DESCRIPTION OF THE COLLEGE

GENERAL INFORMATION		
Course Holder	**Prof. Dr. Sc. Robert Kopal**	
Name of the College	**Business Intelligence and Data Management**	
Study program	**Professional Graduate Study – Business Management - MBA**	
Status of the College	Required	
Code	PIUP-24	
Year	2.	
Point value and method of teaching	ECTS Student Workload Coefficient	6
	Number of hours (P+V)	28+28+14

DESCRIPTION OF THE COLLEGE
1.1. *Objectives of the course*
Students are expected to develop: *a) General competencies* • *Gain a deep understanding of advanced data analysis methods and techniques used in business.* • *Learn how to apply the acquired theoretical knowledge to real business problems and make informed decisions based on data.* • *Be trained to work with large amounts of data, including its collection, storage, analysis and interpretation.* • *Learn how to use various analytical tools and technologies such as machine learning fundamentals, data visualization, and predictive analytics.* • *Understand AI principles and the importance of LLM models* • *Understand the importance of a strategic approach to data management and learn how to develop and implement data strategies that support business goals.* *b) Specific competencies* • *Develop the ability to think critically and solve complex problems using analytical methods and tools.* • *Acquire the technical skills needed to manage and analyze large data sets using advanced analytics tools and software.*

- *Learn how to create and apply predictive models to predict future business trends and make strategic decisions.*
- *Train to effectively visualize and interpret data to present key insights from data to relevant business stakeholders.*
- *Learn the basics and advanced techniques of machine learning and their application in different business scenarios.*
- *Learn the basic AI concepts and fundamentals of LLM architecture*
- *Familiarize yourself with the principles of data management, including the ethical and legal aspects of data collection, storage and use.*
- *Develop the ability to effectively communicate analytical findings and recommendations to business users.*
- *Learn how to develop a comprehensive data strategy that includes defining goals, evaluating the current situation, and creating a plan for the implementation of the strategy.*
- *Train to implement data management best practices, including creating a business vocabulary, standardizing processes, and ensuring data quality.*
- *Gain insights into different roles within an organization, including data owners, and how these roles contribute to effective data management.*

1.2. *Requirements for enrolment in the course*

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1.3. *Expected learning outcomes for the course*

Students should be able to:

1. Understand the general importance of data and the application of advanced analytical methods

2. Create visualizations and advanced dashboards, and present key insights

3. Understand the basic principles of machine learning, and build your own model using automated machine learning (auto ML)

4. Understand the basic concepts of artificial intelligence

5. Apply the basic principles of an effective data governance process

6. Design a data strategy and propose implementation steps on a concrete example

1.4. *The content of the course*

Data Introduction

- *Definition and Importance of Data and Data Analytics*
- *Overview of key concepts in data analysis*
- *The Role of Data Analytics in Business Decision-Making*

- *Practical tasks – case studies*

Data visualization

- *Principles of effective data visualization*
- *Visualization tools*
- *Story telling*
- *Practical tasks - data visualization*

Predictive analytics

- *Basic principles of machine learning*
- *Predictive Analysis Techniques*
- *Application of machine learning algorithms*
- *Auto ML (Automated Machine Learning)*
- *Practical tasks – automated machine learning*

Basics of Generative Artificial Intelligence

- *Introduction to AI Concepts*
- *The basic architecture of the LLM model*
- *Practical tasks – Generative artificial intelligence*

Data Strategy

- *Basic dimensions of a data strategy*

- *Data Strategy Form*
- *Examples of Good Data Strategies*
- *Practical task: Development of a data strategy on a concrete example:*
    - *Evaluation of the current situation and planning of future steps*
    - *Implementing a data strategy*

Data Governance

- *The Basics of the Data Management Process*
- *Development of business vocabulary and standardization of processes*
- *Ensuring data quality, integrity and security*
- *Data Governance Form*
- *Practical task: Development of a data management pattern on a concrete example*

