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ADDITIVE MANUFACTURING ACADEMY
TO BOOST TRAINERS' COMPETENCES IN INDUSTRY

Summary

Design for Additive Manufacturing (DfAM)

Project Number: 2021-1-IT01-KA220-VET-000033365

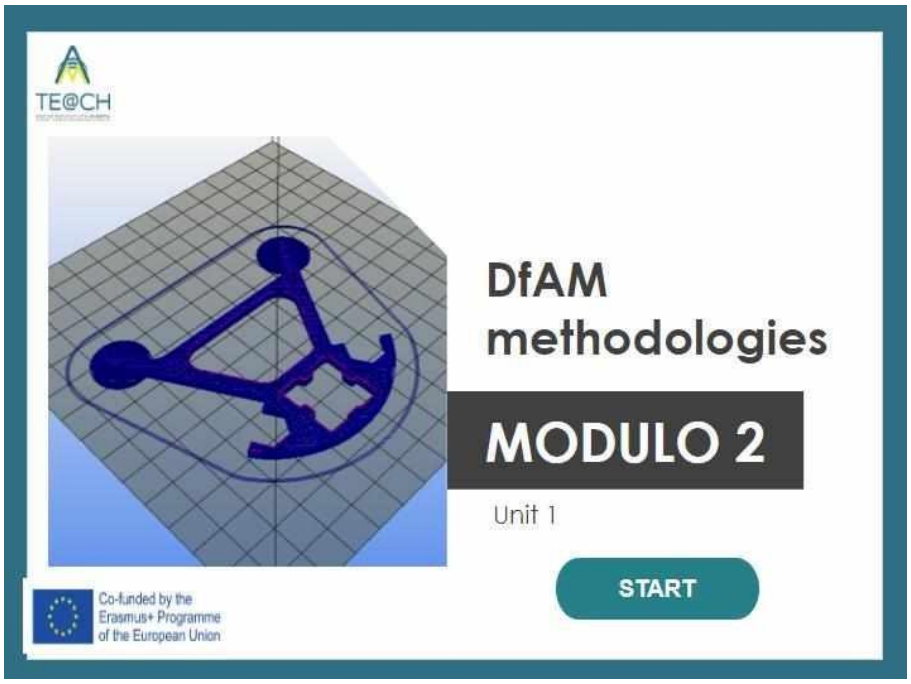
UNIT 1 – DfAM Methodologies

Course Content

The online course provides an overview of the main technical Guidelines useful in the Design for Additive Manufacturing (AM) process.

DfAM METHODOLOGIES

Interest in ‘Design for Additive Manufacturing’ (DfAM) has developed over the last decade. Today, there is a skills mismatch in additive manufacturing and the demand for AM applications is growing. AM is changing the way that manufacturers produce end-use parts and components and innovative education in AM plays an important role in bridging this gap.

