STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Mathematical statistics		**1010624151010344571**

Field of study	Profile of study (general academic, practical)	Year /Semester
Mechanical Engineering	**(brak)**	**3 / 5**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
Internal Combustion Engines	**Polish**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
First-cycle studies	**part-time**

No. of hours				No. of credits
Lecture: **14**	Classes: **6**	Laboratory: **-**	Project/seminars: **-**	**2**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
(brak)	**(brak)**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**2 100%**

Responsible for subject / lecturer:

dr Maria Iwińska
email: maria.iwinska@put.poznan.pl
tel. 61665-2349
Wydział Elektryczny
ul. Piotrowo 3, 60-965 Poznań

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Student has a knowledge of combinatorics and probability calculus at the secondary school level. Student has a basic knowledge of Mathematics 1.
2	**Skills**	Student is able to think logically. Student is able to use a calculator.
3	**Social competencies**	Student understands the necessity of learning and usefulness of acquired knowledge.

Assumptions and objectives of the course:

The aim of this course is to introduce students to selected topics of probability theory and mathematical statistics. Students acquire skills to apply probabilistic and statistical methods to solve technical problems.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Student knows the basic probability distributions. Student knows the basic methods of statistical inference. - [K1A_W01]

Skills:

1. Student is able to apply theoretical probability distributions. Student is able to apply the methods of mathematical statistics in engineering practice. - [K1A_U01]

Social competencies:

1. Student understands the need for lifelong learning. Student understands the usefulness of statistical methods. - [K1A_K01]

Assessment methods of study outcomes

Written exam. Classes-written test (1 or 2).

Course description

Probability system.
Conditional probability.
Univariate probability distributions.
Basic concepts of descriptive statistics.
Estimation.
Confidence intervals.
Hypothesis verification.
Bivariate probability distributions.
Correlation analysis.
Regression analysis.

Basic bibliography:

1. Bobrowski D., Maćkowiak-Łybacka K., Wybrane metody wnioskowania statystycznego, Wydawnictwo Politechniki Poznańskiej, Poznań.
2. Jasiulewicz H., Kordecki W., Rachunek prawdopodobieństwa i statystyka matematyczna. Przykłady i zadania, Oficyna Wydawnicza GiS, Wrocław.
3. Kordecki W., Rachunek prawdopodobieństwa i statystyka matematyczna. Definicje, twierdzenia, wzory, Oficyna Wydawnicza GiS, Wrocław.

Additional bibliography:

1. Bobrowski D., Probabilistyka w zastosowaniach technicznych, WNT, Warszawa, 1986.
2. Krysicki W., Bartos J., Dyczka W., Królikowska K., Wasilewski M., Rachunek prawdopodobieństwa i statystyka matematyczna w zadaniach, część I i II, PWN, Warszawa.
3. Plucińska A., Pluciński E., Probabilistyka, WNT, Warszawa.

Result of average student's workload

Activity	Time (working hours)

Student's workload

Source of workload	hours	ECTS
Total workload	90	2
Contact hours	45	0
Practical activities	15	0