



International Programme

List of courses in English

Academic Year 2017 – 2018

Fall semester

Course code	Course title	Number of ECTS credits
IDW	Introduction Week	5
	<i>Business and Language courses</i>	
S_PEK_1	Business Economics	6
S_PRI_1	Business Management I	6
S_BSE	Business Ethics	6
S_FPO_1	Corporate Finance I	6
S_MAV	Introduction to Marketing Research	6
S_ACJ_1	English Language	6
S_CED_1	Czech Language for Foreigners	6
	<i>Civil Engineering courses</i>	
S_POS_1	Building Construction	5
S_SAD	Modern Architecture	5
S_TZB	Technical Building Equipment	5
S_KDK	Metal and Wooden Structures	5
S_INF_1	Informatics I	5
S_MZS	Soil Mechanics and Building Foundation	5
	<i>Logistics courses</i>	
S_N_AJL_1	English for Logistics	5
S_N_FLP	Physics in Logistics Processes	5
S_N_AIL	Applied Informatics in Logistics	5
S_N_MPS	Mathematical modeling of processes and systems	5
S_N_DOL	Transport Logistics	5
S_N_TCL	Technology logistics city	5
	<i>Optional courses (group of 10 students min.)</i>	
S_FYS	Physics	5
S_PAP	Flexibility and Strength	5
S_STT_1	Engineering Technology I	5
S_IPR	Innovation Processes	5
S_SMA	Internal Combustion Engines and Alternative Drives	5

Course descriptions

Introduction Week (Code: IDW) | Number of credits: 5

International Programme starts with the Introduction Week. This week is organized for all international students. It is meant as a first introduction to the Czech language and Czech culture. The week will give a possibility for socializing with international and local students.

Business Management I (Code: S_PRI_1) | Number of credits: 6

Course objectives

The aim of the subject is to acquaint students with the basis of company management. Students get knowledge of the character and charge of managerial functions, position and profile of a manager, styles of managerial work, company and organization structures and principles of their projection. Students will also be familiarized with the principles of human resources management. Students will understand the importance of communication and control company systems, ways of decision-making at particular managerial levels. A successful graduate: - is able to define the character and content of the managerial functions, position and profile of a manager, managerial work styles, business organisation structures and principles of their projection and principles of human resources management - is able to explain the importance of company management and of particular managerial functions, managerial styles of management, company systems and principles of human resources management - is able to define basic forms of motivation and stimulation of employees - applies gained knowledge to a practical example (suggestion of organisation and managerial structures, definition of the managerial style, suggestion of a motivation and stimulation system, determination of the position of a company on the market and its position on the market environment).

Topics

1. Definition of the term management
2. Position, profile and character of a manager, formation of a manager
3. Company - business operations, functionality of company
4. Company environment, interior and exterior environment

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5. Planning as a managerial function
 6. Entrepreneurial position of a company and company portfolio
 7. Elements and relations of an organisation structure
 9. Personnel activity in a company
 10. Personnel leadership, motivation and stimulation of workers
 11. Decision-making and decision-making processes
 12. Company control
 13. Communication in the management process

Business Economics I (Code: S_PEK_1) | Number of credits: 6

Course objectives

Completing the course, students gain basic knowledge about economy, the nature of business, the typology of business and legal forms of business. After completing the subject the student: - is able to characterize the material and capital structure of the company and factors that affect them - is able to explain the terms income, expenses, profit, added value - is able to define and analyze the turning point - is able to characterize sales and production stock activities in a company

Topics

1. Business environment
2. Legal forms of business
3. Enterprise property structure
4. Enterprise capital development
5. Costs, revenues, economic result
6. Costs models
7. Purposive costs classification – calculation
8. Enterprise activity
9. Innovation and marketing, sales activity
10. Production activity, production planning
11. Enterprise purchasing activity

12. Stockpile management

13. Current trends in production and stockpile management

Corporate Finance I (Code: S_FPO_1) | Number of credits: 6

Course objectives

Students learn to work with input data from controlling and other supporting activities. They understand meaning of data and manage to change them into inputs for decision making. Graduates of the course understand financial expression of internal relations of a company and relations of company to its environment. They understand companies' property, capital and personnel structure.

