#### card of course

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| Subject name | Non-relational databases |

1. Location of the subject in the system of studies

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| 1.1. Programme | Computer science |
| 1.2. Mode of study | Full time studies |
| 1.3. Level of degree | Bachelor degree |
| 1.4. Profile | Practical |

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| 1.5. Speciality | - |
| 1.6. Lecturer responsible for the subject | **Barbara Gocłowska** |

2. General characteristic of the subject

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| 2.1. Connection with a subject group | Optional/pracitcal |
| 2.2. Total credits (ECTS) | 6 |
| 2.3. Language of instruction | English |
| 2.4. Semesters in which the subject is carried out | V |
| 2.5. Criterion for selection of listeners | - |

1. Learning outcomes and method of conducting classes
   1. Aim of the subject

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| Lp. | Aim of the subject |
| C1 | Understanding the difference between relational databases and NoSql databases |
| C2 | Acquiring the ability to create and pose queries in document databases |
| C3 | Acquiring the ability to create and formulate queries in graph databases |

* 1. Learning outcomes, divided into KNOWLEDGE, SKILLS AND COMPETENCIES, with reference to learning outcomes for an area(s) and a field of study

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| --- | --- | --- | --- | --- | --- | --- |
| Lp. | Description of learing outcomes | Reference to the  learning outcomes (symbols) | Form of teaching (Mark with a „X”) | | | |
| ST | | NST | |
| Classes at the University | Classes  on a platform | Classes at the University | Classes  on a platform |
| After completing the subject, student in the range of **KNOWLEDGE**,know and understand | | | | | | |
| W1 | Differences between Nsql and Sql databases | INF\_W03  INF\_W04 | x |  |  |  |
| W2 | Types of NoSql databases | x |  |  |  |
| W3 | Examples of CRUD operations on documents databases | x |  |  |  |
| W4 | Creating and querying graph databases | x |  |  |  |
| After completing the subject, student in the range of **SKILLS**, can | | | | | | |
| U1 | Install, create and querying documents databases | INF\_U01, INF\_U08, INF\_U14, INF\_U16, INF\_U27 | x |  |  |  |
| U2 | Install, create and querying graph databases | x |  |  |  |
| After completing the subject, student in the field of **SOCIAL COMPETENCES**, is able to | | | | | | |
| K1 | Help colleagues during classes | INF\_K01 | x |  |  |  |
| K2 | Submit appropriate queries to Google Bart or another AI program | x |  |  |  |

3.3. Type of classes and number of hours - full time studies (ST), part time studies (NST)

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| Mode  of study | Lecture | Exercises | Project | Workshops | Lab | Seminar | Lectorate | Using distan-ce learning methods and techniques in the form of ………………. | Others | **ECTS** |
| **ST** | 20 |  |  |  | 40 |  |  |  |  | 6 |
| **NST** |  |  |  |  |  |  |  |  |  |  |

3.4. Curriculum content (separately for each type of classes). Mark (X) how the content will be implemented (classes at the university or classes on the platform conducted using distance learning methods and techniques)

TYPE OF CLASSES: LECTURE

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| --- | --- | --- | --- | --- | --- | --- |
| Lp. | Treść zajęć | Reference to the subject  learning outcomes | Sposób realizacji (zaznaczyć „X”) | | | |
| ST | | NST | |
| Classes at the University | Classes  on a platform | Classes at the University | Classes  on a platform |
| 1. | Nsql vs Sql W1  Nosql - types of databases W2 | **W1, W2** | **x** |  |  |  |
| 2. | CRUD for document databases. | W3, W4 | **x** |  |  |  |
| 3. | PseudoRelationships  Geolocation | W3, W4 | **x** |  |  |  |
| 4. | Graph databases | W2, W3, W4 | **X** |  |  |  |

TYPE OF CLASSES: LAB

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| --- | --- | --- | --- | --- | --- | --- |
| Lp. | Treść zajęć | Reference to the subject  learning outcomes | Sposób realizacji (zaznaczyć „X”) | | | |
| ST | | NST | |
| Classes at the University | Classes  on a platform | Classes at the University | Classes  on a platform |
| 1. | Nosql - types of databases installation | U1, U2, K1 | **x** |  |  |  |
| 2. | CRUD - document databases | U1, U2, K1 | **x** |  |  |  |
| 3. | PseudoRelationships | U1, K1 | **x** |  |  |  |
| 4. | Graph databases U2 | U2, K1 | **x** |  |  |  |

3.5. Methods of evaluation of learning outcomes (describe the methods of teaching and verification of learning outcomes and methods of documentation)

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| Learning outcomes | **Methods of teaching** | **Methods of verification of learning outcomes** | **Methods of documentation** |
| KNOWLEDGE | | | |
| W1-W4 | Lecture using the presenting method, problems and their solving live (scripts and their execution). Methods of seeking help in solving problems. | An oral exam checking the knowledge necessary to solve problems arising when creating databases and making queries. | Recording of the exam on Teams |
| SKILLS | | | |
| U1-U4 | Solving tasks | Tasks solved during laboratory classes. | Partial tasks posted by students into inboxes on the portal. |
| SOCIAL COMPETENCES | | | |
| K1-K2 | Mutual assistance when solving problems.  Acquiring the ability to use Google Bart and possibly other facilities of this type. | Active participation in discussions and suggestions. | Notes on the platform. |

3.6. Criteria for assessing the achieved learning outcomes

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| Learning outcome | For a grade of 3 student knows and understands/can/is able to: | For a grade of 4 student knows and understands/can/is able to: | For a grade of 5 student knows and understands/can/is able to: |
| W | 60-75% of the knowledge indicated in the learning outcomes | 76-90% of the knowledge indicated in the learning outcomes | 91-100% of the knowledge indicated in the learning outcomes |
| U | 60-75% of the skills indicated in the learning outcomes | 76-90% of the skills indicated in the learning outcomes | 91-100% of the skills indicated in the learning outcomes |
| K | 60-75% of the skills indicated in the learning outcomes | 76-90% of the skills indicated in the learning outcomes | 91-100% of the skills indicated in the learning outcomes |

3.7. Literature

**Basic:**

1. B. Gocłowska Non-relational databases - Lecture
2. B. Goclowska NoSql (Documents and Graph databases) - Laboratory

**Supplementary:**

1. D. Taylor NoSQL Tutorial: What is, Types of NoSQL Databases & Example <https://www.guru99.com/nosql-tutorial.html>
2. MongoDB. What is NoSQL? <https://www.mongodb.com/nosql-explained>
3. JavaTpoint tutorial <https://www.javatpoint.com/nosql-databases>

4. Student’s workload – balance of credits (ects)

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| --- | --- | --- |
| **Student’s activity** | **Student’s workload** | |
| **ST** | **NST** |
| **CONTACT HOURS (activities that require direct participation of an academic teacher)** | **60** |  |
| Classes provided by the study plan | 60 |  |
| Consultation (min. 10% of hours provided for any form of classes) | 6 |  |
| **STUDENT’S OWN WORK** | **90** |  |
| Preparation for class, preparation of project work/presentations/etc | 45 |  |
| Preparation for passing the classes | 45 |  |
| **TOTAL STUDENT WORKLOAD** | **150** |  |
| **Credits (ECTS) for a subject** | **6** |  |

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| Date of last change | 1 październik 2023 |
| Changes introduced | Dr Barbara Gocłowska |
| Changes approved | Dr inż. Michalina Gryniewicz-Jaworska |