known: The concept of random events, the calculation laws for probabilities. The concept and the properties of conditional probability. Methods to solve probability problems by multiplication rule, total probability formula and Bayes' Rule. The concept of independent events. Multidimensional random variables. Two dimensional random discrete variables. Bivariate distributions, marginal distributions and conditional distributions. The concepts and properties of cumulative distribution function and probability density function of continuous distributions, random variable independency, the distribution of functions with respect to random variables. Master the methods to solve the distribution of the function of independent random variables. The definitions, properties and calculations of expectation and variance. Expectation and variance of Binomial distribution, Poisson distribution, Uniform distribution, Exponential distribution and Normal distribution. The definition, properties and calculations of covariance and correlation coefficient. The concepts of population, individual, statistic and its distribution. The Chi-Square distribution the t distribution the F distribution. The distributions of statistics frequently used from normal population. Parametric estimation with the method of moment and the method of maximum likelihood. Efficiency of estimations. The interval estimation of the parameter of the normal distribution. The basic idea and definition of testing hypotheses. The testing methods for expectation and variance of the normal population.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Computer programing and programing language II	PCLPII	5	2	-	2	-

Course description (Syllabus): classification of programming languages; algorithms; c++ programming languages. types of data. main commands and instructions; data matrix; strings; algorithms for string sorting; algorithms for data matrix; examples for main programming structure used in food industry.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Legislation and Consumer Protection	LPC	4	2	2	-	–

Course description (Syllabus): Legislation generalities; New package of Hygiene to ensure the food safety hygiene; General Food Law 150/2004; Regulation 852/2004 General hygiene conditions with food; Regulation 853/2004 General hygiene conditions with food of animal origin; Regulation 854/2004 official food control; Regulation 882/2004 on official control of food business operators.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Elements of Mechanical Engineering II	EIM2	4	2	-	2	-

Course description (Syllabus): strength of materials; stresses and strains; axial load ;traction/ compression; torsion of circular cross section beams; statical moments and moments of inertia; diagrams of internal forces; bending of beams; buckling of beams; state of stress and strain.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Organic chemistry	CO	5	2	-	1	-

Course description (Syllabus): chemical reaction, chemical systems, structures and properties, alkenes, alcohols, phenols, amines, alcadiens, halogens, carbonyl compounds.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Analitic chemistry	CAN	5	2	-	2	-

Course description (Syllabus): macromolecular compounds, methods and techniques for anti-corrosive protection; composite materials, pollutions and environmental protection.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language (English)	LE2	2	1	1	-	-

Course description (Syllabus): present simple and continuos; present perfect; present perfect continuos; past simple; past continuos; past pefect; past perfect continuos; the future.

2nd Year

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Biochemistry	BPA	5	2	-	2	-

Course description (Syllabus): features and structural components of living organisms; foods and basic nutrients; carbohydrates - structure, role physical and chemical properties, mainly represented; lipids - structure, role physical and chemical properties, mainly represented; proteides - structure, role physical and chemical properties, mainly represented; vegetal pigments in food; substances of secondary metabolism and their food value.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Physics2	FIZ2	4	2	-	2	-

Course description (Syllabus): This course introduces the fundamental principles governing the transport of momentum, energy, and mass. Students will practice solving relatively simple problems representing transport phenomena in various engineering operations. Analytical methods are typically employed to develop a quantitative understanding of transport phenomena characterized by spatial (one dimensional) or temporal changes. Students will be able to solve relatively simple problems representing transport phenomena in various engineering operations.