Topics

1. Role of financial manager in a company. Relations between controlling and corporate finances.

Work with data

2. Time value of money, relation of risk and revenues

3. Inventory management

4. Cash management, cash flow management

5. Receivables management

6. Long-term assets and investment decision making – static methods

7. Long-term assets and investment decision making – dynamic methods

8. Financial impact of getting new employees. Financial impact of education and development current employees

9. Cost models

10. Financing using equity

11. Financing using debt

12. Strategic financial decision making and optimization of capital structure of a company

13. Financial and capital markets

Business Ethics (Code: S_BSE) | Number of credits: 6

Course objectives



The aim of the subject is to make students familiar with the development, basic aspects and factors of business ethics. After passing the subject successfully, students are able to make comparison of current approaches in the field of transformation, they are able to analyse factual data about ethical behaviour of enterprises and their managers. Students apply their knowledge in practice, modify ethical behaviour of managers as a stimulus of social prestige, economic stability and prosperity of entrepreneurial entities.

Topics

1. Introduction to subject methodology and basic concepts.
2. History and present of business ethics.
3. Ethics manager behaviour standards and manager behaviour translations.
4. Social, ethics behaviour bases, professional and business ethics relation.
5. Ethics decision making frames.
6. Ethics in the personal and financial area.
7. Ethics in trade negotiations.
8. Social responsibility of managers.
9. Stakeholders x shareholders theory.
10. Ethics codes and ethics training.
11. Ethics behaviour in the different business branches.
12. Ethics challenges to present, professional corporations and ethics associations - ethics principle enforcement.
13. Good ethics - good business (a discussion with colleagues from other departments and professionals).

Introduction to Marketing Research (Code: S_MAV) | Number of credits: 6

Course objectives

The aim of the subject is to provide students fundamental information of marketing research and also to clarify the procedures, methods and techniques of marketing research, marketing research application possibilities in different areas and, last but not least, part of the process of marketing research. Successful graduates of the course can create, process and present the results of marketing research.

Topics

1. Introduction to marketing research, information system, research process and research questions.
2. Secondary data, database, and marketing information system.
3. Quantitative research, quantification and measurement of qualitative research.
4. Observation, experiment and market testing.
5. Data processing and data analysis, application of mathematical and statistical methods, presentation of results.
6. Questionnaire and its structure, styling and scaling issues.
7. Specific types of marketing research - promotion, pricing, new products, distribution channels research, segmentation research.
8. Work on a team project in the field of marketing research under the supervision of a tutor.
9. Work on a team project in the field of marketing research under the supervision of a tutor.
10. Work on a team project in the field of marketing research under the supervision of a tutor.
11. Work on a team project in the field of marketing research under the supervision of a tutor.
12. Work on a team project in the field of marketing research under the supervision of a tutor.
13. Presentation of team project in the field of marketing research.

Building Construction (Code: S_POS_1) | Number of credits: 5

Course objectives

The aim is to obtain professional knowledge of foundations, substructure, vertical supporting structures, chimneys, expansion and construction systems. After successful completion of the course the student: a) knows to determinate a module coordination and to determine and define the structural systems of multi-storey buildings (structural wall system, skeleton, and combined), structural systems of hall buildings (construction systems stressed primarily in bending, compression mostly, mostly drawn) and the superstructure. b) knows the principles of dilated and non-bearing structures, and s/he can suggest expansion in terms of differential subsidence and volume changes. c) is able to describe the type of shallow and deep foundations and explain the underlying load distribution in the soil and its effect on settlement construction. d) is able to resolve the skeleton and massive bottom structure, lighting, underground construction, insulation and construction of underground structures without a basement. e) can apply the knowledge of the vertical supporting structures (technological point of view, design of structural walls and columns, openings in bearing walls). f) is able to characterize the types of chimneys, assess the impact of

location on the stack is functioning correctly. Students can also evaluate the chimneys of the physical and chemical point of view and to propose a reconstruction or repair of the chimney.

