

The two best practices successfully implemented are detailed below:

A.

1. Title of the Practice: Additive Manufacturing (3D Printing)

Additive Manufacturing, also known as 3D Printing, is a valuable resource for creative product design. It provides an affordable and time-efficient way for students and entrepreneurs to create product prototypes. As an Incubation Centre, our role is to assist startups and students in validating their ideas and assessing their commercial potential. At Jaipuria Incubation Centre, we utilize 'Fusion 360' to design products and offer workshops to educate students and startups on 3D printing technology. These workshops include training and practical experience with design software.

2. Objectives of the Practice

The implementation of 3D printing serves three primary objectives: (i) to streamline prototype design time, (ii) to decrease the cost associated with prototype design, and (iii) to produce a functional model of the prototype.

The significance and potential of 3D printing can be demonstrated by the recent launch of a 3D printed rocket. Despite the launch being unsuccessful, this event highlights the crucial role 3D printing plays in the field of new product development.

3. The Context

The 3D printing process, which was originally known as 'rapid prototyping', was invented in the 1980s. It allowed companies to create prototypes quickly and with greater accuracy than other methods. Today, after more than 30 years of continuous innovation, the uses of 3D printing are incredibly diverse.

Manufacturers, engineers, designers, educators, medical professionals, and hobbyists all use this technology for an enormous range of applications.

As we have seen that 3D printing process involves the gradual addition of melted plastic layers to form an object. With each layer solidifying, the next layer is printed on top, incrementally building up the object.

To create a 3D print, a digital file is required that instructs the 3D printer where to deposit the material. The most commonly used format for this is G-code files, which contain "coordinates" to guide the printer's movements along the X, Y, and Z axes.

3D printers can vary the thickness of these layers, known as the layer height. Similar to the pixels on a screen, increasing the number of layers in a print enhances the resolution, producing a higher quality outcome at the cost of longer print time.

4. The Practice

3D printing, which originated in the 1980s, has become a crucial tool in various industries such as Medical Implants, Robotics, Drone Industry, and Space Technology. The technology offers several advantages, including flexible design, rapid prototyping, print-on-demand, strong and lightweight parts, fast design and production, minimized waste, cost-effectiveness, ease of access, environment-friendliness, and advanced healthcare, especially in implants.

However, despite the benefits, there are also limitations to 3D printing technology. Some of the major limitations include limited material options, restricted build size, post-processing requirements, not being suitable for large volumes, part structure limitations, reduction in manufacturing jobs, and copyright issues.

Overall, while 3D printing technology has immense potential, it is essential to consider both its advantages and limitations before incorporating it into various industries.

As 3D printing technology has evolved into a cross-functional tool that is used in engineering, medical, and various other industries requiring high-precision physical models or products, it has become an essential component of many higher education courses.

In the Indian context, 3D printing is widely used in numerous industries, including the automobile sector, construction work, human implants, robotics, defense technology, and space technology, among others. As a result, it has become a vital skill in almost every domain.

5. Evidence of Success

We at Jaipuria Institute of Management, Lucknow, are proud to announce that we have equipped our lab with the latest 3D printing facility. This state-of-the-art technology has proved to be extremely beneficial for both our students and startups, as it enables them to create various models and products that are useful either for their assignments or businesses.

To ensure that our students and startups are able to make the most of this facility, we have been organizing workshops on a regular basis to train them in the technology and its usage. As a result of our efforts, at least 3 of our startups have been able to create different prototypes of their products by using this facility. Additionally, many of our students have designed small products using this facility to support their presentations related to new product development and other related topics.

At Jaipuria Institute of Management, we are committed to providing our students and startups with the best possible resources to help them succeed in their endeavors. With our 3D printing facility, we believe we are taking a step towards fulfilling this commitment.

6. Problems Encountered and Resources Required

Setting up and operating a 3D Printing Facility requires proper planning and a specialized skill set. The major challenges that we faced while establishing the 3D printing Facility and planning for resources to operate and maintain the facility are:

Selecting the right manufacturer.

Deciding the capacity and size of the printer.

Creating the right space/facility for the proper working of the printer.

Selecting a specialized person to design the product on the respective software and operate the printer. He must also be capable of routine maintenance of the printer.

B.

