Due to file size constraints, few supporting documents have been included in the present document. However, all the reports relevant to the information provided in response to the metric 7.2. 1: Best Practices are available on the URL

Best Practices at Vidyalankar Institute of Technology

VIT, over a period of two decades, has developed some best practices by way of educational strategies and activities which enhanced quality of teaching and learning. Two such practices are:

1. Enhancing Digital Learning Resources
2. Cluster Mentoring Process

Title of the First Best Practice: Enhancing Digital Learning Resources

Objectives/intended outcomes:

1. To enrich digitally-enabled platforms to provide a techno-savvy environment for learners
2. To strengthen digital learning resources as per current needs.

Underlying principles of this practice:

In sync with its name, Vidyalankar Institute of Technology has always been promoting digitalization and active use of technology on the campus since its inception. One of **VIT's Mission Statements** itself is *"Facilitate creation and dissemination of knowledge through a digitally-enabled learning environment"* and this indicates how this best practice is ingrained in all our Institute activities. In line with Government of India's flagship initiative of **Digital India** (vision to transform India into a digitally empowered society and knowledge economy), and also as mentioned in the **National Education Policy of 2020**, the existing digital platforms and ongoing ICT-based educational initiatives are optimized and expanded to meet the current and future challenges in providing quality education for our student community.

In quick response to the Covid-19 pandemic, VIT has successfully navigated the shift from offline to online mode of teaching by using digital pedagogy and thereby enriched the learning process of students with online resources and collaborations. This smooth changeover and paradigm shift was easily possible because the Institute was already tuned to active use of technology on the campus and digitization of various processes through a comprehensive MIS.

Contextual Features of "Enhancing Digital Learning Resources":

1. Incremental but significant changes are seen in the content and delivery which have been made appealing for tech savvy students
2. Exposure to modern digital pedagogical methodologies
3. Being in the digital form, the resources are a permanent asset to the Institute
4. Quick dissemination and remote access of information is widening the reach
5. Continuous upgradation has happened in many provisions like vLive, VRefer

Challenges/Issues:

1. Keeping all data under one umbrella is difficult. Care was taken to ensure easy access of learning resources.
2. Care was taken to avoid data loss and stringent checks were kept on system security.
3. Effective student engagement is a concern as instant feedback (which is seen in an offline classroom setting) is not always possible.

Brief description about "Enhancing Digital Learning Resources":

A. The Development and Deployment of Digital Learning Resources

1. VIT takes pride in its in-house **vProvisions** which were ideated and executed in Incubation Centre by students and guided by faculty.

   - **vMIS:** A customized ERP.
   - **vLive:** A platform and discussion forum for dissemination of information.
   - **vPrint:** A web-based centralized printing service that allows users to give print jobs from any location to "Any Time Print" (ATP) stations at the Institute.
   - **vRefer:** A file transfer protocol (FTP) repository for students to access educational materials.
   - **E-learning:** Digitized course material integrated with images, animated videos, web links, MCQs, quizzes and games to make learning engaging.
   - **VIT Open Courseware:** VIT's Lecture Capture System is an LMS to help learners access lectures recorded live in class.
   - **vTutorials:** Software which generates random mathematical assignments.

2. The Institute has provided **campus –wide licensed version of Microsoft 365** - a suite of apps which include a host of apps such as Outlook 365, MS Teams, MS Word, MS Excel, MS PowerPoint, OneDrive which are extensively used by all students, faculty and staff. High-end personal computing systems/laptops and iPads were provided to faculty since many years to encourage active use of technology.

3. The Institute has a **robust IT infrastructure** with a dedicated and well-trained systems administrators and staff. All classrooms are wifi enabled and are equipped with the necessary facilities like overhead projectors and lecture capture facility.

4. Vidyalankar has purchased the campus license of **Matlab along with specialized 52 tool boxes**. With this license many of our students and staff members benefitted by utilizing the latest version of Matlab in campus as well as outside the campus. These tool boxes help our students and faculty to enrich their learning with industry standard software and hone their skills in various domains.

5. vSpeak is **VIT's digital language lab.** As it is a browser-based lab, remote learning is also possible for enhancing communication skills of students. Our IEEE Explore subscription offers access to research publications.

6. VIT is recognized as a Virtual Lab Nodal Centre since March 2015. Students are trained on on Virtual lab development and many students have completed summer internship in the Students' Coding Club is initiated to take up MHRD project work from IITB. Business Communication and Ethics Virtual Lab and Robotics in Medicine Virtual Lab are being developed by VIT faculty under an MHRD initiative, with guidance from IITB. Some faculty members are resource persons for conducting workshops on Virtual Lab Development at various institutes.

7. Virtual experiments were created by faculty and practical sessions are conducted through virtual labs, simulations and various open-source tools. There is active use of virtual labs which are available online.

8. When so much of data is generated, it is imperative to store it in a structured manner. **vRepository** is a digital space for Institute's archives of information related to Departments, various committee reports, workshops and FDPs, publications etc. which aids in easy retrieval of information. Database management of learning resources is managed through **vRefer** through properly segregated course-wise and faculty-wise sections, so that all educational materials are easily available year-wise for students and faculty.

