

Course code																																	
Type and description	EC - elective subjects from the discipline of Mechanical Engineering																																
ECTS credit	1																																
Course name	Design of production proces																																
Course name in Polish	Projektowanie procesów produkcyjnych																																
Language of instruction	English																																
Course level	8 PRK																																
Course coordinator	dr hab. inż. Bogusław Pisarek, prof. uczelni																																
Course instructors	dr hab. inż. Grzegorz Gumienny, prof. uczelni; dr hab. inż. Bogusław Pisarek, prof. uczelni, dr hab. inż. Ryszard Władysiak, prof. uczelni; dr hab. inż. Cezary Rapiejko, prof.uczelni																																
Delivery methods and course duration	<table border="1"> <thead> <tr> <th></th> <th>Lecture</th> <th>Tutorials</th> <th>Laboratory</th> <th>Project</th> <th>Seminar</th> <th>Other</th> <th>Total of teaching hours during semester</th> </tr> </thead> <tbody> <tr> <td>Contact hours</td> <td>0</td> <td>0</td> <td>0</td> <td>5</td> <td>0</td> <td>0</td> <td>5</td> </tr> <tr> <td>E-learning</td> <td>no</td> <td>no</td> <td>no</td> <td>no</td> <td>no</td> <td>no</td> <td>no</td> </tr> <tr> <td>Assessment criteria (weightage)</td> <td>0</td> <td>0</td> <td>0</td> <td>100%</td> <td>0</td> <td>0</td> <td>100%</td> </tr> </tbody> </table>		Lecture	Tutorials	Laboratory	Project	Seminar	Other	Total of teaching hours during semester	Contact hours	0	0	0	5	0	0	5	E-learning	no	no	no	no	no	no	no	Assessment criteria (weightage)	0	0	0	100%	0	0	100%
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Course objective	To familiarize students with the principles of metal products design and preparation of their production using modern manufacturing methods.																																
Learning outcomes	<p>After completing the course a PhD student is able to:</p> <ol style="list-style-type: none"> list engineering materials and construction solutions as well as methods of manufacturing and improving the properties of cast machine parts - effects W1, U4, K3, explain the impact of material, construction and technological conditions on the process of manufacturing machine parts with the required properties - effects W1, U4, K3, evaluate and select an engineering material as well as appropriate technological, control and transport operations depending on the manufactured product - effects W1, U1, K1-K3. 																																
Assessment methods	<p>learning outcome 1–3 – report from project</p> <p>The final grade consists of:</p> <p>the grade of the project reports – 100%</p>																																
Prerequisites																																	
Course content with delivery methods	<p>PROJECT</p> <p>Based on the given detail and the required properties, design the production process:</p> <ol style="list-style-type: none"> PREPARATORY PROCESS. MANUFACTURING PROCESS. <p>The preparation process should take into account:</p> <ol style="list-style-type: none"> Material design: <ul style="list-style-type: none"> - interdependence between product design elements, - engineering design stages, - factors taken into account during engineering design, - the basic stages of the technical life cycle of the product, - analytical material selection (universal scale of relative states, excellence classes). Production preparation: 																																

	<ul style="list-style-type: none"> - research, design and development, - production planning and control, - casting documentation, - purchases and preparation of materials: moulding, core and metallic charge. <p>The following operations should be designed during the manufacturing process:</p> <ul style="list-style-type: none"> - technological: casting mould and alloy, - control, - transport, - storage.
Basic reference materials	<ol style="list-style-type: none"> 1. Lewandowski, Jerzy, Process management in production systems, Lodz University of Technology Publishing house, 2007 2. Kutz, Myer, Mechanical engineers' handbook. Vol. 1, Materials and engineering mechanics, Wiley, 2015.
Other reference materials	<ol style="list-style-type: none"> 1. Springer Handbook of Mechanical Engineering, 2009. Editors: Grote, Karl-Heinrich, Antonsson, Erik K. (Eds.) 2. Campbell J.: Principles Of Manufacturing Materials And Processes, Tata McGraw Hill, 1995. 3. Campbell J.: Complete Casting Handbook, 2011. Published by Elsevier Ltd.
Average student workload outside classroom	25 h
Comments	
Last update	July 2020