Topics

- 1) Structural Systems I - multi-storey buildings
- 2) Structural Systems II - Indoor buildings
- 3) Dilation of buildings
- 4) Excavation and earthworks
- 5) Foundations I
- 6) Foundations II
- 7) Foundations III
- 8) Substructures
- 9) Vertical load-bearing structures I
- 10) Vertical load-bearing structures II
- 11) Vertical load-bearing structures III
- 12) Vertical load-bearing structures IV
- 13) Chimneys

Modern Architecture (Code: S_SAD) | Number of credits: 5

Course objectives

Initiation of dialogue between contemporary architecture, urbanism and art focusing on Czech architectural scene.

Topics

Discursus will present foundational debates about social and technological aspects of modern architecture and the continuation of those debates into contemporary architecture.

Technical Building Equipment 1 (Code: S_TZB_1) | Number of credits: 5

Course objectives

Introduction to waste water in buildings issue, potable water supply, gas supply, heating technology.

Topics

1. The issue of external engineering networks, management, public water supply
2. Sewer system and related structures draining sewage or rainwater
3. Pipeline network, electrical power and communication, heat, collector routes, connecting the house to the network equipment – connection
4. Situation of an object - sewer connections, water and gas
5. Typology of health facilities
6. Internal drainage - the purpose of drainage systems, plumbing fixtures, wastewater characteristics
7. Hydraulic calculation for the design and assessment of sewer pipes
8. Sewerage facilities and the sewer systems, domestic sewerage connections
9. Buildings - the distribution system and drainage systems, drainage systems design principles, designing drainage systems. Implementation of drainage systems, pumping sewage, waste water treatment
10. Water - the purpose of water supply, water connections, requirements for water system, the distribution of water supply
11. Pipe material for internal water supply, preparation and distribution of water, fire main, water main sizing, increasing water pressure
12. Domestic gaspipes, gas sampling equipment, gas connections, parts of gas installations, material domestic gas piping, gas appliances
13. Heating equipment

Flexibility and Strength (Code: S_PAP) | Number of credits: 5*Course objectives*

After completing the course the student will be able to state tension in cross-section of basic types of stress - pressure, tension, bending, shear, buckling and twisting. Further s/he can determine the deflection of basic structure by analyzing the bending equation.

Topics

- 1) Basic functions, concepts and assumptions of elasticity theory. Displacement. Deformation. Voltage. Saint-Venant's principle. Linear theory of elasticity. Physical laws, working diagram.

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- 2) Analysis of the rod - the basics. The connection components of the internal forces and stress components, components of the internal forces and external loads.
 - 3) Simple tension and pressure - stress, strain, relocation. Effect of temperature field and the initial tension.
 - 4) Simple bending angle and bending
 - 5) Simple shear. Simple bending - calculation of normal stresses. Design of curved beams.
 - 6) Transforming of the bent rods. Differential equations of the bending line.
 - 7) Method of initial parameters and Mohr's method. Calculation of the tangential stress - a massive and thin-walled sections. The importance of shear stress in bending. The center of the skid.
 - 8) Torsion free and bound. Big twist - solid and non-circular cross-section circular. Thin-walled cross-section of closed and open.
 - 9) Compound load cases of the rod. The spatial and angle bending. Tension (compression) and bending . Eccentric tension and pressure. The core section. Design of beams in case of a compound stress.
 - 10) Stability and buckling strength of compression members. Euler solutions. Critical power and voltage. Buckling strength approach.
 - 11) The theory of strength and failure. Stress and strain in the point of the body. The principal stress in plane strain, elastic and plastic state.
 - 12) Wall construction, types of stress, stress distribution, deformation
 - 13) Plate structure, types of stress, stress distribution, deformation

Metal and Wooden Structures (Code: S_KDK) | Number of credits: 5

Course objectives

The aim is to learn the design elements of wood and metal structures according to European technical standards, including preparation of drawings. Another goal is to teach the principles of the implementation of metal and wood elements and understand the links between structural mechanics and design of components.

