TEACHING GUIDE

1. BASIC INFORMATION

Subject	**Disruptive Technologies for Digitization**
Degrees	**Digital Business Administration (AND)**
Faculties	**Faculty of Business Administration and Law**
ECTS	**6**
Character	**Mandatory**
Language	**English**
Mode	**In-person/Synchronous In-person**
Semester	**Fifth**
Subject Coordinator	**Lino José Comesaña Cebral**

2. PRESENTATION

The subject Disruptive Technologies for Digitalization focuses on the impact of cutting-edge technologies on modern businesses, highlighting their integration into digital platforms and processes. Students will delve into the fundamentals of technologies such as the Internet of Things (IoT), mobile applications, cloud computing, and artificial intelligence to understand how these tools are reshaping industries and creating new opportunities for innovation and growth.
The subject introduces key technologies like 5G, virtual reality, and quantum computing and the student will gain experience with tools such as Docker and Kubernetes for cloud development, explore user analytics in mobile platforms, and examine real-world applications of advanced computing and immersive technologies. By the end of the subject, the student will have knowledge and skills to leverage these technologies, driving efficiency and innovation in digital business models.

3. COMPETENCIES AND LEARNING OUTCOMES

Competencies	Code	Description
Basic	**BC05**	That students have developed the learning skills necessary to pursue further studies with a high degree of autonomy.
General	**GC05**	Leverage the potential of cutting-edge technologies to contribute to improving the competitiveness of the company or organization.
Transversal	**TC03**	Demonstrate oral and written communication skills in a foreign language.
	TC07	Demonstrate skills and attitudes for autonomous work and teamwork.
	TC09	Demonstrate the ability to write and/or present reports with academic and professional rigor.
Specific	**SC15**	Understand and assess the impact of key technologies for digital transformation and how they can be applied in designing new business models, particularly distributed technologies and cloud services.

Code	Description
LO01	Understand the main characteristics of the Internet of Things.
LO02	Be able to identify the applications of mobile technologies.
LO03	Gain knowledge of the possibilities offered by supercomputing and quantum computing.
LO04	Apply solutions based on services provided in cloud computing environments.
LO05	Understand the business applications of virtual reality.

4. CONTENT

Unit I Connectivity and Mobility Technologies

1.1. Internet of Things (IoT)

1.2. Mobility and Mobile Applications

Unit II Technology Development and Management

2.1 Mobile Application Development

2.2 Cloud Computing

Unit III Emerging Technologies

3.1. Virtual Reality

3.2. Supercomputing and Quantum Computing

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	EA Mode	Mode
TM01	First Contact and Motivation	I	Introductory	PR
TM02	Presentation, Work Plan and Commitment	I		
TM03	Master Class	T	Expository and Participatory	PR
TM04	Invited Expert Talks	T		
TM06	Problem solving and Exercises	P	Guided/Autonomous	PR/NP
TM07	Activity on the UIE Virtual Campus	T/P	Guided/Autonomous	PR/NP
TM08	Content Study	T	Autonomous	PR/NP
TM09	Preparation of Projects and Works	T/P		
TM10	Study Cases	T/P	Personalized (Individual / Group)	PR
TM13	Exhibitions	T/P	Guided	PR
TM15	Recreation of a Working Environment	T/P		
TM16	Use of Software Tools	P		
TM17	Laboratory Practices	P		
TM19	Service Learning (APS)	T/P	Service Learning	PR
TM20	Tutoring	T/P	Personalized (Individual / Group)	PR
TM21	Learning Contract	I/T/P		
TM24	Analysis and Synthesis of Documentary Material	T	Autonomous	
TM25	Tracking and Completion	C	Continuous self-assessment	NP

I: Informative T: Theoretical P: Practical C: Complementary PR: In-person NP: Non-in-person

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	55	Discrete	O/W
AE03	Projects	15	Discrete	W
AE04	Exposition	5	Discrete	O
AE05	Participation in the Virtual Campus	20	Discrete	U
AE06	Participation, Daily Activities and Volunteering	5	Discrete (Pass/ Fail)	UIE
AE08	Service-Learning			
AE10	Retake Partials	-	Discrete	W/O
		100		

Mode: O: Oral   W: Written   U: Uploads to Virtual Campus   UIE: UIE's model

8. BIBLIOGRAPHY

➢ Badotra, S., Tanwar, S., Rana, A., Sindhwani, N., & Kannan, R. (Eds.). (2023). *Handbook of Augmented and Virtual Reality*. De Gruyter. https://doi.org/10.1515/9783110785234

➢ Banafa, A. (2023). *Introduction to internet of things (IoT)*. River Publishers.

➢ Misra, S., Mukherjee, A., & Roy, A. (2021). *Introduction to IoT*. Cambridge University Press. https://doi.org/10.1017/9781108913560

➢ Negus, C. (2015). *Docker Containers: Build and Deploy with Kubernetes* (1st ed.). Pearson.

➢ Nielsen, M., & L. Chuang, I. (2011). *Quantum Computation and Quantum Information*. Cambrigde University Press.

➢ Ten Hompel, M., Rehof, J., & Wolf, O. (2014). *Cloud Computing for Logistics*. Springer.

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.