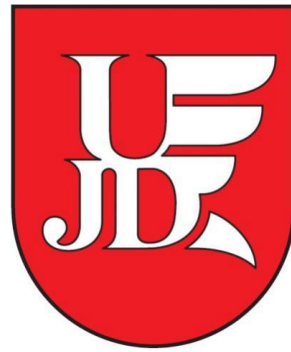


**Jan Dlugosz University  
in Czestochowa**



**Courses Taught in English  
For Exchange Students**



**Erasmus+**

## Faculty of Science & Technology

### Safety Engineering

Course title	ECTS	Hours	Form	Sem.	Course description
Health and Safety Management Systems	2	30	lecture + conv.	winter	The course includes principal issues of the occupational health and safety management systems in the enterprises representing various industries. Students will learn about the guidelines of the international standards: ISO 45001, ISO 14001 and ISO 9001 and the practical aspects of implementing the health and safety management system in accordance with requirements of ISO 45001 standard.
Safety of Construction Infrastructure	2	30	workshop	winter	The main aim of the course is familiarizing students with the classification of building objects based on current legal regulations. Moreover, students will learn the most important threats occurring in the buildings and the principles of ensuring the technical safety of the constructions.
Elements of the Reliability Theory	1	15	lecture	winter	The tasks of the "Elements of Reliability Theory" discipline are to study the basic concepts of the theory of reliability of complex technical systems and their components, the mathematical basis of the reliability theory, qualitative and quantitative characteristics of reliability, factors that affect reliability. Practical methods for calculating reliability indices are also being considered.

Information Technology	2	15	lab.	winter	In the changing reality of the Network Society, Information Technology (IT) is of paramount significance. The IT course is a mixture of sociological and technological aspects of the contemporary digital world. From Marshall McLuhan (the world as a global village) to Ray Kurzweil (Artificial Intelligence). From the dawn of the Internet to Cloud Computing. The course aims to support students in mastering fundamental and practical IT notions that lead to success - both individually and in the professional environment.
Engineering Project II	5	60	lab.	winter	The course is conducted in a project form, requiring the student to prepare the solution to an engineering task along with its documentation and the presentation of the research results. The subject enables the student to understand issues related to engineering designing in the field of safety engineering (for example, noise protection, fire protection or anti-electrocution design, and the creation of safety and ergonomics procedures).The subject of the project is individually agreed with the student (according to his/her interests). It involves the designing and solving of an engineering problem in conformance with applicable regulations, i.e. EU directives and PN EN standards, with the use e.g., software programs (such as Inventor).
Project Management	1	15	workshop	winter	The present world features vast information flow and the need for fast adjustment of innovative products and services. As project work has gained popularity, there arises the necessity of professional project management (PM). The course aims to equip the participants in the know-how - from planning through implementation to the evaluation of project

					outcomes. Students develop practical PM skills through the hybrid of traditional and modern methodologies. They learn to lead collaboration processes - teamwork - by cloud computing tools. At the end of the course, students submit a project proposal. It can be processed further, e.g., when trying to find the project funding.
Fire and Explosion Protection	2	15	workshop	winter	The course includes learning of fundamentals issues of the technical fire and explosion protection systems. Students will also take part in practical exercises using computer software dedicated to numerical analyses of evacuation from public buildings in case of fire or explosion.
Probabilistic Methods for Engineers	2	30	lecture+ exercises	winter	The "Probabilistic Methods for Engineers" discipline covers the basics of probability theory and mathematical statistics, their most important methods and techniques. Relatively simple mathematical constructions are used. All basic theoretical concepts and abstract theorems are illustrated by typical examples.
Engineering Graphic Design	4	60	lecture+ lab.	winter	Selected aspects of product development process with a seamless and integrated workflow. Computer-based design solutions for practical engineering projects in 3D CAD software.
An Optional Course II	4	60	workshop	winter	The aim of the subject is to raise student awareness and competences and to track current technical achievements used in safety engineering in a selected field. Curriculum contents individually selected to students' choices.

Computer Aided Engineering	3	45	lab.	winter	<p>The course aims at preparing the student for independent implementation of engineering projects using the SolidWorks 2018 software. The range of topics covers the preparation the technical documentation 2D and spatial models 3D. Completion of the course is the result of completing the tasks provided for in the schedule of classes and passing the colloquium with the use of CAD type software.</p>
Methodology of scientific research and their commercialization	2	30	workshop	winter	<p>The aim of teaching the subject is to familiarize students with the basic concepts and assumptions of scientific research to provide knowledge enabling planning, realization and acquisition of research projects. During the course, the student is acquainted with the research process, starting from defining the research problem and hypotheses, through the creation of a research plan, the appropriate selection of research tools and the correct conclusions. The student learns the principles of commercialization of scientific research products and the process of transferring the research results to industry with particular emphasis on respecting copyright.</p>

## Innovative Technologies and Advanced Materials

Course title	ECTS	Hours	Form	Sem.	Course description
Computer Aided Design	6	75	lecture + lab.	summer	The aims course is to prepare students for the implementation of a design task using advanced tools to support the engineers' work. Students will learn the principles of engineering design in CAD software and they will make an individual project based on the instructions developed by the academic teacher.
CFD Analyses	7	90	lecture + lab.	summer	The course includes learning of theoretical and practical issues of computational fluid dynamics required to conduct engineering simulations of fluids flow using Ansys Fluent software. Fluent software contains the broad, physical modeling capabilities needed to model flow, turbulence, heat transfer and reactions for industrial applications.
Engineering project	6	75	lab.	summer	The course aims to prepare the student for the independent realization of engineering tasks using computer-aided design software and numerical simulations. The individually prepared project will be related to the subject of the new product design and optimization. The student's task will be preparing a complex report containing the stages of project accomplishment along with a detailed results analysis.
Monographic lecture	4	60	lecture	summer	The aim of the lecture is to increase the students' knowledge and competences in the field of current technological achievements related to innovative technologies and advanced materials.

Management of the innovative projects	2	15	workshops	summer	In the present world of vast information flow and the need for fast adjustment of innovative products and services, project work has gained popularity. There arises the necessity of professional project management (PM). The course aims to equip the participants in the know-how – from planning through implementation to the evaluation of project outcomes. Students develop practical PM skills through the hybrid of traditional and modern methodologies. They learn to lead collaboration processes – teamwork – by cloud computing tools. At the end of the course, students submit a project proposal. It can be processed further, e.g., when trying to find the project funding.
Numerical methods in mechanics	5	60	lab.	summer	The aim of a course is the introduction to using numerical methods in engineering. The students will learn how to apply numerical methods to solve different engineering issues, for which there is no analytical solution.

## Forensics and Security Systems

Course title	ECTS	Hours	Form	Sem.	Course description
Selected Aspects of Mechatronics	5	45	lecture + lab.	winter	The practical application of mechatronic systems to build and optimize the operation of security systems
Basics of Material Science	3	30	lecture + lab.	winter	Mechanical properties testing methods and non-destructive testing methods used in forensics
Audio Forensics	2	15	lab.	winter	Practical aspects of recording, analysis and correction of sounds in forensic applications
Physics and Chemistry in Forensics	4	45	lecture + lab.	winter	Planning and conducting analyses of physicochemical forensic traces
Selected Aspects of Physics	6	45	lecture + conv. + lab.	summer	Physical phenomena and processes in forensics and security systems
Introduction to Forensic Science Techniques	7	75	lecture + lab. + workshop	summer	Forensic techniques, visual inspection and trace protection, functioning of forensic databases
Cybercrime	3	30	conv.	summer	Basic principles of cyberspace protection and the fight against cybercrime including legal aspects



