



Research subjects developed by the Faculty of Food Science and Engineering

PhD programs

Industrial engineering	Food engineering	Biotechnology
Research directions		
<ul style="list-style-type: none"> • New processing technologies that ensures food safety an equilibrated nutrition and sustainability • Food safety strategies correlated with an equilibrated nutrition and sustainability • Sustainability of aquatic biresources 	<ul style="list-style-type: none"> • Management of natural bioresources 	
Research themes		
<ul style="list-style-type: none"> • Optimization of the food processing technologies and unit operations • Valorization of the by-products and raw materials • Functional foods tailored for different categories of consumers • Microencapsulation and control released of the bioactive compounds • Studies on food products` minimal durability and extended shelflife • New packaging materials for foods and modified atmosphere packaging techniques • Food reformulation • Researches on emerging pathogens control • New bioactive compounds obtained with enzymatic hydrolysis • Rapid methods for food components identification • New foods obtained by minimal processing technologies • Phytobiotics and probiotics applications in aquaculture • Evaluation of the fish populations from Danube river • Stress control and illnesses occurrence in recirculating aquaculture systems • Optimization of the recirculating aquaculture systems design • New fishes species growth in recirculating aquaculture systems 	<ul style="list-style-type: none"> • Biosyntheses of functional compounds using enzymes synthesized by microorganisms • Enzyme kinetics from different vegetal matrixes and valorization of functional products • Fermentation processes design, control of the microorganisms and simulations • New methods for understanding biomolecules properties applying in- silico methods • Strategies for bioremediation de-pollution and valorization of the byproducts 	

MASTER OF SCIENCE

Food Engineering	Applied engineering	Engineering and management in public food	Environment science
Research directions			
<ul style="list-style-type: none"> • New foods with functional properties obtained with conventional and minimal processing technologies • Researches on food safety and quality criteria • Modernization of the production systems and technologies in aquaculture 	<ul style="list-style-type: none"> • Genetic characterization of microorganisms; Amplification of the metabolic activities for improving bioconversion yield, and bioremediation • 	<ul style="list-style-type: none"> • Researches on quality and safety criteria for specific menus 	<ul style="list-style-type: none"> • Applications of systems for terrestrial and aquatic ecosystems monitoring

Research themes		
Food engineering		
STUDY PROGRAM Food science and engineering	STUDY PROGRAM Quality control and expertise	STUDY PROGRAM Aquatic bioresources science and engineering
<ul style="list-style-type: none"> ⇒ Integrated technologies for obtaining new ecological foods ⇒ Process parameters optimization and increase of the technological yield ⇒ Innovative technologies applications for novel foods processing ⇒ Shelf life studies and methods to enhance the durability of the food products ⇒ Modified atmosphere packaging and tests of new packaging materials for different foods 	<ul style="list-style-type: none"> ⇒ Evaluation of biological hazards potential to contaminate the food chain ⇒ New methods for chemical hazards identification ⇒ Evaluation of food safety and quality for conventionally processed foods and minimally processed foods ⇒ Functionalization of food components ⇒ Biometric indicators for foods traceability ⇒ Studies on foods' 	<ul style="list-style-type: none"> ⇒ Integrated aquapond systems for the growth in recirculating systems conditions ⇒ Valorization of the byproducts from fishery production ⇒ Genetic evaluation and monitoring of the molecular and biotechnological factors that influence the sturgeon growth rate and quality in Danube river and in recirculating systems ⇒ Modelling the growth of

<ul style="list-style-type: none"> ⇒ Researches on structure-function relationships ⇒ Reducing incidence of chemical and microbiological contaminants in the production processes ⇒ New methods for byproducts and waste valorization 	<p>durability and extended shelf life</p>	<p>different fish species in recirculating system conditions</p>
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STUDY PROGRAM Biotechnology of Natural Resources

