POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name

Data analysis using statistical packages

Course

Field of study	Year/Semester
Management and production engineering	2/4
Area of study (specialization)	Profile of study
Quality Management	practical
Level of study	Course offered in
Second-cycle studies	polish
Form of study	Requirements
part-time	elective

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
8	8	
Tutorials	Projects/seminars	
	0	

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

PhD Agnieszka KUJAWIŃSKA

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Faculty of Mechanical Engineering

Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Basic knowledge of mathematical statistics. The ability to think logically and independently obtain information from various sources, as well as understanding the need for learning.

Course objective

The aim of the course is to transfer knowledge and skills in the field of data analysis.

Course-related learning outcomes

Knowledge

Classes will cover the theory of applying methods of statistical analysis of data obtained from quality control. Students will acquire knowledge in the field of descriptive statistics methods, data visualization, statistical inference.

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Skills

Students will acquire the ability to use data analysis programs such as: MS Excel ("Analysis ToolPak" add-in), MiniTAB and Statistica - the basic goal is to develop the skills of practical application of data analysis methods in solving specific tasks and engineering problems using IT applications.

Social competences

The student can work in a group. Student is aware of the need and role of data analysis methods in the economy and the need to constantly expand knowledge.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Credit in writing or oral on the basis of scoring questions (credit in the event of obtaining 51% of points:> 50% - dst,> 60% - dst plus,> 70% - db,> 80% - db plus,> 90% points - very good) carried out at the end of the module.

Laboratory: Credit based on reports from laboratory exercises. To get credit, all exercises must be passed.

Programme content

Classes will be conducted in blocks consisting of lectures and laboratories.

Topics of classes:
I. Application of MS Excel, Statistica and MiniTAB for:
1. Descripitve statistic for data from random sample.
2. Analysis of multivariate tables.
3. Data visualization.
4. Verifying statistical tests.
5. Design process control charts.
II. AddIns of AnalysisToolPak in MS Excel: correlation and regression analysis, exponential smoothing, simple one-way ANOVA and basic parametric tests.
III. Forms in MS Excel.

Teaching methods

Lecture: The lecture will be illustrated with a multimedia presentation containing the discussed program content

Laboratory: practical classes

Bibliography

Basic

1. Guerrero H., Excel Data Analysis, Springer, 2019

2. Podręczniki elektroniczne dla aplikacji Statistica oraz Minitab

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3. Aczel A.D., Complete business statistics, PWN, Wohl Publishing, 2012

Additional

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	16	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	34	1,0

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[1] delete or add other activities as appropriate