## Chemistry

Course title	ECTS	Hours	Form	Sem.	Course description
<b>Asymmetric synthesis: principles and the recent results</b>	3	5+25	Lecture + conversions	summer	After a 5-hour introductory lecture, the remaining part of the course will be devoted to interactive discussions of problems taken from the recent chemical literature.
<b>Heteroorganic reagents in organic synthesis</b>	5	15+30	Lecture + conversions	summer	The entire course will be divided to two parts. The first one will be devoted to a brief characterization of heteroatom – containing derivatives. And during the second part interactive discussions of problems taken from the recent chemical literature will be realized.
<b>Advanced organic synthesis in drug chemistry</b>	5	45	lecture + classes	summer	<p>1) A review of representatives of basic classes of drugs and the drugs recently introduced to the world markets, their step- by step synthesis including detailed reaction mechanisms and biological activity.</p> <p>2) Drugs planning based on the principles of retrosynthetic analysis and an extended knowledge of chemical reactions that are not discussed in the basic course, including recently developed reactions that are fundamental for organic synthesis, e.g. metal catalyzed cross-coupling reactions</p>
<b>Biomaterials Engineering</b>	2	15	lecture	winter	The aim of the course is to provide knowledge of the area associated with the application of various materials and tools in human and veterinary medicine. Gaining knowledge of the importance of biomaterials in the development of modern medicine, its dynamics of development,

					perspectives, role in improving the quality of life of the society with a special emphasis on aspects related to application polymeric materials in pharmacy and regenerative medicine.
<b>Modern Methods of Controlled Drug Release</b>	4	30	lecture + classes	summer	The aim of the course is to provide knowledge of the area associated with the production and use of a variety of introduced today systems of controlled release of drugs. Significance and prospects of replacing the classic generation drugs, the role of this process in improving the quality of life and effectiveness of many novel therapies.
<b>Phytotherapy</b>	5	45	lecture + classes	winter	Phytotherapy is the use of plant based and plant-derived medications in treatment and prevention of disease. This course takes a modern approach to traditional herbalism by thorough scientific verification of practical use of plant based products intended for medical implementation in most common health conditions.
<b>Molecular targeted drugs</b>	3	30	lecture + classes	summer	This course has been specifically designed to present the latest and most spectacular approach to treatment as a strategy for defining the precise goal for medical action. Based on an in-depth analysis of the disease and current scientific and medical achievements, targeted molecular therapy provides tools and methods to combat diseases that until now have been very difficult, if not incurable, using traditional treatments.

## Dietetics, Human nutrition & dietetics

Course title	ECTS	Hours	Form	Sem.	Course description
<p style="text-align: center;"><b>General microbiology and food microbiology</b></p>	2	25	lecture	winter	<p>The lecture aims to provide information on general microbiology and food microbiology.</p> <p style="text-align: center;">General Topics:</p> <p>Morphology, cytology, physiology of microorganisms.                      Growth and development, nutrition and food types.                      The role of microorganisms in the environment and human life.                      The relationship of microorganisms with food production technologies.</p>
<p style="text-align: center;"><b>Food chemistry</b></p>	2 + 2	25 + 25	lecture + lab.	summer	<p>Scope of food chemistry. Food structure and chemical composition                      Water as a food ingredient. Drinking water                      Saccharides in food and their functional properties                      Fats, their characteristics and properties of edible fats                      Proteins and protein raw materials                      Non-protein nitrogenous compounds. Minerals                      Food colours. Food aroma compounds                      Health and anti-nutritional compounds                      Polyphenols. Food additives                      Vitamins. Milk fat                      Food allergens                      Food contamination                      Mutagenic and carcinogenic food ingredients Interactions of food ingredients                      Changes occurring during storage and processing of food</p>

<p><b>Analysis and evaluation of food quality</b></p>	<p>1</p>	<p>15</p>	<p>lecture</p>	<p>winter</p>	<p>The aim of the course is to provide students with knowledge of the basic principles and methods of food analysis and quality evaluation. Topics of lectures include the basic methods used in the evaluation and analysis of food quality, rules for collecting and preparing samples for analysis, and the possibility of errors. In addition, lectures include: determination of water, protein, sugars, polysaccharides and fiber, qualitative and quantitative assessment of food fats, determination of vitamins, ash, minerals and selected food additives. The topic of the course is complemented by sensory analysis in food quality evaluation.</p>
<p><b>Convenience and Functional Foods</b></p>	<p>1 + 4</p>	<p>10 + 45</p>	<p>lecture + lab.</p>	<p>summer</p>	<p>Introduction. Historical outline, definitions, classification and types of functional foods. Convenient food. Probiotics. Examples of lactic acid bacteria (LAB) and yeast with probiotic properties, their characteristics. Features of an ideal probiotic. Substances produced by probiotic organisms and their effects on other organisms. Examples of the use of probiotics in various diseases. Prebiotics. Definition and characteristics. Examples: raffinose, stachyose, inulin, lactulose, oligofructose, oligogalactose, resistant maltodextrins, polydextrose, resistant starch. Impact on human health. Dietary fiber and hydrocolloids. Definition, examples, general characteristics, beneficial and adverse effects on human health. Characteristics and health-promoting properties of individual groups of phenolic compounds with antioxidant properties. Functional properties of protein preparations. Dietary <i>omega-3 and omega-6 polyunsaturated fatty acids</i>, choline, lecithin. Their role in the proper functioning of the</p>

					nervous and cardiac systems. The latest technologies (including nanotechnology) used in the production of minimally processed, convenient and functional food - benefits and risks.
<b>Food Toxicology</b>	1 + 1	10+10	lecture + conv.	summer	Introduction to toxicology: The evolution of the definition of toxicology - from the study of poisons to risk assessment. Historical outline of toxicology and fields of toxicology. Poison: dose and measure of toxicity - basic definitions and causes of poisoning. Absorption and distribution of toxic compounds. Absorption routes. Protein binding. Accumulation of toxic compounds. Penetration through intra-body barriers. Interactions of foreign substances in the body, among others complex actions, synergism, antagonism. Biotransformation (metabolism) and excretion of toxic compounds. Phase I, II and III of reactions. Ways of excretion from the system. Food toxicology - area and directions of research. Natural poisons. Chemical contamination of food (pesticides, metals harmful to health, dioxins and PCBs, processing toxicants). Estimation of exposure to toxic compounds present in food and risk assessment for human health.
<b>Food safety and hygiene</b>	1 + 2	10 + 10	lecture + conv.	winter	The aim of the course is to familiarize students with the issues of food hygiene understood as the creation of conditions for the production of quality care, which is mostly safe from the point of view of consumer health.
<b>Physiology of human nutrition</b>	1	15	lecture	winter	
<b>The role of intestinal microbiota and the impact on human health</b>	1	15	conv.	summer	The aim of the course is inform students with the role of intestinal microbiota and its positive and negative impact on the human body.

					<p>The main topics of the course:</p> <p>Formation of the microbiota of the human digestive tract.</p> <p>Distribution of microbiota in the digestive tract</p> <p>Factors affecting microbiota modification.</p> <p>Functions of the intestinal microbiota.</p> <p>The effect of intestinal microbiota on human health.</p>
<b>Food quality and safety management</b>	1+3	15 + 30	lecture + conv.	summer	The aim of the course is to familiarize students with quality management systems (ISO 9000, BRC, IFS, TQM etc) and the food safety management system (ISO 22000).
<b>Modern trends in food analytics</b>	1	15	lecture	summer	The aim of the course is to provide students with knowledge of the theoretical foundations of modern instrumental methods used in food analysis and safety and quality control. Lecture topics include instrumental methods in the analysis of physical properties of food, including rheometry, texture analysis and differential scanning calorimetry. Theoretical attitudes and the use of UV-Vis spectrophotometry and spectrofluorimetry in food analysis and instrumental color analysis. Chromatographic techniques: gas, liquid, ion and gel chromatography. In addition, the use of other separation techniques including capillary electrophoresis. Fundamentals and application of atomic absorption and emission spectrometry.
<b>Modern trends in food analytics</b>	1	15	conv.	summer	The aim of the course is to provide students with knowledge of the practical use of instrumental methods used in food analysis and safety and quality control. The basis of the course are presentations prepared by students on the instrumental determination of food ingredients, additional substances and chemical impurities that may

					occur in food.
<b>Selected aspects of production of plant commodities</b>	1	15	lecture	summer	The aim of the module is to deliver the knowledge of the classification of plant-food commodities as well as the aspects governing their quality, including chosen processing and preservation technologies.