Topics

1. List of limiting conditions and standards for the design of steel structures
2. Design elements, steel structures according to limit state 1 groups - tension, compression
3. Design elements, steel structures according to limit state 1 groups - bending, shear, twist

4. Design elements, steel structures according to limit state 1 groups - a combination of stress
5. Design elements, steel structures according to limit state 2 groups - strain and vibration design elements
6. Joints of steel structures Introduction to the design of timber structures
7. Properties of Wood List-limiting conditions and standards for the design of timber structures
8. Design features, timber structures according to limit state 1 groups - tension, compression, bending
9. Design features, timber structures according to limit state 1 groups - shear, torsion, combined loading
10. Design features, timber structures according to limit state 2 groups - and the deformation vibration of elements of design and construction of wooden joints

Informatics I (Code: S_INF_1) | Number of credits: 5

Course objectives

The aim of the course is gaining and complementing of the knowledge and practical skills in using personal computers in the range of the ECDL modules M1, M7, M3, M4 and partly AM3 and AM4. After the successful completion of the course, the student will be able to understand the concepts related to ICT, to use the Internet and its main services and work effectively with selected MS Office applications when creating and editing text and spreadsheet documents. These skills can be used for creating seminar and bachelor's works.

Topics

1. - 2. Adding of the knowledge to the level of ECDL Module M1 (basic concepts of information and communication technology) - hardware (basic terms and parameters), software (breakdown, licenses), computer networks (types, data transfer), use of ICT (basic concepts, communication, community), security (identity, data security, computer viruses), law (copyright, privacy policy)

3. - 4. Adding of the knowledge to the level of ECDL Module M7 (Internet and Communication) - Internet (basic concepts, security, browser settings), searching, saving and printing files, electronic communication (e-mail and other forms, security)

5. - 6. The full ECDL module M3 (Word Processing) - Work with documents, creating a document, formatting text, working with objects, mail merge, printing

7. - 8. The reduced ECDL Module AM3 (Advanced word processing) - an advanced text formatting, links, indexes, fields, collaboration tools, partitions, security and document settings

9. - 10. The full ECDL module M4 (Spreadsheet) - work with tables (create, edit, manage), cells (insert, select, edit, copy, format), lists, formulas and functions (basic use), graphs (creation and editing), prints

11. - 13. The reduced ECDL Module AM4 (Advanced work with spreadsheet) - Advanced formatting, advanced formulas and functions, data analysis (pivot tables, sorting, filtering), data checking (validation, monitoring), import and export of data, links, collaboration tools, security

Soil Mechanics and Building Foundation (Code: S_MZS) | Number of credits: 5

Course objectives

Aim of tuition of this subject is to explain basics of Geology, Advanced Geology and Soil mechanics.

Topics

1. Basics of geology, geological structure of the Earth
2. Basics components of Earth's crust, minerals and rocks
3. Endogenous processes geological structures, board tectonics
4. Exogenous processes 5. Tasks of Engineering geology, and its importance for practice
6. Hydrogeology
7. Regional geology 8. Origin and compound of rocks, water in soil
9. Mechanical characteristics of rock and soil
10. Classification systems of soil, granularity curve
11. Tension and deformations in soil, areal and depth grounds
12. Earthy forces
13. Hillside stability

Physics (Code: S_FYS) | Number of credits: 5

Course objectives

Subject Physics is focused on mastering of the theoretical basis of the classical physics. After the successful completion of the course, the student can describe physical phenomena and can use the gained knowledge in the study of technical subjects.

Topics

1. Space and time
2. Kinematics of a particle
3. Dynamics of a particle
4. Work, power, energy
5. System of particles and rigid solid body
6. Rigid body dynamics
7. Gravitational and gravity field
8. Oscillations, waves
9. Acoustics
10. Hydromechanics
11. Thermodynamics
12. Kinetic theory of matter
13. Optics

English Language I (Code: S_ACJ) | Number of credits: 6

Course objectives

The course objective is unification of the input level of students' language skills to B1 level of the Common European Framework of Reference for Languages. After successful completion of the course students will be able to actively use and understand sentences and expressions related to the basic areas which closely concern the students (providing basic information about themselves, their studies, their families, shopping, place of living, occupation, habits, etc.), implement a simple and direct information exchange on well known topic in common everyday conversations, describe their families, studies, neighbourhood and other phenomena concerning his/her needs, write a short essay on a general topic.

