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PRESENTS
44th Fortnightly Workshop
on
**Introduction to
Additive Manufacturing (3D Printing)**
Speaker: Ms. Nisha Yadav (Scientist, CSIR-CSIO)

For Students from Classes 5th to 12th
(Teachers can also Participate)

 **Feb 1st, 2024**
04:00 pm IST

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KNOWLEDGE SESSION 2024: EPISODE 44

ORGANIZED BY: KNOWLEDGE AND AWARENESS MAPPING PLATFORM

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Topic: Introduction to Additive Manufacturing (3D Printing)

Category: Science, Technology and Innovations

Speakers/Presenters: Ms. Nisha Yadav

Organized for: Students from classes 5 - 12

Date: February, 1st, 2024

No. of Participants: 250+ students from different schools across India

Overview:

On 1st February 2024, the Knowledge and Awareness Mapping Platform (KAMP), in collaboration with the Council of Scientific and Industrial Research - Central Scientific Instruments Organisation (CSIR-CSIO), hosted its 44th exclusive knowledge-sharing session titled "Introduction to Additive Manufacturing (3D Printing)".

Focusing on the fascinating realm of Additive Manufacturing, widely known as 3D Printing, this exclusive session attracted an active participation from over 250

students ranging from classes 5th to 12th. Representing a variety of schools, including CBSE, KV, JNV, and EMRS across India, the session offered these students a distinctive opportunity to delve into the forefront of 3D Printing technology, providing a unique and enriching exploration of this cutting-edge field.



Mr. Aniket Arora, the Outreach Coordinator at KAMP, extended a warm welcome to the esteemed guest speaker, Ms. Nisha Yadav, Scientist at CSIR-CSIO. Ms. Yadav's significant contributions and expertise in the field of 3D Printing make her a key figure in advancing this revolutionary technology. As a representative of CSIR-CSIO, a leading research institution, her presence underscored her commitment to pushing the boundaries of scientific innovation.

What is 3D printing ?

Three-dimensional (3D) printing is an additive manufacturing process that creates a physical object from a digital design. The process works by laying down thin layers of material in the form of liquid or powdered plastic, metal or cement, and then fusing the layers together.



During the session, Ms. Nisha unraveled the intricacies of Additive Manufacturing, providing insights into its applications, transformative potential, and the latest developments in the field. With her wealth of experience,

attendees were able to gain valuable knowledge on how 3D Printing is reshaping industries, fostering innovation, and creating new possibilities for the future.

The workshop covered a comprehensive range of topics, including; Additive Manufacturing fundamentals, Evolution and milestones in 3D Printing, Benefits of Additive Manufacturing, Design freedom, materials used for additive manufacturing, Market trends in the 3D Printing industry, Techniques such as Fusion Deposition Modeling, Stereolithography, Directed Energy

Modeling

Additive manufacturing takes virtual blueprints from computer aided design (CAD) or animation modeling software and “slices” then into digital cross-section for the machine to successively use as a guideline for printing



Deposition, and Selective Laser Sintering, as well as the process of how each technique functions.

Moreover, Ms. Yadav delved into the diverse applications of 3D Printing in various industries, including prosthetics, aerospace, surgical implants, construction, tools, clothing, toys, and automotive parts. Her presentation highlighted the vast

potential of this technology to revolutionize these sectors, offering innovative solutions and pushing the boundaries of what was once thought possible. Beyond the educational aspect, the event fostered a sense of community among students hailing from diverse regions of India. It served as a dynamic platform for networking, collaboration, and the exchange of ideas, contributing to the development of a spirit of unity and shared learning.

Noteworthy in the session was Mr. Aniket Arora's announcement regarding the upcoming Scientific Excursions and Teacher Training programs organized by KAMP at various CSIR Labs and ISRO Centres throughout the year. This underscores KAMP's commitment to providing unique and enriching opportunities for both students and teachers alike.

KAMP and CSIR-CSIO continue to play pivotal roles in shaping the educational landscape by facilitating engaging and insightful sessions that extend beyond traditional classroom learning.

The purpose of KAMP's fortnightly workshops is to help students develop creativity, meaningful learning, and critical reading and thinking skills that bring out their inherent abilities. The vision of KAMP is to identify

Printing

To perform a print, the machine reads the design and lays down successive layers of liquid, powder or sheet material to build the model from a series of cross sections. These layers, which corresponds to the virtual cross sections from the CAD model, are joined together or automatically fused to create the final shape



and capture Scientific and Technological temperament in students to make India a Global Leader in the fields of Science, technology, and the humanities.

Such workshops, conducted by KAMP, deal with various topics that fall under the categories of Science, technology, and innovation, Scientific and Life Skills, Career and Professional Development, Academic development, and training trainers and teachers.

KAMP believes that with exposure to such topics from experts within such specific fields, students will become aware of real-life situations and challenges, develop a helping, problem-solving nature wherever possible, understand their core values and personal interests, evaluate their skills within the given area, and achieve their best in their most desirable way.



Organized By:
Knowledge and Awareness Mapping Platform
(KAMP Operations and Coordination Office)

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