



Lodz University
of Technology

Study programme

Faculty:	Faculty of Biotechnology and Food Sciences
Major:	Food Technology and Human Nutrition
Level of study:	second-cycle programme (magister)
Form of study:	full-time studies
Academic year:	2026/27

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Basic information

Name of the field of study:	Food Technology and Human Nutrition
Level of study:	second-cycle programme (magister)
Study profile:	general academic
Form of studies:	full-time studies
Duration of studies (number of semesters):	3
The number of ECTS points required to complete studies:	90
Total number of hours of classes:	1150
The number of ECTS points a student obtains as part of classes conducted with the direct participation of academic teachers or other persons conducting classes:	46
Professional title awarded to graduates:	magister
ISCED code:	0721
Language of study:	polish

Assigning the course to the disciplines to which the learning outcomes relate

Discipline	Percentage share
Food technology and nutrition	100%

Learning outcomes (in relation to the PQF)

No.	Learning outcome code	Learning Outcome Content	Reference to the universal characteristics of the first level of PRK	Reference to the second-level characteristics of the PRK, taking into account the second-level characteristics enabling the acquisition of engineering competences
1	2TZZ1	Knows and understands at an in-depth level advanced, key and detailed issues in the field of food and nutrition technology and analysis, as well as the main development trends in this discipline.	P7U_W	P7S_WG
2	2TZZ10	Is ready to responsibly develop the achievements of the profession and the principles of professional ethics, in line with changing social conditions and needs and technological progress, thinking and acting in an entrepreneurial manner.	P7U_K	P7S_KO, P7S_KR
3	2TZZ2	Knows and understands the fundamental dilemmas of modern civilization related to food production, preservation, storage, distribution and control of quality and authenticity, as well as nutrition, including the principles of the circular economy.	P7U_W	P7S_WK
4	2TZZ3	Knows and understands the economic, legal, normative, ethical and environmental conditions of various types of professional activities related to food technology and nutrition, including the principles of intellectual property protection law, as well as the basic principles of creating and developing various forms of entrepreneurship.	P7U_W	P7S_WK
5	2TZZ4	Is able to use his/her knowledge to identify, formulate and innovatively solve complex and unusual problems related to food technology and nutrition, as well as to formulate and test hypotheses related to implementation problems, through the appropriate selection of sources and information as well as advanced methods and tools, including advanced information and communication techniques.	P7U_U	P7S_UW
6	2TZZ5	Is able to critically analyze the functioning of existing technical solutions and tools, adapt and develop new methods and tools in order to design systems, processes and procedures in the food production and distribution chain, taking into account legal, economic, ethical and environmental aspects.	P7U_U	P7S_UW
7	2TZZ6	Can use appropriately selected techniques, tools, and materials to plan and conduct experiments, including measurements and computer simulations, and critically analyze, synthesize, and creatively interpret obtained results, as well as present and discuss them. They can lead a debate on a given topic.	P7U_U	P7S_UK
8	2TZZ7	Is able to function effectively in teams (including interdisciplinary ones) and lead teams that set goals, plan tasks and analyze risks and uncertainty, as well as communicate with the environment using terminology related to food technology and nutrition, including in a foreign language at the B2+ level.	P7U_U	P7S_UK, P7S_UO
9	2TZZ8	Is able to independently plan and implement their own learning and development and inspire the development of others.	P7U_U	P7S_UU

No.	Learning outcome code	Learning Outcome Content	Reference to the universal characteristics of the first level of PRK	Reference to the second-level characteristics of the PRK, taking into account the second-level characteristics enabling the acquisition of engineering competences
10	2TZZ9	Is ready to critically evaluate his/her knowledge, seek expert opinions, recognize the importance and use of knowledge in solving cognitive and practical problems related to food technology and nutrition, and inspire and organize activities for the benefit of the social environment and the public interest.	P7U_K	P7S_KK, P7S_KO

