

Developing Curricula for Artificial Intelligence and Robotics (DeCAIR)

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1. Project Overview

Recently, artificial intelligence and robotics (AIR) have been making huge advances enabling them to enter new applications, constituting disruptive forces to various aspects of our lives. Nevertheless, there is a lack of advanced higher education programs specialized in these fields in the region. Additionally, existing programs in related fields focus heavily on theory or do not include the most recent topics of these flourishing fields, with no real practical applications.

Hence, the Computer Engineering and Mechatronics Engineering departments at the University of Jordan are taking the initiative in this project, in collaboration with Jordanian, Lebanese, and European partners for *Developing Curricula for Artificial Intelligence and Robotics* (DeCAIR); a project that intends to develop curricula in the areas of AIR through new bachelor and master program in Partner Countries (Jordan and Lebanon). Furthermore, DeCAIR will implement modern teaching methods such as flipped learning and project-based learning in the developed programs.

In addition, DeCAIR will improve the curricula of existing masters and bachelor programs at universities in the Partner Countries to include practical skills in the areas of AIR and establish relevant modern laboratories. This will improve the graduates' practical skills and enable them to exploit these revolutionary technologies to solve local and regional problems, create new jobs, and start new ventures.

Further objectives of this project are to qualify experts in the fields of AIR, improve the teaching capacity at the universities of the Partner Countries, and build a network of highly qualified professionals in these areas among partner universities.

A final objective of this project is to improve collaboration with local and regional industries and communities for applying AIR technologies in solving industry and community problems by building a center of excellence and training for AIR.

This project seeks funding from Erasmus+ program for Capacity Building in the Field of Higher Education.

2. How Do the Project Objectives Might Fit with National and Regional Priorities

The following subsections identify the priorities that this project addresses and its main objectives.

a) Priorities

This project addresses the following Erasmus+ Capacity Building for Higher Education national priorities for Jordan:

Category	Subject Area	Field
Category 1 – Curriculum Development	Engineering and Engineering Trades	<i>Electronics and Automation</i>
	Information and Communication Technologies	Software and Application Development and Analysis

The first subject area *Engineering and Engineering Trades* is also a national priority in Lebanon. Moreover, the second subject area *Information and Communication Technologies* is a regional priority for Jordan and Lebanon.

b) Objectives

The wider objective of this project is developing curricula in the areas of Artificial Intelligence and Robotics in the Partner Countries to graduate students who can exploit these emerging, revolutionary technologies to solve local and regional problems, create new jobs, and to start new ventures and businesses.

The specific objectives of this project are:

- Qualifying experts in the fields of artificial intelligence and robotics who can conduct research and solve problems by utilizing the technologies of these fields through the establishment of new master and bachelor programs in artificial intelligence and robotics.
- Building and improving the teaching capacity in artificial intelligence and robotics at the partner universities of the Partner Countries.
- Improving the capabilities of graduates from existing master programs in computer engineering and mechatronics in the areas of artificial intelligence and robotics.
- Improving the capabilities of graduates from existing bachelor programs in computer engineering and mechatronics in the areas of artificial intelligence and robotics.
- Improving the practical skills of university graduates in the areas of artificial intelligence and robotics by establishing relevant modern laboratories at the partner universities of the Partner Countries.
- Building networks of highly qualified professionals in the areas of artificial intelligence and robotics among South Mediterranean and European countries.

- Improving collaboration with the local and regional industry and community for applying artificial intelligence and robotics technologies in solving industry and community problems.
- Disseminating and implementing modern teaching methods such as flipped learning, and project based learning in the developed master program. Developing curricula in the areas of Artificial Intelligence and Robotics in the Partner Countries to graduate students who can exploit these emerging, revolutionary technologies to solve local and regional problems, create new jobs, and start new ventures and businesses.

3. Partners

The following table lists the project partners.

No	Role	Organization Name	City	Country
1	Applicant	University of Jordan	Amman	Jordan
2	Partner	Jordan University of Science and Technology	Irbid	Jordan
3	Partner	Tafila Technical University	Tafila	Jordan
4	Partner	Lebanese University	Beirut	Lebanon
5	Partner	Beirut Arab University	Beirut	Lebanon
6	Partner	Universita di Pisa	Pisa	Italy
7	Partner	Universita Degli Studi di Genova	Genova	Italy
8	Partner	Universidad de Granada	Granada	Spain
9	Partner	University of Stuttgart	Stuttgart	Germany
10	Partner	Creative Thinking Development	Rafina	Greece