ERASMUS COURSES – FACULTY OF ENGINEERING 2019/2020

Course Code	
Module	
Title:	**Food Preservation Techniques**
Teacher:	**Cecilia HODÚR, Zsuzsanna LÁSZLÓ**
Contact:	hodur@mk.u-szeged.hu zsizsu@sol.cc.u-sszeged.hu
Level	BSc (minimum 5 students)
Termin	spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce most important parts of food preservation techniques.
Module Subject	Principles of food protection, protection of food by heating, evaporation, chilling, freezing, chemical preservation techniques, bio-preservation, new techniques used in food protection such as pulsed electric field, high pressure processing, x-rays, pulsed light, ozone, microwave, radio waves, and applications.
Number of Credits	4

Course Code	
Module	
Title:	**Food Safety**
Teacher:	**Judit KRISCH**
Contact:	krisch@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce basics of food safety.
Module Subject	Definitions: definition of food, food safety. Food safety in the EU: EC regulation 178/2002. Principles of the general food law. EFSA and RASFF. HACCP. Risk assessment, management and communication. Principles of HACCP. „From farm to fork" concept: Agriculture: food safety aspects of crop cultivation and husbandry. Food safety aspects of food processing. GMP, GHP, new technologies. Distribution of foods. Food retail. Food safety aspects for the catering industry and for home made foods. Hygiene: Cleaning and disinfection in the food industry. Hygiene at home.
Number of Credits	4

Course Code	
Module	
Title:	**Transport Phenomena and Unit Operations**
Teacher:	**Cecilia HODÚR, Sándor BESZÉDES**
Contact:	hodur@mk.u-szeged.hu beszedes@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	spring semester (2+1 lessons a week) (mark: 1,2,3,4,5)
Module Aims	Aim of the course is to introduce most important elements of impulses-, heat- and mass transfer.
Module Subject	Impulses tr: Newtonian low of viscosity, Bernoulli eq., basic elements of unit operations, i.e.: dimensionless numbers, specified substitution systems, etc, fluid dynamics of Newtonian and non-Newtonian fluids; Heat tr: basic principles of conduction, convection and radiation, calculation with them, steady st and non st.st. systems; Mass tr: diffusion, Fick's low, analogies. Most typical transport operations: sedimentation, mixing, filtration, heat exchange, evaporation, distillation, drying.
Number of Credits	4+2

Course Code	
Module	

Title:	**Industrial Heat-transport**
Teacher:	**Erika VARGA-SIMON**
Contact:	siera@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce the background of the heating and cooling instruments; give elemental methods to calculate the size of a heat exchanger. Show some type of these instruments in industrial technologies.
Module Subject	Mathematical and process background: • Convective heat transfer • Heat conduction • Role of Nusselt numbers • Role of Reynolds numbers • Forced convection, roles of pumps • Calculate the size of the heating surface Main types of heat exchangers • Heat exchangers for fluidics • Heat exchangers for gases Industrial areas using heat exchangers: • Food-industry (pasteurization, sterilization, cooling, drying) • Air condition, heat pumps systems
Number of Credits	4

Course Code	
Module	
Title:	**Membrane separation techniques**
Teacher:	**Szabolcs KERTÉSZ**
Contact:	kertesz@mk.u-szeged.hu
Level	BSc (minimum 3 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,2,3,4,5)
Module Aims	The aim of the course is to give general knowledge of the membrane technology, especially the pressure driven membrane separation processes like microfiltration (MF), ultrafiltration (UF) nanofiltration (NF) and reverse osmosis (RO).
Module Subject	The students will learn and understand some laboratory and industrial membrane separation methods and their basics. The utilizations of MF, UF, NF and RO processes, the membrane fouling and methods to reduce it by different techniques will be also discussed. Pre- and post-treatments will be analyzed for the process intensification. Other scope is to teach the application of membrane techniques in laboratory and industrial scale. Furthermore, the students will be able to understand and apply novel water purification membrane separation methods in wastewater treatment and water quality analysis. To learn and use the scientific literature article databases (like Scopus and Science direct) of the membrane separation techniques (related to water purification and food industry) is an important aim of the course.
Number of Credits	4

