

DESCRIPTION OF THE PROGRAM OF STUDIES

FACULTY: Civil Engineering

MAIN FIELD OF STUDY: Civil Engineering

EDUCATION LEVEL: ~~first-level (licencjat/inżynier) studies / second-level studies / magister uniform studies*~~

FORM OF STUDIES: full-time studies / ~~part-time studies*~~

PROFILE: general academic / ~~practical*~~

SPECIALIZATION: Civil Engineering

LANGUAGE OF STUDY: English

1. Opis ogólny

1.1. Number of semesters:	3
1.2. Total number of ECTS points necessary to complete studies at a given level:	90
1.3. Total number of hours:	1035
<p>1.4. Prerequisites (particularly for second-level studies):</p> <p><i>An applicant for second level studies in Civil Engineering in the Civil Engineering Department of Wroclaw University of Technology must have qualifications of first level studies and be competent in continuing education at second level studies in this faculty. Candidates applying for second level studies in Civil Engineering must:</i></p> <ul style="list-style-type: none"> - <i>possess knowledge from selected fields of mathematics and physics which enables the understanding of the physical basis of construction and also the formulation and solving of simple problems in the area of civil engineering;</i> - <i>possess knowledge from chemistry which enables the understanding of the basis of chemical properties and the construction of building materials;</i> - <i>be able to read and understand architectural, constructional and geodesy drawings and make proper project documentation in a graphical environment on selected CAD software;</i> - <i>possess knowledge and be competent in the area of structural mechanics, strength of materials and principles of the general formation of building structures;</i> - <i>possess knowledge and ability to apply the principles of structural mechanics and bar construction analysis in the areas of statics, dynamics and stability;</i> - <i>be able to apply appropriate computational models and carry out structural mechanic analysis of simple bar structures which are statically determinate and indeterminate;</i> - <i>possess knowledge and skills in the area of designing selected elements and simple constructions made of: metal, reinforced concrete, wood, masonry and composite;</i> - <i>possess knowledge and basic skills in designing hydrotechnical and bridge building structures and structures related to transport infrastructure;</i> - <i>knows the basics of soil mechanics and principles of modeling, dimensioning and construction of foundations;</i> - <i>knows the basics of building physics and understand the phenomenon of heat transfer and diffusion of moisture in building objects;</i> - <i>be able to select and apply correct tools for solving issues regarding analysis, building structure design and carrying out construction works;</i> - <i>be able to estimate costs and formulate schedules of building works, building site developments and building works execution projects;</i> - <i>possess skills in the area of interpretation, presentation and documentation of simple experiments and also in the area of presentation and documentation of the results of task implementation with project characteristics.</i> <p><i>The principles for verifying the competencies of candidates are determined by the appropriate resolutions of the Faculty Council.</i></p>	
1.5. Upon completion of studies graduate obtains professional degree of:	<i>magister inżynier</i>

1.6. Graduate profile, employability:

After finishing second level studies in the Civil Engineering Faculty, a graduate, using his acquired knowledge and skills is ready to make decisions regarding the appropriate usage of materials, construction design and construction projects. Knows the current trends in the design and execution of building projects. Uses principles of occupational health and safety. Is able to design buildings, knows the principles of structural mechanics and is able to formulate, create, and then use the appropriate computational models of complex engineering structures. Can make and read technical drawings, recognize geodesy and cartography documentations and manage construction works. Is able to formulate and solve new engineering, technical and organizational issues related to civil engineering. Can use modern computer aided technics in the design of constructional structures and projects. Can critically select arguments supporting collective decisions related to the execution of tasks in civil engineering. Is able to formulate and publish reports on the progress of carried out works.

Is able to work in a team and supervise a team's duties. Is responsible for the safety of a supervised team. Is aware of the need to improve his professional and personal competence. Follows ethical rules. Knows and uses the principles of construction law.

Has language skills in the fields of science and scientific disciplines relevant to the studied faculty and requirements for B+ level of the Common European Framework of Reference for Languages. Is prepared to continue his education at third level studies. Graduates are able to: solve complex design, organizational and technological issues, formulate and carry out research programs, run projects of international scope, participate in the marketing and promotion of building products, continue their education and participate in research and disciplines directly related to civil engineering and building production, constantly update their qualifications and knowledge and also manage large groups of people. Graduates are qualified to take a job in: construction and design offices, executive enterprises, research institutes and development centres and also guidance institutions disseminating knowledge from civil engineering.

