#### card of course

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| --- | --- |
| Subject name | Business Intelligence |

1. The placement of the subject in the study system

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| --- | --- |
| 1.1. Field of study | Computer science |
| 1.2. Form and path of study | Full-time/Part-time |
| 1.3. Level of education | First-cycle studies |
| 1.4. Study profile | Practical |

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| 1. 5. Specialty | Databases |
| 1.6. Subject Coordinator | Dr inż. Dariusz Dobrowolski |

2. General characteristics of the subject

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| --- | --- |
| 2.1. Belonging to a subject group | Optional/Practical |
| 2.2. Number of ECTS | 6 |
| 2.3. Language of lectures | English |
| 2.4. Semesters in which the subject is taught | IV |
| 2.5.Criteria for selecting course participants | For students who have chosen the Databases specialization |

1. Learning outcomes and course delivery
   1. Subject Objectives

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| --- | --- |
| No. | Subject Objectives |
|
| C1 | Learning decision-making methodologies using various IT tools. |
| C2 | Acquiring skills in analyzing large data sets. |
| C3 | Understanding the functioning of business intelligence systems and their practical application |

* 1. Subject-specific learning outcomes, divided into knowledge , skills and competences , with reference to the directional learning outcomes

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| --- | --- | --- | --- | --- | --- | --- |
| No. | Description of subject  learning outcomes | Reference to  directional effects  learning (symbols) | Method of implementation (mark "X") | | | |
| ST | | NST | |
| Classes at the University | Activities on  the platform | Classes at the University | Activities on  the platform |
| After passing the course, the student knows and understands **the knowledge** | | | | | | |
| W1 | Knows IT tools used to store large data sets | INF\_W04  INF\_W12 |  | X |  | X |
| W2 | Knows IT tools for analyzing large data sets |  | X |  | X |
| W3 | Knows the methods of analyzing large data sets |  | X |  | X |
| After passing the course, the student is **able** to: | | | | | | |
| U1 | Can process large data sets | INF\_U01  INF\_U07 INF\_U12 INF\_U14 | X |  | X |  |
| U2 | Can analyze large data sets | X |  | X |  |
| U3 | Is able to interpret the results of analyses performed | X |  | X |  |
| After completing the course, the student is ready to take part in **social competences.** | | | | | | |
| K1 | He is ready to present the results of the experiments carried out | INF\_K04 | X |  | X |  |
| K2 | Has the ability to gather information | X |  | X |  |

3.3. Forms of teaching and their number of hours - Full-time studies (ST), Part-time studies (NST)

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Path | Lecture | Exercises | Design | Workshop | Laboratory | Seminar | Lecturer | Classes conducted using distance learning methods and techniques in the form of a lecture | Other | **ECTS points** |
| **ST** |  |  |  |  | 40 |  |  | 20 |  | 6 |
| **NST** |  |  |  |  | 20 |  |  | 10 |  | 6 |

3.4. Content of education (separately for each form of classes: (W, ĆW, PROJ, WAR, LAB, LEK, OTHER). It should be marked (X) how the given content will be implemented (classes at the university or classes on the e-learning platform conducted using distance learning methods and techniques)

TYPE OF CLASS: LECTURE

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| --- | --- | --- | --- | --- | --- | --- |
| No. | Content of the course | Reference to subject-specific learning outcomes | Method of implementation (mark "X") | | | |
| ST | | NST | |
| **Classes at the University** | **Activities on  the platform** | **Classes at the University** | **Activities on  the platform** |
| 1. | Introduction to Business Intelligence Systems | W1 |  | X |  | X |
| 2. | Creating analyses | W2 |  | X |  | X |
| 3. | Filtering data for analysis | W1 |  | X |  | X |
| 4. | Selecting and grouping data for analysis | W2 |  | X |  | X |
| 5. | Modifying and formatting views | W2 |  | X |  | X |
| 6. | Advanced analytical views | W3 |  | X |  | X |
| 7. | Data visualization using indicators and maps | W3 |  | X |  | X |
| 8. | Summary of classes and discussion of grades. |  |  | X |  | X |