B. Enhancement in Curriculum Delivery through Digital Learning Resources

1. **Online Teaching is done through MS Teams.** Hands-on training was provided to all faculty and they were guided on the various functionalities useful for teaching. Concept videos are created and disseminated to students. Students were also trained on how to maximize learning on Teams. Additionally, facilities associated with the app such as attendance capture through Insights, Class notebook for revision of concepts, recorded videos of lectures are available on MS Stream. Full utilization of all features was achieved for maximizing effective delivery.

2. **Use of various interactive web tools** by faculty like H5P, Kahoot, Quizziz, Edmodo, Mentimeter, Padlet, Plickers by teachers keeps the online learning process engaging and interactive for millennial learners.

3. **Coursera Response Program and edX** offered by Vidyalankar Institute of Technology benefitted many students and staff who made productive use of the lockdowns by pursuing MOOC courses from a library of 4000+ certification courses offered by eminent

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educationists from universities abroad. A remarkable number of certificates were earned by students, faculty and alumni as a result of this collaboration. The Institute also has a local chapter for NPTEL and many faculty and students completed certification courses. Additionally, two of our faculty members from Information Technology Department launched their courses on the global MOOC platform of **Udemy**.

4. More than 30+ **Value Added Courses** in online mode were floated on a wide range of interdisciplinary topics which benefitted learners from across all Departments and helped them to explore newer domains.

5. **Significant digital events and interactions** such as eConferences, online FDPs and STTPs under the aegis of AICTE, University Examinations, Orientation Programs, Department Advisory Board Meetings, Scholar's Day, National Digital Library of India Club and many more activities were successfully handled by the Institute which gave co-curricular learning opportunities to students.

6. The Institute, various Departments and faculty members launched **YouTube channels** on academic courses which gathered hundreds of subscribers and saw a remarkable hit ratio. This was done to maximize reach of learning resources through media which the millennial generation is comfortable with.

Uniqueness:

- VITians can access most of the digital resources remotely
- Most of the vProvisions are unique platforms with respect to VIT and are developed in house by students.

Constraints/limitations:

- In the context of the pandemic, as remote learning which happens on personal devices at various locations, sometimes connectivity issues may crop up. This is overcome to a certain extent as recorded lectures are made available.

Evidence of Success:

- **vLive:** Users on vLive have increased over the years, if compared from 2013 till 2021
- **vRefer:** Repository of academic resources of 200+ courses till 2021
- **E-Learning:** The number of e-books uploaded on the college repository include even ibooks and now around 150+ e-books are available
- **Open Course Ware (OCW):** Number of courses recorded in Lecture Capture Software were 60 (in 2016), 120 (in 2017), and 154 (in 2018 and 2019). The lectures recorded in these

three years have increased from 631, 1789, 2133, to 2150 and visits to OCW have also increased from 2350, 22361, 41289, to 41290 respectively.

- From 2020 the teaching learning paradigm was shifted to **Microsoft (MS) Teams** which proved to be one of the best learning resource management systems. Currently all the courses of FE, SE, TE and BE are being conducted on MS Teams, as the platform provides student-wise insights which can be taken as feedback loop for developing better teaching learning process.

Problems Encountered:

- Like with any new technology, there were issues in users getting familiarized with the new digital tools for pedagogy. Comprehensive hands-on training was provided to faculty members to ensure smooth and effective curriculum delivery.
- Selection of resources from the wide pool of resources (as there are many available) became difficult for many faculty. For effective delivery, rigorous analysis for suitable selection of tools was done by faculty.
- Handling slow learners in a classroom where face to face interaction is missing was a problem. This was mitigated through remedial sessions where individual attention was given.

Resources required:

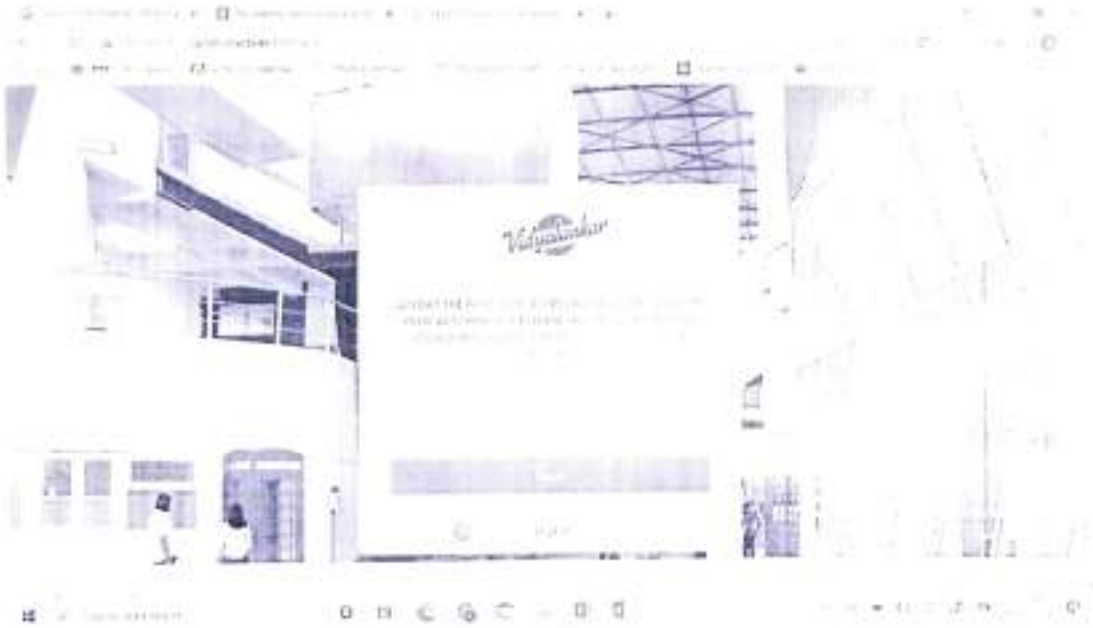
- VIT is equipped with all the resources and infrastructure required for "**Enhancing Digital Learning Resources**" which is now a well-established best practice at the Institute.
- Helpdesk system takes care of all IT related issues.