Futhermore, graduates of each specialization achieve additional extended competence referring to the education outcomes of their specialization:

A graduate of Building Structures possesses enriched knowledge and advanced design skills in the area of pre-stressed concrete structures, complex structures and high and thin-

The specialization in Hydroengineering Structures enables graduates to be competent in the area of designing hydrotechnical constructions, steel hydrotechnical constructions, specific concrete and municipal buildings. It also provides graduates knowledge about the exploitation and regulation of rivers and water-ways, water power plants, hydrotechnical tunnels, water and sewage installations, the renovation of hydrotechnical constructions and also permanent and temporary water drainage. The extensive competence of graduates of Underground and Urban Infrastructures comes as a result of finishing basic and field courses such as: building works and earth engineering, underground engineering, civil engineering, network infrastructure, maintenance of underground constructions, specific foundations and also foundation engineering in specific terrains. The specialization of Roads and Airports educates students who achieve extensive knowledge and skills in the area of materials and road surfaces, water drainage of traffic infrastructure, theory of road surface dimensioning, computer aided designing of roads and airports and also municipal engineering and municipal transport services.

Furthermore, graduates are competent in the area of transport systems. The specialization of Railway Engineering gives graduates extensive knowledge and competency in the area of rail surfaces theory, rail works technology, the design of railway stations, railway traffic engineering, railway traffic navigation, railway exploitation, municipal engineering, drainage of traffic infrastructure, rail surface diagnosis, durability and reliability of rail surfaces and also computer methods in designing railway trucks.

A graduate of the specialization of Bridges, apart from possessing the same knowledge as graduates from the other specialisations, also has extended knowledge and skills in the area of bridge construction theory, the design and execution of concrete, metal and wooden bridges, computer aided design of bridges, testing and rehabilitation of bridges and primer coat constructions. A graduate also has a possibility to become acquainted with the computer systems which aid bridge management.

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Theory of Structures is a specialization for particularly talented students. Graduates of this specialization are competent in the area of mathematical methods in mechanics, theory of plain girders and solving problems regarding the reliability and limit states of constructions. Furthermore, they possess extensive knowledge and skills in the dynamics of continuous systems, rheology and computer construction modelling.

The specialization of Civil Engineering carried out in English language provides graduates with extensive knowledge and competency in the area of the design and execution of multiple building structures such as: complex structures with reinforced concrete or metal constructions, housing buildings, municipal constructions, roads and highways, bridges and also objects of railway infrastructures. Furthermore, a graduate possesses extensive knowledge in the area of Hydraulic issues and also computer aided design. Each graduate can achieve more knowledge about the chosen constructions after choosing one of the wide range of blocks that are on offer.

1.8. Indicate connection with University's mission and its development strategy:

The Civil Engineering Faculty on second level studies with specializations carried out during full-time studies: Building Structures; Building Technology; Hydroengineering Structures; Underground and Urban Infrastructures; Roads and Airports; Railway Infrastructure, Bridges, Theory of Structures; Civil Engineering (conducted in English) which is run according to the mission and development strategy of the Civil Engineering Department of Wrocław University of Technology. Studies on the Civil Engineering Faculty are closely related to scientific and research works carried out at the Civil Engineering Department by the chairs and divisions.