Matrix of course modules in relation to learning outcomes and curriculum content

No.	Course name	Program content	2TZZ1	2TZZ10	2TZZ2	2TZZ3	2TZZ4	2TZZ5	2TZZ6	2TZZ7	2TZZ8	2TZZ9
1	Internship in industrial plants	Internships take place in research units—scientific and analytical laboratories, and in food supervision and official control units. Students learn about the unit's scope of activities, its organizational and legal structure, the scope of research conducted, procedures, and work methods, including the analytical methods used. Students develop skills in organizing and planning their own work, collaborating with a team, and understanding the principles of cooperation between individual organizational units.		x						x	x	
2	Genetically modified food	The molecular basis of the processes leading to various types of genetically modified (GM) food. GMO crops and examples of product commercialization. Legal acts regulating GMOs (national and EU law), GM food labeling in Poland and globally, the role of state administration bodies in GM food. Ethical aspects.	x		x			x			x	
3	Designing a new generation of food	This course is taught in English. Consumer and market trends in next-generation food design. Product concept (consumer needs analysis, prototyping, testing, implementation, marketing strategies). Economic and social aspects of next-generation food production. Examples of next-generation food implementations, analyses of market successes and failures.	x	x	x					x		
4	Modern trends in fermentation technology	This course is taught in English. Analysis of market and consumer trends in fermentation technologies. Innovative solutions, including starter cultures, immobilized microorganisms, enzymes, accelerated maturation methods, and more. Precision fermentations. The use of unconventional microorganisms, including extremophiles. Advanced technologies (digitally controlled bioreactors with IoT sensors).	x	x	x					x		
5	Internship in scientific and research institutions	The internship takes place at a production facility specializing in food production, catering, and related sectors of the food industry. Students learn about the unit's scope of operations, its organizational and legal structure, the technological process, the responsibilities, procedures, and work methods of individual positions, and develop skills in organizing and planning their own work, collaborating with a team of employees, and understanding the principles of cooperation between individual departments.		x						x	x	
6	Nutrigenomics	Discussion of basic concepts: nutrigenomics, nutrigenetics, mutations, single nucleotide polymorphisms (SNPs), selected dietary components as regulators of the transcription process, selected dietary components as epigenetic regulators, molecular mechanisms of action of selected dietary components: folates, fructose, vitamin D, polyphenols; is the use of DNA tests to design a personalized diet justified?	x		x			x			x	
7	Transformations of food ingredients	Chemical and physicochemical transformations of food components during technological processes and to obtain innovative products. Reaction mechanisms and factors influencing their course. Computer modeling of the behavior of biomolecules.	x		x				x			
8	Nutrition of healthy and sick people	Nutrition policy and food economy in Poland and worldwide. Nutrition principles and recommendations for healthy and sick individuals. Personalizing nutrition. Principles of diet planning and balancing for individuals with various physiological states and selected diseases. Technological innovations in dietetics.	x		x		x				x	

No.	Course name	Program content	2TZZ1	2TZZ10	2TZZ2	2TZZ3	2TZZ4	2TZZ5	2TZZ6	2TZZ7	2TZZ8	2TZZ9
9	Shaping food quality, authenticity and safety	The use of quantitative and qualitative quality assessment tools, risk analysis, and predictive microbiology tools in the design of safe food. Food adulteration and methods for assessing its authenticity. Clean label strategies – legal requirements, consumer and producer trends.	x				x		x			x
10	Integrated quality and food safety management systems	Integration of management systems: ISO 9001 quality and a sector-specific system for the food industry, e.g., ISO 22000. Utilization of the PDCA cycle. Quality management systems according to ISO 9001 - process management. Requirements of the BRCGS Food Safety Global Standard. Documentation integration. Implementation and certification of management systems in the food industry.		x		x		x		x		
11	Smart technologies in food production	Modern unit processes in food production and the Industry 4.0 manufacturing model in the food industry. Trends in technological equipment development in various sectors of the food industry. Applications of artificial intelligence, IoT, robotics, computer, cyberphysical, and cloud systems. Advances in chemical and biological food analysis as a tool for process quality control.	x		x		x	x				
12	Innovation methods of food preservation and storage	Innovative methods of food preservation and storage (nanoparticles and nanoemulsions, cold plasma, high hydrostatic pressure, bacteriophages, endolysins, vacuum cooling, non-thermal atmospheric plasma, ozonation, electrolyzed water, combined methods). Innovative packaging and its application in food storage (emitters and absorbers, active packaging films). Technological and social barriers. The project includes developing a concept for an innovative process for the preservation and storage of selected products.			x		x	x		x		
13	Sustainable development of food economy	This course is taught in English. The principles of the EU's Common Agricultural Policy, the concept of striving to improve prosperity while taking into account the protection of the environment and natural resources, a long-term model of sustainable development using the example of a food plant. The "farm to fork" strategy, the "zero waste" goal, the green deal, the circular economy, product environmental footprint, biodiversity, the relationship between the economic development of the food industry and the natural environment, and sustainable food processing.			x	x		x				x
14	Innovations in confectionery and sugar industry	Technological confectionery, including the use of AI, molecular techniques, and 3D printing. Inspired by various cultures and cuisines. Trends and innovations in confectionery: fusions and twists, crumble cookies, "plant-based" baked goods, healthy alternatives, personalization and themed confectionery, dedicated and premium products, packaging, drive-thru, and cookie machines. Integrated energy recovery systems and cogeneration systems in the sugar industry, reducing water consumption. Modern methods of sugar crystallization, the use of enzymatic preparations and raw materials with reduced technological value. Reducing the carbon footprint and the circular economy in confectionery and the sugar industry.			x		x	x		x		
15	Research methodology and design	Research design: from concept to implementation, stages of the research process, research hypotheses, planning experiments in food technology, selecting methods and research samples. Data collection, analysis, and processing. Selection of methods and statistical tests. Publication of results. Research projects.				x			x	x	x	
16	Food business management	Course taught in English. Strategic management, mission, vision, corporate goals, competitive strategies in the food sector, operations management in food companies, food marketing, food consumer behavior, product branding and positioning, promotion and communication strategies, human resources management, employee recruitment and motivation, organizational culture in food companies, social responsibility.			x	x		x				x