Principal,
VIT, Mumbai

A. Evidences of the Development and Deployment of Digital Learning Resources:

1. **Vidyalankar Home Page** (https://www.mycollege.edu.in/)

2. **Vprint**(http://vprint.vit.edu.in:9191/user)



3. **Vlive** (http://vidyalankarlive.com/moodle/login/index.php)

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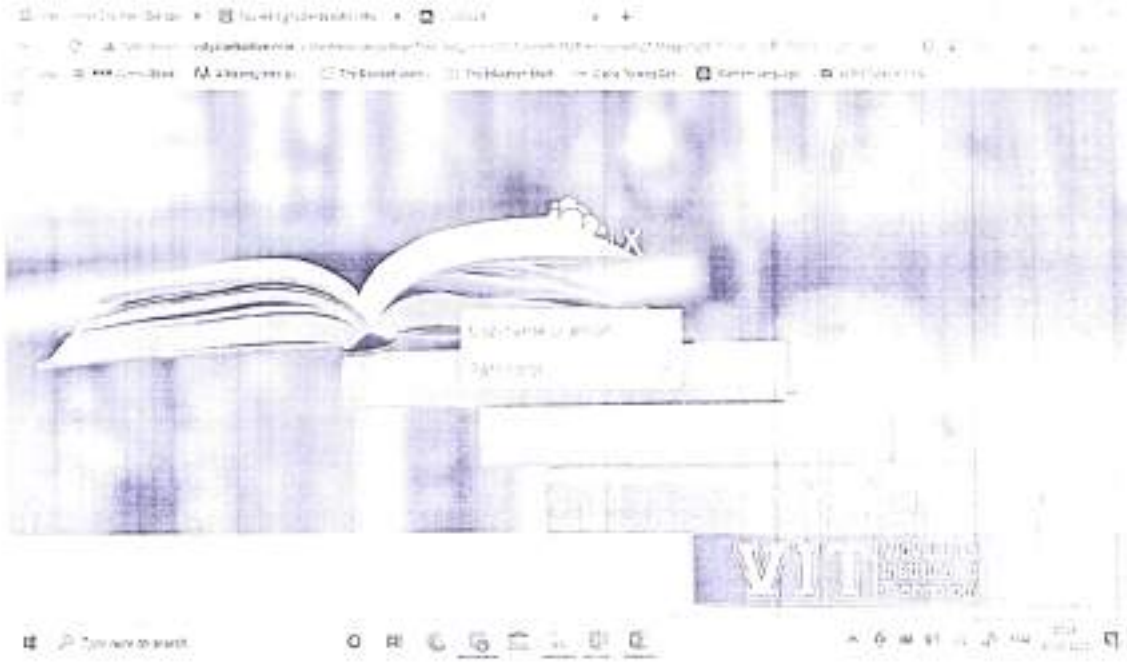
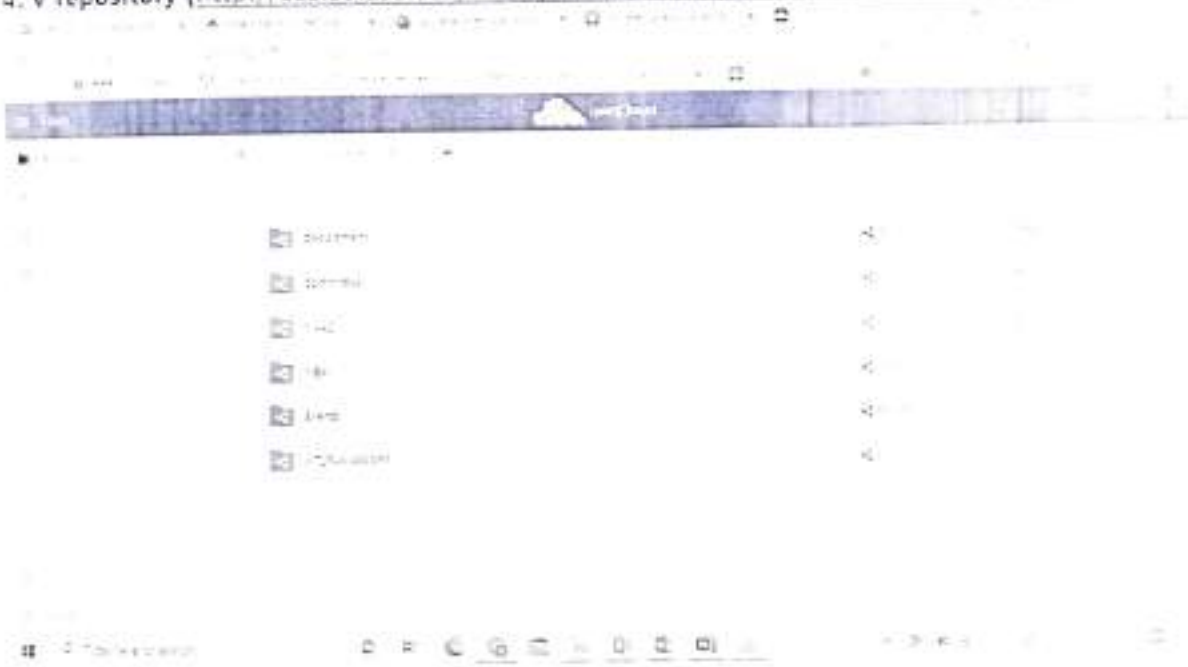
4. **Vrefer** (http://www.vidyalankarlive.com/vrefer/index.php)