2. Detailed description

2.1. The total number of learning outcomes in the program of study:	directional	W (knowledge) =	15
		U (skills) =	17
		K (competences) =	7
		W + U + K =	39
2.2. For the main field of study assigned to more than one discipline - the number of learning outcomes assigned to the discipline: D1 (major), (this number must be greater than half the total number of learning outcomes)			39
D2 -			
D3 -			
D4 -			
2.3. For the field of study assigned to more than one discipline - percentage share of the number of ECTS points for each discipline:		% points ECTS:	100
D1			
D2 -			
D3 -			
D4 -			
2.4a. For the general academic profile field of study – the number of ECTS points assigned to the classes related to the University's academic activity in the discipline or disciplines to which the faculty is assigned (must be greater than 50% of the total number of ECTS points from 2.1):			82
2.4b. For the practical profile field of study - the number of ECTS points assigned to the classes shaping practical skills (must be greater than 50% of the total number of ECTS points from 2.1):			-
2.5. Concise analysis of compliance of the assumed learning outcomes with the needs of the labor market			
<p>The education program aims to comprehensively prepare highly qualified engineering technical staff in the widely considered field of civil engineering. Graduates of the Civil Engineering Department with the general academic profile are prepared to work independently in the field of organization and implementation of construction processes, managing the maintenance and exploitation of building infrastructure and are also prepared to participate in building structure designing processes. Graduates possess the knowledge and skills necessary to organize and direct a team's work in all areas of civil engineering. Education profiles and diploma specializations prepare students to be able to undertake work in the most wanted market areas: cubature building, industrial structures and also management of building processes (Building Structures; Building Technology), water constructions, ground and underground structures (Hydroengineering; Underground and Urban Infrastructures) and also in the area of transport infrastructure structures (Roads and Airports, Railway Infrastructures, Bridges).</p> <p>Universal basic knowledge enables graduates to flexibly adapt to the changing needs of the labour market. The specialization of Theory of Structures prepares graduates for research and science work, and the specialization Civil Engineering (conducted in English) gives graduates the opportunity to establish cooperation with international construction companies. The basis of all specializations is knowledge and skills which enable graduates to obtain appropriate professional qualifications.</p>			

2.6. The total number of ECTS points that a student must obtain in classes requiring direct participation of academic teachers or other persons conducting classes and students (enter the sum of ECTS points for courses / groups of courses marked with the BK1 code)	48.2
2.7. Total number of ECTS points which student has to obtain from basic sciences classes	
Number of ECTS points for obligatory subjects:	3
Number of ECTS points for optional subjects:	0
Total number of ECTS points:	3
2.8. Total number of ECTS points, which student has to obtain from practical classes, including project and laboratory classes (enter total number of ECTS points for courses/group of courses denoted with code P)	
Number of ECTS points for obligatory subjects:	42.4
Number of ECTS points for optional subjects:	8.5
Total number of ECTS points:	50.9
2.9. Minimum number of ECTS points, which student has to obtain doing education blocks offered as part of university-wide classes or other main field of study (enter number of ECTS points for courses/groups of courses denoted with code O)	8
2.10. Total number of ECTS points, which student may obtain doing optional blocks (min. 30% of total number of ECTS points):	69

3. Description of the process leading to learning outcomes acquisition:

The following elements are taken into account in the process of obtaining the required resources of knowledge, skills and social competences obtained in the learning process:

- various subjects along with the assigned ECTS points for different didactic forms,
- subjects include specific thematic content, implemented in the form of didactic classes, in particular in the form of a lecture, laboratory, exercises, seminar, practices specified in the study program; the subject may include more than one form of classes; the subject or group of subjects may be a block for which the assumed learning outcomes have been assigned in the curriculum
- learning outcomes in the field of knowledge, skills and social competences with the adaptation of the WBLiW PWr (for an academic profile) building to the Characteristics of the Polish Qualifications Framework for Higher Education,
- learning outcomes have been defined for the subject, specialization and subject,
- a plan of studies taking into account various specialties as well as compulsory and optional subjects, as well as subjects in the field of general education, basic sciences, major and specialties,
- various forms of verification and assessment of student achievement of assumed learning outcomes (examinations, pass).

4.1.2.3. Block Chemistry

(min. ECTS)

No.	Course / group of courses code	Name of course / group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course / group of courses	Way ³ of crediting	Course/group of courses					
			lec	cl	lab	pr	sem		ZZU	CNPS	total	UN ⁵ classes	BU ¹ classes			university-wide ⁴	Concerning scientific activities ⁵	practical P ⁶	kind ⁷	type	
Total																					

In total for obligatory basic science blocks:

Total number of hours					Total number of hours ZZU	Total number of hours CNPS	Total number of ECTS points	Total number of ECTS points DN ⁴	number of ECTS points BU ¹	number of ECTS points P
lec	cl	lab	pr	sem						
2	1	0	0	0	45	90	3	3	1.7	0.6

