SING for GREEN

Project Number:
2023-1-ES01-KA220-HED-000155981

NEWSLETTER #1

INTRODUCING THE SING FOR GREEN PROJECT- 20% IDONIAL

Welcome to the First E-Newsletter of the SING for Green Project!

We are excited to introduce the SING for Green project - Developing Sustainable Skills for Designers in Additive Manufacturing - an Erasmus+ initiative co-funded by the European Union. Launched in December 2023 and extend over two years, this project aims to develop a new curriculum and freely available, open-access educational materials in Additive Manufacturing (AM) with a focus on environmental sustainability. This initiative supports the European Union's Green Deal and Climate Action goals, aiming to reduce greenhouse gas emissions and achieve climate neutrality by 2050, while also enhancing economic growth and employment opportunities through cleaner technologies and greener work processes.

For Additive Manufacturing, sustainable design is decisive. Sound decision-making at the design phase can significantly reduce costs and material waste. The SING for Green project addresses the need for AM designers to be well-versed in sustainable design principles, ensuring their work aligns with sustainability goals. By exploring current and future skills demands, the project aims to provide comprehensive guidance on green jobs, facilitating a smooth green transition in the AM sector.

The project's roadmap includes the development of a needs analysis report, curriculum creation, and the production of open educational resources, all validated by expert focus groups. Once the educational resources are ready, trainers will be equipped to conduct national pilot courses, with findings published in a final report.

The results of the project are being developed in close proximity to the International Additive Manufacturing Qualification System, with the aim of being included in this network of education and training providers. It is hoped that in the medium term, the project will be available on this network and will be attended by professionals and trainees from all over Europe.

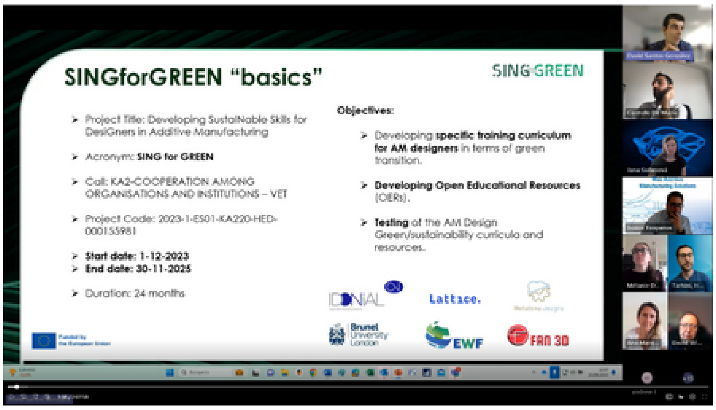
Continuous dissemination activities, including social media engagement and events, will keep the public informed of our progress. Stay tuned for updates as we work towards normalizing green skills in Additive Manufacturing and bridging the skills gap in this dynamic field.

(WP2) Industry Driven Analysis for AM Design and Green skills – 40% Lattice

Main findings from desk research + interviews

Key insights from the interviews reveal a broad adoption of plastic 3D printing technologies, with a notable presence of Fused Filament Fabrication (FFF) and photopolymerization techniques. However, the implementation of metallic 3D printing remains limited. The findings indicate that most organizations are actively engaged in design tasks for AM, leveraging both traditional and innovative design methods like Topology Optimization and Generative Design.

Despite the recognition of AM's potential for sustainable manufacturing, the integration of sustainability principles into AM processes is still in its infancy. Only a small fraction of respondents have received formal education on sustainability in AM, and most rely on self-research and practical experience. There is a significant interest in enhancing sustainability practices, such as material recycling, energy conservation, and the use of sustainable materials, but cost and lack of education are major barriers.



The responses suggest a strong interest in training programs focused on sustainability in AM. Preferred training topics include understanding different AM technologies and designing for AM, sustainable design principles, and best practices in the industry. Effective training methods should combine theoretical knowledge with practical application, emphasizing hands-on experience and individualized learning.

Focus group conclusions

The Focus Group discussions outlined the multifaceted considerations when integrating sustainability practices in AM training. Areas of focus included the holistic approach to sustainability, overcoming barriers, aligning training topics with industry needs, and selecting suitable training methods to enhance understanding and application.

