

Challenge Based Innovation (6 ECTS credits)

Responsible: Pedro Rodrigues; **E-mail:** pedror@ipb.pt

Partners: Polytechnic Institute of Bragança (Portugal), Hanze University of Applied Sciences (The Netherlands), Bremen University of Applied Sciences (Germany), Universidad de La Laguna (Spain), Silesian University in Opava (Czechia), South East Technological University (Ireland)

Calendar: Virtual component starting 28/11/2022, ending 27/01/2023. Physical component starting 23/01/2023, ending 27/01/2023.

Contents: Team building. Analysis and study of the selected challenge. Teamwork. Discussion of ideas (brainstorming). Rapid prototyping and prototype evaluation (if applicable). Innovation. The value proposition for different stakeholders. Solution validation. Pitch/Selling. Creation of value proposition for the end user.

Embedded Systems Applications (6 ECTS credits)

Responsible: José Lima; **E-mail:** jllima@ipb.pt

Partners: Polytechnic Institute of Bragança (Portugal), Hanze University of Applied Sciences (The Netherlands), Bremen University of Applied Sciences (Germany).

Calendar: Virtual component starting 24/10/2022, ending 19/12/2022. Physical component starting 09/01/2023, ending 13/01/2023.

Contents: Programming microcontrollers: Prototyping platforms (Arduino or similar); Sensors and actuators, I/O to control processes, I/O for digital and analog signals. Embedded systems applications (Industrial process, IoT, Robotics). Development and programming (C and/or Python) of a mobile robotic platform and its simulation with Hardware-in-the-loop using Arduino. Application of the developed mobile robot into a real competition (at CeDRI-IPB facilities) using additive manufacturing (3D printing) and real hardware.

Emotional Education (6 ECTS credits)

Responsible: Maria A Romão Veiga Branco, Ana Paula Monte, Leonel Deusdado; **E-mail:** aubra@ipb.pt

Partners: Polytechnic Institute of Bragança (Portugal), University Croix Rouge de Limoges (France), Wroclaw Medical University (Poland), Universidad de Almeria (Spain), Management and Law College Ljubljana (Slovenia).

Calendar: Virtual component starting 02/11/2022, ending 27/01/2023. Physical component, starting 16/01/2023, ending 20/01/2023.

Contents: Emotional Intelligence (IE), Emotional Competence (EC), Emotional Education (EE): Concepts and neuro-differentiation. Emotion: Functions and Effects of Cognitive and Behavioral Processes. Emotion and Feeling: differences and expressions. EE for EC - Health Promotion/ EC Dimensions. Be emotionally competent as Educator, Manager, Entrepreneur. EE Laboratories I, II: Emotion Management Strategies. Education, Management, Social and Health Institutions: Controlled Internship experience: Practical Intervention plan (individual, family, group/community context).