

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Statistics</b>		Code <b>1011102311011000139</b>
Field of study <b>Engineering Management - Full-time studies -</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>1 / 1</b>
Elective path/specialty <b>Enterprise Management</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>Second-cycle studies</b>	Form of study (full-time, part-time) <b>full-time</b>	
No. of hours Lecture: <b>15</b> Classes: <b>15</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>3</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art		ECTS distribution (number and %)
<b>Responsible for subject / lecturer:</b>  dr hab. Karol Andrzejczak email: karol.andrzejczak@put.poznan.pl, tel. +48(61) 665-2815 Wydział Elektryczny ul. Piotrowo 3a, 60-965 Poznań		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Student knows basic knowledge of set theory, logic and mathematical analysis.
2	<b>Skills</b>	Student is able to efficiently draw function graphs, calculate integrals and derivatives
3	<b>Social competencies</b>	Student is aware of the need to deepen their knowledge
<b>Assumptions and objectives of the course:</b> to acquire basic probabilistic and statistical methods and develop the ability to use these methods to solve practical engineering problems.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. Student knows with in depth methods of collecting data and extracting information hidden in engineering problems. - [[K2A_W11]] 2. Student has a basic knowledge of probability and mathematical statistics, useful to solve practical engineering problems. - [[K2A_W10]]		
<b>Skills:</b>		
1. Student is able to interpret the information from a sample and to draw conclusions. - [[K2A_U01], [K2A_U02]] 2. Can formulate their own opinions and obtain statistical data and the method of analysis. - [[K2A_U02]]		
<b>Social competencies:</b>		
1. Student is able to argue the necessity of continuous learning. - [[K2A_K03]] 2. Is aware of interdisciplinary knowledge and skills needed to solve complex engineering problems. - [[K2A_K06]]		
<b>Assessment methods of study outcomes</b>		
Forming score: on the basis of written tests and oral answers. Summary score: the summary points obtained by the written tests and classes activity.		

<b>Course description</b>		
<p>The basic concepts of probability will be discussed i.e.: probability space, random variables, elements of descriptive statistics, distributions of statistics and their practical applications, methods of statistical inference - estimation, hypothesis verification and analysis of correlation and regression, komputerowe wspomaganie obliczeń.</p>		
<p><b>Basic bibliography:</b></p> <ol style="list-style-type: none"> <li>1. Jay L. Devore. Probability and Statistics for Engineering and the Sciences. Ninth or eighth Edition, 2012, 2015</li> <li>2. Douglas C. Montgomery, G. C. Runger. Applied Statistics and probability for Engineers. Third or higher edition, 2003</li> <li>3. Anthony Hayter. Probability and Statistics for Engineers and Scientists. Fourth edition</li> </ol>		
<p><b>Additional bibliography:</b></p> <ol style="list-style-type: none"> <li>1. Aczel A.D. Statystyka w zarzadzaniu. Wyd. Naukowe PWN. 2000.</li> <li>2. Andrzejczak K. Statystyka elementarna z wykorzystaniem systemu Statgraphics. Wyd. PP. 1997.</li> <li>3. Bobrowski D., Mackowiak-Lybacka K. Wybrane metody wnioskowania statystycznego. Wyd. PP.</li> <li>4. Górecki T. Podstawy statystyki z przykładami w R. Wyd. BTC, 2011.</li> </ol>		
<b>Result of average student's workload</b>		
<b>Activity</b>	<b>Time (working hours)</b>	
1. Lectures participation	15	
2. the study of literature and the development of cross-cutting project	20	
3. Classes participation	15	
4. Cunsultaion and e-consultation	6	
5. Preparing to test knowledge or individual project presentation	4	
6. Prepararing for tutorials	15	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	75	3
Contact hours	34	2
Practical activities	15	1