4.1.3. List of main-field-of-study blocks

No.	Course / group of courses code	Name of course / group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course / group of courses	Way ³ of crediting	Course/group of courses					
			lec	cl	lab	pr	sem		ZZU	CNPS	total	UN ⁵ classes	BU ¹ classes			university-wide ⁴	Concerning scientific activities ⁵	practical P ⁶	kind ⁷	type	
1	CEB007361	Selected topics in geo-engineering - foundation. Fundamentowanie - wybrane zagadnienia	1					K2_W01, K2_W06, K2_W08, K2S_CEB_W16, K2S_CEB_W19, K2S_CEB_W20, K2_U04, K2_U05, K2_U09, K2_U10, K2_U16, K2_U17, K2S_CEB_U20, K2S_CEB_U22, K2S_CEB_U23, K2_K03, K2_K06	15	30	1	1	0.5	T	Z		1		K	Ob.	
						2			30	30	1	1	1.1	T	Z		1	1.3	K	Ob.	
2	CEB008361	Theory of elasticity and plasticity. Teoria sprężystości i plastyczności	2					K2_W01, K2_W02, K2_W04, K2S_CEB_W16, K2_U02, K2_U04, K2_U08, K2S_CEB_U19, K2S_CEB_U23, K2_K01	30	30	1	1	1.1	T	Z		1		K	Ob.	
				1					15	30	1	1	0.6	T	Z		1	0.4	K	Ob.	
3	CEB008461	Selected topics in structural mechanics. Statyka budowli - wybrane zagadnienia	2					K2_W03, K2_W04, K2_W05, K2S_CEB_W16, K2_U06, K2_U07, K2_U09, K2S_CEB_U19, K2_K01, K2_K03	30	60	2	2	1.2	T	E		2		K	Ob.	
				1					15	30	1	1	0.6	T	Z		1	0.7	K	Ob.	
					1				15	30	1	1	0.6	T	Z		1	0.7	K	Ob.	
4	CEB007962	Dynamics. Dynamika budowli	1					K2_W01, K2_W03, K2_W04, K2_W05, K2S_CEB_W22, K2_U03, K2_U05, K2_U06, K2_U07, K2_U09, K2_U16, K2S_CEB_U19, K2_K01, K2_K02	15	60	2	2	0.7	T	E		2		K	Ob.	
					1				15	30	1	1	0.6	T	Z		1	1.0	K	Ob.	
5	CEB005362	Computational mechanics. Metody komputerowe	1					K2_W01, K2_W02, K2_W03, K2_W04, K2_W05, K2_W09, K2S_CEB_W16, K2_U02, K2_U06, K2_U08, K2_U09, K2_U16, K2S_CEB_U19, K2_K01, K2_K04	15	60	2	2	0.5	T	Z		2		K	Ob.	
					2				30	60	2	2	1.1	T	Z		2	2.0	K	Ob.	
Total			7	2	4	2	0		225	450	15	15	8.6				15	6.1			

In total for main-field-of-study blocks:

Total number of hours					Total number of hours ZZU	Total number of hours CNPS	Total number of ECTS points	Total number of ECTS points DN ⁵	number of ECTS points BU ¹
lec	cl	lab	pr	sem					
7	2	4	2	0	225	450	15	15	8.6

