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3-D PRINTING TECHNOLOGY

This article covers "Daily Current Affairs" and the topic details "3-D printing technology". The topic "3-D printing technology" has relevance in the International Relations section for the UPSC CSE exam.

Relevance of the topic "3-D printing technology"

For Prelims:

What is a Smart gel-based sheet?

For Mains:

GS 3: Science and Technology

What is 3-D printing technology?

What is the significance of 3-D printing technology?

Why in the news?

The scientists at Indian Institute of Science (IISc) in Bengaluru designed a smart gel-based sheet using three-dimensional (3D) printing technology that can self-roll into a tube during surgery to form a nerve conduit.

What is 3-D printing technology?

3-D printing, also known as additive manufacturing, is a process of creating three-dimensional objects from a digital design or model. The technology works by adding material layer by layer until the desired object is formed.

What are the steps involved in 3-D printing?

The 3-D printing process typically involves the following steps:

1. Creating a digital design or model using computer-aided design (CAD) software or 3-D scanning technology.
2. Preparing the design for printing using software that slices the digital model into thin layers and generates instructions for the printer.
3. Printing the object using a 3-D printer, which adds successive layers of material based on the instructions generated by the software.
4. Post-processing the object, which may involve cleaning, sanding, and finishing to improve its appearance and functionality.

What is the significance of 3-D printing technology?

The significance of 3-D printing technology lies in its ability to transform the way we create, design, and manufacture objects. Here are some of the key benefits and applications of 3-D printing:

1. **Faster and more efficient production:** 3-D printing can significantly reduce the time and cost of production, particularly for small batch or custom-made items.
2. **Greater design flexibility:** 3-D printing enables designers to create complex and intricate shapes that would be difficult or impossible to produce using traditional manufacturing methods.
3. **Reduced waste:** Traditional manufacturing methods often produce a significant amount of waste material, whereas 3-D printing only uses the exact amount of material needed to create an object.
4. **Personalized healthcare:** 3-D printing has revolutionized healthcare by allowing for the production of customized medical devices, and prosthetics, implants, and even human organs.
5. **Space exploration:** 3-D printing technology has the potential to transform space exploration by enabling astronauts to print spare parts and tools on demand, reducing the need for resupply missions from Earth.

Overall, 3-D printing technology offers a wide range of benefits and applications, from improving manufacturing efficiency to advancing healthcare and space exploration. It is a rapidly evolving technology that is likely to have an increasingly an important role in our lives in the future.

Source:

https://en.wikipedia.org/wiki/3D_printing
<https://3dprinting.com/what-is-3d-printing/>

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