UNIVERSITY OF ZIELONA GÓRA

FACULTY OF MATHEMATICS, COMPUTER SCIENCE AND ECONOMETRY

PROGRAMME
OF FULL-TIME STUDIES

major: **DATA ENGINEERING**

level: **first cycle**

profile: **general academic**

recruitment in the academic year

2024/2025

Recommended:

Resolution No. 16 of the Mathematics Discipline Council of 8 March 2023

Positive opinion of the Faculty Council for Education at WMIiE:

Resolution No. 1 of 9 March 2023

1. General characteristics of the studies

Name of the field of study (major)	**Data engineering**
Education level	first-cycle studies
Education profile	general academic
Form of studies	full time
Indication of the fields of science and scientific disciplines or fields of art and artistic disciplines to which the learning outcomes apply (including the leading discipline) and determining the percentage of the number of ECTS points for individual disciplines in the number of ECTS points necessary to obtain qualifications corresponding to the level of education	A field of exact and natural sciences Disciplines: Mathematics (166 ECTS - 79%) - leading Computer science (44 ECTS - 21%)
Indication of the professional title conferred to graduates	inżynier (engineer)
Information about the scientific category held by the basic organizational unit of the university	B

2. Indicating the connection between the field of study and the mission of the University and its development strategy

This course of study meets the demand for new professions on the labour market. Launching it will foster equal development opportunities for the region and its inhabitants.
Its introduction is consistent with the [K2] goal "Expanding the educational offer - orienting educational outcomes to the needs of the labour market" as indicated in the "Development Strategy of the University of Zielona Góra until 2020" in the area of "Education".
Moreover, the course of study fits into "European Digital Agenda" and "Agenda for new skills and jobs" within the EU's Europe 2020 strategy.

3.Description of competencies expected from a candidate applying for admission to first-cycle studies, second-cycle studies or long-cycle master's degree studies

A condition for admission to first-cycle studies in the field of *data engineering* is that the candidate must possess a secondary school leaving certificate. Recruitment is carried out in accordance with the principles of recruitment for first-cycle studies as included in the general regulations.

4. Analysis of the compliance of the assumed learning outcomes with the needs of the labour market

The aim of the studies in the field of *data engineering* is adequate preparation of students to:

- take up professional work in companies and institutions in positions demanding the acquisition of data processing and analysis skills,
- develop professional skills independently,
- undertake studies in various fields of second-cycle studies.

The effect of education in the field is that the graduate acquires knowledge and skills within the scope of:

- mathematics at a higher level,
- the use of analytical, numerical, IT and experimental methods and tools appropriate for the analyst's profession in the process of solving an engineering problem,
- use, management and security of IT systems,
- available IT tools supporting data processing, analysis and statistical inference,
- a foreign language at level B2 of the Common European Framework of Reference for Languages of the Council of Europe, including specialized language.

The graduate is prepared to undertake professional tasks in positions requiring knowledge of mathematical methods and tools, including: in computer and insurance companies, banks, administrative institutions and IT centres, as well as research institutions and research and development centres.

5. Description of methods for verifying and assessing the learning outcomes achieved by the student during the entire educational process

Methods of verifying and assessing the expected learning outcomes achieved by the student are included in the syllabi for individual courses.

6. The programme of studies for the field of study, profile and level of education including:

1.1 description of the expected learning outcomes with the assignment of the field of study to the fields of science and scientific disciplines or fields of art and artistic disciplines to which the learning outcomes for this field apply.

In the attachments:
- *Learning outcomes;*
- *Table of reference of PRK effects to specific learning outcomes;*
- *Reference table – engineering competences.*

1.2 Indicators regarding the study program

Indicators regarding the study program in the assessed field of study, level and profile of education	
The number of ECTS points necessary to obtain qualifications corresponding to the level of education	210 ECTS (minimum)
The number of semesters necessary to obtain qualifications corresponding to the level of education	7

