

## Załącznik nr 5 do ZW

### MATRIX OF CORRELATION BETWEEN AREA EDUCATIONAL EFFECTS AND MAIN-FIELD-OF-STUDY EDUCATIONAL EFFECTS

1st level studies in main field-of-study *mining and geology*, general academic profile

Symbol of educational effect for area of education in technical sciences	Description of educational effects for area of education in technical sciences	Correlation with educational effects for 1st level studies in main field of study <i>mining and geology</i>
<b>KNOWLEDGE</b>		
OT1A_W01, W07	- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline - knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline	<b>K_W01</b>
OT1A_W01, W07	- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline - knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline	<b>K_W02</b>
OT1A_W01, W07	- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline - knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline	<b>K_W03</b>
OT1A_W01	- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline	<b>K_W04</b>
OT1A_W01	- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline	<b>K_W05</b>
OT1A_W07, W08	- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline - has fundamental knowledge necessary to understand social, economical, legal and other non-technical factors of engineering activities	<b>K_W06</b>

OT1A_W02	- has fundamental knowledge in the field of study related to the studied discipline	<b>K_W07</b>
OT1A_W01, W07	- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline - knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline	<b>K_W08</b>
OT1A_W02, W03	- has fundamental knowledge in the field of study related to the studied discipline - has organized, general knowledge and theoretical grounding including key issues related to the studied discipline	<b>K_W09</b>
OT1A_W08	- has fundamental knowledge necessary to understand social, economical ,legal and other non-technical factors of engineering activities	<b>K_W10</b>
OT1A_W08	- has fundamental knowledge necessary to understand social, economical ,legal and other non-technical factors of engineering activities	<b>K_W11</b>
OT1A_W02, W07	- has fundamental knowledge in the field of study related to the studied discipline - knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline	<b>K_W12</b>
OT1A_W01, W03	- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline - has organized, general knowledge and theoretical grounding including key issues related to the studied discipline	<b>K_W13</b>
OT1A_W01, W08	- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline - has fundamental knowledge necessary to understand social, economical ,legal and other non-technical factors of engineering activities	<b>K_W14</b>
OT1A_W02	- has fundamental knowledge in the field of study related to the studied discipline	<b>K_W15</b>
OT1A_W01, W08	- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline - has fundamental knowledge necessary to understand social, economical ,legal and other non-technical factors of engineering activities	<b>K_W16</b>
OT1A_W01, W08	- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline - has fundamental knowledge necessary to understand social, economical ,legal and other non-technical factors of engineering activities	<b>K_W17</b>
OT1A_W03, W07	- has organized, general knowledge and theoretical grounding including key issues	<b>K_W18</b>

	<p>related to the studied discipline</p> <ul style="list-style-type: none"> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> </ul>	
OT1A_W04, W05, W07	<ul style="list-style-type: none"> <li>- has detailed knowledge connected with the chosen issues in the field of the studied discipline</li> <li>- has fundamental knowledge of trends in development in scientific disciplines and fields of study related to the studied discipline</li> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> </ul>	<b>K_W19</b>
OT1A_W01, W08	<ul style="list-style-type: none"> <li>- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline</li> <li>- has fundamental knowledge necessary to understand social, economical ,legal and other non-technical factors of engineering activities</li> </ul>	<b>K_W20</b>
OT1A_W02, W05, W07	<ul style="list-style-type: none"> <li>- has fundamental knowledge in the field of study related to the studied discipline</li> <li>- has fundamental knowledge of trends in development in scientific disciplines and fields of study related to the studied discipline</li> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> </ul>	<b>K_W21</b>
OT1A_W02, W07	<ul style="list-style-type: none"> <li>- has fundamental knowledge in the field of study related to the studied discipline</li> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> </ul>	<b>K_W22</b>
OT1A_W01, W07	<ul style="list-style-type: none"> <li>- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline</li> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> </ul>	<b>K_W23</b>
OT1A_W07	<ul style="list-style-type: none"> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> </ul>	<b>K_W24</b>
OT1A_W01, W07	<ul style="list-style-type: none"> <li>- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline</li> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> </ul>	<b>K_W25</b>
OT1A_W03, W05, W06, W07	<ul style="list-style-type: none"> <li>- has organized, general knowledge and theoretical grounding including key issues related to the studied discipline</li> <li>- has fundamental knowledge of trends in development in scientific disciplines and fields of study related to the studied discipline</li> </ul>	<b>K_W26</b>