Analytical methods are typically employed to develop a quantitative understanding of transport phenomena characterized by spatial (one dimensional) or temporal changes.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
General Microbiology	GM	5	2	-	2	-

Course description (Syllabus): origin and evolution of bacteria; morphology of bacteria; physiology of bacteria; the growth and multiplication of bacteria; bacteria's ecology; pathogenic elements; microorganisms that can contaminate food.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Food Industry Operations I	OIA1	5	2	-	2	-

Course description (Syllabus): tools for investigating characteristic phenomena for mechanical unit operations: dimensional analysis, material balance, rheology, similarity theory, particle size analysis; Methods and apparatus for obtaining heterogeneous mixtures, methods and apparatus for shredding materials with different textures.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Elements of Electrical Engineering	EIE	4	2	-	2	-

Course description (Syllabus): general notions in electro techniques; CC circuits; CA circuits; tri-phases circuits; CA equipments used in food industry; electronics for food industry.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Colloids in food industry	CIA	5	2	-	2	-

Course description (Syllabus): colloids systems, characteristics, classification, structure; chemical equilibrium; colloidal system – obtaining, purification, properties; hydrocolloids, glucans, emulsions.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language (English)	LE3	2	1	1	-	-

Course description (Syllabus): conditional sentences, the passive voice, relative clauses, question tags, pharasal verbs;

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Principles of human nutrition	PNU	4	2	-	2	-

Course description (Syllabus): overview on nutrition, brief history, food, nutrition and food hygiene; principal classes of biochemical compounds in food; milk and milk products consumption needs and risks**;** meat and meat products, consumer needs and risks**;**fish, and eggs, consumer needs and risk; honey and spices; fresh fruits and vegetables; cereals and cereal products, dried legumes, consumption and health effects,refined sweets and soft drinks;alcohol and alcoholic beverages; fats in food; food preservation and processing technology influence the nutritional values; foods and immunity; the nutritional value of food.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Hygiene in Food Companies	ISIA	4	2	-	2	-

Course description (Syllabus): risks: the range of microbial risks in food processing; pathogen resistance to sanitizers; aerosols as a contamination risk; improving design; improving building design improving zoning within food processing plants; risk assessment in hygiene management; good manufacturing practice (gmp) in the food industry; the use of

standard operating procedures (sops); improving hygiene in food transportation; improving the control of insects in food processing; ozone decontamination in hygiene management; testing surface cleanability in food processing.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Consumer Behaviour	COCO	4	2	2	-	-

Course description (Syllabus): Course highlights: introduction to consumer behavior; factors influencing consumer behavior; springs and motivational theories of consumer behavior; consumer segmentation; purchasing decision and decision-making stages; knowing the consumer as an essential element in achieving a marketing strategy; ad-hoc measurement systems values - VALS typology; consumer and consumerism; consumer loyalty to the brand - differences between brand and lovemark concepts; consumer behavior in the online environment - opportunities and difficulties in terms of consumer knowledge and persuasion.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Special Microbiology	MS	4	2	-	2	-

Course description (Syllabus): microbiology of milk and milk products;microbiology of meat and meat products; microbiology of poultry meat and poultry meat products; microbiology of meat of fisch, crustaceans and molluscs; microbiology of egg and egg products: microbiology of honey; microbiology of vegetable foods;microbiology of water used în food processing; microbiology of air, surfaces and hands of those working în the food industry.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Food Industry Operations II	OIA2	4	2	-	2	-

Course description (Syllabus): characteristic phenomena occurring in the conduct of unit operations such as mechanical and hydrodynamic (sedimentation, filtration, centrifugation, sieving, electrostatic separation, separation in magnetic field). Within each chapter are presented the theoretical aspects of phenomenology that each operation based factors influence their actions and representative types of installations running operation.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Foreign Language (English)	LE4	2	1	1	-	-

Course description (Syllabus): the gerund, the infinitive, modal verbs, reported speach, the subjunctive; prepozitions.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Computer-assisted graphics	GAC	4	2	-	2	-

Course description (Syllabus): The course aims to familiarize students with the fundamental notions of technical drawing but also with the application in drawing using AUTOCAD

Course title	Code	No. of credits	Number of hours per year of study				
			course	seminar	laboratory	project	practical work
Field practice	P1	4	-	-	-	-	90

