GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	, PG_00072904		
Field of study	Recycling and Energy Recovery		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2026/2027
Education level	first-cycle studies	Subject group	Optional subject group Humanistic-social subject group
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	4	Language of instruction	Polish
Semester of study	7	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Process Engineering and Chemical Technology -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Bartosz Szulczyński	
	Teachers	dr inż. Bartosz Szulczyński	

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	10.0	0.0	0.0	0.0	10.0	20
	E-learning hours included: 0.0						

Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
	Number of study hours	20	0.0	0.0	20

Subject objectives	
	The objective of the course is to familiarise students with the basic legal, organisational and economic aspects of conducting business activities in small and medium-sized enterprises (SMEs), with particular emphasis on the waste management, raw material recovery and energy recovery sectors. The course covers intellectual property protection, establishing and managing businesses, including spin-off companies, commercialisation of innovative technologies, obtaining funding and legal requirements related to activities in the environmental sector. An important objective is also to develop entrepreneurial attitudes and the ability to identify opportunities for implementing innovative technological and organisational solutions within the circular economy.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_W07] demonstrates knowledge and understanding of Polish and European law in the field of entrepreneurship, waste management, circular economy, health and safety rules and industry standards.	The student knows and understands the basic provisions of Polish and European law concerning business activities, intellectual property protection and the operation of enterprises in the waste management and raw material and energy recovery sectors, including circular economy principles, occupational health and safety requirements, and applicable industry standards and regulations.	[SW2] Assessment of knowledge contained in presentation
	[K6_U71] is able to apply knowledge from humanistic, social, economic or legal sciences in order to solve problems in a social environment	The student is able to apply knowledge of law, economics and social sciences to analyse and solve practical problems related to establishing and running SMEs, intellectual property protection, and the operation of enterprises in the waste management and raw material and energy recovery sectors.	[SU5] Assessment of ability to present the results of task [SU2] Assessment of ability to analyse information
	[K6_K71] is conscious of the need to apply knowledge from humanistic, social, economic or legal sciences in order to function in a social environment	The student is aware of the importance of knowledge of law, economics and social sciences in conducting business activities, making business decisions and operating enterprises in the waste management and raw material and energy recovery sectors. The student understands the need to consider legal, economic and social conditions in entrepreneurial activities and to seek specialist knowledge when addressing emerging problems.	[SK1] Assessment of group work skills [SK4] Assessment of communication skills, including language correctness
	[K6_W71] has general knowledge in humanistic, social, economic or legal sciences	The student has knowledge of basic issues in law, economics and social sciences related to conducting business activities, the operation of small and medium-sized enterprises, intellectual property protection, the commercialisation of innovations and business financing, with particular emphasis on the waste management and raw material and energy recovery sectors.	[SW2] Assessment of knowledge contained in presentation

Subject contents

Course content – lecture

- Fundamentals of Entrepreneurship and SME Operations – characteristics of small and medium-sized enterprises, forms of business activity and the basic obligations of entrepreneurs.
- Establishing and Running a Business – business registration procedures, choice of legal form, and basic tax, organisational and legal aspects.
- Intellectual Property Protection in Industry – patents, utility models, industrial designs, trademarks, copyright and trade secrets.
- Spin-off Companies and Innovation Commercialisation – principles of establishing companies based on knowledge and technology, cooperation between academia and business, and the role of an innovation broker.
- Financing Business Activities and Innovative Projects – sources of funding, grants, European funds and support instruments for SMEs and start-ups.
- Legal Aspects of Waste Management – basic obligations of businesses, requirements concerning waste collection, transport, processing and recovery, administrative permits and legal liability.
- Conditions for Conducting Business in the Waste Processing Sector – current legal, technological and economic challenges, as well as anticipated regulatory changes and future challenges for businesses.
- Entrepreneurship and the Development of Entrepreneurial Attitudes – identifying business opportunities, innovation, risk-taking and entrepreneurial responsibility.

Course content – seminar

- Analysis of a Business Idea – identifying a market need and developing a business concept in the waste management or raw material and energy recovery sector.
- Choosing a Legal Form and Business Registration Procedures – analysing a case study and identifying the key formalities involved in starting a business.
- Practical Aspects of Intellectual Property Protection – identifying elements eligible for protection and selecting appropriate protection mechanisms for a sample technological solution.
- Developing a Concept for a Spin-off Company – preparing the basic assumptions for a company based on scientific research results or an innovative technology.
- The Role of an Innovation Broker and Cooperation Between Academia and Business – analysing technology commercialisation opportunities and identifying the role of intermediaries in knowledge transfer.
- Selecting Sources of Business Financing – analysing available funding opportunities for starting and developing a business.
- Analysis of Legal Issues Facing a Waste Processing Company – a case study covering business obligations, required permits, legal liability and legal risks.
- Identifying Future Challenges for Businesses in the Waste Management Sector – teamwork on potential legal, technological and market changes and their impact on business operations.
- Presentation and Discussion of a Business Concept – group presentations of business ideas, taking into account legal, organisational and financial aspects, as well as intellectual property protection.

Prerequisites and co-requisites

Basic knowledge of economic systems, environmental protection and waste management. Familiarity with fundamental concepts related to business activities and an interest in entrepreneurship, innovation and intellectual property protection. No prior specialised knowledge of business law is required.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Seminar presentations	60.0%	50.0%
Test	60.0%	50.0%

Recommended reading

Basic literature	1. Barringer, B. R., Ireland, R. D., Entrepreneurship: Successfully Launching New Ventures, 7th ed., Pearson, 2025. 2. World Intellectual Property Organization (WIPO), Enterprising Ideas: A Guide to Intellectual Property for Startups, 2021. 3. World Intellectual Property Organization (WIPO), Inventing the Future: An Introduction to Patents for Small and Medium-sized Enterprises, 2018. 4. World Intellectual Property Organization (WIPO), Making a Mark: An Introduction to Trademarks for Small and Medium-Sized Enterprises, 2017. 5. European Commission, User Guide to the SME Definition, Publications Office of the European Union, 2020.
Supplementary literature	1. Singh, P., Borthakur, A. (eds.), Trash or Treasure: Entrepreneurial Opportunities in Waste Management, Springer, 2024.Springer Nature Link 2. OECD, Intellectual Assets and Innovation: The SME Dimension, OECD Publishing, 2011. 3. Delchet-Cochet, K. (ed.), Circular Economy: From Waste Reduction to Value Creation, ISTE/Wiley, 2020.
eResources addresses	

Example issues/ example questions/ tasks being completed

- What are the main legal forms of business activity in Poland, and what are the requirements for establishing an SME?
- What are the differences between start-ups and spin-off companies, and what opportunities exist for commercialising research results?
- What is the importance of intellectual property protection in technology-based and industrial enterprises?
- What is the role of innovation brokers and technology transfer from academia to business?
- What sources of financing are available to businesses operating in the waste management sector?
- What are the main legal requirements for companies involved in waste processing and recovery?
- What current and future legal, technological and economic challenges face the waste management sector?
- What opportunities for entrepreneurship are created by the circular economy?

Practical activites within the subject

Not applicable

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