(WP3)SING FOR GREEN CURRICULUM AND OPEN EDUCATION RESOURCES 20% EWF BUL

The primary goal of the initiative Sing for Green Curriculum and Open Education Resources is to create a curriculum tailored to the findings from the needs analysis, provided before and that can emphasize sustainable design in Additive Manufacturing (AM). This involves establishing a comprehensive educational framework through several specific objectives:

- crafting a curriculum that integrates sustainable design principles specifically for AM,
- developing a concise guidance sheet for instructors, lecturers and academics to facilitate efficient teaching,
- producing engaging and accessible online learning resources, creating videos that showcase practical examples of sustainable design in AM,
- designing appropriate assessment formats to evaluate learners' understanding and engagement.

The curriculum will be structured based on the needs analysis provided previously, employing a systematic and progressive learning approach centred on Competence Units (CUs). These CUs will help develop open learning resources aimed at enhancing awareness of sustainability, resource efficiency management, eco-design, Life Cycle Assessment, and waste management. The overarching goal is to foster environmentally protective practices that minimize pollution and waste through reusable, recyclable, and durable product designs.

For now, the aim is to achieve several key results. Firstly, a formalized curriculum based on WP2 findings will be developed, structured according to European Qualifications Framework (EQF) principles and adopting a modular approach. Training contents will be divided into Competence Units (CUs) articulated in terms of expected modules/Learning Outcomes (LOs), describing Knowledge, Skills and Activities. Secondly, associated course materials will be created using innovative teaching approaches, such as online video tutorials, digital presentations and digital manuals to support instructors and assessment methods.

These Open Educational Resources (OERs) will enable learners across Europe to access the course, providing inclusive education and reducing training costs. OERs enhance inclusivity by allowing materials to be downloaded, viewed on-demand, and replayed as needed by learners. Thirdly, to ensure recognition and relevance, the proposed CUs will be presented to the Qualification Groups (IAMQs Councils of experts). WP3 results will be tested with target groups through piloting events in WP4 to validate the adequacy of the curriculum and materials. For transferability, materials will be aligned with industry needs and utilized by Higher Education (HE) centers to train future students.

The Sing for Green Curriculum and Open Education Resources deliverables aim to stimulate innovative learning and teaching practices in HE by fostering flexible learning pathways, modular course design, and appropriate assessment methods. The initiative seeks to mainstream sustainability teaching for learners. By providing access to OERs, WP3 addresses shortages in traditional education systems by enabling broader accessibility through online classes. These resources will encourage learners to embrace digital skills and empower trainers to develop innovative pedagogies. This comprehensive approach ensures that both educators and learners are well-equipped to meet the demands of sustainable design in AM, thereby promoting an environmentally responsible and technologically adept workforce.

TPM2 10% FA

The second transnational project meeting for the "Sing for Green" project took place in Oeiras, Portugal on the 21st and 22nd of May 2024, hosted by FAN3D. The meeting proved to be highly productive and fruitful over the course of one and a half days. The partnership reached important decisions regarding critical tasks ahead. Key highlights included an upcoming online focus group meeting featuring experts from sustainability and additive manufacturing. This session aims to gather insights crucial to the project's following stages. Additionally, a workshop on online learning outcomes was planned to equip project partners with skills in writing learning outcomes and designing competence units.

The meeting also featured a constructive discussion on the development of curriculum and training materials, a pivotal aspect of the project's next phases.

Overall, the gathering was instrumental in setting the project on a clear and focused path forward.