Course description (Syllabus): Labor protection rules specific for practical activities; Conditions that must be fulfilled food samples for physico-chemical and bacteriological determinations (acceptance tests); Physicochemical determinations made on foods such as milk and milk products, meat and meat products, non-animal food products (determination of protein, fat, Kreiss reaction, acid, cellulose, moisture, ash, calcium, chloride, organoleptic etc.); Mycological examination of food (determination of yeasts and molds, isolation, identification, colony counting and results); Bacteriological examination of food; determination of Salmonella, coliforms, E.Colli, total number of germs, Listerya Monocytogenes, Clostridium Perfringens.

3rd Year

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Control and quality assurance in food industry	CCIA	5	2	-	2	-

Course description (Syllabus): introduction; fundamental concepts for quality products and services; standards – standards; certification and quality guarantee; compliance certification quality products and services; calimetria

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
New products design	PPN	5	2	-	2	-

Course description (Syllabus): Course highlights:New product concept. The life cycle of a product. Strategy for new product development. Development of the attitude. Research and Development; Stages of new product development (demand signal – generation of ideas - product definition - implementation - prototype design - feed-back on finished product) - Specificity of food consumption and consumer preferences to consumption and to purchase. Objective components, subjective and mixed in the decision-making act. Objects of industrial and intellectual property; Elements of psychology in the process of creation
Innovation management; Launch and promotion principles

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Sensory analysis I	AS	4	2	-	2	-

Course description (Syllabus): general on sensory analysis of food-historical importance as a complementary method to control and food expertise; the role of sense organs near the sensory characteristics of food; sensory analysis of dairy; sensory analysis of meat and meat preparations;

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Machines in food industry 1	UIA1	4	2	-	1	2

Course description (Syllabus): The course covers problems related to the latest trends in the processing of agro-food products of vegetable origin, mainly focusing on conditioning, primary processing and high-quality cereal processing. Problems are addressed in terms of food ecology and safety, both technologically and technically.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Vegetable raw materials	MPV	4	2	-	2	-

Course description (Syllabus): conditioning of vegetal products; sedimentation; filtration, calibration, sieving; aeration; drying; cereals silos; fruit and vegetable storage.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Additives and Ingredients in Food Industry	AIIA	4	2	-	2	-

Course description (Syllabus): role, legislation, description, use of the food additives and ingredients; toxicity of food additives; role, legislation, description, use of aromas, flavors, imitations of fat, enzymatic preparations, dietary fibres and other ingredients in food; possibilities of replacement synthetic additives.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Process automation in food industry	APIA	4	2	-	1	-

Course description (Syllabus): Preparing students for the purpose of acquiring knowledge in the theory and practice of automatic adjustment of processes in the food industry.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Packaging labeling and design in food industry	ADIA	3	2	1	-	-

Course description (Syllabus): Generalities. Need for food packaging; Ways of packaging and packaging functions; Raw materials used for the packaging: metals, ceramics, plastics, paper, cardboard, and composites; Packaging manufacturing methods; Dosage of food; Closure methods of packaging; Labeling and inscription of packaging .

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Oil and margarine technology	TUM	4	2	-	2	-

Course description (Syllabus): Vegetable fats; Raw materials used to vegetable oil production; Typical oilseeds, oleaginous fruits of grown trees; Oilseeds Conditioning; Hydrothermal treatment; Oil extraction by pressing; Oil extraction with solvent; Vegetable oil refining.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Technology of processing vegetables and fruits	TPLF	5	2	-	1	-

Course description (Syllabus): The course covers issues related to the latest trends in vegetable and fruit processing engineering, focusing on conditioning, primary processing and high-quality processing. Problems are addressed in terms of food ecology and safety, both technologically and technically.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Technologies in milk industry	TIL	5	2	-	2	-