TYPE OF CLASS: LABORATORY

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Content of the course | Reference to subject-specific learning outcomes | Method of implementation (mark "X") | | | |
| ST | | NST | |
| **Classes at the University** | **Activities on  the platform** | **Classes at the University** | **Activities on  the platform** |
| 1. | Practical configuration of a BI tool (e.g. Tableau, Power BI) and exploration of its interface using practical examples. | U1, K2 | X |  | X |  |
| 2. | Creating basic analyses: importing data, generating reports, and defining key metrics. | U1, U2, K2 | X |  | X |  |
| 3. | Apply filters to data sets based on conditions such as dates, numeric values, or logical expressions. | U1, U2 | X |  | X |  |
| 4. | Grouping and aggregating data (e.g. customer segmentation by revenue) and working with hierarchies. | U1, U2 | X |  | X |  |
| 5. | Editing and formatting reports to increase clarity and adapt them to the needs of business stakeholders. | U3, K1 | X |  | X |  |
| 6. | Create advanced analyses such as forecasts, dynamic charts, and multivariate analyses. | U2, U3 | X |  | X |  |
| 7. | Creating visualizations using KPIs, heat maps, and geographic maps based on provided data sets. | U3, K1 | X |  | X |  |
| 8. | Summary of classes and discussion of grades. |  | X |  | X |  |

3.5. Methods of verifying learning outcomes (indication and description of methods of conducting classes and verification of achievement of learning outcomes and method of documentation)

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| --- | --- | --- | --- |
| Subject Effects | Teaching methods | Methods of verifying learning outcomes | Documentation methods |
| KNOWLEDGE | | | |
| W1-W3 | Problem-based lecture, lecture with the use of multimedia presentations. | Lecture: Test containing a set of 16 questions (14 closed questions and 2 open-ended questions ).  Assessment criteria for the examination test:  Each closed question – 1 point (14 x 1 point = 14 points)  Each open question – 3 points (2 x 3 points = 6 points)  Total number of points to be won – 20 points  Percentage range and score for each rating:  Score 3: 11 – 12 points  Rating 3.5: 13 – 14 points  Score 4: 15 – 16 points  Rating 4.5: 17 – 18 points  Score 5: 19 – 20 points | Graded test. |
| SKILLS | | | |
| U1-U3 | Solving tasks, discussion | Laboratory: As part of the course, students will create their own individual project covering business analysis and data visualization using Microsoft Power BI. | Rated project. |
| SOCIAL COMPETENCES | | | |
| K1-K2 | Solving tasks, discussion | Laboratory: As part of the course, students will create their own individual project covering business analysis and data visualization using Microsoft Power BI. | Rated project. |

3.6. Assessment criteria for the achieved learning outcomes

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| Learning effect | For a grade of 3 or "pass."  the student knows and understands/is able to/is ready to | For a grade of 3.5, the student knows and understands/is able to/is ready to | For a grade of 4, the student knows and understands/is able to/is ready to | For a grade of 4.5, the student knows and understands/is able to/is ready to | For a grade of 5, the student knows and understands/is able to/is ready to |
| W | 51-60% of knowledge indicated in learning outcomes | 61-70% of knowledge indicated in learning outcomes | 71-80% of knowledge indicated in learning outcomes | 81-90% of knowledge indicated in learning outcomes | 91-100% of knowledge indicated in learning outcomes |
| U | 51-60% of skills indicated in learning outcomes | 61-70% of skills indicated in learning outcomes | 71-80% of skills indicated in learning outcomes | 81-90% of skills indicated in learning outcomes | 91-100% of skills indicated in learning outcomes |
| K | 51-60% of skills indicated in learning outcomes | 61-70% of skills indicated in learning outcomes | 71-80% of skills indicated in learning outcomes | 81-90% of skills indicated in learning outcomes | 91-100% of skills indicated in learning outcomes |

3.7. Literature

**Basic**

Finch Victor Data Analytics For Beginners: Your Ultimate Guide To Learn And Master Data Analysis. Get Your Business Intelligence Right – Accelerate Growth And Close More Sales, Createspace Independent Publishing Platform Scotts Valley, 2017

**Supplementary**

https://www.projectpro.io/article/power-bi-microsoft-projects-examples-and-ideas-for-practice/533

4. Student workload - ECTS points balance

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| --- | --- | --- |
| **Types of student activity** | **Student Load** | |
| **ST** | **NST** |
| **Classes requiring direct contact between the student and the academic teacher at the university premises** | **60** | **30** |
| Classes included in the study plan | 60 | 30 |
| **Student's own work** | **90** | **120** |
| Ongoing preparation for classes, preparation of project work/presentations/etc. | 45 | 60 |
| Preparation for passing classes | 45 | 60 |
| **TOTAL STUDENT HOURLY LOAD** | **150** | **150** |
| **Number of ECTS points** | **6** | **6** |

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| Last change date | 30/09/2024 |
| The changes were introduced | INF Education Quality Team |
| The changes were approved | Arkadiusz Gwarda, M.A. |