Course Code	
Module	
Title:	**Meat and Meat Products Technology**
Teacher:	**Dóra BENCSIK**
Contact:	bencsikd@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce most important parts of meat products technology.
Module Subject	Physical, chemical, microbiological and histological characteristics of meat, conversion of muscle to meat, preservation methods; meat refrigeration and freezing technologies, meat processing technologies; curing,

	smoking, emulsification, fermentation, canning, restructured meat products, meat packaging technology, quality control analysis in meat and meat products.
Number of Credits	4

Course Code	
Module	
Title:	**Food Toxicology**
Teacher:	Dóra BENCSIK
Contact:	bencsikd@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	spring semester (2 lessons a week) (mark: 1,2,3,4,5)
Module Aims	The aim of the course is to provide students with the basis of food toxicology and their role in modern food science. Within the subject matter, the basic concepts of toxicology are discussed. Students can overcome the toxicological risks that arise when producing, processing and consuming food.
Module Subject	Principles of food toxicology, food additives, micotoxins, plant toxins, animal toxins, toxicological risks of food producing, processing and consumption, pesticide residues, veterinary products, plant protection products.
Number of Credits	4

Course Code	
Module	
Title:	**Baking Technology**
Teacher:	**Balázs P. SZABÓ**
Contact:	szpb@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce most important parts of baking technology.
Module Subject	Physical and chemical properties of cereal, cereal quality criteria, storage of cereal, milling of cereal, flour quality criteria, rheology and chemistry of dough, bread making technology, macaroni production technology, biscuit production technology, bulgur production technology, breakfast cereals and snack food technology, quality control analyses in cereals and cereal productsWill be discussed the main raw materials of bread, particularly the flour, the yeast, the salt, and the water. Learn about the technology, scaling the ingredients, activates the yeast. Important part of the course is the mixing (mixing times, dough temperature, structure of the dough, dough kneading - kneader types, different methods - straight dough method; sponge and dough method - sourdough method -, sponge fermentation, sponge parameters, gluten development, and structure). We analyzed the baking process (heat transfer, steaming at the beginning of the baking process, temperature, baking time).
Number of Credits	4

Course Code	
Module	
Title:	**Dairy Technology**
Teacher:	**József CSANÁDI**
Contact:	csanadi@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall semester (2+1 lessons a week) (mark: 1,2,3,4,5)
Module Aims	Aim of the course is to introduce the milk production, and the processing of raw milk.
Module Subject	Basic information of milk production, collection and reception. General treatments of milk processing (clarification, separation, fat standardization, homogenization and pasteurization). Production of market milk type milk product. Butter making. Production of fermented milk products. Cheese varieties, introduction to

	cheese making, the steps of the cheese making, the utilization of whey, the mechanization of cheese making. Production of milk powder and ice cream.
Number of Credits	4+2

Course Code	
Module	
Title:	**Chocolate World**
Teacher:	**Ernő GYIMES**
Contact:	gyimes@mk.u-szeged.hu
Level	BSc (minimum 5, maximum 10 students)
Termin	fall semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce most important parts of cocoa processing and chocolate manufacturing.
Module Subject	Discovering of cocoa and speading around the World. Introduction to cocoa tree, bean and the primary processing of cocoa. Different type of cocoa, flavour, taste. Chemical composition of cocoa bean. White, milk and plain chocolate: differences and similarities. Chocolate manufacturing and industrial processing. Cocoa butter and its alternatives. Moulding and enrobing of chocolate. Packaging of chocolate bar and pralines.
Number of Credits	4

Course Code	
Module	
Title:	**Finding and Presenting Scientific Data**
Teacher:	**Mária SZABÓ**
Contact:	mszabo@mk.u-szeged.hu
Level	BSc and MSc (minimum 5 students)
Termin	fall and spring semester (one 2-hour lesson a week) (mark: 1, 2, 3, 4, 5)
Module Aims	Aim of this course is to show how to look for scientific data, how paper publishing works, how to write a scientific paper or how to make a presentation.
Module Subject	Introduction to scientific data. Finding valuable data on the internet. Learning about the different types of information. Scientific writing and presentation techniques.
Number of Credits	4