Culture of Change and Adoption of Analytical Practices

- *The Importance of Culture Change for the Success of Analytics Initiatives*
- *Planning and Implementation of Data Literacy Education*
- *Communication and support for changes within the organization*
- *Examples of good practice*

1.5. *Types of teaching (put X)*	☒ Lectures ☐ Seminars and workshops ☒ Exercises	☒ Independent tasks ☐ Multimedia & Network ☐ Laboratory ☐ mentoring work

	☐ Distance education ☐ Field Teaching	☐ Other _____

1.6. *Obligations of students*

Student obligations are prescribed in detail by the Statute, the Study Regulations and the Instructions on Student Obligations. The key obligations of students are:
ATTENDANCE AT CLASSES: students are obliged to attend classes, actively follow lectures and exercises and participate constructively in classes, and in order to acquire the right to take the exam, it is necessary to attend classes in the percentages prescribed by the Study Regulations. For each student, their presence in class is recorded through the Infoeduka digital office system. The minimum obligations are:

- *Full-time students must attend at least 70% of the total number of classes to be eligible to sign.*
- *Part-time students need to attend at least 50% of the total number of teaching hours to be eligible to sign.*

***EXAM:** in order to achieve a positive grade in a subject, it is necessary to achieve at least 54 points in the subject, but also at least 50% of points for each learning outcome. The method of taking the exam is described in more detail in the item Assessment and evaluation of students' work during classes and at the final exam.*

**FINAL EXAM – a student who has not met the conditions for passing the exam during the continuous examination (has achieved a total of at least 54 points in the course and met the lower point threshold for the acquisition of each learning outcome, i.e. at least 50% of the points of each learning outcome), may take the learning outcomes of the course at the final exam.*

***WRITTEN EXAM:** the student is required to take a written exam that verifies the acquisition of advanced theoretical knowledge related to the ability to apply critical thinking in connecting theoretical knowledge and practical application of data analysis in business decision-making and action (essay questions and individual practical tasks)*
***GROUP PROJECT:** a team project that tests the practical application of knowledge, understanding and skills in the implementation of data analysis, advanced analytics and AI in company management systems in a given field of application.*

**CONTINUOUS ASSESSMENT OF KNOWLEDGE: For more efficient progress of students in teaching, continuous examinations (2 intermediate exams) are carried out. In this way, students acquire smaller teaching units and master the subject material more easily.*

1.7. *Monitoring of student work (add X with the appropriate form of monitoring)*

Attendance	X	Class activity (presentation)		Term paper		Experimental work	
Written exam	X	Oral exam		Essay		Research	
Design	X	Continuous assessment of		Paper		Practical work	x

		knowledge					
Portfolio							

1.8. *Assessment and evaluation of students' work during classes and at the final exam*

Assessment and evaluation of students' work during classes and at the final exam is carried out on the basis of the Study Regulations of the EFFECTUS University of Applied Sciences.

Allocation of points according to the forms of student work monitoring:

	Attendance	Written exam	Design	Total
I1		16		16
I2		16		16
I3		16		16
I4		16		16
I5		16		16
I6			16	16
OUT OF THE BOX	4			4

TOTAL	4	80	16	100

Linking learning outcomes, teaching methods and methods of assessment of knowledge:

FORMS OF TRACKING	*NAME OF LEARNING OUTCOMES*	TEACHING METHOD	METHOD OF ASSESSMENT KNOWLEDGE	Maximum number of rating points
Written exam	*OUTCOME 1 Understand the importance of data in general and the application of advanced analytical methods*	*Lecture*	*Written exam with essay questions: the student is required to take a written exam that tests the acquisition of advanced theoretical knowledge related to the ability to apply critical thinking in connecting theoretical knowledge and the practical application of data analysis in business decision-making and action*	*48*
		Asking questions		
		Discussion		
	OUTCOME 2 Create visualizations and advanced dashboards, and present key insights	*Lecture*		
		Guided training		
	OUTCOME 3 Understand the basic principles of machine learning, and build your own model using automated machine learning (auto ML)	*Lecture*		
		Guided training		
		Training and feedback		
	OUTCOME 4 Understand the basic concepts of artificial intelligence	*Lecture*	*Individual problem tasks: which test the ability to practically apply data*	*32*
		Open questions		
	OUTCOME 5 Apply the basic principles	*Guided training*		