No.	Course name	Program content	2TZZ1	2TZZ10	2TZZ2	2TZZ3	2TZZ4	2TZZ5	2TZZ6	2TZZ7	2TZZ8	2TZZ9
17	Functional food	Trends and new technologies in functional food production. Plant and animal raw materials as sources of bioactive substances. Methods for their isolation, analysis, and characterization of the main groups of compounds. Probiotics, synbiotics, and postbiotics. Functional product design, analysis of potential health benefits, assessment of compliance with legal regulations, and consumer communication proposals (labeling, claims).	x				x			x		x
18	Innovative systems and production lines in food technology	Technological and nutritional innovations in various sectors of the food industry. Non-standard raw materials in food production. Food designed for specific purposes, e.g., dietary, military, for astronauts, mountaineers, special nutritional needs, and infants. Designing a complete production line for a specific type of food, taking into account raw material and technological requirements, the selection of individual processes, modern equipment, automation, and principles of energy efficiency, safety, and production hygiene.	x	x			x		x			
19	Foreign Language for Specialist Purposes	Features and structure of scientific studies; analysis of specialized text. Presentation and interpretation of research results and statistical data in the form of tables, graphs, etc. Development of language competences in the field of specialized vocabulary in the field of food technology and nutrition, as well as grammar necessary for writing scientific/specialized texts and preparing and delivering presentations in a foreign language. Development of teamwork skills using the project method.						x	x	x		
20	Communication within the business and project team	Communication models, communication barriers, verbal and non-verbal communication, communication in project teams, interdisciplinary teams and in the business environment, organizational culture and communication style, conflict management, science-business cooperation, digital communication and online tools, communication in crisis situations.				x		x		x	x	
21	Practical aspects of entrepreneurship	Types of running a business and sources of financing. The company's market position (location, customers, strategies, barriers). Innovation - sources, financing, environmental influence, and industrial property protection. Networks, industrial clusters, and advanced technology centers. The innovation process in enterprises. Implementing new products in the food technology sector.		x	x	x				x		
22	Diploma Seminar	Formal requirements for preparing a master's thesis. Students present the thesis' assumptions and concepts, literature review, experimental research results, and conclusions. Critical analysis of the obtained research results. Active and substantive participation in the discussion. Case study - assumptions, solutions. Verification of the degree of achievement of key learning outcomes during a competency examination based on a case study.	x					x	x		x	
23	Scientist in the modern world	The scientist's mission and ethics. Popularizing scientific research. AI - how to properly use various artificial intelligence tools to create scientific content. Scientific portals. Creating a scientist profile. Analyzing sample scientific CVs and creating your own scientific CV.				x		x		x	x	
24	Final Project	A synthetic presentation in the form of a scientific dissertation of the knowledge, skills and competences acquired throughout the entire study programme, describing an independent, comprehensive solution to the assumed research task.			x		x		x			x

