

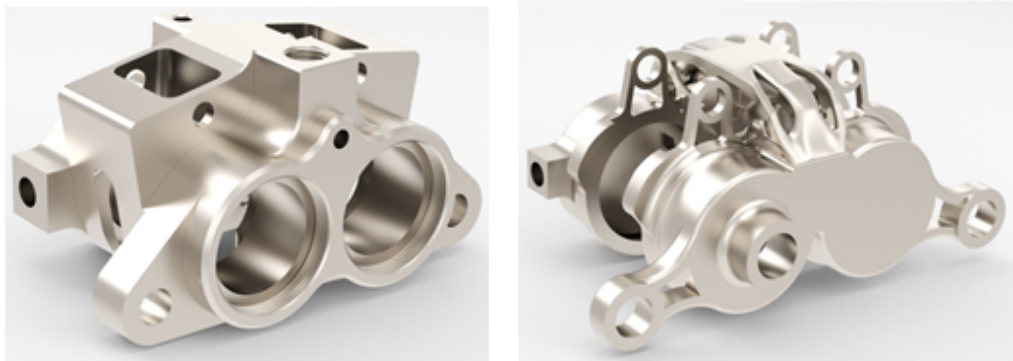
# MASTERCAD

Description of the problem statements:

Today's world needs products with the same strength and mechanical properties with reduced cost and weight. Topology optimization assists the designer in defining the type of structure, which is best suited to satisfy the operating conditions for the problem in question. It can be seen as a procedure of optimizing the rational arrangement of the available material in the design space and eliminating the material that is not needed. Topology optimization is usually employed in order to achieve an acceptable initial layout of the structure, which is then refined with a shape optimization tool.

Reference:

- Brake caliper which has been modified by a Formula SAE team.



- Brake Caliper was Topology Optimized leading to a 70% weight reduction - 3 parts consolidated into one & manufactured via Metal AM

Generative design:

Generative design is a design exploration process. Designers or engineers input design goals into the generative design software, along with parameters such as performance or spatial requirements, materials, manufacturing methods, and cost constraints. The software explores all

the possible permutations of a solution, quickly generating design alternatives.

Refer for generative design:-

<https://www.autodesk.com/solutions/generative-design?wvideo=eeqv5svu2m>

refer these terminologies:-

- Generative design
- Topology optimization
- 3D Printing
- Additive manufacturing

Event:

A team has to work on a problem statement that will be provided at the venue and then needs to give a presentation about the CAD model.

A team needs to research the methodology used for topology optimization and needs to refine the design as much as possible to get the necessary model.

Presentation with simulation and analysis which ensures that the model even after the removal of material, still has enough strength to meet the required application is preferable.

start your search now and be ahead of your competitors.

**ALL THE BEST**

In case of any query contact event coordinator.

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