Course Code	
Module	
Title:	**Modeling and Programming in Measurement**
Teacher:	**János SIMON, József SÁROSI**
Contact:	sarosi@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall semester (0+2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce the modeling and programming in LabVIEW and Scilab environments with some practical aspects of measurement.
Module Subject	Introduction to measurement and data acquisition. Introduction to the LabVIEW Platform. Simple averaging and temperature conversion in LabVIEW. Acquisition and storage of measured data in LabVIEW without hardware. Configuring and testing DAQ devices. Acquire and output real-world signals, analyze data for meaningful information; develop embedded or autonomous systems; and share results using displays, reports. Acquisition and storage of measured data in LabVIEW with DAQ devices. Introduction to the Scilab. The Console & Editor. Matrices, functions & operators. Solving differential equations related to measurement in Scilab Xcos. Graphics & plotting.
Number of	4

Credits	

Course Code	
Module	
Title:	**Kinematics and kinetics**
Teacher:	**István BÍRÓ**
Contact:	biro-i@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	For students the main aims of the education of this module: Kinematic and kinetic investigation of moving mass points, rigid bodies and structures of rigid bodies including planar closed moving kinematical chains. Students will be able to compare the expected motion state with motion state realized by the investigated mechanism (moving structure).
Module Subject	Kinematics of mass point. Position, velocity, acceleration. Motion equations and diagrams. Kinematical investigation of translational motion of mass points. Harmonic oscillation. Circular motion. General plane and spatial motion. Kinematics of rigid bodies. The motion state of rigid body. Elemental motion components. Description of planar motion of rigid bodies. Velocity and acceleration state of planar moving rigid bodies. Kinematics of relative motion of mass points and rigid bodies. Degrees of freedom of mechanisms, constructions, classification. Kinematical investigations of planar four-bar moreover centric and eccentric slider crank mechanisms. Kinematical investigation of cam-drive mechanisms. Kinematical analysis of complex closed planar mechanisms containing more revolute and prismatic joints. Kinetics of mass points. Motion equations of mass points. Impulse, angular momentum, work, energy, power, efficiency. Constrained motion. Kinetics of relative motion. Vibration of mass points. Free vibration, damped free vibration, excited-damped vibration. Kinetics of particle systems. Collision of mass points and rigid bodies. Classification of different collisions. Elastic impact, inelastic collision, real collision. Kinetics of rigid bodies. Inertial moment of rigid bodies. The rotation of rigid bodies. Planar motion of rigid bodies. Rotational oscillating motion.
Number of Credits	4

Course Code	
Module	
Title:	**Engine and Vehicle Systems**
Teacher:	**Ferenc FARKAS**
Contact:	farkasf@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall semester (2 lessons a week) (mark: 1,3,5)
Module Aims	For students the main goals of the education of this module: - to study different engine and vehicle systems - to be able to compare this systems - to know reasonable choosing the perfect solutions
Module Subject	Engine systems - Otto and Diesel engines - Four and two stroke cycle engines - Cycles of internal combustion engines - Losses, efficiencies and main characteristic curves - Process of mixture forming - Electronic injection systems - Supercharging of engines - Cooling and lubrication of engines Vehicle systems - Function of the power transmission systems

	- General construction of the master clutches, gear boxes, differential gears and the cardan drives - Carriage constructions and steering of vehicles - Brake systems of vehicles
Number of Credits	4

Course Code	
Module	
Title:	**PLC programming 1**
Teacher:	**Sándor CSIKÓS**
Contact:	csikos-s@mk.u-szeged.hu
Level	BSc (maximum 3 students)
Termin	fall semester (4 hours a week) (mark: 1,2,3,4,5)
Module Aims	Aim of the course is to give an introduction to the programming of PLCs (Programmable Logic Controllers) and to show how they connect to production lines. Since the course builds upon previous courses a basic knowledge of electrical circuits is recommended.
Module Subject	PLC I/O modules IEC 61131 Programming languages Programming with Siemens S7-1200 series PLC-s Connecting controllers to sensors and actuators Working on industrial models
Number of Credits	4