No.	Course name	Program content	2TZZ1	2TZZ10	2TZZ2	2TZZ3	2TZZ4	2TZZ5	2TZZ6	2TZZ7	2TZZ8	2TZZ9
25	Ultra-processed food	Cultural, technological and nutritional aspects of ultra-processed food, ultra-processed food and human health, ultra-processed food - an opportunity or a threat, policies aimed at stopping and reversing the growth of production, marketing and consumption of ultra-processed food, understanding commercial conditions, countering corporate power and mobilizing public health actions, protecting children from ultra-processed food.		x	x			x				x

ECTS - subjects

No.	Course name	ECTS	Subjects in the field of humanities and social sciences	Elective subjects	Profile items	Classes in a foreign language
1	Internship in industrial plants	4		4		
2	Genetically modified food	2		2	2	
3	Designing a new generation of food	4		4	4	4
4	Modern trends in fermentation technology	4		4	4	4
5	Internship in scientific and research institutions	4		4		
6	Nutrigenomics	2		2	2	
7	Transformations of food ingredients	4			4	
8	Nutrition of healthy and sick people	4			4	
9	Shaping food quality, authenticity and safety	9			9	
10	Integrated quality and food safety management systems	3			3	
11	Smart technologies in food production	7			7	
12	Innovation methods of food preservation and storage	5		5	5	
13	Sustainable development of food economy	3		3	3	3
14	Innovations in confectionery and sugar industry	5		5	5	
15	Research methodology and design	3			3	
16	Food business management	3		3	3	3
17	Functional food	4			4	
18	Innovative systems and production lines in food technology	6			6	
19	Foreign Language for Specialist Purposes	2				
20	Communication within the business and project team	3	3	3		
21	Practical aspects of entrepreneurship	2	2			

No.	Course name	ECTS	Subjects in the field of humanities and social sciences	Elective subjects	Profile items	Classes in a foreign language
22	Diploma Seminar	3			3	
23	Scientist in the modern world	3	3	3		
24	Final Project	20		20	20	
25	Ultra-processed food	2			2	

ECTS indicators

Name	Value
The total number of ECTS credits that a student must obtain through elective courses (amounting to no less than 30% of the total ECTS credits required to obtain the qualification corresponding to the given level of study)	41/90 (45.56%)
The total number of ECTS credits to be earned by a student through courses in the fields of humanities or social sciences	8
The total number of ECTS credits that a student must obtain from courses related to research conducted at the university, amounting to more than 50% of the total ECTS credits required to graduate from a given level of study	79/90 (87.78%)

Methods of verifying and assessing learning outcomes

Verification of achieved learning outcomes requires the use of diverse forms of student assessment, appropriate to the categories of knowledge, skills, and social competencies to which these outcomes relate. The selection of suitable tools also depends on the specifics of the subject and the form of classes, and is described in the syllabi of individual courses. The achievement of the required learning outcomes is verified through:

1. Written work (exams, tests, reports, essays, projects, posters, thesis, etc.);
2. Oral statements (oral knowledge checks, public presentations such as delivering a paper, presentation, etc.);
3. Practical and/or project tasks (both group and individual);
4. Observation and evaluation of student activity during classes;
5. Self-assessment and peer assessment (especially in the case of group projects);
6. Competency exam and diploma exam.

Verification may be formative (partial, repeated during classes) and/or summative (final assessment). The final verification result is given according to the currently applicable grading scale.

The course coordinator or instructor is obliged, during the first class, to discuss the course syllabus and to formulate and provide documented information to students regarding the methods of verification and the conditions for conducting assessments of learning outcomes.

Professional internships

Duration: 4 weeks

ECTS credits obtained: 4

\Internships are carried out in accordance with the study program, in a form adapted to the profile and specifics of the field of study, and according to the rules established by the faculty and the University.

Characteristics of the course

Graduate profile

Graduates of the second-cycle program in Food Technology and Human Nutrition obtain a master's degree and possess in-depth knowledge and skills in modern technologies and systems used in food production. They also possess competencies in human nutrition and food quality and safety, including unconventional production techniques. Graduates understand the economic, legal, and social aspects of food industry operations, including the principles of industrial property protection, copyright and patent law, and the commercialization of scientific research. Graduates understand, organize, and supervise the production of consumer-safe food consistent with sustainable development principles and the Industry 4.0 model. Knowledge of legal, economic, and management sciences will prepare graduates to start and run their own businesses. Graduates are prepared to plan and implement research experiments using modern analytical methods, techniques, technologies, and mathematical and IT tools. They can develop, interpret, and present experimental results, including in a foreign language. The acquired social competencies will enable graduates to lead, collaborate, and communicate within business and project teams, even in crisis situations. Graduates are theoretically and practically prepared to work in the food industry in management positions related to production, quality control, and the marketing of innovative foods. They can also find employment in food research laboratories and research institutions specializing in food technology and nutrition. Graduates are also prepared to pursue doctoral or postgraduate studies.