number of ECTS points P
6.1

4.1.4. List of specialization blocks

No.	Course / group of courses code	Name of course / group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course / group of courses	Way ³ of crediting	Course/group of courses				
			lec	cl	lab	pr	sem		ZZU	CNPS	total	UN ⁵ classes	BU ¹ classes			university-wide ⁴	Concerning scientific activities ⁵	practical P ⁶	kind ⁷	type
1	CEB007561	Concrete structures - objects. Konstrukcje betonowe - obiekty	2					K2_W04, K2_W06, K2_W07, K2_W08, K2S_CEB_W16, K2S_CEB_W18, K2_U09, K2_U11, K2_U12, K2S_CEB_U18, K2S_CEB_U19, K2_K01, K2_K02, K2_K03	30	60	2	2	1.1	T	E		2		S	Ob.
						2				30	60	2	2	1.1	T	Z		2	2.0	S
2	CEB007661	Metal structures - objects. Konstrukcje metalowe - obiekty	2					K2_W01, K2_W02, K2_W04, K2_W05, K2_W06, K2_W07, K2_W09, K2S_CEB_W16, K2_U01, K2_U02, K2_U04, K2_U05, K2_U06, K2_U07, K2_U08, K2_U09, K2_U11, K2_U12, K2S_CEB_U18, K2S_CEB_U19, K2_K01, K2_K02, K2_K03	30	60	2	2	1.1	T	E		2		S	Ob.
						2				30	60	2	2	1.1	T	Z		2	2.0	S
3	CEB007761	Advanced computer aided engineering. Zaawansowane komputerowe wspomaganie projektowania			2			K2_W03, K2_W04, K2_W05, K2_W06, K2_W07, K2_W09, K2S_CEB_W16, K2S_CEB_W22, K2_U04, K2_U05, K2_U06, K2_U07, K2_U08, K2_U09, K2_U11, K2_U12, K2S_CEB_U18, K2S_CEB_U19, K2S_CEB_U23, K2_K01, K2_K02, K2_K03	30	60	2	2	1.2	T	Z		2	2.0	S	Ob.
4	CEB007861	Hydraulics in civil engineering. Hydraulika w budownictwie	1					K2_W01, K2_W02, K2_W06, K2_W14, K2S_CEB_W17, K2_U01, K2_U02, K2_U03, K2_U06, K2_U17, K2_U19, K2_U20, K2S_CEB_U20, K2_K01, K2_K02, K2_K03	15	30	1	1	0.6	T	Z		1		S	Ob.
						1				15	30	1	1	0.6	T	Z		1	1.0	S
5	CEB007961	BIM in Civil Engineering. BIM w inżynierii lądowej			4			K2_W03, K2_W06, K2S_BIM_W16, K2S_BIM_W21, K2_W14, K2_W15, K2_W06, K2_W03, K2_W06, K2_W10	60	120	4	4	3.3	T	E		4	4	S	Ob.
6	CEB008662	Construction techniques and processes. Technologia robót budowlanych	1					K2_W10, K2_W11, K2_W13, K2_W14, K2S_CEB_W21, K2_U01, K2_U13, K2_U14, K2_U16, K2S_CEB_U23, K2_K01, K2_K02, K2_K04	15	30	1	1	0.7	T	E		1		S	Ob.
						2				30	60	2	2	1.1	T	Z		2	2.0	S
7	CEB004462	Apartment building. Budownictwo mieszkaniowe	2					K2_W04, K2_W06, K2_W07, K2_W14, K2S_CEB_W16, K2S_CEB_W18, K2_U02, K2_U04, K2_U05, K2_U06, K2S_CEB_U18, K2_U11, K2_K01, K2_K03, K2_K05, K2_K06	30	60	2	2	1.1	T	Z		2		S	Ob.
						1				15	30	1	1	0.6	T	Z		1	1.0	S

8	CEB003962	Underground structures - urban infrastructure. Budownictwo podziemne - infrastruktura miejska	2					K2_W05, K2_W06, K2_W11, K2_W13, K2S_CEB_W20, K2S_CEB_W21, K2_U04, K2_U05, K2_U06, K2_U07, K2_U09, K2_U12, K2S_CEB_U19, K2S_CEB_U22, K2_K01, K2_K03	30	60	2	2	1.2	T	E		2		S	Ob.
						2			30	60	2	2	1.2	T	Z		2	2.0	S	Ob.

