Resolution No. 462/XXVI/XV/2019 of the Senate of Bialystok University of Technology of June 27, 2019 on determining learning outcomes for the second cycle courses starting from the academic year 2019/2020 in the field of Civil Engineering at Bialystok University of Technology

Tabela 6.1. Tabela odniesień efektów kierunkowych dla studiów **pierwszego stopnia** na kierunku ***budownictwo*** do kwalifikacji uzyskiwanych na poziomie 6 zgodnie z charakterystykami pierwszego i drugiego stopnia PRK

Symbol of learning outcomes for the field of study (K_B1)	Learning outcomes for the field of study **Civil Engineering**	Reference to universal characteristics of the first cycle **określonych w Ustawie z dnia 22 grudnia 2015 r. o Zintegrowanym Systemie Kwalifikacji oraz charakterystyk drugiego stopnia określonych w przepisach wydanych na podstawie art. 7 ust. 3 tej ustawy PRK – poziom 6**	Reference to engineering competences **zawartych w charakterystykach drugiego stopnia określonych w przepisach wydanych na podstawie art. 7 ust. 3 ustawy z dnia 22 grudnia 2015 r. o Zintegrowanym Systemie Kwalifikacji PRK – poziom 6**
KNOWLEDGE Graduates know and understand:			
K_B1_W01	selected issues representing advanced knowledge within mathematics, physics, chemistry and other basic sciences used to describe the phenomena and processes occurring in civil engineering	**P6U_W P6S_WG**	
K_B1_W02	the principles of computational and information technology, methods in civil engineering and selected computer programmes supporting calculation and design of structures and the organisation of the construction process	**P6U_W P6S_WG**	
K_B1_W03	principals of general mechanics, including statics, dynamics and stability; have knowledge of the strength of materials and general principles of civil engineering structures	**P6U_W P6S_WG**	**P6S_WG**
K_B1_W04	issues related with materials, products and building elements, methods of their research and principles of their production	**P6U_W P6S_WG**	**P6S_WG**
K_B1_W05	principles of analysis, modelling, designing, dimensioning and construction of basic civil engineering structures, industrial and road transport infrastructure, bridge constructions and their elements	**P6U_W P6S_WG**	**P6S_WG**

K_B1_W06	standards as well as regulations and guidelines concerning the design of civil engineering structures and their elements	**P6U_W P6S_WG**	**P6S_WG**
K_B1_W07	principles of building physics and phenomena concerning heat transfer and humidity migration in civil engineering buildings	**P6U_W P6S_WG**	**P6S_WG**
K_B1_W08	standards and regulations applying to civil engineering, technology, as well as organisation and principles of managing the construction process and principles of BiOZ	**P6U_W P6S_WG**	**P6S_WG**
K_B1 W09	issues related to the life cycle of a civil engineering structure, sustainability of engineering structures, their exploitation and modernisation, principles of diagnosing, methods of investigating and evaluating the technical condition of civil engineering structures and their elements	**P6U_W P6S_WG**	**P6S_WG**
K_B1_W10	BIM (Building Information Modelling) principles of modelling, particularly basic methods, techniques, tools use d in 3D modeling+	**P6U_W P6S_WG**	**P6S_WG**
K_B1_W11	general rules for conducting business activity in the construction industry and preparing investment projects, creating and developing forms of entrepreneurship, including construction law provisions	**P6U_W P6S_WK**	**P6S_WK**
K_B1_W12	basic economic, legal and ethical principles of engineering activity and issues of intellectual property protection, including patent and copyright law	**P6U_W P6S_WK**	
SKILLS Graduates can:			
K_B1_U01	use knowledge from various fields of science to formulate and solve complex and unusual tasks and problems and perform tasks in conditions that are not fully predictable	**P6U_U P6S_UW**	**P6S_UW**
K_B1_U02	make a critical analysis of the functioning of the existing technical solutions in construction and evaluate these solutions	**P6U_U P6S_UW**	**P6S_UW**
K_B1_U03	read architectural, construction and survey drawings and also create graphical documentation according to the principles of descriptive geometry and engineering drawing, using selected graphic software; interpret the designs of basic civil engineering systems	**P6U_U P6S_UW**	**P6S_UW**