4. **V repository** (http://125.99.153.187/vrepo/index.php/apps/files/?dir=/&fileid=28)



5. **VIT-OCW** (https://a.lmpartus.com/login/#/)

6. **Microsoft Suite** (https://www.office.com/apps?auth=2&home=1)

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7. Institute Youtube Channel (https://www.youtube.com/channel/UCxPlu...btMhPOMA)

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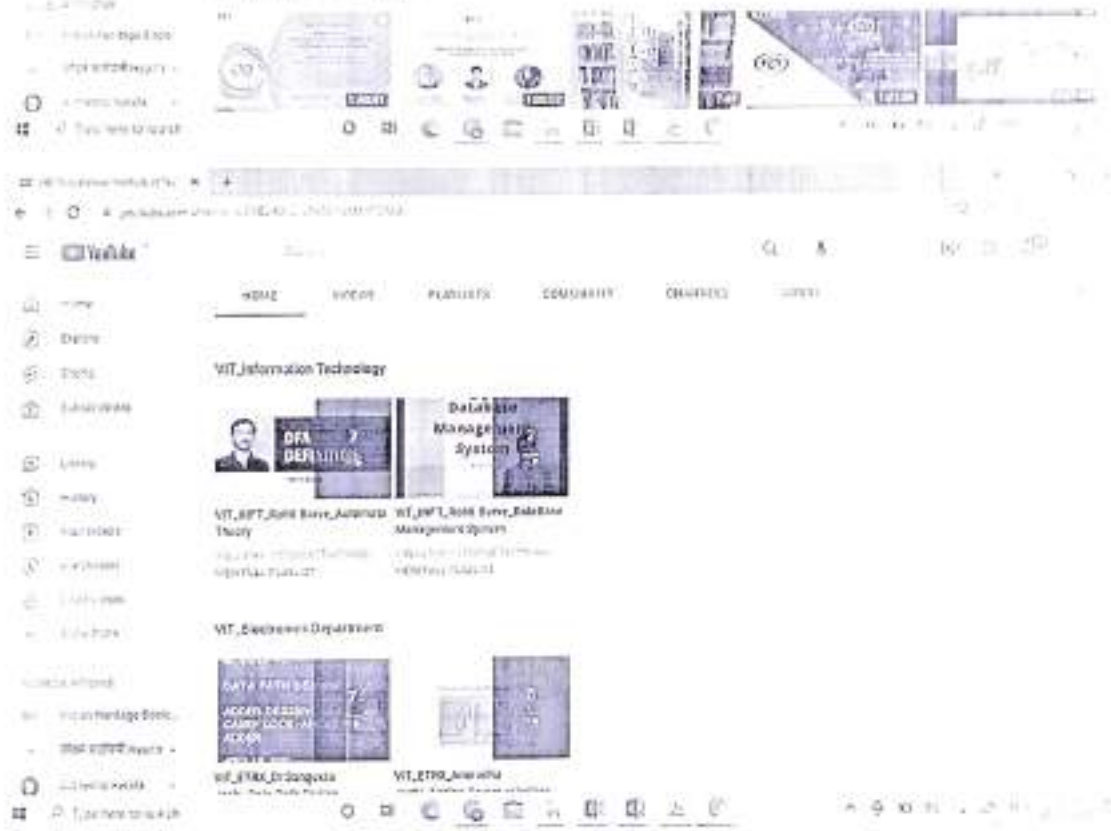