Course Code	
Module	
Title:	**Data and information visualization**
Teacher:	**György HAMPEL**
Contact:	hampel@mk.u-szeged.hu
Level	BSc (minimum 5 students, maximum 20 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	The aim of the course is to give an overview of human and computer aided information processing and visualization.
Module Subject	Human information processing. Statistical data and information visualization using computer applications. The types of data and information. The use of different chart types. Representation of relationships between data. Infographics.
Number of Credits	4

Course Code	
Module	
Title:	**Organization and Logistics of Tourism**
Teacher:	**József GÁL**
Contact:	galj@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce European tourism. We focus on Central and Eastern European part of the continent. To know some rules and financial aspects. Students plan a journey and make a tourist guide for travel agencies and a short film.
Module Subject	Europe and tourism, The history of tourism in Europe, The history of modern tourism in Europe, Tourist regions in Europe, The European Union, Tourism policy in the European Union, Regional policy and tourism in the European Union, Tourism and euro, Transportation in Europe and its impact on tourism, Environmental and

	social concerns in European tourism, Business tourism in Europe, Marketing Europe as a tourist destination, Tourism in Central and Eastern Europe, New trends in the European tourist industry
Number of Credits	4

Course Code	
Module	
Title:	**Elements of Marketing**
Teacher:	**Edina LENDVAI**
Contact:	lendvai@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to learn more about marketing and advertising. Students have exercises how to use marketing tools in practice. Marketing and engineering.
Module Subject	Introduction to marketing and advertising: Jobs and responsibilities, Corporate identity, logos, Branding Finding the customer: Market research, Customer profiles, Data collection, A telephone survey Planning a marketing strategy: The marketing plan, The four Ps, Pricing and positioning strategies Creating ads: The AIDA model for advertising, Working with an ad agency, Advertising channels, Rate sheets Marketing tools: Distribution channels, Types of discount, Types of retailer, Telemarketing, Direct marketing Presenting your public face: Public relations, Websites as a marketing tool, Sponsoring, Effective press releases Marketing through trade fairs: Giveaways, Organizing events, Attending a trade fair
Number of Credits	4

Course Code	
Module	
Title:	**Business & Management**
Teacher:	**József GÁL**
Contact:	galj@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce terminology and most important parts of business & management.
Module Subject	Industrial plant, enterprise, enterpriser and manager, subject of business, administration and scientific administration, selection of profession, enterprising and management, market conditions and production factors, production costs, plant sizes, plant location, juridical organization of plants, internal organization of plants, order, supervising and functional authority, centralization and delegation of authority, principles of organization, financial policies and sources.
Number of Credits	4

Course Code	
Module	
Title:	**Customer Care**
Teacher:	**József GÁL**
Contact:	galj@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce in flight and on board services. Students learn about airport technology, passenger safety, ground movements and services during flight. Some practical aspects are also part of the subject.
Module Subject	Introduction to customer care: Customer care success, Customer care business and jobs, Surprising facts about customer care

	Face to face with customers: Body language, A company visit, Meeting do's and don'ts, At a trade fair, The invisible customer Dealing with customers on the phone: General telephoning, The 'customer care' phone call, What the customers really hear Call center success: Taking an order, Hotline (Troubleshooting), Customer-centered call centers Delivering customer care through writing: Effective letters and emails, Format and informal writing styles, The five Cs of customer care writing, A case study Dealing with problems and complaints: Complaint strategies and policies, The letter of apology, Explaining company policy, Some opinions about complaints and apologies
Number of Credits	4

Course Code	
Module	
Title:	**Sales & Purchasing**
Teacher:	**József GÁL**
Contact:	galj@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce in sales and purchasing in engineering. Students learn about how to buy and sell, manage trade in engineering. Some practical aspects are also part of the subject.
Module Subject	Job and responsibilities: Job titles and tasks, A sales meeting, A sales meeting, A requisition New contacts: At a trade fair, Relationship building, Fellow-up emails Offers: A sales pitch, The AIDA approach to sales, A request for proposal, An offer letter Negotiations: Tips for successful negotiations, A company visit, Negotiating styles, Win-win negotiations Orders: Telephone orders, An online order, A change to an order, Numbers and figures, Contract term and phrases Customer care: Dealing with problems over the telephone and in writing, An online complaint form
Number of Credits	4