Topics

1. Common life situations, present simple (word order in questions)



2. Studies (classroom language), family, present simple, describing personality (personality adjectives), describing yourself
3. Travelling (airport), present continuous, defining relative clauses
4. Holidays, prepositions of time and place, past simple
5. Describing a photo, picture, art, past continuous
6. Music (modern music), questions with and without auxiliaries (presents simple, present continuous)
7. In a hotel, writing (describing a photo)
8. Future - going to, future - using present continuous, future plans
9. Will/won't, future predictions, opposite verbs
10. Will/won't, promises, offers, decisions, word stress
11. Present perfect - experience + ever, never, yet, just, already, clothes
12. Comparatives, superlatives, time expressions
13. Revision of tenses • Verbs • Pronouns • Word order • Numerals • Prepositions • Other grammar • Revision (Units 1. - 4.)

Czech Language for Foreigners (Code: S_CED_1) | Number of credits: 6

Course objectives

The course is prepared for foreign students. The aim of the course is reaching of A1 level of their Czech language according to the descriptor of the Common European Framework of Reference for Languages. After the completion of the course, the students will gain the following language skills:

- the students understand basic phrases which are needed for everyday communication and can use these expressions and phrases
- can introduce themselves and other people and ask simple questions concerning well known: places, people and things and react to similar questions
- they can read simple texts (notices, signs, etc.)
- they can write a simple text in Czech language (holiday postcard, fill in a simple form, etc.)
- they are introduced with culture and everyday life in the Czech Republic
- they are able to perceive the intercultural differences between their native country and the Czech Republic



Topics

1. Who is who? Verbs: to be, to have.
2. How are you?
3. People, things, relations - nouns.
4. How much is it? Money.
5. Where I am?
6. The Czech Republic, Budweis.
7. At school, at the school canteen -prepositions, conjunctions.
8. Time, days, months.
9. My family.
10. Signs.
11. Food and drink.
12. Travel.
13. Services, shopping.

Engineering Technology I (Code: S_STT_1) | Number of credits: 5

Course objectives

The subject provides the review about the most important engineering technologies to students by the form of lectures and exercise. It also provides the review about facilities, suitability, ways and the conditions of implementation of these technologies. It is the important part of qualification all technical workers in engineering. The chosen technologies will be explained in details in the tied subject Engineering technology II. The abilities in the area of creation of technological equipment will be developed by the subject Production supported by computer.

Topics

1. The introduction into engineering technologies, basic division, the meaning of knowledge of technologies for construction of products, preparation and organization of production and in the repairs, fundamentals of technical drawing.
2. Fundamentals of measurement, semi-finished articles and semi-production-basis of metallurgy, foundry, forming, and welding.

3. Heat processing of metal - kinds, influence on mechanical and technological features, viability, and examples of using, technological equipment and examples of using; checking of results
4. Division of materials-mechanical, heat and another ways; suitability and examples of using; technological equipment,
5. Cold forming - volume and surface; technological equipment stools and conditions;
6. Machining - theory of chip formation basic division of methods, technological conditions, reached parameters;
7. Machining - machines, tools, automatization
8. Plastic - production of polymer: mixing, grind, granulation, rolling, extrusion, spinning, stamping, injection, forming, painting, dipping, casting;
9. Composite materials - technology of production, bonding
10. Finish - reasons, conditions, ways and materials; implementation procedures, technological equipment
11. Technology, installation and repair-documentation, working practices, products and utilities organization, safety;
12. Technological procedures - general principles for the creation, technical documentation; case studies;
13. Technological procedures - promote the creation of computer philosophy of CAD/CAM

Internal Combustion Engines and Alternative Drives (Code: S_SMA) | Number of credits: 5

Course objectives

In the subject of internal combustion engines to get acquainted with the basics of the theory, construction and operation of internal combustion engines for road and rail transport and stationary units for energy. The course follows the subjects of dynamics, Hydromechanics and Thermomechanics. The study course is a prerequisite for graduating from subjects Thermomechanics and Hydromechanics.

