Application for the Establishment of the RePlastic Upcycling Hub

Wroclaw University of Science and Technology

RePlastic Hub: A Campus-Based Plastic Upcycling Innovation Center

Proposal Description

This application proposes the establishment of the RePlastic Upcycling Hub, a dedicated innovation and sustainability unit aimed at addressing plastic waste on campus through practical recycling, upcycling, and material science education. The hub will provide students from all fields of study with hands-on experience in processing plastic waste into useful products, fostering interdisciplinary collaboration, environmental responsibility, and innovation.

The RePlastic Hub will serve as a practical learning environment where students—regardless of their academic background—can gain valuable skills in plastic processing, sustainable design, and circular economy principles. Business students can explore sustainable entrepreneurship, engineering students can develop new material applications, and design students can experiment with eco-friendly product creation.

Purpose and Objectives

The RePlastic Upcycling Hub would contribute to the university in the following ways:

- Reducing campus plastic waste by creating an organized collection, sorting, and upcycling system, transforming waste into new materials or functional products.

- Encouraging interdisciplinary collaboration, where students from engineering, business, design, and environmental science work together on real-world sustainability challenges.

- Providing hands-on experience in materials science, upcycling techniques, and small-scale manufacturing using shredders, molding machines, and 3D printing with recycled plastic.

- Hosting sustainability-driven competitions and hackathons, where students develop upcycled products, prototype solutions, and sustainable business models.

- Educating and raising awareness about responsible plastic use, recycling, and circular economy strategies through workshops, seminars, and student-led projects.

Implementation Strategy

To ensure the success of the RePlastic Upcycling Hub, the following key activities will be established:

1. Plastic Collection and Sorting Stations – Placed across campus to encourage students and staff to deposit plastic waste in designated bins for upcycling.

2. Plastic Shredding and Processing Lab – Equipped with machines that break down collected plastics into reusable flakes for molding, 3D printing, and product fabrication.

3. Product Development and Prototyping Space – A creative area where students experiment with recycled plastic materials to develop innovative products such as eco-friendly furniture, reusable utensils, and sustainable campus merchandise.

4. Workshops and Training Programs – Regular skill-building sessions on plastic waste management, sustainable design, and fabrication techniques.

5. Sustainability Hackathons and Competitions – Interdisciplinary teams compete to develop innovative products or business models based on upcycled plastic materials.

Benefits for Politechnika Wrocławska

The RePlastic Upcycling Hub would support the university's broader mission of sustainability, innovation, and entrepreneurship, making it a leader in eco-conscious education and research.

- Enhances campus sustainability by reducing plastic waste and promoting a circular economy model.

- Provides practical skills and research opportunities in sustainable materials, recycling technology, and environmental impact reduction.

- Strengthens university-industry collaboration, attracting companies interested in recycled materials, sustainable product development, and green innovation.

- Boosts student employability, equipping graduates with hands-on experience in waste management, material science, and sustainable entrepreneurship—key areas in Poland's innovation-driven economy.

By launching the RePlastic Upcycling Hub, Wroclaw University of Science and Technology will establish itself as a pioneer in eco-friendly innovation, inspiring students to develop practical solutions to global sustainability challenges.