Course Code	
Module	
Title:	**Economics**
Teacher:	**József GÁL**
Contact:	galj@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce the logistics, basic definitions and terminology. Some practical aspects are also part of the subject.
Module Subject	The General Theory of the Goods. Economy and Economic Goods. The Theory of Value. The Theory of Exchange. 4 Principles of Economics. Use Value and Exchange Value. The Theory of the Commodity. The Theory of Money. Macroeconomics. Case studies and presentations.
Number of Credits	4

Course Code	
Module	
Title:	**Logistics**
Teacher:	**József GÁL**
Contact:	galj@mk.u-szeged.hu
Level	BSc (minimum 5 students)

Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce the logistics, basic definitions and terminology. Some practical aspects are also part of the subject.
Module Subject	Introduction to logistics: Setting the scene; Job in logistics; Regular activities Logistics services: Logistics acronyms; Product ranges; 3PL providers; Value-added services Inventory management and procurement: Inventory management; Continuous replenishment; Job advertisements Modes of transport: Transport and handling equipment; Container types, Types of goods Planning and arranging transport: Transport options, Measurements, Quotations Shipping goods: Marking, Loading, Advice of shipment, Shipping instructions Warehousing and storage: Handling equipment, Warehouse areas, Warehousing today Documentation and finance: Documents in foreign trade, Import instructions, Payment methods
Number of Credits	4

Course Code	
Module	
Title:	**Automobile Industry**
Teacher:	**József GÁL, Ferenc FARKAS**
Contact:	galj@mk.u-szeged.hu farkasf@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce the automobile industry, management, design, safety, basic definitions and terminology. Some practical aspects are also part of the subject.
Module Subject	Introduction to the car: Factors involved in buying a car; Types of car; Car sales The exterior: Exterior car parts; Car production; A quality problem; 8D report The interior: Interior car parts; The instrument panel; A delivery problem; A car configuration Under the bonnet: The engine; A technical support hotline; An international car show Performance and technical specifications: Launching a new model; A road test; Materials and their properties; A meeting role-play Safety: A magazine article; Active and passive safety features; Choosing safety features; Car recalls Design: Describing car design; The design process; Constraints; Expanding the product range Future trends: The car of the future; Environmental awareness; Making a presentation; Fuel cells
Number of Credits	4

Course Code	
Module	
Title:	**Business planning**
Teacher:	**Árpád BENKŐ-KISS**
Contact:	benko-ka@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce most frequent methods and parts of Business planning, and financial calculations.
Module Subject	Basics of Accounting, The Balance sheet and Income statement Securities, Financial calculations, Credits, and paybacks, Turnower NPV, IRR, Marketing, Financial ratios, Brake even analysis, Financial calculations- interest and compound interest, Geometric series in financial calculations Depreciation, Risk analysis, Cost Benefit Analysis CBA)
Number of Credits	4

Course Code	
Module	

Title:	**Human Resource Management**
Teacher:	**Sándor NAGY**
Contact:	nagys@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce the human resource management. Some practical aspects are also part of the Course.
Module Subject	What is HRM? Basics of the HRM. Understanding the logic of the management of the human resources. Challenges and new aspects of the topic. E.g. focusing on engineering aspects, managing the elderly workforce at the BMW car manufacturer, creativity management and its connections to engineering dimensions, complexity management affecting the HRM.
Number of Credits	4

Course Code	
Module	
Title:	**Management of Value Creation-based Organizational Competitiveness and Sustainability**
Teacher:	**Sándor NAGY**
Contact:	nagys@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce the logic of the competitiveness and the extended interpretation of sustainability in the field of competitive sector.
Module Subject	Understanding the definitional evolution of the notion of competitiveness and sustainability. The content of the value creation-based competitiveness regarding the competitive sector "Engineering the value creation" 7 pillars of the sustainability Strategic aspects of the competitiveness (Blue Ocean Strategy, sustainable competitiveness and how to harmonize the competitiveness and sustainability) Case Studies
Number of Credits	4