Topics

1. Introduction. History. Distribution of internal combustion engines. Fuel types and the physical and chemical properties. Antiknock agents.
2. The basics of combustion. Structural analysis of the combustion process. Calculations.

3. Kinetics of the combustion process. The progress of combustion in a spark-ignition engines and diesel.
4. The principle of the work of the internal combustion engine. The ideal engine spark and diesel cycles. The joint cycles in p-v and T-s diagram. Fuel consumption, theoretical performance, efficiency ideal orbits.
5. An idealized cycles. The progress and the calculation procedure.
6. The real cycles. Indicator diagrams. Description of the course. Actual performance and efficiency. The measurement parameters. Heat balance of the engine. Utilization of waste heat.
7. Increasing the performance of engines, supercharging, the operation of internal combustion engines, engine operating characteristics.
8. The speed characteristics of engines for mobile engines. The link between the engine and the torque load torque of the driven machine for cars.
9. Construction of the individual parts of the engine. Lubrication and cooling. Crank mechanism.
10. Two-stroke engines, the p-v diagram. Engine of Wankel engine. External combustion engines, Stirling and Ericssonův engine.
11. Preparation of fuel and air. Carburetors, fuel injection equipment for spark-ignition and compression-ignition engines. Mixer for gas engines, ignition of the fuel mixture with air, ignition device, distribution of internal combustion engines.
12. Internal combustion engines and the environment. The internal combustion engine, emissions impact on the environment. Creation of CO, NO_x and HC. Heavy metals. The reduction of emissions. Catalysts. The Legislation.
13. Testing of internal combustion engines. The findings of the operating parameters and measurement of emissions. Test methods.

Mathematical Modeling of Processes and Systems (Code: S_N_MPS) | Number of credits: 5

Course objectives

The aim of this course is to introduce the students the tools to application of the system approach to solving of the practical problems in logistics. After the course completion the student has a basic knowledge of cybernetics and systems theory, - is able to identify, describe and model the static and dynamic systems, - is able to describe and apply defined tools of logistics systems modeling in order to optimize those systems (Sankey diagram etc.), - is able to propose a theoretical solution of logistics problems with a consecutive practical process.

Topics

1. Introduction to systems theory, cybernetics, systems, classification of systems, objects in systems.
2. Basics of Technical Cybernetics.
3. System structure, system descriptions, system characteristics, models of systems.
4. Deterministic systems, stochastic systems, fuzzy systems and theory of chaos.
5. Processes, hierarchy of processes, real processes, system identification.
6. The static systems, description and modeling of static systems, the first type of models, the modern models, the abstract system.
7. Dynamical systems and a description of their characteristics.
8. Methods for identification of dynamic systems, fundamental transformation.
9. Properties and characteristics of dynamical systems.
10. Modeling of systems and processes, isomorphism.
11. Methods for system optimization.
12. Logistics systems and their characteristics, economic aspects of logistic models.
13. Selected logistics systems modeling tools to optimization (eg. Sankey diagram, circulatory diagram, flow method, Method CRAFT, decision tables, time studies, etc.).

Technology City Logistics (Code: S_N_TCL) | Number of credits: 5

Course objectives

The aim of the course is to acquaint students with the nature and solution of logistic problems of cities in different concepts of partial solutions to complex approach. Become familiar with the classic concept of city logistics solutions as flows of goods and other materials to the centers of large cities, widespread concept involving all relevant components of transport in the whole agglomeration, the issue of freight and public transport, including its integration as an important part of urban logistics and related logistics and environmental environment. Graduates will be able to identify strengths and weaknesses in transport in towns and cities, can solve the task scheduling and optimization of transport and traffic flows in cities. Able to define and describe the properties of both passenger and freight transport, environment and transport technology, is able to define the basic parameters of a comprehensive solution to the issue.

Topics

1. The issue of City Logistics.
2. Road Transport world cities.

3. Transport as a system.
4. System approach to urban transport.
5. Definition of transport services.
6. Modeling operation in the transport sector.
7. Prognosis and modeling of transport needs.
8. Creating of the transport process in PTV VISION.
9. Logistics supply chain of freight transport in the city.
10. Technology of the freight transport service in the city.
11. Data collection and analysis permeability.
12. Analysis and modeling of population movements.
13. Connectivity analysis and appropriateness of methods of cartography.