	of an effective data management process (data governance)	*Training and feedback*	*analysis in business decision-making and action.*	
Design	*OUTCOME 6 Design a data strategy and propose implementation steps on a concrete example*	*Guided training*	*A group project that verifies the practical application of knowledge, understanding and skills in the implementation of data analysis, advanced analytics and AI in company management systems in the given field of application*	*16*
		Training and feedback		
Attendance	*All outcomes*	*Lectures and exercises*	*Attendance records*	*4*
			TOTAL POINTS	***100***

Type of student workload	***Hours of student workload***	***ECTS credits***
Attending face-to-face classes	70	2,33
Field trips/visits outside the college	0	0
Independent study/research	40	1,33
Out-of-classroom preparation and preparation of seminars/presentations	15	0,5
Work on an out-of-classroom project assignment	0	0
Independent preparation for exams and exam time	40	1,33
Consultation activities	15	0,50
Other	0	0
TOTAL ECTS credits	**180**	**6**

JUDGING:

In order to achieve a positive grade in the course, the student must cumulatively meet two conditions: achieve a total of at least 54 (fifty-four) points in the course and meet the lower point threshold for the adoption of each individual learning outcome, which is 50% of the total points of the learning outcomes.

Grades are calculated based on the following distribution of points:

NUMBER OF POINTS	*RATING*
0,00 – 53,90	*Insufficient (1)*

54,00 – 64,90	*Sufficient (2)*
65,00 – 79,90	*Good (3)*
80,00 – 89,90	*Very Good (4)*
90.00 and more	*Excellent (5)*

The evaluation is carried out in a transparent manner by collecting points. The course is valued with 100.00 points (with the possibility of achieving an additional 8 points on the Challenge learning outcome).

CHALLENGE LEARNING OUTCOME - the student has the opportunity to earn an additional maximum of 8 points through the Challenge learning outcome; The student independently chooses one of the activities proposed in the first lesson, and has the opportunity to independently propose an activity by which he wants to increase the number of points and, with the consent of the course holder, achieves them according to the criteria of the subject. Points for the Challenge learning outcome are not distributed according to the learning outcomes, but the number achieved is an additional number of points to the total number of points achieved according to the learning outcomes.

Before taking the final written exam, each student must meet the prescribed conditions, which primarily means that they have attended the % of classes determined by the Study Regulations and that they have received an electronically encrypted permission to take the exam.

1.9. *Required literature and number of copies in relation to the number of students currently attending classes in the course*

Title	*Number of copies*	*Number of students*
Klepac, G. and Mršić, L. (2006) BUSINESS INTELLIGENCE THROUGH BUSINESS CASES, TIM PRESS	5* *students receive compulsory literature in permanent ownership	60

1.10. Supplementary literature

Title		
Sharda, R., Delen, D.& Turban, E. (2017) Business Intelligence, Analytics, and Data Science: A Managerial Perspective 4th Edition *HVNLY PUBLISHING (2025) AI IN BUSINESS - AN EXECUTIVE GUIDE FOR BEGINNERS: Leverage Artificial Intelligence to Simplify Automation, Improve Data-Driven Decisions, Maximize ROI and Elevate Customer Experience, Independently Published*		
1.11. Quality monitoring methods that ensure the acquisition of output knowledge, skills and competences		
• *analysis of exam results, achieved results, level of understanding and knowledge during exercises, practical tasks and group work,* • *conducting a survey among students,* • *The teacher's evaluation,* • *the achieved results and the level of knowledge presented during the preparation and defense of the final thesis (of students who choose the graduate thesis in this subject),* • *analysis of the reports of the Quality Center and* • *Feedback from students who have already graduated and their employers on the usefulness of the content of this course in the performance of the work they do.*		