- ⇒ Studies on cytotoxicity and genotoxicity of food additives and essential oils from different aromatic plants
- ⇒ Biotechnological management of the natural agroalimentary resources
- ⇒ Nanoencapsulation of bioactive compounds
- ⇒ In vitro and in-silico methods for characterization of the biomolecules structure-function relationships
- ⇒ Extraction and characterization of bioactive compounds from vegetal raw materials, algae and shellfish
- ⇒ Waste valorization
- ⇒ Bioconversion processes with applications in food science and bioremediation

STUDY PROGRAM Engineering and management in public food and agrotourism

- ⇒ Researches on new functional food dishes
- ⇒ Ecological food dishes integrated with the general quality management principles and environment protection strategies
- ⇒ Bioactive compounds from foods in menus with a balanced nutritional profile
- ⇒ Culinary preparation of tailored foods

STUDY PROGRAM Ecology and environment protection

- ⇒ Specific bioindicators monitoring for the evaluation of the terrestrial and aquatic ecosystems
- ⇒ Evaluation of the endangered species of local flora and fauna
- ⇒ Integrate strategies design for reducing the incidence of specific pathogens on the local flora

BSc programs

Food engineering	Applied engineering	Engineering and management in public food	Environmental science
Research areas			
<ul style="list-style-type: none"> • Optimization of the technologies for raw materials processing in order to obtain meat, milling, bakery dairy, edible oils, sugar, confectionaries and winery products • Applied researches for evaluation of foods` quality and safety • New production systems and technologies in aquaculture 	<ul style="list-style-type: none"> • Studies of the microorganisms used in industrial applications for producing enzymes biopreservatives additives, ingredients and starter cultures 	<ul style="list-style-type: none"> • Optimization of the technologies applied in public foods systems designed to enhance the agrotourism in Romania 	<ul style="list-style-type: none"> • Researches for natural bioresources management • Valorization of the biotechnological potential for food production

Research themes		
Food Engineering		
STUDY PROGRAM Food Engineering	STUDY PROGRAM Quality control and expertise	STUDY PROGRAM Fishery and fish industrialization
<ul style="list-style-type: none"> ⇒ Technologies for food diversification and novel foods production ⇒ Optimization of the process parameters in food production and distribution chain ⇒ Byproducts valorization ⇒ Minimal processing technologies applied for novel foods production 	<ul style="list-style-type: none"> ⇒ Identification of contaminants in the food chain and specific methods for their control ⇒ Food authentication criteria designed for different food categories ⇒ Food quality in the distribution chain ⇒ New indicators for time-temperature treatments` effectiveness ⇒ Influence of preservatives on food 	<ul style="list-style-type: none"> ⇒ Water quality control in recirculating systems ⇒ Optimization of the fish nutrition in RAS systems ⇒ Strategies for prevention, protection and regeneration of the aquatic resources

	<p>quality</p> <ul style="list-style-type: none"> ⇒ Proteins' structure-function relationships ⇒ Microbial and enzymatic inactivation kinetics 	
STUDY PROGRAM Industrial Biotechnology		
<ul style="list-style-type: none"> ⇒ Microbial enzyme production ⇒ Modulation of the starter cultures activity ⇒ The role of additives and preservatives in biotechnology ⇒ Novel foods obtained with minimal processing technologies 		
STUDY PROGRAM Engineering and management in public food and agrotourism		
<ul style="list-style-type: none"> ⇒ Applied researches for culinary preparation of traditional food ⇒ New strategies for culinary preparation of ecological foods ⇒ Menu -nutritional needs relationship according to culinary intended use of food ⇒ Market acceptability of new culinary foods 		
STUDY PROGRAM Ecology and Environment protection		
<ul style="list-style-type: none"> ⇒ Biosynthesis on functional components from enzymes synthesized by microorganisms ⇒ Evaluation of the endangered species of local flora and fauna ⇒ Integrate strategies design for reducing the incidence of specific pathogens on the local flora and fauna ⇒ Waste management, bioremediation depolluting strategies and byproducts valorization 		