	<ul style="list-style-type: none"> <li>- has fundamental knowledge of the lifecycle of devices, objects and technical systems</li> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> </ul>	
OT1A_W02, W07, W09	<ul style="list-style-type: none"> <li>- has fundamental knowledge in the field of study related to the studied discipline</li> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> <li>- has fundamental knowledge of management, including quality management and running a business</li> </ul>	<b>K_W27</b>
OT1A_W02, W07	<ul style="list-style-type: none"> <li>- has fundamental knowledge in the field of study related to the studied discipline</li> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> </ul>	<b>K_W28</b>
OT1A_W02, W06	<ul style="list-style-type: none"> <li>- has fundamental knowledge in the field of study related to the studied discipline</li> <li>- has fundamental knowledge of the lifecycle of devices, objects and technical systems</li> </ul>	<b>K_W29</b>
OT1A_W01, W03, W07	<ul style="list-style-type: none"> <li>- has knowledge of mathematics, physics and chemistry and other areas related to the studied discipline necessary to formulate and solve simple tasks in the field of the studied discipline</li> <li>- has organized, general knowledge and theoretical grounding including key issues related to the studied discipline</li> <li>- knows fundamental methods, techniques, tools and materials used for solving simple engineering tasks in the field of the studied discipline</li> </ul>	<b>K_W30</b>
OT1A_W06, W08, W09	<ul style="list-style-type: none"> <li>- has fundamental knowledge of the lifecycle of devices, objects and technical systems</li> <li>- has fundamental knowledge necessary to understand social, economical ,legal and other non-technical factors of engineering activities</li> <li>- has fundamental knowledge of management, including quality management and running a business</li> </ul>	<b>K_W31</b>
OT1A_W03, W06	<ul style="list-style-type: none"> <li>- has organized, general knowledge and theoretical grounding including key issues related to the studied discipline</li> <li>- has fundamental knowledge of the lifecycle of devices, objects and technical systems</li> </ul>	<b>K_W32</b>
OT1A_W02, W08	<ul style="list-style-type: none"> <li>- has fundamental knowledge of the lifecycle of devices, objects and technical systems</li> <li>- has fundamental knowledge necessary to understand social, economical ,legal and other non-technical factors of engineering activities</li> </ul>	<b>K_W33</b>
OT1A_W08	<ul style="list-style-type: none"> <li>- has fundamental knowledge necessary to understand social, economical ,legal and other non-technical factors of engineering activities</li> </ul>	<b>K_W34</b>