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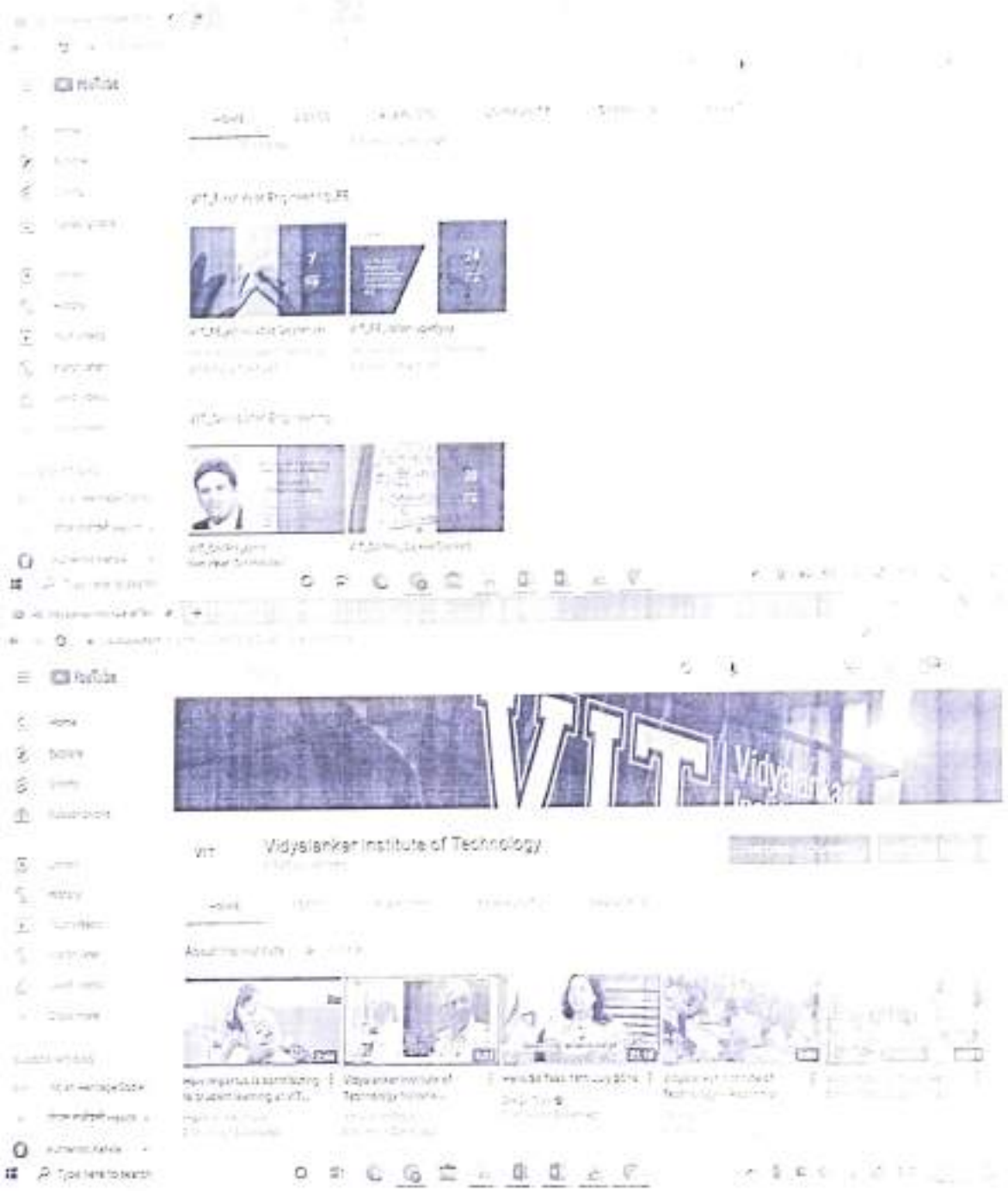

8. Vspeak (http://172.16.1.112/els/index.aspx)

B. Evidences of enhancement in Curriculum Delivery through Digital Learning Resources

1. Microsoft Teams

2. Campus Wide MATLAB License:

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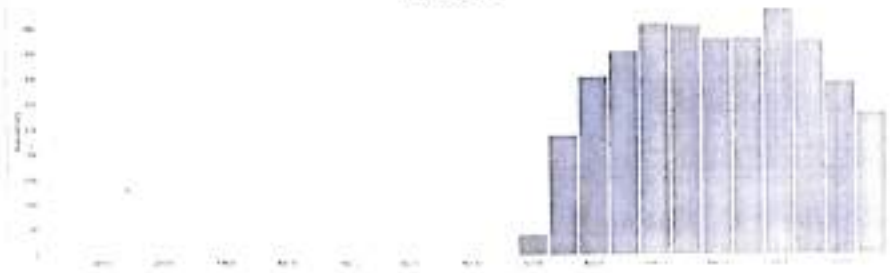