### Physics (First-Cycle Programme)

Course title	ECTS	Hours	Form	Sem.	Course description
Classical mechanics	5	30h/ 30h	Lecture/Pr actice	winter	<p>The aim of the course is to acquaint students with the role of physics in the modern world.</p> <p>Learning the basic divisions of classical mechanics using the formalism of higher mathematics.</p> <p>Learning how to create models describing the experimentally observed physical phenomena presented during the lecture.</p> <p>Developing the ability to use the methods of mathematical analysis, algebra and geometry to solve problems in the various departments of mechanics.</p> <p>Developing the ability to analyze and solve basic tasks of kinematics and dynamics of the classic.</p>
Wave and relativistic mechanics	5	30h/ 30h	Lecture/Di scussion sessions	winter	<p>The aim of the course is to acquaint students with the waveforms of relativistic and phenomena occurring in nature.</p> <p>Teaching wave mechanics and relativity formalism with higher mathematics.</p> <p>Learning how to create models and theories describing physical phenomena discussed.</p> <p>Developing the ability to use the methods of mathematical</p>

					analysis, algebra and geometry to solve problems in the field of classical mechanics and relativity. Developing the ability to analyze and solve basic tasks concerning oscillatory motion, wave and relativistic mechanics.
Optics	8	30h/ 30h/ 15h	Lecture/ Practice/ Laboratory	summer	<ol style="list-style-type: none"> <li>1. What is light?</li> <li>2. History of optics - from antiquity to modern times.</li> <li>3. The electromagnetic waves.</li> <li>4. Grounds for photometry</li> <li>5. The interaction of electromagnetic waves with matter.</li> <li>6. The reflection and refraction of light.</li> <li>7. Mirrors and lenses.</li> <li>8. Optical Instruments.</li> <li>9. diffraction and interference of light.</li> <li>10. Additional issues optics.</li> </ol>
Elements of Theoretical Physics	3	30h/ 15h	Lecture + Exam/ Discussion sessions	summer	Familiarize students with the department of theoretical physics including mechanics
Physical laboratory II	4	45h	Laboratory	summer	<p>The aim of the activities in the field of Physics Laboratory II:</p> <ul style="list-style-type: none"> <li>- to gain knowledge on the distribution of materials in terms of physical properties with particular emphasis on mechanical and thermal properties.</li> <li>- Acquiring knowledge of mechanics and transport phenomena associated with heat</li> <li>- Understanding the construction and operation of basic measurement devices (analog and digital)</li> <li>- Acquiring skills of organizing, planning and conducting laboratory experiments</li> </ul>



## Physics (Second-Cycle Programme)

Course title	ECTS	Hours	Form	Sem.	Course description
Quantum Physics I	4	15h/3 0h	Lecture + Exam/ Discussion sessions	Winter	<p>Requirements: basic experimental and theoretical physics, and math skills.</p> <p>Objectives of the course: mastering the formalism and computational methods in quantum physics description of selected physical phenomena and identification applications.</p> <p>Teaching methods: lecture with a multimedia presentation, seminar (project tasks and applications).</p> <p>Program: The operator of momentum. Compounds of switching. Functions and values of their own. Coupling moments of momentum. Particles of spin. Pauli matrices. Spinory. Relative coordinates. Radial equation. Hydrogenlike atom. Solution in spherical coordinates. Energy spectrum. Own the functions related conditions. Degeneration. Atoms complex. The central field approximation. Helium atom (variational method). Identical particles. Pauli exclusion principle. Algebra operators permutations. Fermions (Fermi-Dirac statistics). Bosons (Bose-Einstein statistics).</p> <p>Principles of examination: written test on the lecture, test tasks and multimedia presentation of the project.</p>
Quantum Physics II	4	15h/3 0h	Lecture + Exam/ Discussion sessions	Summer	<p>Perturbation method and other approximate theory scattering theory of representations (representation) relativistic quantum mechanics, building chemical molecules, interaction with electromagnetic radiation</p>

Electrodynamics	3	15h/1 5h	Lecture + Exam/ Discussion sessions	Summer	<p>Role of electric field and magnetic induction. The Lorentz force. Maxwell's equations. The principle of conservation of electric charge - the continuity equation. The continuity equation with the sources and without (3 h)</p> <ul style="list-style-type: none"> <li>- electromagnetic field (EM) as a dynamic system. Energy, momentum, and the EM field angular momentum and continuity equation for the energy density and the angular momentum EM field - Poynting vector and tensor energy - momentum (4 h)</li> <li>- integrating forms of the Maxwell equations - Gauss' law for electric fields and mag--magnetic, Ampere's law, Biot-Savart law, the law of Faraday induction (2 h)</li> <li>- electromagnetic potentials - scalar and vector. Marking potentials - Coulomb and Lorentz gauge. Maxwell equations for the Lorentz potential in Marking (2 h)</li> <li>- Static electromagnetic fields. Laplace and Poisson's equation for the potential and resolving - scalar potential Coulomb point charge, Integral formulation for the Coulomb potential and method of Green's function (4 h)</li> <li>- Biot-Savart law. Kirchoff's laws to the circuit the current (2 h)</li> <li>- EM expansions multipole potentials. Dipole electric and magnetic moments. Multipole moments (2 h)</li> <li>- Electromagnetic fields in matter. Polarizability electric and magnetic properties of matter. Polarization and magnetization vectors. Loads and their associated currents. Magnetization currents. Maxwell's equations in matter. Induction electric field and magnetic field. Relations between polarization and electric field and magnetic field and magnetization. Electrical and magnetic susceptibility</li> </ul>
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					<p style="text-align: center;">material (4 h)</p> <ul style="list-style-type: none"> <li>- Potentials and fields change over time. Potentials delayed. Lienard-Wiechert potentials. Radiation oscillating electric dipoles. Flat electromagnetic waves. Polarization plane (6 h)</li> <li>- EM field as a relativistic system. Invariance of EM fields in the Lorentz transformations. Relativistic invariance of electric charge. EM field tensor. Maxwell's equations in relativistic notation. (3 h)</li> </ul>
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### Multimedia engineering

Course title	ECTS	Hours	Form	Sem.	Course description
Electroacoustic	5	45	lecture + lab.	summer	The subject deals with issues related to all electroacoustic transducers. Discusses issues related to acoustic amplifiers, speakers, columns, microphones. The physical parameters of these devices are discussed along with an overview of electroacoustic measurement methods.
Acoustic space modelling	3	45	lecture + lab.	winter	<p>To familiarize students with the role of acoustics in the modern world.</p> <ul style="list-style-type: none"> <li>- Teaching selected branches of urban acoustics using formalism of higher mathematics</li> <li>- Teaching how to create models describing the acoustic properties of rooms and open areas.</li> <li>- To develop skills in using higher mathematics and physics to solve problems in acoustic modeling.</li> </ul>

					<p>- Developing the ability to analyze and solve basic problems of urban acoustics.</p> <p>To familiarize students with practical methods of modeling acoustic spaces.</p>
Measurement data elaboration	3	45	lecture + exer.	winter	<p>Knows the basics of developing measurement data, including: sources and types of measurement uncertainty, basic methods for determining uncertainty types A and B, i.e.: Student-Fisher, linear regression, complete differential, logarithmic derivative, planning and proper interpretation of results, graphical presentation of measurement data, basic computational techniques using a spreadsheet, international standards for assessing measurement uncertainty. The development of measurement data is preparation for various types of laboratory classes.</p>
Multimedia in Python	5	45	lecture + lab.	winter	<ol style="list-style-type: none"> <li>1. Image processing in Python - Pillow library.</li> <li>2. Creating animations in Python - the pygame library.</li> <li>3. Playing and processing audio files - GStreamer framework and PyQt overlay.</li> <li>4. Processing of video files.</li> <li>5. Playing video files - Qt Phonon library</li> </ol>
Elementary of analog and digital Electronics	8	60	lecture (exam) + lab.	summer	<p>The subject introduces the basics of analog and digital electronics</p>

Audio - Video home systems II	2	30	Lab.	winter	The subject introduces concepts related to the installation of systems audio-visual. During lectures, presentation methods are discussed sounds and images along with a discussion of devices dedicated to this purpose.
Microcontrollers in Python	4	45	lecture + lab.	summer	To familiarize students with the problems of programming microcontrollers in Python, design, construction and commissioning of electronic circuits.  Developing Python writing skills for selected microcontroller based on the knowledge acquired during the lecture.

