DESCRIPTION OF THE COLLEGE

GENERAL INFORMATION		
Course Holder	**Prof. Dr. Sc. Robert Kopal** **Ph.D. Mirko Talajić**	
Name of the College	**Behavioral Game Theory**	
Study program	**Professional Graduate Study of Business Management - MBA**	
Status of the College	**Mandatory**	
Code	**BTI-22**	
Year	**Year 2**	
Point value and method of teaching	**ECTS Student Workload Coefficient**	**5**
	Number of hours (P+V)	**28+28**

DESCRIPTION OF THE COLLEGE
1.1. *Objectives of the course*
Game theory is a mathematical approach to modeling behavior by analyzing the strategic decisions made by interacting players. Traditional game theory operates under the assumption of a player who rationally optimizes his own decisions and, consequently, outcomes. Another important assumption is that players look exclusively at their own interest. Experimental game theory expands on traditional game theory by taking into account how players feel about their own outcomes and the outcomes that other players receive, limitations in strategic thinking, the influence of context, as well as the effects of learning. The aim of this course is to introduce students to the basic assumptions of traditional game theory and the process of choosing optimal strategies for decision-making (Nash equilibrium). After that, the model of traditional game theory will be upgraded with elements of experimental game theory, which tries to solve basic criticisms of traditional game theory, such as the assumption of rationality and exclusive focus on self-interest. Students will have the opportunity to delve deeper into the relationships of the participants in the interaction in order to better understand the decisions. Experimental game theory "observes" how players behave through experiments with careful control of participants and their incentives. Such experiments verify the

accuracy of theoretical principles of behavior prediction and correct them or provide alternative approaches.
It is this interaction between experiment and theory that constitutes experimental game theory, which is a modification of the traditional through experimental evidence and the psychology of the individual and the group.
One of the key processes in modeling experimental game theory is the process of teaching players in repetitive interactions.
Ultimately, this view and analysis of the learning process corrects the suboptimal equilibria resulting from traditional game theory.
By merging traditional and experimental game theory, the student will gain comprehensive knowledge of the model through which they will be able to more clearly perceive the behavior of participants in the interaction and make better decisions, which should be their competitive advantage in future business and private decisions.

1.2. *Requirements for enrolment in the course*

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1.3. *Expected learning outcomes for the course*

1. Critically assess the basic features of traditional game theory and its application in practice
2. To question decisions in the traditional model of game theory through the search for the optimal balance in player interaction
3. Compare features of experimental and traditional game theory
4. Judge the process of evaluating other players' payouts from the position of each individual player
5. Evaluate negotiation games and coordination games through the dimensions of experimental game theory
6. To evaluate the learning process in a model of experimental game theory

1.4. *The content of the course*

Introduction to the course
Elements of Traditional Game Theory
- Balance in traditional games - simultaneous
- Balance in sequential games - sequential
- Strategic Moves and Risks through the Game Theory Model
- Balances in games with probabilistic selection of pure strategies (mixed strategies)

Basic elements of the experimental game theory model
Comparison of traditional game theory and experimental game theory
- Examples of the application of experimental game theory in practice

Results of Experimental Game Theory in Trust Games, Ultimate Games and Dictator Games

Effectus veleučilište

Analysis of Experimental Game Theory Models – Ultimatum Games and Dictator Games Analysis of the model of experimental game theory – games of trust Experimental Game Theory Model in the Game of Negotiation Structured and unstructured negotiation Negotiation game model in situations of incomplete information Analysis of Experimental Game Theory Models in Coordination Games Game Battle of the Sexes Market entry game The Learning Process in Experimental Game Theory – Types of Learning Signaling Games and Adaptive Dynamics Through the Dimensions of Experimental Game Theory Measurement and Importance of Reputation in Experimental Game Theory		
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. *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 commitments 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 tests the acquisition of advanced theoretical knowledge about the characteristics of traditional game theory and its application in practice and its comparison with experimental game theory.*

PRACTICAL WORK*: the student is obliged to participate in solving individual and group practical tasks and exercises with the aim of practicing the skill of practical application of theoretical knowledge about the traditional and experimental model of game theory through the search for the optimal balance in player interaction, evaluation of player payments, valorization of the learning process in the model of experimental game theory and through the application of different types of games, such as the game of negotiation and the game of coordination, through the prism of experimental game theory.*

**CONTINUOUS ASSESSMENT OF KNOWLEDGE: In order to improve the efficiency of students' progress in teaching, continuous examinations (3 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	Teaching activity		Term paper		Experimental work	
Written exam	x	Oral exam		Essay		Research	
Design		Continuous assessment*		Paper		Practical work	x
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	Practical work	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	48	48	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 Critically assess the basic features of traditional game theory and its application in practice*	*Lecture*	*Essay-problem questions to which an answer is sought that demonstrates the identification and definition of key concepts, their connection and corresponding arguments of a higher degree of complexity*	*16*
		Asking questions		
		Discussion		
Practical work	*OUTCOME 2 To question decisions in the traditional model of game theory through the search for the optimal balance in player interaction*	*Lecture*	*Computational tasks with appropriate argumentation and interpretation*	*16*
		Discussion		
		Training and feedback		
Written exam	*OUTCOME 3 Compare features of experimental and traditional game theory*	*Lecture*	*Essay-problem questions to which an answer is sought that demonstrates the identification and definition of key concepts, their connection and corresponding arguments of a higher degree of complexity*	*16*
		Discussion		
		Asking open-ended questions		
Practical work	*OUTCOME 4 Judge the process of evaluating other players' payouts from the position of each individual player*	*Lecture*	*Computational tasks with appropriate argumentation and interpretation*	*16*
		Training and feedback		

Practical work	*OUTCOME 5* *Evaluate negotiation games and coordination games through the dimensions of experimental game theory*	*Lecture* *Asking open-ended questions* *Training and feedback*	*Practical tasks that test the skill of practical application of knowledge about different types of games in solving specific business problems*	*16*
Written exam	*OUTCOME 6* *To evaluate the learning process in a model of experimental game theory*	*Lecture* *Discussion* *Asking open-ended questions*	*Problem questions with explanations and argumentation that require problem identification, analysis, synthesis, linking and critical judgment*	*16*
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	56	1,87
Field trips/visits outside the college	0	0
Independent study/research	30	1
Out-of-classroom preparation and preparation of seminars/presentations	0	0
Work on an out-of-classroom project assignment	0	0
Independent preparation for exams and exam time	60	2
Consultation activities	4	0,13
Other	0	0
TOTAL ECTS credits	**150**	**5**

***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*
Kopal, R. and Korkut, D. (2020): Introduction to Game Theory, 4th Unchanged Edition, Zagreb: Effectus – University College	*5** **students receive compulsory literature in permanent ownership*	*60*

1.10. Supplementary literature		
Camerer, C. F. (2003): Behavioral Game Theory: Experiments in Strategic Interaction, Princeton, NJ: Princeton University Press *Camerer, C. F. & Ho, Teck & Chong, Juin-Kuan. (2004): Behavioral Game Theory: Thinking, Learning, and Teaching. 10.1057/9780230523371_8.*		
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.*		