9	CEB004062	Railways. Koleje	2			2		K2_W06, K2_W07, K2S_CEB_W19, K2S_CEB_W21, K2_U04, K2_U05, K2_U12, K2S_CEB_W19, K2S_CEB_W21, K2_K01, K2_K03, K2_K06	30	30	1	1	1.1	T	Z		1		S	Ob.
									30	60	2	2	1.1	T	Z		2	1.7	S	Ob.
10	CEB004162	Roads, streets and airports. Drogi, ulice i lotniska	2					K2_W01, K2_W06, K2_W09, K2S_CEB_W19, K2S_CEB_W20, K2_U01, K2_U08, K2_U12, K2_U16, K2S_CEB_U22, K2_K01, K2_K02, K2_K03	30	60	2	2	1.3	T	Z		2		S	Ob.
						2			30	60	2	2	1.3	T	Z		2	2.0	S	Ob.
11	CEB008062	Bridges. Mosty	2					K2_W03, K2_W04, K2_W05, K2_W06, K2_W07, K2_W10, K2S_CEB_W19, K2S_CEB_W21, K2_U02, K2_U04, K2_U05, K2_U07, K2_U08, K2_U11, K2_U12, K2S_CEB_U19, K2S_CEB_U22, K2_K01, K2_K02, K2_K03	30	60	2	2	1.3	T	E		2		S	Ob.
						2			30	60	2	2	1.3	T	Z		2	2.0	S	Ob.
12	CEB009863	Master thesis seminar. Seminarium dyplomowe					2	K2_W15, K2S_CEB_W16-K2S_CEB_W21, K2_U01, K2_U02, K2_U15, K2_U16, K2_U17, K2S_CEB_U18-K2S_CEB_U23, K2_K01, K2_K02, K2_K03, K2_K06	30	90	3	3	1.3	T	Z		3	2.7	S	Ob.
13	CEB099963	Master thesis (MSc). Praca dyplomowa magisterska						K2_W02-K2_W05, K2_W07, K2_W09, K2S_CEB_W16-K2S_CEB_W22, K2_U01, K2_U06-K2_U09, K2_U15, K2_U16, K2_U17, K2S_CEB_U18-K2S_CEB_U23, K2_K01, K2_K02, K2_K04		540	18	18	7	T	Z		18	18.0	S	Ob.
Total			16	0	6	16	2		600	1740	58	58	31.7				58	42.4		

4.2. List of elective blocks

4.2.1. List of general education blocks

4.2.1.1. Block Humanistic and managerial classes

(min. 2 ECTS)

No.	Course / group of courses code	Name of course / group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course / group of courses	Way ³ of crediting	Course/group of courses				
			lec	cl	lab	pr	sem		ZZU	CNPS	total	UN ⁵ classes	BU ¹ classes			university-wide ⁴	Concerning scientific activities ⁵	practical P ⁶	kind ⁷	type
1		List from optional block A					1		15	60	2	0	0.6	T	Z	O	0	1.5	KO	W
	FLH020361	Ethics in engineering. Etyka inzynierska						K2_W13, K2_W14, K2_W15, K2_U01, K2_K01, K2_K02, K2_K04, K2_K06												
	FLH020461	Ethics in business. Etyka w biznesie																		
Total			0	0	0	0	1		15	60	2	0	0.6				0	1.5		

4.2.1.2. Block Foreign languages

(min. 3 ECTS)

No.	Kod kursu / grupy kursów	Nazwa kursu / grupy kursów (grupę kursów oznaczyć symbolem GK)	Tygodniowa liczba godzin					Symbol kierunkowego efektu uczenia się	Liczba godzin		Liczba pkt. ECTS			Forma kursu / grupy kursów	Sposób zaliczenia	Kurs/grupa kursów					
			w	ć	l	p	s		ZZU	CNPS	łącna	zajęc UN ⁵	zajęc BU ¹			ogólno-uczeniowy ²	zw. z dział. Nauk ⁵	o char. praktycz. p ⁶	rodzaj ⁷	typ	
1		List from optional block B		1					15	30	1	0	0.5	T	Z	O	0	1.0	KO	W	
	JZL100709BK	Foreign language - level B2+. Język obcy - poziom B2+					K2_U01, K2_U02, K2_K01, K2_K06														
2		List from optional block C		3					45	60	2	0	1.5	T	Z	O	0	2.0	KO	W	
	JZL100710BK	Foreign language - level A1/A2. Język obcy - poziom A1/A (dla studentów anglojęzycznych przewiduje się język polski)					K2_U01, K2_U02, K2_K01, K2_K06														
Total			0	4	0	0	0		60	90	3	0	2.0				0	3.0			

4.2.1.3. Block Sport classes

(min. 0 ECTS)