Transportation Logistics (Code: S_N_DOL) | Number of credits: 5

Course objectives

The aim of the course is to acquaint students with problems of transport logistics and its relationship to marketing, to apprise them with the different modes of transport, a combination of different modes of transport and other transport options. The student can describe the basic concepts and approaches used in logistics, describe the problems associated with transport costs, performance measure in the transportation, international aspects of transport, the main activities in the field of transportation for shippers and carriers, classify traffic management and identify key technologies and the importance of information.

Topics

1. Introduction to transport logistics
2. Legislation in transport, European Transport policy, Transport policy in Czech Republic
3. Characteristics of carriers and transport services
4. Transport infrastructure in Europe and in Czech Republic
5. Interoperability of transport systems
6. The provider of transportation services
7. The status of transport logistics

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8. Management of Transport, decision-making of the mode of transport
 9. Quality in logistics processes
 10. Logistics technology based on transport
 11. Modeling of logistic chains
 12. Logistics centers and their connection to transport systems
 13. Transport Logistics and Environment

Applied Informatics in Logistics (Code: S_N_AIL) | Number of credits: 5

Course objectives

The aim of the course is to give students the tools for utilization of the methods and information technology in logistic operations, acquaint students with the possibility of solving the logistics activities, explain how to use the logistics information system to practical steps within the proposal and management of logistics processes. The graduate of the course:

- is capable to analyze the available information, utilize the information system as a strategic element of logistics and use the simulation techniques,
- demonstrates the basic knowledge of the logistics information analysis and can utilize the optimization methods in logistics systems for their management,
- can describe, select and use the tools in the form of statistical methods application, operational methods and evaluation methods in logistics.

Topics

1. Systems and their basic terms in the context of logistics
2. Description of the characteristics of informatics, information systems and information technologies
3. Fundamentals and systematic approach in the context of integrated logistics
4. Models of information systems in terms of logistics, requirements for information systems and their importance in the context of logistics
5. Models of logistics information systems architecture and their approaches
6. Models of enterprise logistics systems
7. Proposal of systems for the warehouse logistics information system
8. System methodology of logistics information systems
9. Informatics in the context of supply chain

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10. Applied Informatics in the context of automatic identification
 11. Applied Informatics in passenger transport
 12. Applied Informatics in the context of production logistics, geographic information systems
 13. Informatics and logistics technologies

Physics in Logistics Processes (Code: S_N_FLP) | Number of credits: 5

The course is offered to students of any study field.

Innovation Processes (Code: S_IPR) | Number of credits: 5

Course objectives

The objective of the subject is to become familiar with the algorithm innovation. It introduces the methods of finding innovative ideas, analysis and examination of ideas and its implementation. Graduates are able to use knowledge of innovative methods to process and evaluate innovative idea.

Topics

1. Direction and policy: Solutions for production of innovative strategy, strategic planning, assesment aims, entrepreneurial strategy, strategy accordance with competitive advantages, strategy accordance with innovative progress, strategy accordance with market position, strategy market recess, realization and modification strategies.
2. Collection of informations. Resources of informative ideas in changes of environment, in segments market, in external sources, in internal sources, by the help of creative technique, in news systems, general techniques of creativity.
3. Subjects assortment, opportunities testing. Progress during innovative opportunities analysing.
4. Consumer definition, communication with consumer.
5. Decision making of subjects realization. Decision-making method.



6. Definition needs of consumer: Necessary requirements of consumer. Extended requirements of consumer. Attractive requirements of consumer. Consumer behaviour.

7. Trends analysing. Innovative trends in member states of EU. Innovative and modernization strategy of business.

8. Product analysing. Formulation of product needs. Product value for consumer.

9. Analysis of functions, parameters function, cost analysis on function, definition of contradiction, solving of contradiction and search of innovation.

10. Entrepreneurial intention and decision making about prototype realization.

11. Technical solving of product development and of the process, technical preparation of production. 12. Technical parameters attestation. 13. Serial production and market introduction, life cycle product.