The relationship between the field of study and the university's strategy

The Food Technology and Human Nutrition study programme, based on advanced knowledge, practical skills, and social competencies, aligns with Lodz University of Technology's mission, as outlined in the university's strategy for 2025-2030. The guiding principle is collaboration that engages both staff and students, as well as representatives of the business community. This program aligns with TUL's mission to build a sustainable research university that develops innovations for the benefit of society, the economy, and the world, promoting the concept of lifelong learning. At the same time, this program supports scientific research that addresses key socio-economic issues, such as food safety, public health, and technological innovations, which is consistent with the assumptions of the impact area.

The Food Technology and Human Nutrition program aligns perfectly with the goals of interdisciplinary research, promoting, based on the latest trends, technologies that support a modern, knowledge-based economy consistent with the principles of sustainable development and respect for the natural environment. In line with its educational goal, this program continually refines its teaching offerings in response to environmental challenges, increasing student participation in research and intensifying their practical experience outside of the university, thus ensuring graduates achieve key competencies aligned with labor market expectations. Modern forms of education and active collaboration with businesses enable students to acquire valuable practical skills and prepare them for work in highly specialized sectors of the knowledge-based economy.

Educational objectives and employment and continuing education opportunities

The Food Technology and Human Nutrition field of study at Lodz University of Technology aims to educate graduates who combine interdisciplinary knowledge with practical skills. The goal of the program is to develop entrepreneurship and impart knowledge and skills in innovative food production systems that leverage the achievements of digitalization and sustainable development in line with the Industry 4.0 model, including artificial intelligence (AI), the Internet of Things (IoT), automation, and robotics. Students acquire skills in modern food production, the analysis and assessment of food quality and authenticity, and ensuring safety. The curriculum prepares specialists who can implement innovative, applied, socially and environmentally responsible solutions in the food industry. Graduates have a wide range of employment opportunities in the industry, where they can work as technologists, quality controllers, production managers, or food analysis specialists. They are prepared to take on management positions in companies and institutions involved in food trade, food control, and human nutrition. They can also work in companies in other industries, such as pharmaceuticals, chemicals, analytical laboratories, research centers, and scientific institutions. Graduates can develop their professional skills through postgraduate studies and training, both in Poland and abroad. They have the opportunity to continue their education and develop their scientific careers in third-cycle programs at doctoral schools, including the Interdisciplinary Doctoral School at Lodz University of Technology. The Food Technology and Human Nutrition curriculum enables students to prepare for research, both methodologically and organizationally, by completing the following courses: Research Methodology and Design, Scientist in the Modern World, and by completing a thesis, which provides an independent, comprehensive solution to a complex research problem. Students, in the Foreign Language for Specialized Purposes course, acquire foreign language skills at a B2+ level, including specialized terminology, enabling them to critically analyze and interpret scientific materials and texts, as well as prepare a coherent scientific article or presentation on the results of research and/or scientific projects.

Description of the process and outcome of consultations on the proposed study program with the socio-economic environment

The Food Technology and Human Nutrition study programme has been comprehensively adapted to the requirements of the digital and green transformation, focusing on innovative technologies and products, while also taking into account the sustainable development of the food economy. While completing courses such as "Innovative Systems and Production Lines in Food Technology," "Smart Technologies in Food Production," and "Innovations in the Confectionery and Sugar Industry," students will become familiar with modern unit processes and trends in the development of technological equipment, incorporating digitization and automation. The programs cover, among other things, the use of Artificial Intelligence (AI), the Internet of Things (IoT), computer, cyberphysical, and cloud systems, molecular techniques, and 3D printing in food production. Adaptation to the needs of the green transformation is primarily achieved through the "Sustainable Development of the Food Economy" course, which discusses the "farm to fork" strategy, the "zero waste" concept, the green deal, the circular economy, the environmental footprint of a product, and the principles of sustainable food processing. The curriculum also addresses aspects related to energy efficiency and carbon footprint reduction. The above-mentioned activities are key in the Industry 4.0 manufacturing model.