Call to action 10% MCC

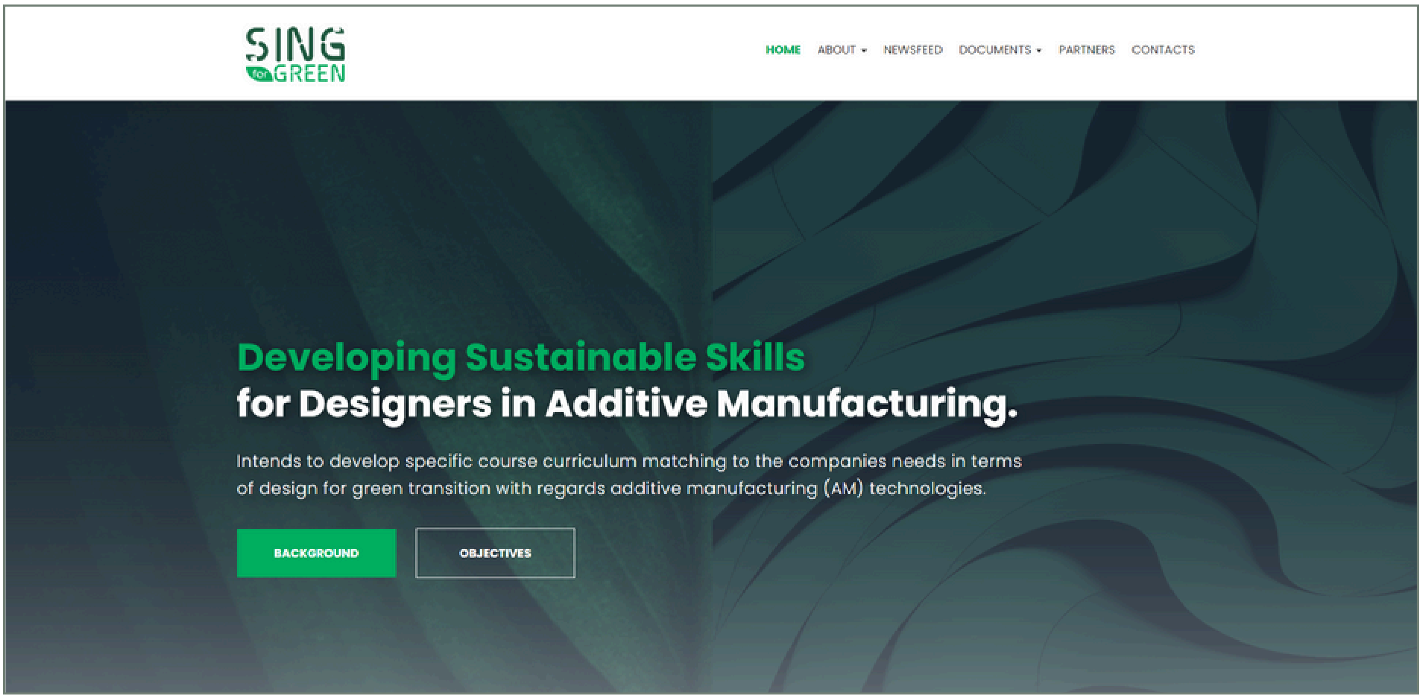
Want to learn about 3D printing?

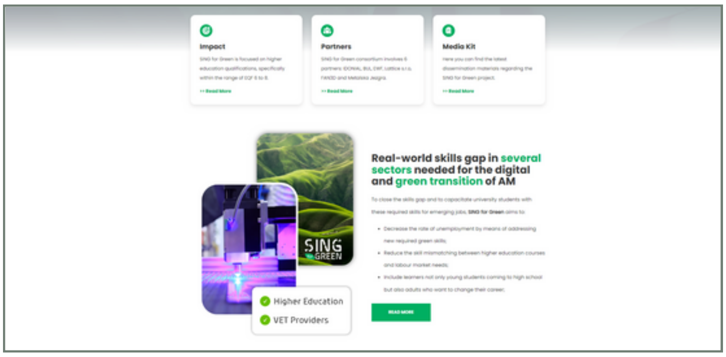
Want to make a career out if and help the environment in the process?

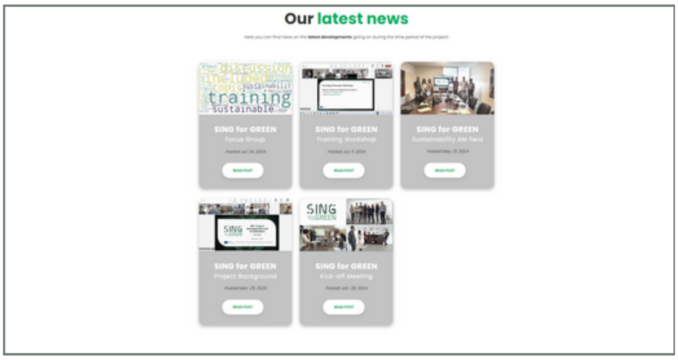
In the next months the “Sing for green” consortium will develop a curriculum that will help YOU better understand all the segments of sustainable additive manufacturing.

In the end YOU will receive a confirmation of participation which will help YOU move up the latter in the fast-growing industrial world.

All you need to do is APPLY IN ADVANCE on our webpage : https://singforgreen.eu/







Partners

IDONIAL Centro Tecnológico · Brunel University London · EWF · Lattice. · FAN 3D · Metalska Jezgra

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Co-funded by the European Union

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