Course Code	
Module	
Title:	**Strategic Management**
Teacher:	**Árpád BENKŐ-KISS**
Contact:	benko-ka@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce the strategy management. Some practical aspects are also part of the subject.
Module Subject	Methodology of strategic planning. The environment of strategy (collecting facts, etc). Strategy formulation (formulation of the target image, selection of target groups, etc.) Strategy implementation. Strategy evaluation and control.
Number of Credits	4

Course Code	

Module	
Title:	**Communication of Modern Organizations and Society**
Teacher:	**Ferenc SZABÓ**
Contact:	szabof@mk.u-szeged.hu, szabof55@gmail.com
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,2,3,4,5)
Module Aims	The aim of the course is to give a general knowledge of communication, mass communication, marketing communication, and the different communication activities of modern organizations.
Module Subject	Another topic is to investigate communication from the different points of view in the organizations of modern society. We also deal with the communication between organizations, and the influence of global communication networks, supported by high-tech IT methods. Furthermore, we will discuss what is or what will be the role of direct personal and verbal communication in the communication systems of the future society. Contradictions between the high-level influence of global mass communication systems' messages and the uncountable number of massive personal and individual messages appearing in social media. Will human beings be separated or, in the end, isolated by IT devices? The long-term results of nowadays' communication process may be loneliness and depression? The course will address these questions.
Number of Credits	4

Course Code	
Module	
Title:	**Change Management**
Teacher:	**Ferenc Szabó**
Contact:	szabof@mk.u-szeged.hu, szabof55@gmail.com
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,2,3,4,5)
Module Aims	The aim of the course is to cover the basics of change management and to endow the students with the theoretical knowledge and practical skills to plan and implement successful change initiatives in different organizations.
Module Subject	The students will be familiar with the most important theories and models of organizational change. They will get access to the basic principles and the most useful tools of initiating and implementing organizational change. They will be able to realize when change is necessary, will understand how to plan a successful change process, what the most important phases of a change process are. They will be empowered with means to understand and handle the resistance of employees. They will understand the role of organizational culture in the adaptive or inert nature of different organizations. It will be discussed why some change initiatives fail and others succeed. Topics: 1. The importance of organizational adaptation, the dangers of inertia, the significance of change management 2. External and internal triggers of change, types of organizational change 3. Actors and roles in organizational change, characteristics of a good change manager 4. The process of organizational change (Kotter's model) 5. The phases of organizational change (Lewin's model) 6. Reasons of resistance against change and their handling 7. Change management tactics and management tools in implementing change 8. The effect of organizational culture on the adaptive or inert nature of organizations 9. Factors of success and failure in change initiatives
Number of Credits	4

Course Code	
Module	
Title:	**New Ways in Environmental Management and Waste Management**
Teacher:	**Ferenc SZABÓ**
Contact:	szabof@mk.u-szeged.hu, szabof55@gmail.com

Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,2,3,4,5)
Module Aims	The aim of the course is to give a general knowledge of environmental management and waste management in details, to survey the global and local results of environmental policy of the last decades, to discuss the remaining problems, for example the influences of overpopulation and climate change, the environmental pollution caused by waste. It is also important to investigate the possible solutions, the new methods and technologies, the technical background of modern environmental protection.
Module Subject	We discuss the different areas of environmental management, for example air and water quality management and soil protection. In the case of the direct protection of these elements, positive processes begin in the local environment, causes indirect changes in the quality of regional and global environment. By now, environmental sciences and industry has developed methods and technologies to solve most of the environmental problems. Why don't we use them? The answer to this question is, or will be solving the most important problems of the next generation. How can we stop the climate change, the overconsumption of the fossil energy sources, how can we use more renewable energy, recycle more solid waste? The course will address these questions.
Number of Credits	4