No.	Kod kursu / grupy kursów	Nazwa kursu / grupy kursów (grupę kursów oznaczyć symbolem GK)	Tygodniowa liczba godzin					Symbol kierunkowego efektu uczenia się	Liczba godzin		Liczba pkt. ECTS			Forma kursu / grupy kursów	Sposób zaliczenia	Kurs/grupa kursów					
			w	ć	l	p	s		ZZU	CNPS	łącna	zajęc UN ⁵	zajęc BU ¹			ogólno-uczeniowy ²	zw. z dział. Nauk ⁵	o char. praktycz. p ⁶	rodzaj ⁷	typ	
1		List from optional block W:		0					0	0	0	0	0.0	T	Z	O	0	0.0	KO	W	
	WFW01000BK	Zajęcia sportowe - wybór sekcji. Optional sports					K2_K07														
Total			0	0	0	0	0		0	0	0	0	0.0				0	0.0			

4.2.1.4. Block Information technology

(min. ECTS)

No.	Course / group of courses code	Name of course / group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course / group of courses	Way ³ of crediting	Course/group of courses					
			lec	cl	lab	pr	sem		ZZU	CNPS	total	UN ⁵ classes	BU ¹ classes			university-wide ⁴	Concerning scientific activities ⁵	practical p ⁶	kind ⁷	type	
Total																					

In total for optional general education blocks:

Total number of hours					Total number of hours ZZU	Total number of hours CNPS	Total number of ECTS points	Total number of ECTS points DN ⁵	number of ECTS points BU ¹
lec	cl	lab	pr	sem					
0	4	0	0	1	75	150	5	0	2.6

number of ECTS points P
4.5

In total for general education blocks:

Total number of hours					Total number of hours ZZU	Total number of hours CNPS	Total number of ECTS points	Total number of ECTS points DN ⁵	number of ECTS points BU ¹
lec	cl	lab	pr	sem					
1	5	0	0	1	105	240	8	0	3.8

number of ECTS points P
6.0

4.2.2. List of basic science blocks

4.2.2.1. Block Mathematics

(min. ECTS)

No.	Course / group of courses code	Name of course / group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course / group of courses	Way ³ of crediting	Course/group of courses				
			lec	cl	lab	pr	sem		ZZU	CNPS	total	UN ⁵ classes	BU ¹ classes			university-wide ⁴	Concerning scientific activities ⁵	practical P ⁶	kind ⁷	type
Total																				

4.2.2.2. Block Physics

(min. ECTS)

No.	Course / group of courses code	Name of course / group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course / group of courses	Way ³ of crediting	Course/group of courses				
			lec	cl	lab	pr	sem		ZZU	CNPS	total	UN ⁵ classes	BU ¹ classes			university-wide ⁴	Concerning scientific activities ⁵	practical P ⁶	kind ⁷	type
Total																				

4.2.2.3. Block Chemistry

(min. ECTS)

No.	Course / group of courses code	Name of course / group of courses (denote group of courses with symbol GK)	Weekly number of hours					Learning effect symbol	Number of hours		Number of ECTS points			Form ² of course / group of courses	Way ³ of crediting	Course/group of courses				
			lec	cl	lab	pr	sem		ZZU	CNPS	total	UN ⁵ classes	BU ¹ classes			university-wide ⁴	Concerning scientific activities ⁵	practical P ⁶	kind ⁷	type
Total																				

In total for optional basic science blocks:

Total number of hours					Total number of hours ZZU	Total number of hours CNPS	Total number of ECTS points	Total number of ECTS points DN ⁵	number of ECTS points BU ¹
lec	cl	lab	pr	sem					
0	0	0	0	0	0	0	0	0	0.0