### Computer Science

Course title	ECTS	Hours	Form	Sem.	Course description
Team project	8	30	Lab.	winter	The aim of the subject is to realize by the student a large IT project using any programming technologies learned during the studies. During the project, students learn about the principles of teamwork and the tools used to manage and organize the project and the source code. It should be a summary and practical verification of the programming knowledge acquired by students to familiarize themselves with online technologies and services.
Engineering project	6	15	Lab.	winter	Preparing the student for independent implementation of the engineering task in the form of a project along with the preparation of documentation.

Seminar (for the specialty of computer graphics)	8	30	Lab.	winter	The subject of the seminar depends on the specialty and the teacher.
Seminar (for specialization in software engineering)	8	30	lab	winter	The subject of the seminar depends on the specialty and the teacher.
Languages, automata, grammars and calculations	5	60	Lecture, lab	summer	<p>The aim of the lecture is to familiarize students with the basic concepts of formal language theory, the basics of finite automata theory and the basics of context-free grammar theory.</p> <p>The purpose of laboratory classes is to shape students' practical skills in the concepts learned during the lecture</p>
Computer games programming	8	60	Lecture, lab	summer	<p>The aim of the course is to familiarize students with the mode of operation and architecture of popular computer games, the possibilities and methods of using popular computer game engines, how to solve the significant problems encountered during programming computer games, familiarizing with the contemporary approach to programming real-time graphics.</p>
Engineering project (for the specialty of computer graphics)	5	30	lab	summer	<p>The engineering project is carried out under the guidance of the lecturer, with whom the scope, mode and schedule of implementation are agreed. Project topics are directly related to the field of study and selected specialization. In the case of projects with a relatively large scope of work, there is a possibility of team implementation of the project (in groups of 2-3 persons), however, it is required to specify the participation of each contractor in the project in detail.</p>

Engineering project (for specialization in software engineering)	5	30	lab	summer	The engineering project is carried out under the guidance of the lecturer, with whom the scope, mode and schedule of implementation are agreed. Project topics are directly related to the field of study and selected specialization. In the case of projects with a relatively large scope of work, there is a possibility of team implementation of the project (in groups of 2-3 persons), however, it is required to specify the participation of each contractor in the project in detail.
3D animation	4	39	lab	summer	The purpose of the laboratory is to acquire the skills of creating advanced 3D animations using frame animation, as well as advanced methods such as inverse kinematics and particle effects simulations, the ability to export ready animations to their own interactive application, and create smooth transitions between them.
DTP systems - composition and breaking of publications	3	30	lab	summer	The aim of the course is to familiarize students with the basic principles and techniques of preparing publications for digital and print presentations, and to develop skills in using publication DTP tools (e.g. Adobe InDesign).

## Mathematics

Course title	ECTS	Hours	Form	Sem.	Course description
Optional course	8	60	lecture, classes	summer	The aim of the course is to familiarize students with selected mathematical theories that are not in the mathematics course subjects.
Optional course	8	60	lecture, classes	summer	The aim of the course is to familiarize students with selected mathematical theories that are not in the mathematics course subjects.
Abstract algebra	7	58	lecture, classes	summer	Presentation of the basic concepts and theorems of abstract algebra.
Mathematical analysis 2	7	58	lecture, classes	summer	Getting to know the basics of differential calculus of functions of many variables.
Numerical methods	5	60	lecture, labs	winter	To familiarize students with the basic methods and algorithms of numerical methods: interpolation and approximation of functions, numerical differentiation, numerical integration, numerical methods for solving nonlinear equations and systems of linear equations
Diploma seminar	4	30	seminar	winter	Objective of the course: 1) Developing the ability to draw conclusions based on conducted research 2) Developing the skill of using a clear and precise language 3) Improving computer techniques for scientific text editing 4) Ability to present prepared work - self-presentation



Fundamentals of Physics	5	45	Lecture, lab	winter	The aim of the course is to learn and understand the basic concepts and laws of physics, as well as the relationship between physics and engineering; noticing the impact of physics on the development of technology and modern technologies; acquiring the ability to use the acquired knowledge to describe phenomena observed in nature and to understand the structure and operation of modern technical devices.
Introduction to logic and set theory	6	60	Lecture, classes	winter	Presentation of the basic concepts and theorems of logic and set theory.
Mathematical analysis 1	10	120	Lecture, classes	winter	Developing skills in using basic concepts and tools in the field of mathematical analysis. Getting to know the basics of differential and integral calculus of functions of one variable.

## Faculty of Humanities

### English Philology

Course title	ECTS	Hours	Form	Sem.
<b>First-Cycle Programme:</b>				
Practical English Course – Integrated Skills, Practical Grammar, Communicative Practice, Writing and Text Analysis	10	150	language + lab.	winter (1st year/ 1st semester)
Practical English Course – Integrated Skills, Practical Grammar, Communicative Practice, Writing and Text Analysis	10	150	language + lab.	summer (1st year/ 2nd semester)
Practical English Course – Integrated Skills, Practical Grammar, Communicative Practice, Writing and Text Analysis	8	120	language + lab.	winter (2nd year/ 3rd semester)
Practical English Course – Integrated Skills, Practical Grammar, Communicative Practice, Writing and Text Analysis	8	120	language + lab.	summer (2nd year/ 4th semester)
Practical English Course – Integrated Skills, Practical Grammar, Communicative Practice	7	90	language + lab.	winter (3rd year/ 5th semester)
Practical English Course – Integrated Skills, Practical Grammar, Communicative Practice	8	90	language + lab.	summer (3rd year/ 6th semester)
English Phonetics	3	30	language + lab.	summer (1st year/ 2nd semester)
English Phonetics	2	30	language + lab.	winter (2nd year/ 3rd

				semester)
Descriptive Grammar of English	6	45	lecture + exer.	winter (1st year/ 1st semester)
Descriptive Grammar of English	5	45	lecture + exer.	summer (1st year/ 2nd semester)
Descriptive Grammar of English	4	45	lecture + exer.	winter (2nd year/ 3rd semester)
Descriptive Grammar of English	4	45	lecture + exer.	summer (2nd year/ 4th semester)
History of English-language Literature (History of English Literature)	6	45	lecture + exer.	winter (1st year/ 1st semester)
History of English-language literature (English Literature)	6	45	lecture + exer.	summer (1st year/ 2nd semester)
History of English-language Literature (English Literature)	3	45	lecture + exer.	winter (2nd year/ 3rd semester)
History of English-language Literature (English literature)	3	45	lecture + exer.	summer (2nd year/ 4th semester)
History of English-Language Literature - American Literature	2	15	lecture	winter (3rd year/ 5th semester)
	3	30	exercises	winter (1st year/ 1st semester)

Culture of English-Speaking Countries				
<b>Second-Cycle Programme:</b>				
Practical English Course – Integrated Skills, Academic Writing and Text Analysis	6	60	language + lab.	winter (1st year/ 1st semester)
Practical English Course – Integrated Skills, Academic Writing and Text Analysis	6	60	language + lab.	summer (1st year/ 2nd semester)
Practical English Course – Integrated Skills, Communicative Practice	6	60	language + lab.	winter (2nd year/ 3rd semester)
Practical English Course – Integrated Skills	6	30	language + lab.	summer (2nd year/ 4th semester)
Linguistics: Selected Problems	5	30	lecture	winter (1st year/ 1st semester)
Linguistics: Selected Problems	5	30	lecture	summer (1st year/ 2nd semester)
Contemporary English-language Literature	5	30	lecture	winter (1st year/ 1st semester)
Contemporary English-language Literature	5	30	lecture	summer (1st year/ 2nd semester)

