

Learning outcomes for second-cycle studies Industrial and Renewable

Description for learning outcomes for field of study		
Learning outcomes for field of study	Learning outcomes for a graduate students in the field of study Industrial and Renewable Energy:	Characteristic of learning outcomes for II cycle studies
Knowledge		
EC2A_W01	Has expanded knowledge necessary to understand profile subjects and specialist knowledge about construction, methods of designing, manufacturing, operating, security systems, and impact on the economy, society and the environment in the field of industrial and renewable energetic sectors in the specialties: 1. Gas Technologies and Renewable Energy, 2 - Thermal energetics	P7S_WG
EC2A_W02	Has extended and in-depth knowledge in the field of mathematics, optimization methods, including numerical methods used in the description of thermodynamic processes, fluid mechanics, heat, mass and momentum transfer	P7S_WG
EC2A_W03	Has expanded knowledge about the development directions of energy technologies and renewable energy sources	P7S_WG
EC2A_W04	Has knowledge of the latest design of machinery and equipment used in industry energy	P7S_WG
EC2A_W05	Knows the basic processes occurring in the life cycle of devices, facilities and technical systems used energy industry	P7S_WG
EC2A_W06	Has expanded knowledge about the development directions of technologies based on renewable energy sources	P7S_WG
EC2A_W07	Has ordered and in-depth knowledge of the impact of operational parameters on the efficiency of energy machines and their impact on the functioning of energy systems	P7S_WG
EC2A_W08	Knows and understands the fundamental aspects related to the design, construction, implementation and maintenance of energetic devices and machines	P7S_WK
EC2A_W09	Has ordered and in-depth knowledge necessary to understand the issues of energy safety	P7S_WK
EC2A_W10	Has knowledge of the negative impact of technology on the natural environment and also knows civilization dilemmas related to the use of energy	P7S_WK
EC2A_W11	Knows the principles of industrial property protection (including intellectual property) as well as economic, legal and ethical conditions of activities related to energy production	P7S_WK
EC2A_W12	Knows legal issues related to the design and use of energetic systems	P7S_WK

EC2A_W13	Knows the basic principles of creating and developing various forms of entrepreneurship	P7S_WK
EC2A_W14	Has knowledge of structures and processes for managing fuel extraction and processing enterprises	P7S_WK
E2A_W15	Has in-depth knowledge of methods of linear measurements, temperature, pressure, humidity, fluid streams, speed, automation systems and modern digital interfaces used in control systems.	P7S_WG
Skills		
E2A_U01	Is able to use his knowledge to search for the right sources and interpret found information in order to solve both standard and non-standard engineering problems	P7S_UW
E2A_U02	Is able to use his knowledge and skills to use the right methods and tools (including specialized software) to solve problems and perform tasks related to engineering activities	P7S_UW
E2A_U03	Is able to use his knowledge and skills to adapt existing or create new methods and tools to help solve typical engineering problems in the energy industry	P7S_UW
E2A_U04	Is able to solve research and engineering tasks requiring the use of engineering standards and norms and the use of technologies appropriate for industrial and renewable energy, using experience gained in an environment professionally engaged in engineering activities	P7S_UW
E2A_U05	Is able to formulate and test hypotheses related to simple research problems	P7S_UW
E2A_U06	Is able to formulate and test hypotheses related to simple implementation problems	P7S_UW
E2A_U08	Is able to design and conduct experiments and simulations as well as process and interpret their results.	P7S_UW
E2A_U09	Is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks in the field of Industrial Power Engineering	P7S_UW
E2A_U10	Is able to make a preliminary economic assessment when formulating and solving engineering tasks in the application of Industrial Power	P7S_UW
E2A_U11	Is able to critically analyze the functioning of existing technical solutions in the energy industry and evaluate these solutions	P7S_UW
E2A_U12	Is able to design - in accordance with the given specification - and make simple devices, objects, systems or implement processes for industrial power engineering, using appropriately selected methods, techniques, tools and materials	P7S_UW
E2A_U13	Is able to solve research and engineering tasks requiring the use of engineering standards and norms and the use of technologies appropriate	P7S_UW

	for industrial and renewable energy, using experience gained in an environment professionally engaged in engineering activities	
E2A_U14	Is able to use the experience gained in the environment of professionally engaged in engineering activities related to the maintenance of equipment, facilities and systems of Industrial Power Engineering	P7S_UW
E2A_U15	Is able to communicate on topics related to industrial energy with diverse audiences	P7S_UK
E2A_U16	He can lead a debate	P7S_UK
E2A_U17	Is able to use a foreign language at B2 + level of the European Language Training Description System and specialized terminology related to industrial energy	P7S_UK
E2A_U18	Is able to manage the work of the team	P7S_UO
E2A_U19	Is able to interact with other people as part of team work and take a leading role in teams	P7S_UO
E2A_U20	Can independently plan and implement their own lifelong learning and guide others in this regard	P7S_UU
Social competencies		
E2A_K01	Is ready to critically assess knowledge and received content	P7S_KK
E2A_K02	Is ready to recognize the importance of knowledge in solving cognitive and practical problems and to seek expert opinions in the event of difficulties in solving the problem yourself	P7S_KK
E2A_K03	He is ready to fulfill social obligations, inspire and organize activities for the social environment	P7S_KO
E2A_K04	He is ready to initiate actions for the social interest	P7S_KO
E2A_K05	Is ready to think and act in an entrepreneurial way	P7S_KO
E2A_K06	Is ready to perform responsible professional roles, taking into account changing social needs, including: <ul style="list-style-type: none"> - developing the profession's achievements, - maintaining the ethos of the profession, - compliance with and development of the principles of professional ethics and actions to comply with these principles 	P7S_KR