TEACHING GUIDE

1. BASIC INFORMATION

Subject	**Applied Artificial Intelligence to Business**
Degrees	**Business Administration and Management (ADE)** **Digital Business Administration (AND)** **Intelligent Systems Engineering (GISI)** **Business Engineering (GIE)**
Faculties	**Faculty of Business Administration and Law** **Faculty of Engineering and Business Technology**
ECTS	**6**
Character	**Mandatory**
Language	**English**
Mode	**In-person/Synchronous In-person**
Semester	**Fifth**
Subject Coordinator	**Javier Martínez Torres**

2. PRESENTATION

This course provides an overview of AI's evolution and its application in business. Topics include machine learning, deep learning, generative AI, and natural language processing. Students explore AI strategies, adoption challenges, ethical considerations, and data's role in success. The course emphasizes practical use cases to prepare students for real-world AI implementation in organizations.

3. COMPETENCIES AND LEARNING OUTCOMES

Type	Code	Description
Basic	**BC01**	Students should be able to apply their knowledge to their professional work or vocation in a professional manner and possess the competencies typically demonstrated through the development and defence of arguments and problem-solving within their field of study.
General	**GC01**	Demonstrate the ability to analyse, synthesize, and evaluate data and information in the context of Artificial Intelligence in Business.
Transversal	**TC01**	Apply scientific, critical, and self-critical thinking with an open-minded attitude towards others' ideas in AI-related contexts.
	TC02	Solve problems and make decisions using knowledge, methods, and tools relevant to Artificial Intelligence in academic and professional contexts.
	TC03	Demonstrate skills and attitudes for autonomous work and teamwork when implementing and analysing AI strategies and solutions.
	TC04	Use knowledge, skills, abilities, and attitudes to effectively communicate in digital environments, particularly those involving AI tools and platforms.
Specific	**SO01**	Understand and apply the concepts, methods, and tools of Artificial Intelligence to address real-world business challenges.

Code	Description
LO01	Understand the history and evolution of Artificial Intelligence (AI).
LO02	Identify the key characteristics of Machine Learning and Deep Learning.
LO03	Understand the different learning systems used in AI.
LO04	Identify use cases and applications of Artificial Intelligence in business management.
LO05	Understand National AI Strategies, as well as the global and corporate competition for AI dominance
LO06	Evaluate the ethical and legal risks associated with Artificial Intelligence

4. CONTENT

Unit I: Foundations of AI

1.1. History of AI

1.2. Machine Learning (I)

1.3. Machine Learning (II)

1.4. Deep Learning

1.5. Natural Language Processing (NLP)

1.6. Generative AI (I)

1.7. Generative AI (II)

Unit II: AI Governance and Strategies

2.1. AI Strategies

2.2. AI Geopolitics

Unit III: AI Applications and Use Cases

3.1. AI Adoption (I)

3.2. AI Adoption (II)

3.3. Use Cases

Unit IV: Risks and Ethical Implications of AI

4.1. Relevance of Data

4.2. AI Ethics

4.3. Intellectual Property

5. TEACHING AND LEARNING METHODOLOGIES

UIE develops an innovative academic model centered on the learner, combining different philosophical approaches to Teaching-Learning (T-L), a wide variety of learning activities—especially those in which students take an active role in knowledge construction—continuous

guidance, and the intensive use of technology as a facilitating tool, creating a unique and innovative learning ecosystem.

The training is conducted in an in-person modality, including synchronous virtual learning, supported by a cutting-edge virtual campus that provides flexibility and personalization within a ubiquitous learning (U-Learning) model.

Additionally, in alignment with its founding and corporate principles of social responsibility, UIE not only encourages the participation of its entire university community in volunteer and social service activities but also incorporates the Service-Learning (ApS) approach as a formal component of its teaching-learning strategies.

Code	Activity	Type	E-A Mode	Approach
TM01	Initial Contact and Motivation	**I**	Introductory	IP
TM03	Lecture	**T**	Expository and Participatory	IP
TM06	Problem Solving and Exercises	**P**	Guided/Independent	
TM07	Virtual Campus Activity	**T/P**		
TM08	Content Study	**T**	Independent	NP
TM09	Project and Assignment Development	**T/P**		
TM13	Presentations	**T/P**	Guided/Independent	
TM16	Use of Software Tools	**P**		
TM19	Service-Learning (S-L)	**T/P**	Service-Learning	IP
TM20	Tutorials	**T/P**	Personalised (Individual/Group)	IP
TM23	Discussion Forums	**T/P**		
TM25	Monitoring and Completion	**C**	Continuous Self-Assessment	NP

6. TRAINING ACTIVITIES

The following identifies the types of educational activities that will be carried out:

Code	Name	Modality	Type of activity
AF01	Introductory	IP	Motivational/Informative
AF02	Expository and Participatory	IP	Theoretical
AF03	Guided	IP	Theoretical / Practical
AF04	Personalized (Individual / Group)	IP	Theoretical / Practical
AF05	Autonomous	NP	Theoretical / Practical
AF06	Service-Learning	IP	Service-Learning
AF07	Continuous self-assessment	NP	Quality Assessment

IP: In-person NP: Non-in-person

7. EVALUATION

The model also includes the continuous assessment process as an essential part of verifying the competencies acquired. For UIE, and in line with the proposed improvement of the teaching-learning process for the European Higher Education Area (EHEA), the assessment system, called Learning Outcomes Review (LOR), is developed as a more humanized process, distancing itself from traditional systems where students risk their fate in exams (sessions), sometimes with high and decisive percentage weights, leading to stress, frustration, and occasionally, dropout.

The UIE LOR system is continuous, shared, and progressive, allowing for the monitoring of learning throughout the entire period, making it a natural process to which students turn without negative emotions and aware of the need to understand their own progress.

Code	Evaluation Activity	Weighting %	Type	Mode
AE01	Partial Tests	40	Discrete	O/E
AE02	Final Partial Test	20	Discrete	
AE04	Presentation	25	Discrete	
AE05	Participation in the Virtual Campus	10		
AE06	Participation, Daily Activities and Volunteering	5	Discrete (Pass/ Fail)	O
AE08	Service-Learning			
AE10	Retake Partials	-		W/O
		100		

Mode: O: Oral W: Written O/E: Both DF: Digital Folder

8. BIBLIOGRAPHY

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- Eremenko K. (2020) *Confident data skills. How to work with data and futureproof your career.* 2nd edition. Kogan Page Ltd. ISBN: 9781789664386
- Lee J-A., Hilty R., and Liu K-C. (2021) *Artificial Intelligence and Intellectual Property*. OUP Oxford. ISBN: 9780198870944
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- Trinh M. (2022) *The AI Strategy Handbook: Business strategy in the era of artificial intelligence.* Rodeo Press.
- Yao, M., Zhou, A., & Jia, M. (2018). *Applied artificial intelligence: A handbook for business leaders*. TOPBOTS.

9. TUTORIALS

MD20 Tutorial (2%): Students must attend at least three personalized tutorials throughout the semester. This is an all-or-nothing activity ("Pass-Fail"), meaning that all three tutorials must be completed.

10. QUALITY SURVEYS

MD25 Quality Management (2%): Students must complete four forms throughout the semester related to UIE's quality management. This is an all-or-nothing activity ("Pass-Fail"), meaning that all four forms must be completed within the deadlines specified in the course activity plan. The activity aims to timely assess the development of the teaching-learning process and the transversal competence related to critical and self-critical thinking.