KOCW Content Development Application

1. Outline

가. Name of a Class

Class Name	AI in Industry: Applications and Impact		
Semester	Second semester of 2023	**Division**	Major (**X**) Liberal Art ( )

나. Goal of a Class

(1) Goal of a Class : At the end of this course, the students will be able to:

- define AI and its types,
- explain about possible advantages and risks of AI,
- understand the fundamentals of machine learning,
- understand the fundamentals of deep learning,
- demonstrate different AI applications in various industries,
- present AI case studies across industries.

(2) Introduction: One of the most disruptive technological developments in that era is the Artificial Intelligence (AI) and its derivative technologies such as Machine Learning and Deep Learning, in addition to AI applications to different software, mobile applications, robotics and drones. All these advancements have re-shaped many industries of the last two decades. Any industry, organization or country which is behind AI technologies will be disadvantaged sooner or later.

Organizations from all industries have been using artificial intelligence today to improve their processes, products and performance. This widespread use of artificial intelligence today related to two factors. The first factor is the ubiquity of powerful and inexpensive computing capabilities thanks to cloud and edge technologies, while the second factor is the growing sophistication of artificial intelligence algorithms and data science.

We should realize the fact that all these factors are also listed under the Industry 4.0 disruptive technologies. Therefore, understanding AI also means comprehending the other disruptive technologies and their relationship within any industry.

The ultimate objective of this course is to present how artificial intelligence could be integrated and utilized in different industries within an international Industry 4.0

framework. Therefore, different industries have been selected globally to increase the awareness of the readers on the topic. In general, this course aims to address three major points:

- The clarification of AI and its related terms.
- The discussion of AI integration for different industries.
- The portrayal of different AI cases implemented in different industries to solidify the previous aim.

2. Weekly Plan

Week	Content(Topic)	Learning Objective	How to Operate		
			Methodology	Material	Reference
1	Introduction to AI	The students will learn about basics of AI, history of AI, major research and development areas in AI.	Lecture and discussion of fundamentals of artificial intelligence.	PPT	Tinmaz, H. (2022). Artificial Intelligence Applications in Industry 4.0 Era. Woosong Publications. ISBN:979-11-6110-133-0
2	Types of AI	The students will learn about different types of AI (such as narrow vs. general), AI trends and risks of AI.	Lecture and discussion of various types of artificial intelligence.	PPT	Tinmaz, H. (2022). Artificial Intelligence Applications in Industry 4.0 Era. Woosong Publications. ISBN:979-11-6110-133-0
3	Fundamentals of Machine Learning	The students will learn brief knowledge about machine learning and its practices.	Lecture and discussion of machine learning.	PPT	Tinmaz, H. (2022). Artificial Intelligence Applications in Industry 4.0 Era. Woosong Publications. ISBN:979-11-6110-133-0
4	Fundamentals of Deep Learning	The students will learn brief knowledge about deep learning and its practices.	Lecture and discussion of deep learning.	PPT	Tinmaz, H. (2022). Artificial Intelligence

					Applications in Industry 4.0 Era. Woosong Publications. ISBN:979-11-6110-133-0
5	An Analysis of AI in Various Industries	The students will realize the applications fields of AI across many industries.	Discussion of various AI applications in industries.	PPT	Tinmaz, H. (2022). Artificial Intelligence Applications in Industry 4.0 Era. Woosong Publications. ISBN:979-11-6110-133-0
6	AI in Specific Industries I	The students will learn about detailed AI applications in the following industries; ***Agriculture, Education, Hospitality and Social Media.***	Lecture and discussion of specific AI applications in various industries.	PPT	Tinmaz, H. (2022). Artificial Intelligence Applications in Industry 4.0 Era. Woosong Publications. ISBN:979-11-6110-133-0
7	AI in Specific Industries II	The students will learn about detailed AI applications in the following industries; ***E-Commerce, Insurance, Banking and Finance.***	Lecture and discussion of specific AI applications in various industries.	PPT	Tinmaz, H. (2022). Artificial Intelligence Applications in Industry 4.0 Era. Woosong Publications. ISBN:979-11-6110-133-0
8	AI in Specific Industries III	The students will learn about detailed AI applications in the following industries; ***Entertainment, Politics, Government and Sports.***	Lecture and discussion of specific AI applications in various industries.	PPT	Tinmaz, H. (2022). Artificial Intelligence Applications in Industry 4.0 Era. Woosong Publications. ISBN:979-11-6110-133-0

9	AI Case Studies I	The students will familiarize themselves with different AI case studies from ***UK, China, Norway, USA, Kenya***.	Lecture and discussion of AI cases from various countries.	PPT	Tinmaz, H. (2022). Artificial Intelligence Applications in Industry 4.0 Era. Woosong Publications. ISBN:979-11-6110-133-0
10	AI Case Studies II	The students will familiarize themselves with different AI case studies from ***Turkiye, Germany, India, South Korea, Japan,***	Lecture and discussion of AI cases from various countries.	PPT	Tinmaz, H. (2022). Artificial Intelligence Applications in Industry 4.0 Era. Woosong Publications. ISBN:979-11-6110-133-0

※ You can freely complete the content sections based on the feature of the class.

3. How are you going to use your class?

For a credit class ( ), For a non-credit class ( ), For a public view (**X**)

4. Expected Outcome

As a vital disruptive technology, Artificial Intelligence has been altering the world we live for the last twenty years. Although the history and theoretical roots of AI dates back to 1950s, the practical applications have become real after the technological advancements during the fourth industrial revolution period. Many stakeholders and scholars have been investigating and arguing about possible integration of AI implementations in various industries. These national endeavours has finally reached a global level that many countries are defining AI as their country development policy priorities.

Therefore, this course is significant to support this innovative approach, at least in the awareness increase dimension. The students will realize that AI (also machine and deep learning) can be utilized in every single industry once carefully designed and developed. By knowing the possible advantages and challenges of AI, the stakeholders will develop better and more effective systems.

The course primarily aims at university students but the content will be beneficial for graduate students, industrial stakeholders and policy makers.