The number of ECTS points assigned to teaching activities requiring direct participation of academic teachers and students	min. 105 (50%)
The number of ECTS points assigned to modules of classes related to scientific research in the discipline or disciplines relevant to the assessed field of study, serving the student to acquire in-depth knowledge and skills in conducting scientific research (for a field with a general academic profile)	min. 182(87%)
The number of ECTS points assigned to modules of classes related to practical professional preparation aimed at acquiring practical skills and social competences by the student (for fields of study with a practical profile)	-
The number of ECTS points assigned to courses in the field of humanities or social sciences (in the case of fields of study assigned to fields other than humanities or social sciences, respectively)	humanities. - min 3 social sciences - 5
The number of ECTS points assigned to elective courses/modules	min. 63 (30%)
The number of ECTS points assigned to vocational practice and the number of hours of vocational practice (if the study program stipulates it)	5
Number of hours of physical education classes - in the case of full-time first-cycle studies and long-cycle master's degree studies	60 hours

Course modules related to scientific research in the discipline or disciplines related to the field of study, allowing the student to acquire in-depth knowledge and skills in conducting scientific research			
Name of class module	Form/forms of	Total number of hours	Number of ECTS
Basic courses, including classes in the area of social sciences: Basics of management and entrepreneurship (5 ECTS)	L, C, Lab, P	1455	123
Diploma paper	S	90	16
Courses offered for the field of study/obligatory courses for the specialization	L, C, Lab, P, Pra	480	min 43
Total:		2025	182 (87%)

General academic profile *– includes classes related to scientific activities conducted at the university in the discipline or disciplines to which the field of study is assigned, in an amount greater than 50% of the number of points. ECTS and takes into account students' participation in classes preparing to conduct scientific activities or participation in these activities.*

Lesson modules to choose from			
Name of class module	Form/forms of classes	Total number of hours	Number of ECTS

Courses offered for the field of study/obligatory courses for the specialization	L, C, Lab, P, Pra	480	min 43
Classes in the field of humanities	C	30	min 3
Elective classes required to obtain 30 ECTS points in a semester	L, C, Lab, P	195	min 17
Total:		705	min. 63 (30%)

The study program allows the student to choose classes that are assigned ECTS points of no less than 30% of the number of ECTS points.

1.3 Classes or groups of classes - together with the assignment of learning outcomes and program content to each module, the form of teaching methods ensuring the achievement of these outcomes, as well as the number of ECTS points (*syllabi*);

Attachment – the catalogue of courses from the SylabUZ system.

1.4 Methods of verifying the assessment of the student's achievement of the expected learning outcomes.

They are included in the syllabi for the respective courses.
The rules regarding diplomas are specified in the resolution: Rules for preparing and assessing diploma papers at the Faculty of Mathematics, Computer Science and Econometrics.

1.5 Study plan including course modules

In the attachment.

Requirements for graduation
Studies in data engineering last 3.5 years (7 semesters). The minimum number of ECTS points is 210. The student should obtain a minimum of 30 ECTS points in each semester.

• Student of *data engineering* is conferred the professional title of inżynier (engineer) when

1. they pass courses with a number of ECTS points of at least 210, including
– a module of compulsory courses for the field of *data engineering*,
– modules of additional items offered for the field of *data engineering* with a number of ECTS points of at least 43, including vocational practice,
– courses from the technical group offered for the field of *data engineering* with a number of ECTS points of at least 5,
– modules of humanities courses offered for the field of *data engineering* with a number of ECTS points of at least 3,

2. they pass the diploma examination with at least satisfactory result.

• Student of the field of *data engineering* is conferred the professional title of engineer with a specialization in *Modelling and Data Analysis* or *Design and Operation of Analytical*

Systems, when

1. they pass courses with a number of ECTS points of at least 210, including

– a module of compulsory courses for the field of study of *data engineering*,
– modules of compulsory courses for a given specialization with the number of ECTS points equal to 43,
– courses from the technical group offered for the field of *data engineering* with a number of ECTS points of at least 5,
– modules of humanities courses offered for the field of *data engineering* with a number of ECTS points of at least 3,

2. passes the diploma examination with at least satisfactory result.

NOTE: The vocational practice lasts 4 weeks and is carried out before the start of the seventh semester. The rules for conducting and crediting vocational practice are established by the Dean of the Faculty of Mathematics, Computer Science and Econometrics.

1.6 The scope, rules and form of vocational practice .

Vocational practice in the scope of 90 hours (5 ECTS points) lasts four weeks and is carried out before the beginning of the seventh semester,
It takes place during the summer break (the student has the right to choose the workplace where the practice will be carried out and the date of its completion).
Teaching and educational supervision over vocational practice is exercised by the Coordinator appointed by the Dean of the Faculty.