Course Code	
Module	
Title:	**Corporate Finance for Engineers**
Teacher:	**Brigitta ZSÓTÉR**
Contact:	zsoterb@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce the finance, basic definitions and indicators. Some practical aspects are also part of the subject.
Module Subject	Introduction to corporate finance: The role of the financial manager. Separation of ownership and management. Financial markets. Present Value. Net Present Value. NPV Rule. ROR Rule. Opportunity Cost of Capital. Managers and the Interests of Shareholders. Valuing Long-Lived Assets. PV Calculation. Short Cuts. Compound Interest. Nominal and Real Rates of Interest (inflation). Example: Present Values and Bonds. How Common Stocks are Traded? How to Value Common Stock? Capitalization Rates. Stock Prices and EPS. Discounted Cash Flows and the Value of a Business. Why Net Present Value Leads to Better Investment Decisions than Other Criteria?
Number of Credits	4

Course Code	
Module	
Title:	**Nutrition and Dietetics in Biosystems**
Teacher:	**Viktoria SZŰTS**
Contact:	szutsv@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	The purpose is to get information about quality and quantity of foods and feeds. The aim is to know how the association of food metabolism and benefit at both cellular and organic level contributing for state of health. Healthy nourishment in daily life of children, adults and sports too.
Module Subject	The topic of sciences: Nutrition is a key to health: what you eat and why? Tools for diet design. The human body: a nutrition perspective – from genetics to anatomy and physiology of digestion, storage and excretory system. Composition and function of meat, flour, cereals, milk and vegetables. Degradation of vitamins in different foodstuffs during processing and storage. Changes of proteins in row foods plants, fruits and vegetables. Changes of lipids are different in foods. Why the Mediterranean meal is the healthy food? One prominent theme is nutrition research today is individuality: each person responds individually to nutrients and that something I continually point out in this lectures.

Number of Credits	4

Course Code	
Module	
Title:	**Ion Channels of Living System and Channelopathies in Biosystem**
Teacher:	**Viktoria SZŰTS**
Contact:	szutsv@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	The aim is to give an overview of the structure-function relations of sodium, calcium, potassium and chloride ion channels in plants and animal cells.
Module Subject	The topic of sciences: Ionic currents through specific ion channels are responsible for the electrical activity and thereby the normal mechanical function of all type of cells and strongly influence the utilization of food and feeds. Ion channel structure and function is compared between plants and animals. Sodium ion channels association and calcium ion channels: similarity and differences. Potassium ion channels have different structure in plants and animals with same function: diversity in function and contributes to quality of foods. Alteration of ion channel can modify the function: inheritance of diseases of sodium, calcium and potassium channels; channelopathy in plants and animals. Effects of toxins are led to change the physiological function of channels (i.e. fungal secondary metabolites). Environmental stress factors can modify the function of channels. Mutation effects of inheritance diseases.
Number of Credits	4

Course Code	
Module	
Title:	**Database management**
Teacher:	**György HAMPEL**
Contact:	hampel@mk.u-szeged.hu
Level	BSc (minimum 5 students, maximum 20 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	The aim of the course is to give an overview of data models and the MySQL open source relational database management system
Module Subject	The concept of data and database. Modelling databases: the entity-relationship model and the relational data model. Normalization. Relational algebra. The Structured Query Language (SQL): syntax, data types, functions. Managing databases with MySQL open source relational database management system: creating models and converting them to database tables; creating, modifying and deleting databases and tables; creating relationships between tables; data input and output; creating queries. Database security.
Number of Credits	4

Course Code	
Module	
Title:	**Introduction to Public Finances**
Teacher:	**Sándor NAGY**
Contact:	nagys@mk.u-szeged.hu
Level	BSc (minimum 5 students)
Termin	fall or spring semester (2 lessons a week) (mark: 1,3,5)
Module Aims	Aim of the course is to introduce the logic of public finance management, the public decisions, the components and the contribution of the public finance system to sustainability and competitiveness.
Module Subject	Understanding the definitional evolution of the notion of public finances and the public finance management, the competitiveness and sustainability as well. The components of public finance system

	The functions of the public finance system Public decisions How to design and implement the budget The role of control mechanisms Contribution to the state level competitiveness and sustainable development Case Studies
Number of Credits	4