## Philosophy

Course title	ECTS	Hours	Form	Sem.	Course description
Bioethics	4	30	lecture + conv.	winter/ summer	Short introduction to the main issues of contemporary bioethics
Contemporary ethics theory	4	30	lecture + conv.	winter/ summer	The course is devoted to the contemporary systems of ethics, their sources and applications in everyday life.
General logic (mathematical)	5	30	lecture + conv.	winter/ summer	The course is devoted to the foundations of classical and non-classical logic.
History of ancient philosophy	4	30	lecture + conv.	winter/ summer	The course is devoted to the sources of ancient philosophy and its influence on contemporary philosophy.
History of ideas	4	30	lecture + conv.	winter/ summer	A study on the most influential european ideas.
How to think logically?	3	30	lecture + conv.	winter/ summer	The course is devoted to the basics of logic and its applications in ordinary reasoning.
Introduction to mathematical logic	5	30	lecture + conv.	winter/ summer	The course is devoted to the basics of mathematical logic and its applications in philosophy.
Philosophy and history of science	5	30	lecture + conv.	winter/ summer	The course is devoted to on some problems of philosophy of science and the evolution of scientific theories.

## Polish Philology

Course title	ECTS	Hours	Form	Sem.	Course description
Construction of film works	2	30	exercises	winter	It will be discussed the elements building the film work, both in terms of visual and sound. Also it will be discussed the subject of analysis and interpretation of a film work in a social and cultural context.
Elementary Latin	3	30	exercises	summer	Elementary Latin is a course designed to introduce studentst to the basic elements of the Latin language. It will emphasize the fundamentals of grammar, vocabulary, and reading comprehension. The course provides the tools necessary to develop language skills so that students could be able translate simple Latin texts in English.

## History

Course title	ECTS	Hours	Form	Sem.
The Vikings and their role in Early Medieval Europe	2	30	lecture	winter
Anthropology of historiography. Theory, method and studies	1	15	lecture	summer

## Faculty of Art

### Artistic Education in Music

Course title	ECTS	Hours	Form	Sem.	Course description
Piano	3	10	Lab.	winter, summer	Individual instruction includes repertoire, technical and musical problems, performing experience and understanding of teaching strategies. Goals and repertoire will be decided at the initial meeting for the term.
Ear Training	3	30	Conv.	winter, summer	The study of sight singing and techniques for hearing and notating melody and harmony.
Conducting	3	10	Lab.	winter, summer	Basic baton technique and score reading for choral and instrumental conducting.
Instrumental Ensembles	3	15	Conv.	winter, summer	An entertainment-oriented instrumental ensemble. Focus on conducting strategies, rehearsal techniques, performance programming and music arranging for instrumental groups. The group performs public concerts each semester.
Vocal Ensembles	2	15	Ex.	winter, summer	This course includes the study and performance of works representative of a wide spectrum of literature designed for a small vocal ensemble.
Additional Instrument (one selected): Accordion, Violin, Guitar, Percussion, Organ	3	10	Lab.	winter, summer	Individual instruction includes repertoire, technical and musical problems, performing experience and understanding of teaching strategies of selected instrument. Goals and repertoire will be decided at the

					initial meeting for the term.
Music History	3	10	Lecture	winter, summer	History of western art music from ancient Greece to the present.
Choir	1	30	Ex.	winter, summer	This course includes the study and performance of works representative of a wide spectrum of literature designed for a large vocal ensemble. In this course, students will participate in weekly rehearsals. Emphasis will be given to stylistic integrity, as well as melodic, harmonic, and rhythmic accuracy. Concert performances each semester.
Computer Applications in Music	2	20	Lab.	winter, summer	Study of computer technology and music software applications. Emphasis is placed upon using Sibelius software for electronic score notation.
Analysis of the Musical Work	2	30	Lecture + Ex.	winter, summer	Theoretical study of music through written exercises including melody, harmony, rhythm, form and analysis.
Jazz Improvisation	2	15	Lab.	winter, summer	Development of musical improvisational skills as related to the style of Jazz music. The purpose of this course is to motivate the student to acquire a method of studying and performing the basic elements of improvisation through the learning of jazz articulation and phrasing, idiomatic melodic patterns and phrases.
Voice emission	2	15	Lab.	winter, summer	Individual singing technique learning. Repertoire is selected from a classic and popular music.



Stage Movement	1	15	Ex.	winter, summer	This course explores the movement skills necessary for the performers, actors and musicians with emphasis on physical training and practical application in realistic and abstract performance efforts. Students gain a better understanding of how dance and choreography create and bring dramatic elements to life.
Artistic Workshop	1	15	Lab.	winter, summer	Provides performance opportunities for instrumentalists who want to expand their musicianship skills. Repertoire will range from duos to larger ensembles in different musical styles.

### Music in Public Space

Course title	ECTS	Hours	Form	Sem.	Course description
Piano	4	10	Lab.	winter, summer	Individual instruction includes repertoire, technical and musical problems, performing experience and understanding of teaching strategies. Goals and repertoire will be decided at the initial meeting for the term.
Ear Training	2	30	Conv.	winter, summer	The study of sight singing and techniques for hearing and notating melody and harmony.
Conducting	3	10	Lab.	winter, summer	Basic baton technique and score reading for choral and instrumental conducting.
Instrumental Ensembles	2	15	Conv.	winter, summer	An entertainment-oriented instrumental ensemble. Focus on conducting strategies, rehearsal techniques, performance programming and music arranging for instrumental groups. The group performs public concerts each semester.

Vocal Ensembles	1	15	Ex.	winter, summer	This course includes the study and performance of works representative of a wide spectrum of literature designed for a small vocal ensemble.
Additional Instrument (one selected): Accordion, Violin, Guitar, Percussion, Organ	5	10	Lab.	winter, summer	Individual instruction includes repertoire, technical and musical problems, performing experience and understanding of teaching strategies of selected instrument. Goals and repertoire will be decided at the initial meeting for the term.
Music History	2	10	Lecture	winter, summer	History of western art music from ancient Greece to the present.
Choir	1	30	Ex.	winter, summer	This course includes the study and performance of works representative of a wide spectrum of literature designed for a large vocal ensemble. In this course, students will participate in weekly rehearsals. Emphasis will be given to stylistic integrity, as well as melodic, harmonic, and rhythmic accuracy. Concert performances each semester.
Vocal Technique and Diction	1	15	Lab.	winter, summer	Discussion and development of vocal technique, terminology, and anatomy.
Computer Applications in Music	1	15	Lab.	summer	Study of computer technology and music software applications. Emphasis is placed upon using Sibelius software for electronic score notation.
Analysis of the Musical Work	2	30	Lecture + Ex.	winter, summer	Theoretical study of music through written exercises including melody, harmony, rhythm, form and analysis.

History of Jazz	1	15	Lecture	winter, summer	This course is designed to introduce students to the history and cultural contexts of jazz and blues music.
Jazz Improvisation	1	15	Lab.	winter, summer	Development of musical improvisational skills as related to the style of Jazz music. The purpose of this course is to motivate the student to acquire a method of studying and performing the basic elements of improvisation through the learning of jazz articulation and phrasing, idiomatic melodic patterns and phrases.
Vocal Performance	4	15	Lab.	winter, summer	Individual instruction in advanced vocal coaching. Designed to develop skilled performers in all areas of vocal techniques. Repertoire is selected from a broad range of jazz and popular music. This course will culminate with one or more public performances.
Stage Movement	1	15	Ex.	winter, summer	This course explores the movement skills necessary for the performers, actors and musicians with emphasis on physical training and practical application in realistic and abstract performance efforts. Students gain a better understanding of how dance and choreography create and bring dramatic elements to life.
Artistic Workshop	1	15	Lab.	summer	Provides performance opportunities for instrumentalists who want to expand their musicianship skills. Repertoire will range from duos to larger ensembles in different musical styles.

