COURSE DESCRIPTION CARD

<table>
<tr><td colspan="10">Bialystok University of Technology</td></tr>
<tr><td>Field of study</td><td colspan="5">Civil Engineering</td><td colspan="2">Degree level and programme type</td><td>Master's degree
Full-time</td></tr>
<tr><td>Specialization/ diploma path</td><td colspan="5">CONSTRUCTION AND MAINTENANCE OF BUILDING OBJECTS</td><td colspan="2">Study profile</td><td>Academic profile</td></tr>
<tr><td rowspan="2">Course name</td><td colspan="5" rowspan="2">Advanced technologies of building materials and prefabricated elements</td><td colspan="2">Course code</td><td>EN-B2S21324</td></tr>
<tr><td colspan="2">Course type</td><td>elective</td></tr>
<tr><td rowspan="2">Forms and number of hours of tuition</td><td>L</td><td>C</td><td>LC</td><td>P</td><td>SW</td><td>FW</td><td>S</td><td colspan="2">Semester</td><td>2</td></tr>
<tr><td>30</td><td></td><td>30</td><td>30</td><td></td><td></td><td></td><td colspan="2">No. of ECTS credits</td><td>6</td></tr>
<tr><td>Entry requirements</td><td colspan="9">-</td></tr>
<tr><td>Course objectives</td><td colspan="9">To familiarize students with advanced production technologies of building materials and prefabricated elements. To teach how to calculate the demand for materials and resources. To teach how to prepare and verify technological diagrams for the production process. To develop student's ability to critically select technical and technological solutions.</td></tr>
<tr><td>Course content</td><td colspan="9">Lecture: The issues of industrial production of construction products. Production technology: concrete, metal and wooden prefabricated elements and products, construction ceramics, cellular concrete construction products, sand-lime construction elements.
Project: Technological and organizational design of a prefabricated elements factory with a given production capacity.
Laboratory: Laboratory tests - the evaluation of properties and quality control of building materials and prefabricated elements</td></tr>
<tr><td>Teaching methods</td><td colspan="9">informative lecture, problem lecture, discussion of exemplary design solutions, completion of individual topics of design exercises by students, performing laboratory tests</td></tr>
<tr><td>Assessment method</td><td colspan="9">Lecture - written exam, design exercises - two corrections, presentation and discussion of the project, laboratory - evaluation of reports, written tests, evaluation of class work</td></tr>
<tr><td>Symbol of learning outcome</td><td colspan="7">Learning outcomes</td><td colspan="2">Reference to the learning outcomes for the field of study</td></tr>
<tr><td>LO1</td><td colspan="7">The student has an in-depth knowledge and understanding of the elements of the production process of selected building materials and prefabricated elements, health and safety requirements in the production plant</td><td colspan="2">K_B2_W05
K_B1_W07
K_B2_W09</td></tr>
<tr><td>LO2</td><td colspan="7">The student is able to calculate the demand for raw materials, prepare a technological diagram of the production process, select machines and devices for individual stages of the production process, prepare a schedule and design the development of the factory area</td><td colspan="2">K_B2_U07
K_B2_U10</td></tr>
<tr><td>LO3</td><td colspan="7">The student is able to make a critical analysis and evaluate technical solutions in construction, creatively interpret, make a choice and present</td><td colspan="2">K_B2_U02</td></tr>
<tr><td>LO4</td><td colspan="7">The student is able to plan, conduct and critically interpret the results of the laboratory tests and to develop detailed documentation of the results of the experiment as well as to prepare a study containing a critical discussion of these results</td><td colspan="2">K_B2_U08
K_B2_U14</td></tr>
</table>

LO5	The student is ready to critically assess their knowledge and received content in the field of production technology and is ready to consult experts when solving the problem independently	K_B1_K01 K_B1_K02
Symbol of learning outcome	**Methods of assessing the learning outcomes**	**Type of tuition during which the outcome is assessed**
LO1	written exam, presentation and discussion of the project	L, P
LO2	project corrections, presentation and discussion of the project	P
LO3	presentation and discussion of the project	P
LO4	Participation in laboratory classes - implementation of tasks in a team, reports on laboratory exercises	LC
LO5	written exam, presentation and discussion of the project	L, P

Student workload (in hours)		**No. of hours**
Calculation	participation in lectures	30
	participation in project and laboratory classes	60
	preparation for and participation in the exam	15
	preparation for laboratory classes	15
	work at home related to the implementation of the individual topic of the project	25
	participation in student-teacher sessions	5
	TOTAL:	150

Quantitative indicators	**HOURS**	**No. of ECTS credits**
Student workload – activities that require direct teacher participation	95	3,8
Student workload – practical activities	120	4,8

Basic references	1. Bołtryk M., Lelusz M.: Technologia konstrukcji prefabrykowanych. Politechnika Białostocka, Białystok, 2004 2. Bołtryk M., Gusiew B.: Technologia formowania prefabrykatów betonowych. Wydawnictwo Politechniki Białostockiej, Białystok 1990. 3. Szymański E.: Technologia materiałów budowlanych – działy wybrane. Wydawnictwo Politechniki Białostockiej, Białystok, 2003. 4. Procesy przemysłowe w budownictwie mieszkaniowym. Arkady. Warszawa 1980. 5. Kuch H., Schwabe J.H., Palzer U., Manufacturing of Concrete Products and Precast Elements, Verlag Bau+Technik, Düsseldorf 2010 6. Levitt M., Precast Concrete: Materials, Manufacture, Properties and Usage, Applied Science Publishers, London 1982.
Supplementary references	1. Podstawy technologii materiałów budowlanych i metody badań pod red. Jana Małolepszego. Wydawnictwo AGH, Kraków 2013. 2. Wolfke S.: Technologia wyrobów wapienno-piaskowych. Arkady, Warszawa, 1986. 3. Zapotoczna-Sytek G., Balkovic S.: Autoklawizowany beton komórkowy: technologia, właściwości, zastosowanie. PWN / Stowarzyszenie Producentów Betonów, Warszawa 2013

Organisational unit conducting the course	Department of Civil and Road Engineering	**Date of issuing the programme**
Author of the programme	Małgorzata A. Lelusz, PhD, Eng	09.05.2019

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work, S – seminar