Description of competencies expected from a candidate applying for admission to studies

In accordance with the recruitment resolution in force for a given academic year.

The unit organizing education

Faculty of Biotechnology and Food Sciences

Education program

Semester 1

Course	Number of hours	ECTS points	Form of verification	Obligatory
Transformations of food ingredients	Tutorials: 15 Laboratory classes: 30 Lecture: 10	4	Graded assignment	Obligatory
Nutrition of healthy and sick people	Tutorials: 20 Project work: 20 Lecture: 15	4	Graded assignment	Obligatory
Shaping food quality, authenticity and safety	Tutorials: 15 Laboratory classes: 105 Project work: 15 Lecture: 20	9	Exam	Obligatory
Integrated quality and food safety management systems	Tutorials: 15 Project work: 15 Lecture: 10	3	Graded assignment	Obligatory
Elective Student Internships		4	Pass	Obligatory subjects to choose from
Student wybiera 1 przedmiot				
Internship in industrial plants	Internship: 0	4	Pass	Obligatory subjects to choose from
Internship in scientific and research institutions	Internship: 0	4	Pass	Obligatory subjects to choose from
Elective Course 1		4	Graded assignment	Obligatory group
Student wybiera 1 przedmiot				

Course	Number of hours	ECTS points	Form of verification	Obligatory
Designing a new generation of food	Laboratory classes: 10 Project work: 10 Lecture: 5	4	Graded assignment	Optional
Modern trends in fermentation technology	Laboratory classes: 10 Project work: 10 Lecture: 5	4	Graded assignment	Optional
Elective Courses 2		2	Graded assignment	Obligatory group
Student wybiera 1 przedmiot				
Genetically modified food	Project work: 10 Lecture: 10	2	Graded assignment	Optional
Nutrigenomics	Project work: 10 Lecture: 10	2	Graded assignment	Optional
Sum	350	30		

Semester 2

Course	Number of hours	ECTS points	Form of verification	Obligatory
Smart technologies in food production	Tutorials: 15 Laboratory classes: 50 Project work: 10 Lecture: 15	7	Exam	Obligatory
Research methodology and design	Laboratory classes: 10 Lecture: 5	3	Exam	Obligatory
Functional food	Laboratory classes: 30 Project work: 15 Lecture: 15	4	Graded assignment	Obligatory
Innovative systems and production lines in food technology	Laboratory classes: 55 Project work: 15 Lecture: 15	6	Exam	Obligatory
Foreign Language for Specialist Purposes	Tutorials: 45	2	Graded assignment	Obligatory

Course	Number of hours	ECTS points	Form of verification	Obligatory
Elective Courses 3		5	Graded assignment	Obligatory group
Student wybiera 1 przedmiot				
Innovation methods of food preservation and storage	Laboratory classes: 15 Project work: 15 Lecture: 10	5	Graded assignment	Optional
Innovations in confectionery and sugar industry	Laboratory classes: 15 Project work: 15 Lecture: 10	5	Graded assignment	Optional
Elective Courses 4		3	Graded assignment	Obligatory group
Student wybiera 1 przedmiot				
Sustainable development of food economy	Tutorials: 15	3	Graded assignment	Optional
Food business management	Tutorials: 15	3	Graded assignment	Optional
Sum	350	30		

Semester 3

Course	Number of hours	ECTS points	Form of verification	Obligatory
Practical aspects of entrepreneurship	Laboratory classes: 10 Project work: 15 Lecture: 5	2	Graded assignment	Obligatory
Diploma Seminar	Seminar: 30	3	Exam	Obligatory
Final Project	Diploma Thesis: 0	20	Pass	Obligatory subjects to choose from
Ultra-processed food	Tutorials: 10 Project work: 10 Lecture: 10	2	Graded assignment	Obligatory
Elective Courses 5		3	Graded assignment	Obligatory group

Course	Number of hours	ECTS points	Form of verification	Obligatory
Student wybiera 1 przedmiot				
Communication within the business and project team	Laboratory classes: 15 Project work: 15 Lecture: 5	3	Graded assignment	Optional
Scientist in the modern world	Laboratory classes: 15 Project work: 15 Lecture: 5	3	Graded assignment	Optional
Sum	125	30		