## Faculty of Law & Economics

### Law

Course title	ECTS	Hours	Form	Sem.
The Court of Justice of European law -the institution, procedure and case law	3	30	conv.	winter

### Administration

Course title	ECTS	Hours	Form	Sem.
Judicial review of public administration in Europe	3	15	conv.	winter
Special entities of public administration	3	30	conv.	summer

**Faculty of Social Sciences**  
**Pedagogy / Educational Sciences**

<b>Course title</b>	<b>ECTS</b>	<b>Hours</b>	<b>Form</b>	<b>Language</b>	<b>Sem.</b>
Introduction to Pedagogy	6	60	lecture + conv.	english	winter
Theoretical Foundations of Teaching and Learning	4	45	lecture + conv.	english	summer
History of Education	4	45	lecture + conv.	english	winter
Biomedical Basics of Development and Upbringing	4	15	lecture	russian czech	winter
Introduction to Psycho-Prevention	2	15	conv.	russian czech	winter
Planning and Management of Professional Career	1	15	conv.	english german french	winter
Andragogy – Adult Learning Theory	3	30	conv.	russian	winter
Educational and Professional Career Planning	2	15	lab.	english german french	summer
Cultural Anthropology	4	30	lecture + conv.	english	winter
Culinary Tourism	2	30	lecture + conv.	german	Winter
Cultural Centers in Preschool and Early School Education	4	15	lecture + conv.	german	summer

Methodology of Pedagogical Research	4	20	lecture + conv.	english	winter
Statistics Methods in Pedagogical Research	2	30	lab.	englisz	winter
General Pedagogy	4	30	lecture + conv.	french	winter
Education management	2	15	conv.	french	winter
Pedeutology - Knowledge about Profession of Teacher	3	30	conv.	english	winter

### Psychoprevention

Course title	ECTS	Hours	Form	Sem.
Social Communication	2	25	lecture + conv.	summer
Human Rights	2	30	lecture	summer

### Social Work

Course title	ECTS	Hours	Form	Sem.
Labor market	2	25	conv.	winter
Planning a scientific and professional career	3	30	conv.	winter

### Tourism and Recreation

<b>Course title</b>	<b>ECTS</b>	<b>Hours</b>	<b>Form</b>	<b>Sem.</b>
Health aspects of physical activity	3	30	lecture + classes	winter
Creating a tourist product	4	45	lecture + classes	winter
Tourist traffic services	4	45	lecture + classes	summer
Health promotion	3	15	lasses	winter
Tour leader services	5	30	lecture + classes + laboratories	summer

## Faculty of Health Sciences

### Physiotherapy

Course title	ECTS	Hours	Form	Sem.	Course description
Physiology	3	75 30/45	lecture/ exercises	Winter (1)/ Summer (2)	To acquaint students with the structure and function of cells, tissues and individual body systems. Mastering issues related to the activities of individual body systems and organs and the control of basic life functions in changing environmental conditions. Preparing and teaching a student how to conduct basic physiological research, energy balance control. To acquaint the student with the basic principles of pro-health activities.
Biochemistry	2	45 15/30	lecture/ exercises	Winter (2)	The aim of the course is to enable students to become familiar with the biochemistry material. The lecture program covers issues related to: the structure and function of basic cellular macromolecules, mechanisms and kinetics of enzymes, coenzymes, vitamins, catabolic and anabolic processes at the cell and organism levels. The aim of the laboratories is to familiarize students with the basic apparatus and markings used in the biochemical laboratory.
Movement education and movement teaching methodology	6	120 30/90	lecture/ exercises	Winter (3)/ Summer (3)	Mastering the basic knowledge of physical culture, as well as understanding the differences between physical education, sport, recreation and physical rehabilitation. Get to know the versatile resource of exercises and be able to select them in specific sets useful for the implementation of various therapeutic and preventive tasks.



Kinesitherapy	7	120 30/90	lecture/ lab.	Summer (4)/ Winter (3)	<p>Acquiring knowledge and skills in undertaking kinesitherapeutic activities, including: transfer of knowledge in the field of subject and subject examination and detailed tests, as well as assessment of body posture and gait for the needs of kinesitherapy, the correct application of individual exercises according to the systematics of exercises, taking into account the functional state, appropriate applying the principles and techniques of therapeutic exercises in the process of prevention, treatment and rehabilitation.</p> <p>Acquiring the skills to comply with indications and contraindications to perform improvement procedures and OHS rules.</p>
Physiotherapy in neurology and neurosurgery	6	105 30/75	lecture/ lab.	Summer (3)/ Winter (3)	<p>To provide students with basic concepts in the field of neurology and neurosurgery. To familiarize students with the principles of research and diagnosis of diseases of the central and peripheral nervous system. To introduce students to the principles of selecting physiotherapeutic procedures and physiotherapy methods according to the clinical diagnosis, period of illness and functional state of the patient.</p>
Physiotherapy in cardiology and cardiac surgery	4	80 20/60	Lecture/ lab.	Summer (3)/ Winter (1)	<p>Mastering clinical issues in the field of cardiovascular disease. Acquiring basic knowledge necessary for physiotherapeutic treatment in cardiovascular diseases.</p> <p>Selection of physiotherapeutic procedures and physiotherapy methods according to the clinical diagnosis, period of illness and functional condition of the patient.</p>

Programming physiotherapy in musculoskeletal dysfunctions	10	135 45/90	lecture/ exercises	Winter (5)/ Summer (5)	Acquiring basic knowledge necessary for physiotherapeutic treatment in diseases of internal organs. Physiotherapy in the overall treatment of the patient. Selection of physiotherapeutic procedures and physiotherapy methods according to the clinical diagnosis, period of illness and functional condition of the patient. Prevention of secondary changes. Improvement, compensation control and adaptive management in various disease entities. Controlling rehabilitation results.
Programming physiotherapy in internal diseases	9	120 30/90	lecture/ exercises	Summer (4)/ Winter (5)	Acquiring basic knowledge necessary for physiotherapeutic treatment in diseases of internal organs. Physiotherapy for adults and children and adolescents with diseases in cardiology, pulmonology, geriatrics and psychiatry, surgery, gynecology and obstetrics, pediatrics as well as oncology and palliative medicine. Physiotherapy in the overall treatment of the patient. Selection of physiotherapeutic procedures and physiotherapy methods according to the clinical diagnosis, period of illness and functional condition of the patient. Prevention of secondary changes.
Special methods in physiotherapy	10	150	lab.	Winter (4)/ Summer (6)	To familiarize students with the most important issues of modern physiotherapy methods, to present the basics of individual special methods.
Physiotherapy in surgery	3	45 15/30	lecture/ lab.	Winter (3)	To familiarize students with the most important disease entities, basic diagnostic methods and treatment of patients with internal organs diseases. Acquiring the ability to analyze the clinical condition of a patient qualified for the

					rehabilitation program. Planning and subsequent use of therapy: selection of the appropriate method (model) of improvement, methods, therapeutic techniques, procedures physical, type and intensity of exercises and the amount of loads, including indications and contraindications resulting from the patient's clinical condition.
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## Nursing