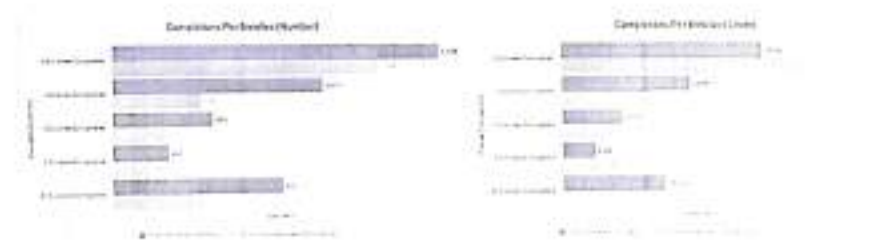

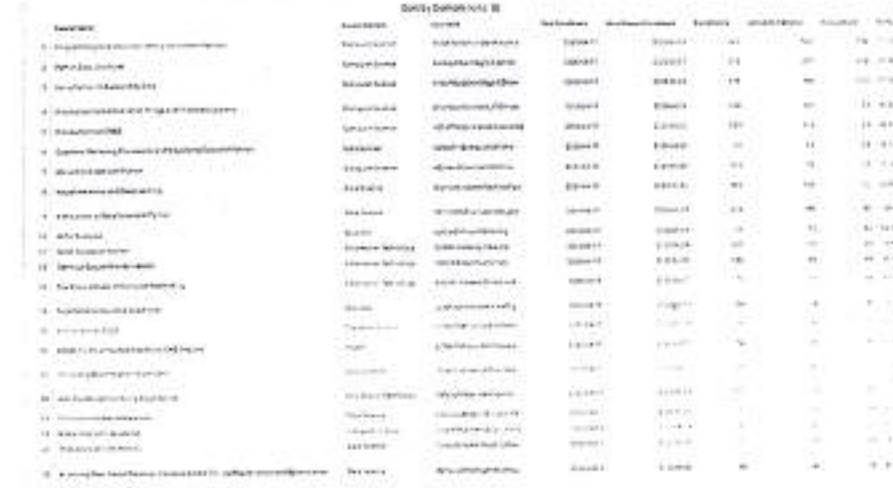

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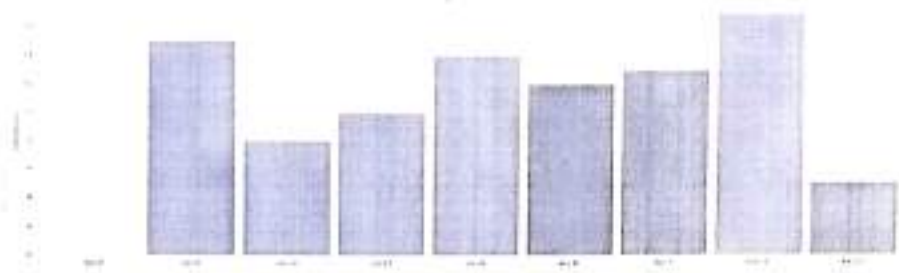

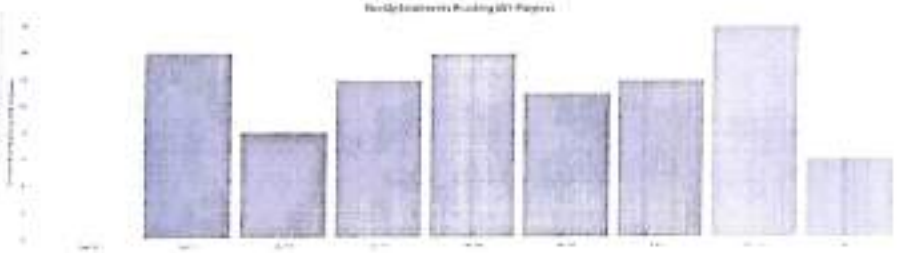

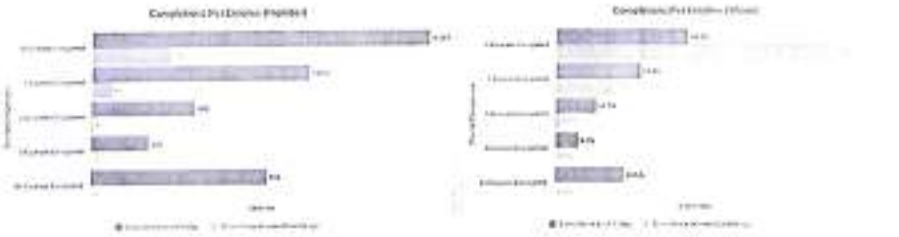

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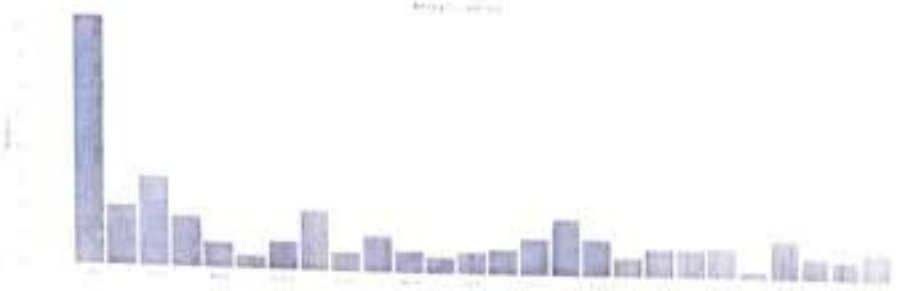