OT1A_W08, W09	<ul style="list-style-type: none"> <li>- has fundamental knowledge necessary to understand social, economical ,legal and other non-technical factors of engineering activities</li> <li>- has fundamental knowledge of management, including quality management and running a business</li> </ul>	<b>K_W35</b>
	<ul style="list-style-type: none"> <li>- has fundamental knowledge of choosen sport</li> </ul>	<b>K_W36</b>
<b>SKILLS</b>		
OT1A_U01, U02, U03, U04	<ul style="list-style-type: none"> <li>- is able to obtain information from literature, databases and other properly selected sources, either in English or another foreign language regarded as a language for international communication in the studied discipline ; is able to integrate obtained information, interpret it and draw conclusions, formulate and justify opinions</li> <li>- is able to communicate in their professional environment and other environments using various techniques</li> <li>- is able to prepare a well documented study of problems in the field of studied discipline both in Polish and a foreign language regarded as a basic one in the scientific disciplines and fields of study related to the studied discipline</li> <li>- is able to prepare and give an oral presentation concerning detailed issues in the field of the studied discipline both in Polish and a foreign language</li> </ul>	<b>K_U01</b>
OT1A_U01, U07	<ul style="list-style-type: none"> <li>- is able to obtain information from literature, databases and other properly selected sources, either in English or another foreign language regarded as a language for international communication in the studied discipline ; is able to integrate obtained information, interpret it and draw conclusions, formulate and justify opinions</li> <li>- is able to use information and communication technologies necessary to perform tasks typical of engineering activities</li> </ul>	<b>K_U02</b>
OT1A_U01, U07	<ul style="list-style-type: none"> <li>- is able to obtain information from literature, databases and other properly selected sources, either in English or another foreign language regarded as a language for international communication in the studied discipline ; is able to integrate obtained information, interpret it and draw conclusions, formulate and justify opinions</li> <li>- is able to use information and communication technologies necessary to perform tasks typical of engineering activities</li> </ul>	<b>K_U03</b>
OT1A_U08	<ul style="list-style-type: none"> <li>- is able to plan and run experiments including measurements and computer simulations, interpret results and draw conclusions</li> </ul>	<b>K_U04</b>
OT1A_U07	<ul style="list-style-type: none"> <li>- is able to use information and communication technologies necessary to perform tasks typical of engineering activities</li> </ul>	<b>K_U05</b>
OT1A_U08, U09	<ul style="list-style-type: none"> <li>- is able to plan and run experiments including measurements and computer simulations, interpret results and draw conclusions</li> <li>- is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks</li> </ul>	<b>K_U06</b>

OT1A_U08	- is able to plan and run experiments including measurements and computer simulations, interpret results and draw conclusions	<b>K_U07</b>
OT1A_U02	is able to communicate in their professional environment and other environments using various techniques	<b>K_U08</b>
OT1A_U01	is able to obtain information from literature, databases and other properly selected sources, either in English or another foreign language regarded as a language for international communication in the studied discipline ; is able to integrate obtained information, interpret it and draw conclusions, formulate and justify opinions	<b>K_U09</b>
OT1A_U07	- is able to use information and communication technologies necessary to perform tasks typical of engineering activities	<b>K_U10</b>
OT1A_U09	- is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks	<b>K_U11</b>
OT1A_U07	- is able to use information and communication technologies necessary to perform tasks typical of engineering activities	<b>K_U12</b>
OT1A_U07, U09	- is able to use information and communication technologies necessary to perform tasks typical of engineering activities - is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks	<b>K_U13</b>
OT1A_U07, U08	- is able to use information and communication technologies necessary to perform tasks typical of engineering activities - is able to plan and run experiments including measurements and computer simulations, interpret results and draw conclusions	<b>K_U14</b>
OT1A_U07	- is able to use information and communication technologies necessary to perform tasks typical of engineering activities	<b>K_U15</b>
OT1A_U08, U10	- is able to plan and run experiments including measurements and computer simulations, interpret results and draw conclusions - is able -while formulating and solving engineering tasks-to notice their system and non technical aspects	<b>K_U16</b>
OT1A_U16	- is able – according to a given specification- to design and complete a simple device, object, system or process specific for the studied discipline, using appropriate methods, techniques and tools	<b>K_U17</b>
OT1A_U07, U09, U15	- is able to use information and communication technologies necessary to perform tasks typical of engineering activities - is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks - is able to assess the usefulness of routine methods and tools for solving a simple, practical engineering task specific for the studied discipline and choose and apply a proper method and tools	<b>K_U18</b>