K_B1_U04	plan and carry out experiments, including selecting computational models, evaluate the obtain d results and draw conclusions	**P6U_U P6S_UW**	**P6S_UW**
K_B1_U05	correctly select and apply construction material; and products	**P6U_U P6S_UW**	**P6S_UW**
K_B1_U06	correctly define the computational models of structures and their elements, used for analytical and computer analysis of the structure and perform their analysis	**P6U_U P6S_UW**	**P6S_UW**
K B1_U07	evaluate the suitability of methods and tools for solving problems of modelling, analysing and designing civil engineering structures, technology and organising construction works , also using selected computer programmes supporting modelling and designing processes in civil engineering; perform data analyses and critically evaluate their results	**P6U_U P6S_UW**	**P6S_UW**
K_B1_U08	model, design, dimension and construct structural elements in general engineering, industrial building structures, road transport infrastructure, bridges and their elements	**P6U_U P6S_UW**	**P6S_UW**
K_B1_U9	acquire and use building BIM documentation and make 3D + models in this technology	**P6U_U P6S_UW**	**P6S_UW**
K_B1_U10	design a technological process, develop a simple schedule of concerning construction works and prepare work organisation plans of construction projects, as well as conduct a preliminary economical analyses of the proposed solutions and engineering activities	**P6U_U P6S_UW**	**P6S_UW**
K_B1_U11	perceive their systemic and non-technical aspects, including ethical aspects, when identifying, formulating and solving engineering tasks	**P6U_U P6S_UW**	**P6S_UW**
K_B1_U12	communicate using specialised terminology, participate in the debate - present and discuss opinions and positions	**P6U_U P6S_UK**	
K_B1_U13	communicate in a foreign language at least at B2 level according to the Common European Framework, using specialised terminology within the field of civil engineering	**P6U_U P6S_UK**	
K_B1_U14	operate in an entrepreneurial way through training and raising professional competences and initiating activities for their whole life	**P6U_U P6S_UO**	

K_B1_U15	operate in an entrepreneurial way through training and raising professional competences and initiating activities for their whole life	**P6U_U P6S_UU**	
SOCIAL COMPETENCES Graduates are ready to:			
K_B1_K01	critical evaluation of knowledge and content received in the field of civil engineering and technical sciences used in solving cognitive and practical problems	**P6U_K P6S_KK**	
K_B1_K02	recognise the impo1tance of professional knowledge in solving problems in the field of civil engineering and consulting experts in the event of difficulties with solving the problem on their own	**P6U_K P6S_KK**	
K_B1_K03	thinking and pursuing activities in the field of civil engineering in an entrepreneurial way	**P6U_K P6S_KO**	
K_B1_K04	carrying out assumed or assigned professional tasks in a reliable and responsible way, taking into consideration social conditioning and public interest	**P6U_K P6S_KO**	
K_B1_K05	following the rules of professional ethics and concerning for the achievements of the profession	**P6U_K P6S_KR**	
K_B1_K06	responsible fulfillment of professional duties and continuous training in areas related to the nature of the performed professional roles	**P6U_K P6S_KR**	

Explanations:
K_B1 - learning outcomes for the Faculty of Civil Engineering
W - category of knowledge
U - category of skills
K- category of social competences
01, 02, 03 ... - number of learning outcome

Explanations of symbols according to the Polish Qualifications Framework (Regulation of the Ministry of Science and Higher Education of November 1 4, 2018, Journal of Laws, item 2218):
P = PRK level
U = universal characteristics
P6U_W - 6 P RK, universal characteristics, knowledge
P6U_U - 6 PRK, universal characteristics, skills
P6U_K - 6 PRK, universal characteristic s, social competences
P6S - learning outcomes for first-degree course according to the Polish Qualifications Framework (qualifications obtained under the system of higher education and science (second-cycle characteristics) - LEVEL 6, general academic profile);
W - knowledge (graduates know and understand): P6S_WG - scope and breadth/ completeness of the cognitive perspective and dependencies , P6S_WK - context / conditions, effects;

U - skills (graduates can): P6S_UW - use of knowledge *I* problem solved and tasks performed; P6S_UK
Communicating/receiving and creating statements , disseminating knowledge in the professional society and using a foreign language; P6S_UO - work organisation/ planning and team work; P6S_UU
learning / planning own professional development and the development of others;
K - social competences (graduates are ready for): P6S_KK – assessment/critical app roach, P6S_KO – responsibility/fulfillment of social obligations and acting for the public interest, P6S_KR - professional role/independence and ethos development.

Kierunek *budownictwo* pierwszego stopnia przypisany jest do jednej dyscypliny naukowej – *inżynieria lądowa i transport*. Jest to dyscyplina wiodąca
Wszystkie efekty uczenia się zostały przypisane do dyscypliny inżynieria lądowa i transport.