

COLLABORATIVE STUDENT PROJECT

DESIGN AND DEVELOPMENT OF THE CUSTOMIZED PRODUCT WITH ADDITIVE MANUFACTURING FOR THE FLOWFACTORY @ TU DARMSTADT IN COOPERATION WITH EIGILAB @ UPC BARCELONA

PROJECT DESCRIPTION

In today's rapidly evolving industrial landscape, the need for customized product design and production has become crucial. Businesses and consumers alike are seeking personalized solutions that meet specific needs, and the ability to create modular products that can be adapted to individual preferences is highly valuable. <u>FlowFactory</u>, a learning factory focused on innovation, currently features a smart office station that exemplifies this shift toward customized designs. This project will focus on enhancing the smart office station by developing customizable modules that can be easily integrated and tailored to fit different user requirements, improving both functionality and user experience.

Designing and developing products for additive manufacturing (AM) plays a pivotal role in this project. Additive manufacturing, particularly 3D printing, allows for rapid prototyping, cost-effective production, and flexibility in design. Unlike traditional manufacturing methods, AM enables the creation of complex geometries and structures that would be difficult or impossible to achieve with subtractive methods. By leveraging the capabilities of AM, the project team will explore innovative designs, produce functional prototypes quickly, and contribute to more sustainable and efficient manufacturing processes.

The aim of the collaborative student project is to design and develop the customized products with additive manufacturing for the FlowFactory @ TU Darmstadt, together with the EigiLab @ UPC Barcelona. The project comprises the following work packages:

- Research and define the problem for customization with the example smart office station in the FlowFactory @ TU Darmstadt.
- Develop design concepts for modular components.
- Create 3D CAD models of selected designs.
- Prepare models for additive manufacturing.
- Fabricate prototypes using 3D printers.
- Test and evaluate the performance of the modules.
- Document the design and development process.

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START ASAP

PROJECT TEAM One team should include 4-6 team members. The participants can be all students from TUDa.

COLLABORATION

Hybrid with regular online exchanges + Workshops @ UPC Spain + Final Meeting @ TU Darmstadt Germany

The travel cost will be covered by Unite! Seed Fund Project CLERT-14.0

CREDIT POINTS 6 ECTS

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