OT1A_U16	- is able – according to a given specification- to design and complete a simple device, object, system or process specific for the studied discipline, using appropriate methods, techniques and tools	<b>K_U19</b>
OT1A_U14, U15	- is able to identify and formulate specifications of simple, practical engineering tasks specific for the studied discipline - is able to assess the usefulness of routine methods and tools for solving a simple, practical engineering task specific for the studied discipline and choose and apply a proper method and tools	<b>K_U20</b>
OT1A_U14	- is able to identify and formulate specifications of simple, practical engineering tasks specific for the studied discipline	<b>K_U21</b>
OT1A_U08, U16	- is able to plan and run experiments including measurements and computer simulations, interpret results and draw conclusions - is able – according to a given specification- to design and complete a simple device, object, system or process specific for the studied discipline, using appropriate methods, techniques and tools	<b>K_U22</b>
OT1A_U10, U16	- is able -while formulating and solving engineering tasks-to notice their system and non technical aspects - is able – according to a given specification- to design and complete a simple device, object, system or process specific for the studied discipline, using appropriate methods, techniques and tools	<b>K_U23</b>
OT1A_U14, U15	- is able to identify and formulate specifications of simple, practical engineering tasks specific for the studied discipline - is able to assess the usefulness of routine methods and tools for solving a simple, practical engineering task specific for the studied discipline and choose and apply a proper method and tools	<b>K_U24</b>
OT1A_U14	- is able to identify and formulate specifications of simple, practical engineering tasks specific for the studied discipline	<b>K_U25</b>
OT1A_U14, U16	- is able to identify and formulate specifications of simple, practical engineering tasks specific for the studied discipline - is able – according to a given specification- to design and complete a simple device, object, system or process specific for the studied discipline, using appropriate methods, techniques and tools	<b>K_U26</b>
OT1A_U14, U16	- is able to identify and formulate specifications of simple, practical engineering tasks specific for the studied discipline - is able – according to a given specification- to design and complete a simple device, object, system or process specific for the studied discipline, using appropriate methods, techniques and tools	<b>K_U27</b>
OT1A_U10, U12	- is able -while formulating and solving engineering tasks-to notice their system and	<b>K_U28</b>

	non technical aspects - is able to carry out primary economic analysis of undertaken engineering activities	
OT1A_U08, U16	- is able to plan and run experiments including measurements and computer simulations, interpret results and draw conclusions - is able – according to a given specification- to desing and complete a simple device, object, system or process specific for the studied discipline, using appropriate methods, techniques and tools	<b>K_U29</b>
OT1A_U08, U11	- is able to plan and run experiments including measurements and computer simulations, interpret results and draw conclusions - is prepared to work in industry environment and knows safety rules in the workplace	<b>K_U30</b>
OT1A_U11	- is prepared to work in industry environment and knows safety rules in the workplace	<b>K_U31</b>
OT1A_U08, U12	- is able to plan and run experiments including measurements and computer simulations, interpret results and draw conclusions - is able to carry out primary economic analysis of undertaken engineering activities	<b>K_U32</b>
	- has fundamental skills in choosen sport, has skills in healthy way of life and continuation of lifetime activities	<b>K_U33</b>
OT1A_U11	- is prepared to work in industry environment and knows safety rules in the workplace	<b>K_U34</b>
<b>SOCIAL COMPETENCES</b>		
OT1A_K01	- understands the necessity of a lifetime learning process; is able to inspire and organize the process of learning for others	<b>K_K01</b>
OT1A_K02	- realizes the significance and understands non-technical aspects and consequences of engineering activity and especially its influence on the natural environment and the related responsibility for decisions	<b>K_K02</b>
OT1A_K05	- identifies correctly and solves dilemmas connected with the profession	<b>K_K03</b>
OT1A_K04, K07	- is able to set clear priorities leading to the realizatione tasks set by himself or others - realizes the social role of technical university graduates and especially understands the need to formulate information and share it with society, e.g. through mass media, in relation to achievements in environmental engineering and other aspects of engineering activity; makes attempts at sharing such information and opinions in an understandable way	<b>K_K04</b>
OT1A_K06	- is able to think and act in an entrepreneurial way	<b>K_K05</b>
OT1A_K06	- is able to think and act in an entrepreneurial way	<b>K_K06</b>
OT1A_K07	- realizes the social role of technical university graduates and especially understands the need to formulate information and share it with society, e.g. through mass media, in relation to achievements in environmental engineering and other aspects of engineering activity; makes attempts at sharing such information and opinions in an	<b>K_K07</b>



	understandable way	
	- advances of social and cultural importance of sport and physical activities. Fosters of its own liking.	<b>K_K08</b>

\*niepotrzebne skreślić