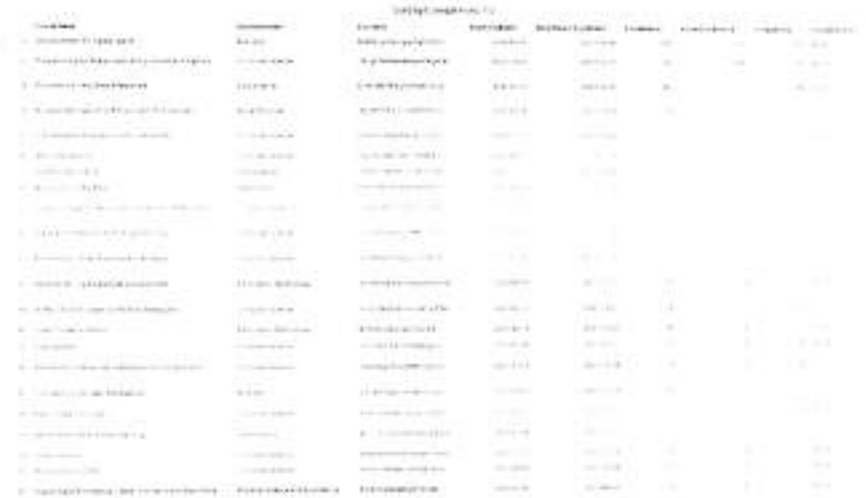

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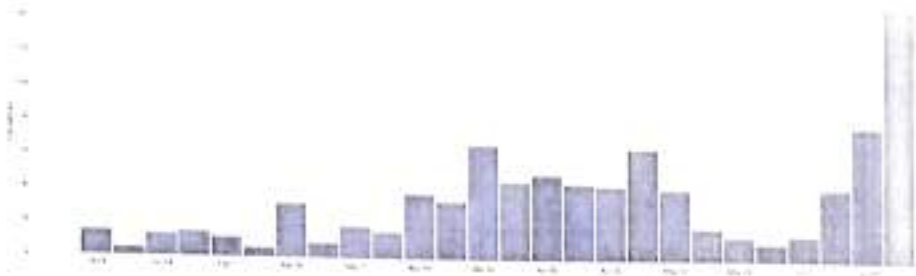

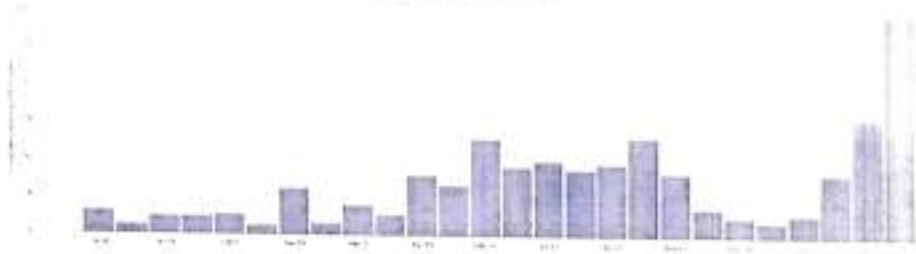

Title of the Second Best Practice: Cluster Mentoring Process

Objectives/intended outcomes:

1. To form clusters to club together allied courses of a specific domain across all programs.
2. To assign suitable mentor to each cluster for guiding cluster members for focused and in depth work for strengthening academics.
3. To involve external experts from prestigious industrial and academic organizations to mentor and guide Institute clusters.
4. To facilitate influx of state of the art and current ideas so that the curriculum delivery is always enriched for the benefit of students

Underlying principle:

Cluster Mentoring is a unique concept and best practice initiated by the Institute wherein related courses from across various programs are grouped under small 'clusters'. A senior and experienced faculty member, designated as an **Institute Cluster Mentor,** is assigned to each Cluster. **Academic and Industry Mentors** are invited from prestigious educational institute and industry respectively to guide Cluster members for enriching the teaching-learning process. Their involvement facilitates effective mentoring in an enriched environment of teamwork which eventually benefits students. This process also enhances the Industry- Institute interaction.

Contextual Features:

1. Clusters of related courses, taught across various programs, are formed. (For example, the cluster 'Microprocessors and Microcontrollers" brings together faculty who teach related courses across Biomedical engineering, Electronics engineering, Electronics and Telecommunication engineering and Computer engineering)
2. Institute Cluster Mentors are expected to lead the Cluster by playing an active role in executing specific tasks like validating Academic Administration Plan, auditing Internal Assessment (IA) examination paper, suggesting appropriate Beyond Syllabus Activities (BSA),
3. Institute Cluster Mentors organize Advisory Panel Meeting External Cluster Mentors are invited to guide and mentor the Cluster once in a semester.