Course title	ECTS	Hours	Form	Sem.	Course description
Physiology	3	20/40	lecture/ laboratory	winter	The aim of the course is to familiarize students with the mechanisms of proper functioning of organs and systems of the human body
Genetics	1	20	lecture	winter	The aim of the course is to familiarize students with the principles of genetics to the extent that allows understanding of the basics of medical genetics, genetic diagnostics as well as prevention and treatment
Basics of nursing I	6	35/90	lecture/ laboratory	winter	The aim of the course is to familiarize with the basic knowledge in the field of nursing care over a healthy and sick person of different ages
Public health	2	20	lecture	winter	The aim of the course is to provide knowledge about the concept of public health
Health promotion	1	10/10	lecture/	winter	The aim of the course is to acquire the knowledge necessary for independent operation in the process of health

			lab.		promotion and health education
Health promotion	1	10	practical classes in a hospital	winter	The aim of the course is to shape skills in the field of health promotion
Anesthesiology	1	20	lecture	winter	The aim of the course is to familiarize with the problems of patient anesthesia, life-threatening conditions, resuscitation procedures and specialist methods used to support life
Internal medicine and internal medicine nursing	4	120	practical classes in a hospital	winter	The aim of the course is to shape the skills of individual care planning for adult patients in selected medical conditions
Rehabilitation and nursing the disabled	4	80	practical classes in a hospital	winter	The aim of the course is to shape the skills of individual care planning for rehabilitation and nursing the disabled
Ethics of the nursing profession	1	10/10	lecture/ lab.	winter	The aim of the course is to provide basic knowledge and skills of a nurse's professional ethics
Nursing care for the disabled	2	35	lecture	winter	The aim of the course is to provide basic knowledge about nursing care for the disabled
Scientific research in nursing	1	15	lecture	winter	The aim of the course is preparation for undertaking and conducting scientific research
Internal nursing	2	35	lecture	winter	The aim of the course is to familiarize with the issues of

					nursing care in the case of internal diseases
Obstetrics and Gynecology	1	20	lecture	winter	The aim of the course is to familiarize with the subject of pregnancy, childbirth, puerperium and gynecological diseases.
Neurological nursing	2	30	lecture	summer	The aim of the course is to familiarize with the issues of nursing care in the case of nervous system diseases
Neurology and neurological nursing	4	80	practical classes in a hospital	summer	The aim of the course is to shape the ability to recognize neurological symptoms and to plan individual care for patients with selected diseases of the nervous system
Basics of nursing II	5	35/65	lecture/ lab.	summer	The aim of the course is to familiarize with the basic knowledge in the field of nursing care over a healthy and sick person of different ages
Basics of nursing	3	80	practical classes in a hospital	summer	The aim of the course is to shape basic nursing skills in natural healthcare settings
Basic healthcare	4	120	practical classes in a hospital	summer	The aim of the course is to shape skills to recognize health deficits and educational needs in the home environment of children and in outpatient care
Psychiatric nursing	2	35	lecture	summer	The aim of the course is to acquire knowledge and skills in the care of psychiatric patients

Psychiatry and psychiatric nursing	4	80	practical classes in a hospital	summer	The aim of the course is to shape the ability to recognize productive symptoms and to approach patients with mental disorders individually
Palliative care	2	40	practical classes in a hospital	summer	The aim of the course is to shape the skills of an individual and holistic approach to the patient in a terminal state
Geriatrics and geriatric nursing	3	80	practical classes in a hospital	summer	The aim of the course is to conduct a comprehensive geriatric assessment and plan holistic care for a senior patient
Nurse's work organization	1	20	lab.	summer	The aim of the course is to familiarize students with the organization of nursing work

### Physical education

Course title	ECTS	Hours	Form	Sem.	Course description
Physiology I	3	15/15	lecture/ lab.	winter	The aim of the course is to familiarize students with the mechanisms of proper functioning of individual organs and systems of the human body.
Basketball I	2	30	seminars /	winter	In the first part of the course, students will be taught specific technical elements of basketball and attention will

			practical classes		be devoted to strengthening fitness preparation.
Theory of Sport	4	15/30	lecture/ exercises	winter	The subject "Theory of sport" is devoted to mastering the general theoretical issues in planning and determining the training effects occurring in a systematically trained human body.
Football I	2	30	seminars / practical classes	winter	In the first part of the course, students will be taught specific technical elements of football and main attention will be devoted to strengthening fitness preparation.
The subject of free choice II	3	15/30	lecture	winter	In the second part of the lectured subject, which will be the biological basics of human development, issues related to the functioning of the body in the conditions of various diseases and dietary importance and the use of physical effort will be addressed.
Biomechanics	4	15/30	lecture/ exercises	winter	During the biomechanics course, students will be acquainted with theoretical and practical issues related to the impact of external and internal forces on the human body.
Subject didactics - teaching physical education in primary school II	3	30	workshops / methodical exercises at school	winter	In the second part of the course of the discussed subject, students will be practically in the form of a workshop to train and discuss performing simple exercises for primary school students.

Basics of psychology for primary school teachers	3	30/15	lectures / workshops - methodical exercises at school	winter	The aim of this subject will be to provide students with basic psychological concepts, focusing on elements of motivation of primary school students to practice physical exercises.
Basics of pedagogy for primary school teachers	3	30/15	lectures / workshops - methodical exercises at school	winter	The aim of the subject is to provide students with the basic concepts and methods of pedagogical behavior to inspire elementary school students to practice systematic physical activity and develop physical fitness.
History of physical culture	3	15/15	lecture/exercises	winter	This auxiliary subject is a means to learn historically conditioned various issues related to many aspects of physical culture.
Biochemistry	4	15/30	lecture/exercises	summer	During teaching this subject, students will learn about the basic biochemical processes of the human body.



Physiology II	5	15/30	lecture/ exercises	summer	In the second part of the course, students learn about theoretically and practically the functioning of the human body in various environmental conditions.
Basketball II	2	30	seminars / practical classes	summer	In the second part of the course, students will learn specific tactical elements of basketball and methods of comprehensive teaching of this subject.
Football II	2	30	seminars / practical classes	summer	In the second part of the course, students will learn specific tactical elements of football and methods of comprehensive teaching of this subject.
The subject of free choice I	2	30	lecture	summer	The first part of the course is designed to explore the biological development of the human body.
Subject didactics - teaching physical education in primary school I	3	60	workshops / methodical exercises at school	summer	The first part of the course covers theoretical issues related to the use of didactic methods in teaching physical education in primary schools.
Compensation and correction exercises	3	15/15	lecture/ exercises	summer	The course contains the content and methods of practical use of specialized physical exercises to compensate for defects in posture of the human body.

Health education	3	15/30	lecture/ exercises	summer	During teaching this subject, students will be introduced to a healthy and anti-healthy lifestyle.
Basics of didactics	3	15/15	lecture/ exercises	summer	The subject discussed describes various forms of teaching and indicates their effectiveness in the didactic process.
Basics of pedagogical diagnostics	1	10	exercises	summer	During teaching this subject, students should learn orientation in the application of specific pedagogical methods in various situations of work with the student.

### Cosmetology

Course title	ECTS	Hours	Form	Sem.	Course description
Skin care cosmetology II	7 (1 + 6)	75 (15 + 60)	lecture + workshop	winter	During the Care Cosmetology II module, students will learn about modern cosmetology equipment: Sollux lamps, d'Arsonval, diamond and corundum microdermabrasion, cavitation peeling, principles of ultrasound and sonophoresis. The issues of using cosmetic masks in the correct indications and the use of chemical peels will be discussed - matching the mask and peeling to the problem, indication and contraindication of treatments. Students will also learn about foot and hand care and medical problems such as frostbite or sweating of the feet and hands.

Dermatology	4 (2 + 2)	60 (30 + 30)	lecture + exercises	winter	The aim of the course is to gain knowledge about the prevention and epidemiology of skin diseases. Understanding the indications and contraindications for cosmetic procedures and the ability to detect suspicious skin changes. Will be able to interview the patient and the ability to cooperate with a doctor. The course also aims to learn about the structure and function of the skin, skin types and basic skin diseases.
Human anatomy and histology	3 (1 +2)	45 (15 + 30)	lecture + lab	winter	The course "Human anatomy and histology" aims to learn the basics of human anatomy. Acquiring the ability to recognize tissues in preparations and to describe the anatomical structure of organs. Students learn about tissue structure, organs and organ systems. The skin structure and epidermis building cells occupy a special place. Other systems are also discussed, e.g., nervous, sense organs: sensation, taste, smell, sight, balance. Digestive system, urinary system, circulatory system, endocrine system, respiratory system. The course includes a lecture and laboratory. Teaching methods are used: discussion, observation, laboratory work.
Pharmacology	3 (1 +2)	35 (15 + 20)	lecture + exercises	winter	Pharmacology course for cosmetology students consists of 20 didactic hours of auditorium classes and 15 didactic hours of lecture. The whole course concerns different topics such as: bases of pharmacokinetics and pharmacodynamics; forms and route of administration of drugs; interactions between drugs and between drugs and food; types of drugs interactions; types of drugs actions; types of drug side effects; use of medicines by pregnant women; dermatological drugs; antibiotics; local anesthetics.