1. Title of the Practice - Preparation for Covid-19

2. Objectives of the Practice

Considering the increase of Covid-19 cases across India, extended lockdown periods and chances that imparting education via traditional class-room mode will be challenging; it was decided to have a long-term comprehensive planning so that all the academic and academic administration activities may run in an effective and efficient manner. Smooth transaction of business required adapting to new ways of delivering classes, doing evaluations, conducting examinations, holding meetings, etc. This also required collective thinking to come up with the ways of handling the routine operations in the changed environment. Preparing for post-pandemic period involved incurring the expenditure on IT infrastructure and upskilling the staff and faculty members.

3. The Context

The challenges that were required to be addresses post COVID-19 through this best practice are listed below:

- Since physical class-room teaching might get affected because of the possibility of some preventive measures imposed by the government/administration and simultaneously as per the consideration of impact on health conditions of students, it was desirable to have procure licenses for online platforms like zoom, Microsoft team or Google Meet etc.
- Simultaneously, if situation improves, hybrid format for delivering classes need to be planned.

- Since both the stakeholders (faculty-members and students) have not yet encountered such a mode of knowledge sharing so lots of training activities in terms of ‘teaching learning innovations’ are required.
- All the stakeholders should have remote access of all data bases, library facilities and application software.
- Since there is lots of uncertainty related to Covid-19 situation and holding in-campus examination may be affected so alternative arrangements for holding online examinations have also to be explored.

4. The Practice

Jaipuria Institute of Management Lucknow is one amongst the few B-Schools which took prompt steps to switch the mode of carrying out operations. The institute trained all its staff, faculty and students in the month of April, 2020 on Microsoft Teams. The institute also bought license for Zoom in the same month. Exams were conducted in the month of March 2020 on online mode using LMS. Convocation for batch 2018-2020 was also done online using Webex Meetings (by CISCO).

After detailed discussions on following matters, the institute finalized the policy and process on these issues.

- Since physical class-room teaching might get affected because of the possibility of some preventive measures imposed by the government/administration and simultaneously as per the consideration of impact on health conditions of students, it was discussed to have some online platform like zoom, Microsoft team or Google Meet etc. After a through discussion, Zoom found preference as the platform for online communication on different domains.
- Simultaneously, if situation does not go that bad so mix of online and offline class might be planned and for that purpose comprehensive planning is required as per the physical infrastructure etc. In this regard, the institute planned classes on hybrid mode when lockdown stipulations were eased and restricted the physical class size to 30 students maintain physical distance guidelines of government.
- Since both the stakeholders (faculty-members and students) have not yet encountered such a mode of knowledge sharing so lots of training activities in terms of ‘teaching learning innovations’ are required so committee suggested to look for relevant training avenues and resource person so that comprehensive training package may be finalized. Many trainings were conducted to upskill all employees and students.
- It has been proposed that all faculty-members should be facilitated with supporting tools and instruments to have effective online teaching. All faculty members were provided with zoom license and other ancillary resources for ensuring smooth conduct of faculty-student interaction.

- All the stakeholders should have remote access of all data bases, library facilities and application software. The same was facilitated
- Since there is lots of uncertainty related to Covid-19 situation and holding in-campus examination may be affected so alternative arrangements for holding online examinations have also been discussed. The institute conducted online exams using its MOODLE platform and TURNITIN software to check copying possibilities by students.

5. Evidence of Success

All the decisions taken by the institute to prepare itself for changing times due to COVID-19 were successfully implemented.

- In AY 2021-22, total users of the Zoom platform were 618 and licensed users were 36.
- Total 4215 classes were conducted on Zoom platform (using corporate license) during the AY 2021-22 and approximately 3730 classes were conducted in AY 2020-21.
- Hybrid class facility for 9 class rooms from Sep 2021 onwards
- Zoom platform was used to conduct 23 Research Seminars
- Number of FCMs held on zoom platform during 2021-22 were 10
- E-Convocation for batch 2018-20 and batch 2019-21 was done using Webex Meeting and Zoom platforms respectively.

6. Problems Encountered and Resources Required

Implementing this best practice demanded huge resource commitment and onboarding of all the stakeholders. Although the promoters of the institute were generous enough to incur such a huge expenditure in highly uncertain times which was not even budgeted for. The bigger challenge was technology acceptance by all the concerned stakeholders. Due to honest initiatives of management, all the staff members, teaching as well as non-teaching, depicted high level of resilience and willfully prepared themselves for new skill sets to operate in online mode. Students were also initially resistant to the idea of online classes. However, gradually they also embraced this and got onboarded.