FACT SHEET BIP

Name institution	Wrocław University of Science and Technology, Poland (on-site location) in a cooperation with - Haute Ecole Louvain en Hainaut, Belgium - Polytechnic University of Coimbra, Portugal - Portalegre Polytechnic University, Portugal
Title / Name BIP: *(Enter the official name of the BIP)*	Embedded systems: ROS in embedded design for mobile robots
Abstract: *(Brief summary of the activity – what it is about in 3–5 lines)*	This BIP provides students with practical learning experience focused on the design and implementation of embedded systems for mobile robotics. Participants will learn how to design embedded components intended for integration with the ROS 2 (Robot Operating System) ecosystem and gain hands-on experience in programming microcontrollers and integrating hardware components in robotic applications through a project of a localization application.
Goal: *(What is the main objective or purpose?)*	The BIP will provide the students knowledge and practical experience in the process of development of ROS-compatible embedded components for mobile robots.
Topics covered: *(List the key themes or subject areas that will be addressed)*	Introduction to ROS 2 and micro-ROS. Simulation tools for ROS-based robots. Control of mobile robots. Sensors and algorithms for mobile robot localization. Embedded systems programming.
Expected outcome(s): *(What should students gain or achieve by the end?)*	Participants will: - Design and implement ROS-compatible embedded system integrating radio-based localization and mobile robot control - Apply simulation tools to develop and test algorithms before deployment - Develop skills of problem-solving, teamwork and communication in international groups.
Start and end date of the BIP	16-20.02.2026

Content of virtual component: *(Describe any online or hybrid elements – e.g., webinars, online modules, collaborative tools)*	Virtual component will consist of webinars introducing the topics of the course - Fundamentals of ROS 2, - Simulation as a tool for system development, - Localization techniques, and a set of preparatory exercises to be completed by the students before the on-site component.
Start and end date of the virtual component	26.01-8.02.2026
Maximum number of students: *(Total number of participants allowed)*	30
Maximum number per university: *(Limit per institution, if applicable)*	6
BIP ID *(If already available)*	