Course description (Syllabus) : general terms of raw materials of animal origin; reception milk; heat treatment by cold milk; milk transport outside and inside the processing unit; filtering milk; pasteurization of milk, pasteurization regimes and techniques; packaging of liquid milk and milk products; milk sterilization, sterilization regimes and techniques; concentration in milk and milk powder obtained; techniques of obtaining milk products; technological lines in the dairy industry;

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Sensory analysis II	AS2	3	2	-	2	-

Course description (Syllabus):; sensory analysis of fish, crustaceans and molluscs; sensory analysis of honey; sensory analysis of fruits and vegetables; sensory analysis of alcoholic beverages; sensory analysis of confectionery; sensory analysis of canned; partially preserved and processed foods sensory analysis of food; sensory analysis of food fats; conditions are imposed in sensory analysis of food; sensory analysis of eggs and derivatives

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Machines in food industry 2	UIA2	3	2	-	1	2

Course description (Syllabus): The importance of the object of study; General notions regarding raw materials of animal origin; Installations for cooling the milk immediately after milking; Machines and installations for the transport of chilled milk; Theoretical basis of milk filtration; Equipment and installations for filtering milk at the reception for processing;. Pasteurization of milk; the theoretical bases of pasteurization; pasteurization plants; Sterilization of milk; the theoretical basis of milk sterilization; flow sterilization installations; Specific equipment and installations for the extraction of the fatty phase from milk - obtaining the cream, specific treatments for pasteurization and deodorization; Reception of animals at the slaughterhouse; Conditions and requirements regarding the quality of the

meat depending on the state of preparation of the animals before slaughter; Specific devices to the stunning and juggling of animals; Machines for coarse cutting of meat (Calculation, construction and operation of lobsters);

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Malt and beer technology	TMB	3	2	-	2	-

Course description (Syllabus): Raw materials used and substances used in the production of traditional beverage; Preparation of raw materials and auxiliary materials according to the manufacturing recipe; Technological processes of obtaining traditional beverage; Quality control of traditional beverage; Raw materials used in of beer production; Equipments and installation of malt manufacture; The production of wort; The moulding and mash converting (brewing); The boiling of wort with hops, wort fermentation, beer clarification; Beer bottling.

Course title	Code	No. of credits	Number of hours per year of study				
			course	seminar	laboratory	project	practical work
Specialized practice	PS	4	-	-	-	-	90

Course description (Syllabus): Labor protection rules specific for practical activities; Construction study, operation and operating mode, equipment, machinery equipment and technological lines for the following areas: beer, wine, fruit juices and vegetables, bakery products, vegetables, meat, milk, sugar and confectionery, vegetable oils, refrigeration and air conditioning, packaging and storage; Principles of laboratory equipment used to determine the physicochemical and microbiological food and food products; Physicochemical and microbiological determinations made on foods such as milk and milk products, meat and meat products, vegetable food products.

4th Year

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Marketing	MAR	3	2	1	-	1

Course description (Syllabus) : Marketing – general issues; The market of agri-foods products; The product policy in agri-food marketing: nutritional value of agri-food products; packing of agri-food products; standardization and certification in the field of agri-food products; The price policy in agri-food marketing: quality-price dependence; the price depending on the seasonality of the products; the price- nutritional value dependence; The distribution policy in agri-food marketing; distribution channels; The promotion policy in agri-food systems: the package and label- main vectors; advertising; merchandising; The promotion policy for ecological products.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Wine, vinegar and distilled drinks technology	TVOB	4	2	-	2	-

Course description (Syllabus): Vineyards and type of wines; General considerations on grape varieties used for wines production; The technology of obtainig white, red and aromatic wines; The production and the description of special wines: wines for dessert, sparkling and flavoured wines; Physicochemical characteristics and sensory of the main types of wines; The obtaining and the characteristics of spirituous distilled drinks; Definition, beers classification, nutritional value and the physiological action of beer. Technological schemes of obtaining blonde and stout beer.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Technologies for meat industry	TCCC	5	2	-	1	1

