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DESCRIPTION OF THE COURSE

GENERAL INFORMATION		
Course Holder	**Izv. Prof. Dr. Sc. Robert Kopal**	
The name of the college	**Business Intelligence and Data Management**	
Study program	**Professional Graduate Study – Business Management - MBA**	
Status of the College	Mandatory	
Year	2nd year	
Point value and method of teaching	ECTS coefficient of student workload	6
	Number of hours (P+V)	28+28+14

DESCRIPTION OF THE COURSE

1.1. *Objectives of the course*

Students are expected to develop:

a) General competencies

- *Gain a deep understanding of the 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 their 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 the LLM model*
- *Understand the importance of a strategic approach to data management and learn how to develop and implement data strategies that support business goals.*

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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 analytical 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 various 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 state, and creating a plan for strategy implementation.*
- *Be trained to implement best practices in data management, including creating a business dictionary, standardizing processes, and ensuring data quality.*
- *Gain insights into different roles within the organization, including data owners, and how those 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 importance of data in general 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. *Course content*

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Introduction to data

- *Definition and importance of data and data analysis*
- *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)*
- *Hands-on tasks – automated machine learning*

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Generative Artificial Intelligence Basics

- *Introduction to AI concepts*
- *Basic architecture of the LLM model*
- *Practical tasks – Generative AI*

Data Strategy

- *Basic dimensions of a data strategy*
- *Data strategy template*
- *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*
    - *Implementation of a data strategy*

Data Governance

- *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 change within the organization*
- *Examples of good practice*

1.5. *Types of teaching (put X)*	☒ lectures ☐ seminars and workshops ☒ exercises ☐ Distance education ☐ Field Teaching	☒ Independent tasks ☐ Multimedia & Network ☐ laboratory ☐ Mentoring work ☐ Other_____

1.6. *Student obligations*

The obligations of students are prescribed in detail by the Statute, Study Regulations, and Student Obligations Guidelines. 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 classes to be eligible to sign.*

PASSING EXAMS: *in order to achieve a positive grade in the 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*

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exam.

**FINAL EXAM – a student who has not met the conditions for passing the exam during the continuous examination of knowledge (has achieved a total of at least 54 points in the course and has met the lower point threshold of adoption of each learning outcome, i.e. a minimum of 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 obliged 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 verifies the practical application of knowledge, understanding and skills in the implementation of data analysis, advanced analytics and AI in business management systems in a given field of application.*

**CONTINUOUS EXAMINATION: In order to make students progress more efficiently in class, continuous examinations of knowledge (2 intermediate exams) are carried out. In this way, students acquire smaller teaching units and master the subject material more easily.*

1.7. *Student Work Tracking (Add X to the appropriate tracking format)*

Attending classes	X	Teaching activity (presentation)		Seminar paper		Experimental work	
Written exam	X	Oral exam		Essay		Research	
Project	X	Continuous Knowledge Assessment		Report		Practical work	x
Portfolio							

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

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

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

	Attending classes	Written exam	Project	Altogether
I1		16		16
I2		16		16
I3		16		16
I4		16		16
I5		16		16
I6			16	16
OUT OF OUTCOME	4			4
ALTOGETHER	4	80	16	100

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Linking learning outcomes, teaching methods and knowledge assessment methods:

FORMS OF TRACKING	***NAME OF LEARNING OUTCOMES***	**TEACHING METHOD**	**KNOWLEDGE ASSESSMENT METHOD**	**Maximum number of 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 obliged 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*	*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		
		Rehearsal and feedback		

	OUTCOME 4 *Understand the basic concepts of artificial intelligence*	*lecture*	*Individual problem tasks: which test the ability to apply data analysis in practice in business decision-making and action.*	*32*
		Open Questions		
	OUTCOME 5 *Apply the basic principles of an effective data governance process*	*Guided training*		
		Rehearsal and feedback		
Project	*OUTCOME 6* *Design a data strategy and propose implementation steps on a concrete example*	*Guided training*	*A group project that tests the practical application of knowledge, understanding and skills in the implementation of data analysis, advanced analytics and AI in business management systems in a given field of application*	*16*
		Rehearsal and feedback		
Attending classes	*All outcomes*	*Lectures and exercises*	*Attendance records*	*4*
			TOTAL POINTS	***100***

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Type of student workload	*Student Load Hours*	*ECTS credits*
Attending contact 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**

RATING:

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.

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Grades are calculated based on the following distribution of points:

SCORE	*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)*

Grading is carried out in a transparent manner by collecting points. The course is evaluated 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 with 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 course. Points for the Challenge learning outcome are not distributed according to the learning outcomes, but the number achieved makes 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.

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1.9. *Required reading 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) POSLOVNA INTELIGENCIJA 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. Ways of quality monitoring that ensure the acquisition of output knowledge, skills and competencies		
• *analysis of exam results, achieved results, level of understanding and knowledge during exercises, practical tasks and group work,* • *conducting a survey among students,* • *The evaluation of the teacher,* • *achieved results and level of knowledge presented during the preparation and defense of the final thesis (students who choose a graduate thesis in this course),* • *analysis of the Quality Centre's reports 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.*		