					During auditorium classes, students performs different projects connected with pharmacology, solve tasks with dosing of drugs and prescription drugs. The classes finish with test and exam.
Basics of human nutrition	2 (1 + 1)	20 (10 + 10)	lecture + exercises	winter	The aim of the course is to provide knowledge and skills in applying the correct principles of human nutrition. Basic concepts related to proper human nutrition will be discussed. Nutrition and board standards. Basic nutrients (proteins, fats, carbohydrates, dietary fiber) - role, deficiency symptoms, sources of occurrence. The role of water in the body. Vitamins - role, occurrence, effects of deficiency and excess. Minerals - role, occurrence, effects of deficiency and excess. Nutritional properties of plant and animal products. Nutritional Errors. Nutritional factors of development of some civilization diseases. Indicators of poor nutritional status. Eating disorders. Types and characteristics of diets. Diets that help improve the appearance of the skin, hair and nails. Food as a source of vitamins used in cosmetics.
Beauty cosmetology II	7 (1 + 6)	75 (15 + 60)	Lecture + workshop	winter	During the Beauty Cosmetology II module, students learn about the causes, types and contemporary methods of preventing and reducing problems: cellulite, stretch marks and obesity. They will get to know the indications, contraindications for treatments as well as recommended cosmetics and active substances. Issues related to cleavage and bust care will also be discussed. During the module, students learn about the technique of lymphatic drainage, Chinese cupping massage, and how to perform body waxing with warm wax.

Aesthetics	2	30	workshop	winter	Subject on which students will learn advanced cosmetology procedures. Department dealing with beauty and other aesthetic values. Students learn to create individual treatment therapy for the client. They learn about the world of laser therapy and aesthetic procedures performed in a cosmetology salon.
Hygiene with epidemiology	2 (1 + 1)	30 (10 + 20)	lecture + exercises	winter	The course „Hygiene and Epidemiology” focuses on hygiene in the cosmetologists’ practice. Most of all, the program defines and shows ways to prevent hazardous agents in the workplace. It also familiarizes students with workplace hygiene, systems guaranteeing health and safety as well as occupational diseases. During the course, students analyze the impact of environmental factors – for example, air pollution on the skin and are acquainted with basic epidemiological terms.
Beauty cosmetology I	6 (1 + 5)	65 (15 + 50)	lecture + workshop	summer	Students will learn different types and techniques of makeup. They practice professional makeup on themselves. They will learn about the nail structure and perfect hybrid stylization on the nails. Classes take place in a very well-equipped room for styling nails with products of Victoria Vynn.
Cosmetic recipe	4 (1 + 3)	55 (15 + 40)	Lecture + lab	summer	As part of the "Cosmetic Recipe" classes, students will learn the basic concepts of cosmetic recipes, as well as the composition and preparation of cosmetic preparations. Active substances in the cosmetic recipe - action, application, interactions. Cosmetic substrates - operation and scope of application. Excipients and preservatives in the recipe - action and scope of application. Exemplary recipes of various cosmetic forms - applications (recipes of hand

					washing preparations - soaps, cleaning pastes; preparations for washing and caring for the whole body - lotions, lotions, creams, gels; cosmetics for the care and beauty of hair and nails, e.g. conditioners; anti-secretion cosmetics sweat, cosmetic coloring products - powders, blushes, inks, eye shadows; perfumery). During the course, students will also learn how to obtain cosmetic substances from plant materials. Cosmetics law, methods of labeling and marking cosmetics, cosmetics durability are also discussed.
Health promotion and health education (1 semester)	2 (1 + 1)	20 (10 + 10)	Exercises + workshop	summer	Health promotion and health education - basic concepts, definitions. The concept of health and disease, health determinants. Links between health education and health promotion. Characteristics of contemporary health promotion, main directions and principles of health promotion, place of health promotion in the health system, participation of health promotion in achieving health goals. Objectives and tasks of the National Health Program. International organizations acting for health promotion. Methods for recognizing, assessing and monitoring the health status of the population. Health promotion and preventive medicine, with particular emphasis on lifestyle diseases. Primary and secondary prevention - goals, tasks, forms of implementation. Health promotion projects and programs. Pro-health education of children, adolescents and adults.
Fundamentals of organizing and managing a beauty salon	1	15	workshop	summer	To acquaint students with elementary knowledge of marketing, management and organization of enterprises. Understanding the principles of organizing and running a beauty salon and acquiring the skills to organize and run a

					<p>beauty salon. Basics of business operations. Starting the enterprise. Enterprise planning, motivating, controlling. Business management. Marketing, concept, essence, functions and meaning of marketing. Marketing communication. Image and company identification system. Advertisement. Keeping administrative documentation in the beauty salon.</p>
Wellness	1	15	workshop	summer	<p>The aim of the course is to acquire basic knowledge and skills in the field of broadly understood biological regeneration. During the classes, an interview with the client regarding the current state of health, preparation of the client's card, taking into account the needs and expectations of the client are practiced. Treatments used in wellness salons, including cosmetic procedures. Basics of aromatherapy, rules for preparing mixtures of essential oils. Selected relaxation techniques used in wellness. Physical exercises in wellness. Basics of relaxing massage</p>
Skin care cosmetology I	6 (1+5)	65 (15+50)	lecture + workshop	summer	<p>Students learn basic facial treatments. Classes take place at the cosmetology workshop. Students perform treatments on themselves. They will learn about foot care, body hair removal, face massage and eyebrow and eyelash henna.</p>
Pathophysiology	2 (1+1)	20 (10+10)	lecture + exercises	summer	<p>The main goal of the Pathophysiology subject is to learn and understand the functional disorders of the human body. Moreover, course purpose is to learn the most important etiopathogenesis of the human diseases. The education assumption is to teach how to properly provide the analysis of disease case.</p>
Physiotherapy and massage	3	35	workshop	summer	<p>Understanding the basics of the masseur's work organization and massage hygiene. Acquiring the skills to</p>

			p		properly perform a massage, taking into account indications and contraindications. Principles and conditions for performing classical massage, techniques and methodology of classical massage. Practical exercises in the field of classical massage: back, chest and stomach massage, head and neck, neck, face, spine, upper limbs, lower limbs. Ability to prepare and conduct an interview with the client / patient before the planned surgery. Ability to keep records of own work. Teamwork skills. Organization of the masseur's work and massage hygiene.
Cosmetic chemistry	5 (1 + 4)	60 (15 + 45)	lecture + lab	summer	As part of the "Cosmetic chemistry" classes, students will learn about inorganic cosmetic chemistry such as chemical properties, reactivity, origin and cosmetic applications of selected inorganic elements and compounds, including macro- and microelements, oxides, hydroxides, acids, salts, substances of mineral origin. As part of the lecture on the subject "Cosmetic chemistry" students learn about inorganic cosmetic chemistry - chemical properties, reactivity, origin and cosmetic applications of selected inorganic elements and compounds, including macro- and microelements, oxides, hydroxides, acids, salts, substances of mineral origin. Cosmetic organic chemistry includes the chemical properties, reactivity, origin and cosmetic applications of selected organic compounds, such as: hydrocarbons, alcohols, phenols, ethers, aldehydes and ketones, carboxylic acids, derivatives of carboxylic acids, multifunctional compounds - phospholipids, hydroxy acids, amino acids and proteins, saccharides and organosilicon compounds. During the classes, cosmetic preparation forms, cosmetics ingredients, cosmetic raw materials, hair



					<p>care cosmetics, perfumes, flower waters and colognes as well as cosmetic masks, raw materials used for the preparation of oral care products, lotions creams, ointments and color cosmetics are discussed. The names of cosmetics ingredients according to INCI (International Nomenclature of Cosmetic Ingredients) are also discussed.</p>
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