

Polish course name	<b>RAPORTOWANIE I PREZENTACJA DANYCH</b>
English course name	<b>REPORTING AND DATA PRESENTATION</b>
Course code	<b>WIP-MDL-D1-RADP-05</b>
Field of study	<b>Materials design and logistics</b>
Level of qualification	<b>First degree</b>
Form of study	<b>Full-time</b>
Semester	<b>5</b>
Number of ECTS points	<b>4</b>
Ways of assessment	<b>Test</b>

**Number of hours per semester**

<b>Lecture</b>	<b>Seminar</b>	<b>Classes</b>	<b>Laboratory</b>	<b>Project</b>
15			30	

**TEACHERS:**

Dr inż. Marcin Kwapisz.

**COURSE OBJECTIVES:**

- › **C1** Learning about selected issues related to the acquisition, processing, analysis and mathematical and graphical presentation of process data from industrial processes and the functioning of dedicated systems.
- › **C2** Acquisition of knowledge and practical skills in the processing and analysis of process data.
- › **C3** Acquisition of knowledge and skills in the field of presentation of measurement and statistical data.

**PRELIMINARY REQUIREMENTS FOR KNOWLEDGE, SKILLS AND OTHER COMPETENCES:**

1. Knowledge of the basics of computer science and computer operation.
2. The ability to reason logically and build logical sentences.
3. Ability to use literature sources and internet resources.
4. The ability to correctly interpret your own actions.
5. The student has a basic knowledge of materials science.
6. He knows the basics of manufacturing technology.

## COURSE CONTENT

### LECTURE

- › **L1** Type and nature of process data.
- › **L2** Structures and properties of process data processing systems.
- › **L3** Processing and transmission of data from sensors in industry.
- › **L4** Data exchange formats.
- › **L5** Measurement error and uncertainty of measurement results.
- › **L6** Statistical analysis of measurement data.
- › **L7** Probability distributions.
- › **L8** Data smoothing, reduction and compression.
- › **L9** Concepts of interpolation, approximation and extrapolation of measurement data.
- › **L10** Regression analysis and correlation.
- › **L11, L12** Preparation of reports and summaries.
- › **L13 - L15** Methods of graphical data presentation.

### LABORATORY

- › **Lab1, Lab2** Introduction to laboratory activities.
- › **Lab3 - Lab6** Working in a spreadsheet.
- › **Lab9 - Lab12** Processing and statistical analysis of measurement data.
- › **Lab13 - Lab16** Preparation of reports.
- › **Lab17 - Lab20** Visualization of measurement data.
- › **Lab21 - Lab26** Development and graphic presentation of research results.
- › **Lab27 - Lab30** Preparation of data presentation.

### BASIC REFERENCES

1. P. McFedries: Excel. Wykresy, analiza danych, tabele przestawne. Helion, 2015 r.
2. M. Korzyński: Metodyka eksperymentu, Planowanie, realizacja i statystyczne opracowanie wyników eksperymentów technologicznych, Wydawnictwo Naukowe PWN, 2017 r.
3. D. Larose: Metody i modele eksploracji danych, Wydawnictwo Naukowe PWN, 2008 r.

## SUPPLEMENTARY REFERENCE MATERIALS

Internet resources

## LEARNING OUTCOMES

- › **EU1** Has knowledge and skills in the field of processing and analysis of measurement data.
- › **EU2** Has knowledge and skills in reporting process data.
- › **EU3** Has knowledge and skills related to the graphical presentation of data.

## TEACHING TOOLS

- › Lecture with the use of audiovisual means.
- › Laboratory - desktop computers.
- › Computer software CAD software.
- › Teaching materials prepared by the teacher.
- › E-learning platform of the Częstochowa University of Technology or other distance learning tools.

## WAYS OF ASSESSMENT (F - FORMATIVE, P - SUMMATIVE)

- › **F1.** Assessment of the implementation of tasks included in the curriculum.
- › **F2.** Assessment of the mastery of the teaching material being the subject of laboratory tasks - final test.
- › **F3.** Assessment of activity during classes.
- › **P1.** Assessment of the mastery of the teaching material within the lectures - final test.

## STUDENT WORKLOAD

Form of activity	Number of hours	ECTS
Contact hours with the teacher		
Lectures	15	0,6
Seminar		
Classes		
Laboratory	30	1,2
Project		
Test	2	0,08

Exam		
Total contact hours	47	1,88
Student's own work		
Getting acquainted with the indicated literature	10	0,4
Preparation for seminar		
Preparation for classes		
Preparation for lab	30	1,2
Project preparation		
Consultation	3	0,12
Preparation for the test	10	0,4
Total student's own work	53	2,12
<b>Total number of hours/ ECTS points for the course</b>	<b>100</b>	<b>4,0</b>

#### ADDITIONAL INFORMATION

Timetable of classes	<a href="https://wip.pcz.pl/dla-studentow/plan-zajec/studia-stacjonarne">https://wip.pcz.pl/dla-studentow/plan-zajec/studia-stacjonarne</a>
Information about the consultation (time + place)	<a href="https://wip.pcz.pl/dla-studentow/konsultacje-dla-studentow">https://wip.pcz.pl/dla-studentow/konsultacje-dla-studentow</a>

#### MATRIX OF LEARNING OUTCOMES REALISATION

Learning outcome	Reference of given outcome to outcomes defined for whole program	Course objectives	Course content	Ways of assessment
EU 1	K_W01, K_U04,	C1, C2, C3	L1 - L15, Lab1 - Lab30	F1 - F3, P1
EU 2	K_W01, K_U04,	C1, C2, C3	L1 - L15, Lab1 - Lab30	F1 - F3, P1
EU 3	K_W01, K_U04,	C1, C2, C3	L1 - L15, Lab1 - Lab30	F1 - F3, P1

#### FORM OF ASSESSMENT - DETAILS

**EU1** Has knowledge and skills in the field of processing and analysis of measurement data.

- › 2,0 Does not have knowledge and skills in the field of processing and analysis of measurement data.
- › 3,0 Has sufficient knowledge and skills in the scope of issues related to the processing and analysis of measurement data.
- › 3,5 Has sufficient knowledge and skills in the scope of issues related to the processing and analysis of measurement data to a sufficient degree plus.
- › 4,0 Has the knowledge and skills in the field of issues related to the processing and analysis of measurement data to a good degree.
- › 4,5 Has knowledge and skills in the scope of issues related to the processing and analysis of measurement data to a good plus degree.
- › 5,0 Has a very good knowledge and skills in the field of processing and analysis of measurement data.

**EU2** Has knowledge and skills in reporting process data.

- › 2,0 Has no knowledge and skills related to process data reporting.
- › 3,0 Has sufficient knowledge and skills in reporting process data.
- › 3,5 Has sufficient knowledge and skills in reporting process data plus.
- › 4,0 Has good knowledge and skills in reporting process data.
- › 4,5 Has good plus knowledge and skills in reporting process data.
- › 5,0 Has a very good knowledge and skills in reporting process data.

**EU 3** Has knowledge and skills related to the graphical presentation of data.

- › 2,0 There is no knowledge and skills related to the graphical representation of data
- › 3,0 Has sufficient knowledge and skills related to the graphic presentation of data.
- › 3,5 Has sufficient knowledge and skills related to the graphical presentation of data, plus
- › 4,0 Has good knowledge and skills related to graphic presentation of data.
- › 4,5 Has good plus knowledge and skills related to the graphical presentation of data.
- › 5,0 Has a very good knowledge and skills related to the graphical presentation of data.