QF01/0408-4.0E	**Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Artificial Intelligence Department**

Study plan No.	**2024/2025**		**University Specialization**		Data Science and Artificial Intelligence	
Course No.	**0135203**		**Course Name**		ArtificialIntelligence and Computing Systems	
Credit Hours	**3**		**Prerequisite Co-requisite**		0133102	
Course Type	☐ Mandatory University Requirement	☐ University Elective Requirements	☐ Faculty Mandatory Requirement	☐ Support Course Family Requirements	✓Mandatory Requirements	☐ Elective Requirements
Teaching Style	☐ Full Online Learning		✓ Blended Learning		☐ Traditional Learning	
Teaching Model	☐ 2 Synchronous: 1Asynchronous		✓1 Face to Face: 1 Synchronous		3 Traditional	

Faculty member and study divisions information (to be filled in each semester by the subject instructor)

Name	**Academic Rank**	**Office No.**	**Phone No.**	**E-mail**	
Division Number	**Time**	**Place**	**Number of Students**	**Teaching Style**	**Approved Model**

Brief Description

This course, Artificial Intelligence and Computing Systems, introduces classical ("Good Old-Fashioned AI") and modern data-driven AI; models intelligent agents and their environments; surveys trending topics (generative AI, big data analytics, explainable and ethical AI); and examines the computing systems that power AI (from CPUs/GPUs to how to create AI computing systems).

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	1- Russell and Norvig, Artificial Intelligence: A Modern Approach, 4th edition, Pearson Education, Inc., Prentice-Hall-Series, 2022. 2- Chen, Yunji, et al. AI computing systems: an application driven perspective. Elsevier, 2023.
Supportive learning resources (Books, databases, periodicals, software, applications, others)	**1-** Jeff Heaton, Artificial Intelligence for Humans: Fundamental Algorithms, Kindle Edition, 2013. **2-** Alan Mackworth and David Poole, Artificial Intelligence: Foundations of Computational Agents, Cambridge Canada Press, 2010. **3-** Robots Are People Too: How Siri, Google Car, and Artificial Intelligence Will Force Us to Change Our Laws. by John F. Weaver. Praeger,Nov. 2013. ISBN: 1440829462, 9781440829468.
Supporting websites	

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The physical environment for teaching	✓ Class Room	☐ Labs	☐ Virtual Educational	☐ Others

			Platform	
Necessary equipment and software				
Supporting people with special needs				
For technical support				

Course Learning Outcomes (S= *Skills, C= Competences K= Knowledge,)*

No.	Course Learning Outcomes	The Associated Program Learning Output Code
	Knowledge	
K1	Understanding the main concepts and definitions of artificial intelligence.	**MK2**
K2	Understanding the intelligent agents, their types, environment types, and logical agents.	**MK2**
K3	Understanding trending topics in AI.	**MK2**
K4	Understanding the main concepts and definitions of AI computing systems.	**MK2**
	Skills	
S1	Apply the main principles of artificial intelligence (AI).	**MS2**
S2	Gain skills on how to synthesize and use theoretical knowledge of AI and apply the AI techniques and activities to different important AI applications.	**MS2**
S3	Design intelligent and logical agents that can achieve perfect rationality.	**MS2**
	Competences	
C1	To apply the main concepts of artificial intelligence and implement them for problems solving in real life.	**MC1**
C2	To build smart applications based on artificial intelligence.	**MC1**
C3	To create artificial intelligence applications that match the requirements and needs of the labor market.	**MC1**

Mechanisms for direct evaluation of learning outcomes

Type of Assessment / Learning Style	Fully Electronic Learning	Blended Learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
PBL		**10%**	10%	
Second / midterm exam		**30%**	30%	
Participation / practical applications		**20%**	20%	
Asynchronous interactive activities		**0**	0	
final exam		**40%**	40%	

Note: Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, work within student groups ... etc., which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

Schedule of simultaneous / face-to-face encounters and their topics

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Week	Subject	learning style*	Reference **
1	1. Introduction to Artificial intelligence - What is AI? - Foundations of AI	• Classroom lectures, discussions,and review of theoretical concepts • Slides	Textbook 1
2	1. Introduction to Artificial intelligence (Continued) - The history of Artificial intelligence - The state of the Art	• Classroom lectures, discussions,and review of theoretical concepts • Slides	Textbook 1
3	1. Introduction to Artificial intelligence (Continued) - Artificial intelligence activities andapplications	• Classroom lectures, discussions,and review of theoretical concepts • Slides	Textbook 1
4	1. Introduction to Artificial intelligence (Continued) - Artificial intelligence activities and applications	• Classroom lectures, discussions,and review of theoretical concepts Slides	Textbook 1
5	2. Intelligent agents - Agents and Environments - Good Behavior: The Concepts of Rationality	• Classroom lectures, discussions,and review of theoretical concepts • Slides	Textbook 1
6	2. Intelligent agents (Continued) - The Nature of Environment - The Structure of Agents	• Classroom lectures, discussions,and review of theoretical concepts • Slides	Textbook 1
7	**Midterm Exam 30%**		
8	3. Trending Topics in AI - XAI and Ethical AI - Examples	• Classroom lectures, discussions,and review of theoretical concepts • Slides	Textbook 1
9	3. Trending Topics in AI - Big Data and Generative AI - Examples	• Classroom lectures, discussions,and review of theoretical concepts • Slides	Textbook 1
10	4. AI and Computing systems - AI computing systems definitions - Types of AICS Hardware	• Classroom lectures, discussions,and review of theoretical concepts • Slides	Textbook 2
11	4. AI and Computing systems - Types of AICS Software	• Classroom lectures, discussions,and review of theoretical concepts • Slides	Textbook 2
12	4. AI and Computing systems - How to create an AICS ?	• Classroom lectures, discussions,and review of theoretical concepts Slides	Textbook 2
13	Presentations (PBL 10%)	• Presentations	-
14	Presentations (PBL 10%)	• Presentations	-
15	Presentations (PBL 10%)	• Presentations	-

16	**Final Exam 40%**

***** Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.

** Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.