number of ECTS points P
0.0

	CEB007063	Advanced building physics. Zaawansowana fizyka budowli						K2_W06, K2_W13, KS_CEB_W22, K2_U01, K2_U04, K2_U08, K2S_CEB_U23, K2_K01, K2_K02, K2_K03												
	CEB006363	Hydrology for building engineers. Hydrologia dla inżynierów budowlanych						K2_W01, K2_W02, K2_W03, K2_W09, K2_CEB_W22, K2_U07, K2_U08, K2_CEB_U23, K2_K01, K2_K02, K2_K03, K2_K04, K2_K05, K2_K06												
	CEB006863	Effective properties of composites - introduction to micro-mechanics. Właściwości efektywne kompozytów - wprowadzenie do mikromodelowania						K2_W02, K2_W05, K2S_CEB_W22, K2_U16, K2S_CEB_U23, K2_K01, K2_K03												
2		List from optional block 2	1						15	30	1	1	0.6	T	Z		1		S	W
					1				15	60	2	2	0.6	T	Z		2	2.0	S	W
	CEB006563	Pre-stressed concrete structures. Betonowe konstrukcje sprężone						K2_W06, K2_W07, K2_W09, K2_W10, K2S_CEB_W16, K2S_CEB_W22, K2_U01, K2_U04, K2_U05, K2_U11, K2_U12, K2_U17, K2S_CEB_U18, K2S_CEB_U23, K2_K01, K2_K03												
	CEB006663	Timber structures. Konstrukcje drewniane						K2_W05, K2_W06, K2_W10, K2S_CEB_W22, K2_U04, K2_U05, K2_U07, K2_U12, K2S_CEB_U23, K2_K01, K2_K02												
	CEB006763	Conservation and strengthening of monumental heritage structures. Konservacja i wzmacnianie konstrukcji zabytkowych						K2_W02, K2_W06, K2_W09, K2_W10, K2S_CEB_W22, K2_U04, K2_U05, K2_U12, K2S_CEB_U21, K2S_CEB_U23, K2_K01, K2_K02, K2_K06												
	CEB006963	Methods of applied statistics (geo- statistics). Metody statystyki stosowanej (geostatystyka)						K2_W01, K2_W09, K2S_CEB_W22, K2_U01, K2_U03, K2_U08, K2_U16, K2_U17, K2S_CEB_U19, K2S_CEB_U23, K2_K01, K2_K02, K2_K03, K2_K06												
	CEB008263	Sustainable housing. Budownictwo zrównoważone						K2_W06, K2_W13, KS_CEB_W22, K2_U01, K2_U04, K2_U08, K2S_CEB_U23, K2_K01, K2_K02, K2_K03												
		Total	2	0	1	1	0		60	180	6	6	2.4				6	4.0		

4.3. Training block - concerning principles of training crediting

Name of training	Industrial internship		
Number of ECTS points	Number of ECTS points for BK¹ classes	Training crediting mode	Code
		There is no obligatory training in the programme for the 2nd level studies.	
Training duration	Training objective		
-	-		

4.4. Diploma dissertation block (Faculty Council Resolution on regulations on final thesis and thesis exam no. 112/8/2012-2016 from 27.03.2013)

Type of diploma dissertation	Master	
Number of diploma dissertation semesters	Number of ECTS points	Code
1	18	CEB099963
Character of diploma dissertation		
Master Thesis carried out at the second level studies can be a study, study and design or experimental and design one. It should demonstrate a graduate skills acquired during the studies, its scope should not go beyond the issues included in the programme of courses, both of the main field and specialization ones, with regard to the matters contained in the learning outcomes for the 1st level studies.		
Number of BK¹ ECTS points	0.3	

5. Ways of verifying assumed educational effects

Type of classes	Ways of verifying assumed educational effects
lecture	e.g. examination, progress/final test
class	e.g. progress, final test, presentation
laboratory	e.g. pretest, report from laboratory, presentation
project	e.g. report, project defence
seminar	e.g. participation in discussion, topic presentation, essay
training	e.g. report from training
diploma dissertation	prepared diploma dissertation, defence, examination

6. Range of diploma dissertation

General rules for the organization and conduct of the final diploma exam is specified in § 25 of the Regulations of higher education at the Technical University of Wrocław.

The exam consists of two parts:

- a) presentation of master thesis subject, methods used for its realization and the results obtained; the defense of the thesis by providing the student answers (oral or drawing) on oral questions of the Diploma Examinations Commission members asked during or immediately after the presentation of the work; questions must only touch the thesis content and the applied methodology;
- b) an oral examination in the field of core and specialization subjects with the aim to review the student's knowledge in a range specified in the curriculum of the specialization of the second-degree. The student is asked at least three questions, two of which concerning major subjects and at least one must refer the subjects of specialization. The curriculum for each specialization is placed on the website of the Faculty. The exam cannot contain questions of the issues that were not in the program of study being completed by the student

7. Requirements concerning deadlines for crediting courses/groups of courses for all courses in particular blocks

According to the Regulations of higher education at the Technical University of Wrocław.