Course description (Syllabus): stunning of animals; skinning and depilating of the animals; cutting and grinding meat (cutting, chopping, mincing fine in regular cutting, slicing, shredding frozen meat); blending and mixing meat and compositions (mixers, homogenizers); membranes filling, dosing and slicing; plants for cooling and heat treatment of meat and meat products; technological lines in the meat industry.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Milling Technology	TM	5	2	0	1	0

Course description (Syllabus): technological flow in cereals milling industry; classification of the main equipments used in cereal milling industry; cereals roll mill. classification. diagram. working process; size sorting of intermediary products; size sorting flowchart; plane sieve; classification. diagram. working process; semolina equipment; classification. diagram. working process.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Technologies for sugar industry	TCIZ	5	2	-	1	-

Course description (Syllabus): Raw materials used to sugar production; Conditioning of sugar beet; Sugar beet shredding for extraction; Cutting; Extraction methods. Sugar extraction by diffusion; Refining of raw sugar; Types of sugar; Conditioning, storage and packaging of sugar .

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Principles and Methods for Food Preservation	PCPA	4	2	-	2	-

Course description (Syllabus): The discipline " Principles and methods of food preservation " includes issues related to the latest trends in the techniques of preserving agricultural and food products. The issues of ecology and food safety are tackled, both technologically and technically.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Air-conditioning and cooling installations	CIF	4	2	-	2	-

Course description (Syllabus): generalities. artificial freezing, ways and means; refrigerants and refrigeration mixtures; specific thermodynamic refrigeration process; refrigerators with mechanical vapor compression; refrigerators with absorption; refrigerators with thermoelectric effect; components of refrigeration and air conditioning:compressors, heat exchangers, expansion valves; command and control units.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Special biotechnologies	BS	4	2	-	1	-

Course description (Syllabus) : Definition and history of food biotechnology;Nature and type of fermentation bacteria; About Lactic acid bacteria; About Lees; About Molds; Enzymology; About Starter cultures; Starter culture types.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Bakery technology	TP	3	2	0	2	0

Course description (syllabus): technological flow in bread making and pastry industry; classification of the main equipments used in bread making and pastry industry; equipments for bread making (dough mixing, dough dividing, fermentation, dough modeling, ovens); classification. Diagram; working process; equipments for pastry production. classification. diagram. working process.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Machines in food industry 3	UIA3	3	2	1	-	1

Course description (Syllabus): Hygienic design legislation; Hygienic design criteria for food industry; Materials for equipment; Stainless steel welding; valves, pumps and homogenisators; HD for buildings and process for food industry.

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
General economy	EG	4	2	1	-	1

Course description (Syllabus): fundamentals of economic activities; costs of enterprises; economic and financial analyze; enterprise performance evaluation; diagnosis of economic growth; diagnosis of profitability; diagnosis of financial balance

Course title	Code	No. of credits	Number of hours per week			
			course	seminar	laboratory	project
Sensory analysis II	AS2	4	2	-	2	-

Course description (Syllabus):; sensory analysis of fish, crustaceans and molluscs; sensory analysis of honey; sensory analysis of fruits and vegetables; sensory analysis of alcoholic beverages; sensory analysis of confectionery; sensory analysis of canned; partially preserved and processed foods sensory analysis of food; sensory analysis of food fats; conditions are imposed in sensory analysis of food; sensory analysis of eggs and derivatives

Course title	Code	No.of credits	Number of hours per week			
			course	seminar	laboratory	project
Management	MAN	4	2	1	-	-

Course description (Syllabus): Modern management and society**;** Elements concerning the theory of management economic organizations**;** Scientific methods and techniques in management**;** Management perspectives in the field of agriculture and feeding**;** The European unique market for agricultural products**;** The evolution of agricultural management in Romania**;** Management in the field of food engineering**;** Management and classifications of businesses in food industry**;** Methods and techniques of management in engineering grocery shop**;** Methodology of the decisional system in companies in food industry