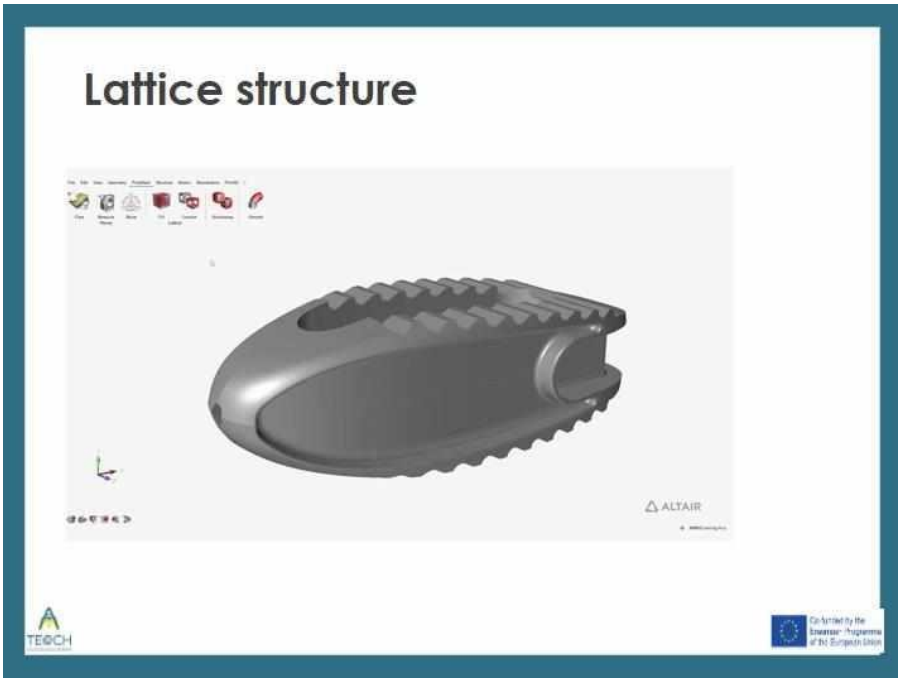


TOPOLOGY OPTIMIZATION

Topology optimization is a technology for developing optimized structures considering design parameters like expected loads, available design space, materials, and cost. Embedded early in the design process, it enables the creation of designs with minimal mass and maximal stiffness. This first lesson provide a simulation-driven design technologies: topology optimization.

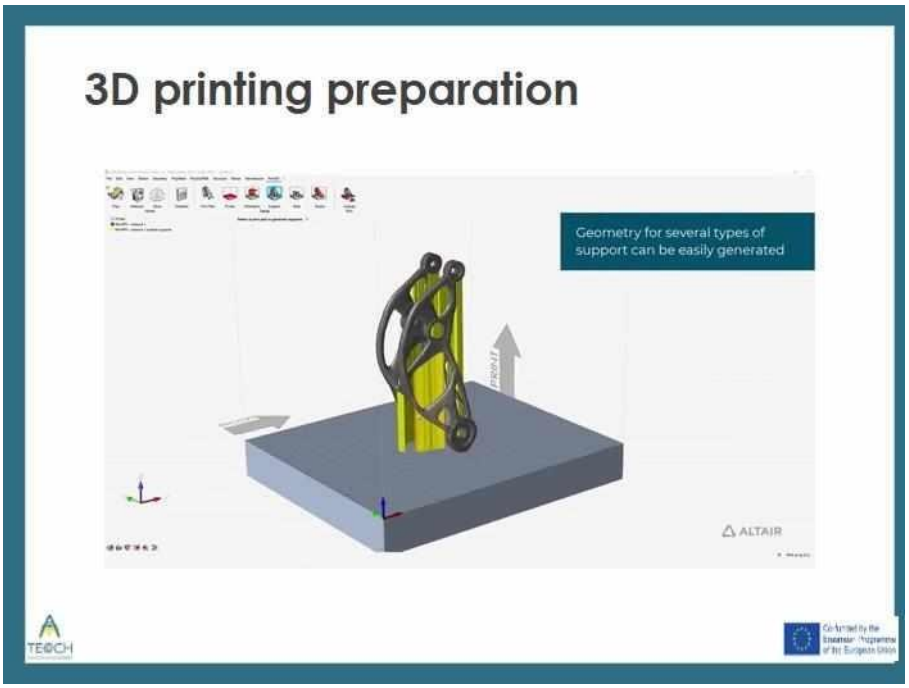
LATTICE STRUCTURE

Lattice structures are repeated patterns that fill a volume or conform to a surface. In engineering design, lattices are cellular materials—often inspired by nature—that consist of beams, surfaces, or plates that fit together following an ordered or stochastic pattern. The lattice properties (mechanical, thermal, acoustic etc.) are determined by the lattice type and other design parameters, such as the unit cell size and the thickness of the beams or surfaces.



3D PRINTING PREPARATION

Three-dimensional printing is a technology that prints the products layer-by-layer, in which materials are deposited according to the digital model designed by computer software. This technology has competitive advantages regarding product design complexity, product personalization, and on-demand manufacturing.



The video highlighted the preparation phase for the 3D printing process. This phase starts from the position and orientation of the component. After this step the support structures generation is required in order to support the printed eature during the 3d printing process. The software allows to define custom support structures. The goal is to minimize the support structure in order to reduce the surfaces involved. After the 3d printing phase, indeed, post processing is necessary to eliminate the residual of support structure.

For further information and contact details, have a look here:

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