Challenges faced:

1. It may not always be possible to implement the suggestions of the external experts as what works in their respective organization may not always be a perfect solution for what our Institute requires.

Description of the Practice:

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"Collaboration allows teachers to capture each other's fund of collective intelligence." - Mike Schmoker (author of Focus: Elevating the Essentials to Radically Improve Student Learning).

VIT has initiated Cluster Mentoring process in 2014 to enhance knowledge sharing through collaborative skills. Every faculty member is a part of one or more clusters. In the AY 2015-16 there were 47 number of Clusters.

Following are few roles and responsibilities of Institute Cluster Mentors.

1. The Institute Cluster Mentor oversees the curriculum planning and delivery in his/her respective cluster and undertakes many responsibilities such as analysis of course content, gap mitigation, checking paper solutions and many other initiatives to keep the curriculum up-to-date.
2. The suggestions given by the external Cluster Mentors are incorporated into the Academic Administration Plan.
3. Some of the suggestions are conducted as beyond syllabus activities or introduced as Value Added Courses.
4. This process helps to mitigate the gap between the industry requirements and the curriculum delivery.
5. It also enables the exchange of ideas and knowledge of best practices between the Institute and other reputed educational institutes.
6. Institute Cluster Mentors decide on training of cluster members for overall upgradation. They look into training of new teaching staff/lab staff, identify opportunities for participating in FDPs/STTPs/industry training opportunities/ faculty internships for their Cluster members.

Uniqueness:

1. Cluster Mentoring Process is one of the significant IQAC initiatives at the Institute for curriculum enrichment. Over the period this process is strengthened further by incorporating reforms.

Constraints/limitations:

1. The requirements of various courses under various programs may be different. These differences need to be kept in mind while inviting external experts in every semester and incorporating their suggestions.

Evidence of Success

Cluster Mentoring Process is a successful endeavour at the Institute. As a result of this process, experts from across prestigious academic and research organizations such as IITB, TIFR Mumbai, BARC Mumbai and reputed industries like TCS, L&T, Siemens have visited our campus, shared

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valuable inputs through the forum of advisory panel meets and interacted with our faculty. This has resulted in bagging internships and projects for students and faculty. This has also enhanced research linkages, and improved networking with these organizations. One of the key indicators is the improvement in the quality of BE Final Year projects as a result of recommendations by External and Internal Mentors.

Problems Encountered

1. Implementing the value additions recommended by external mentors within the timeframe prescribed by affiliating university.
2. As ours is an affiliated Institute, we don't have much liberty to customize our curriculum as suggested by the experts. This can be mitigated by conducting beyond syllabus activities.

Resources Required

VIT is equipped with all the resources required for the implementation of the Cluster Mentoring process, which is now a well-established practice at the Institute. Additionally, the process requires human resource from reputed academic organizations and industries.

Principal,
VIT, Mumbai

VIDYALANKAR INSTITUTE OF TECHNOLOGY, WADALA, MUMBAI-31

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Department of First Year Engineering

2020-21 (Odd semester)

Activity Report

Name of the Institute	Vidyalankar institute of Technology
Name of Department	**Applied Sciences**
Activity Title	**Advisory Panel Meet**
Activity Date, Time and Venue	**Academic Mentor** 23/11/2020 (Monday) 2:30 pm -3:15 pm Online Zoom meeting
Agenda of Meeting	1. Specific measures for improving the course outcome attainment level for Engineering Chemistry I 2. Suggestion on new practical experiment relevant to Industry based (Problem Based Learning) and various virtual labs available 3. Virtual Industrial visits to enrich the practical application experience of students 4. Any other topic
Attended by	Prof. Sonaali Borkar Nilima Main Mr. Nivrutti Pitale
Current Profile and Professional Achievements of Expert	**Academic Expert:** Prof. Bhalchandra Bhanage Professor, Institute of Chemical Technology, Mumbai. **Industry Expert:** Dr. Pankaj Desai Director, IP Services at Clarivate Analytics
Activity Conduction Report	Prof. Bhanage referred Academic Administration Plans of Engineering Chemistry I, syllabus and suggested following inputs. **1. Specific measures for improving the course outcome attainment level for Engineering Chemistry I**

- As this semester is mostly going to be online, Sir had shared some useful and creative tips for effective teaching.
- DO NOT use only one teaching medium in a lecture. Instead use a combination of 2-3 tools. Like use of Powerpoint presents integrated with some live quizzes or games and a video clip. Teaching only using one tool becomes insignificant and non-engaging for students
- Assignments should be planned properly to meet the CO mentioned by MU.

2. Suggestion on New practical experiment relevant to Industry based (Problem Based Learning) & virtual labs

- Bhanage sir suggested various virtual labs available like Royal Chemistry & ACS website.
- The practical sessions on basics of chemistry can be taken in the initial weeks.
- Sir, had suggested that laboratory assistant can perform the experiments in the lab and the recorded videos can be shown to students.
- The YouTube videos on how various instruments used for characterization, separation of chemicals like, SEM, GC, etc. can be shown.

3. Virtual Industrial visits to enrich the practical application experience of students

- Virtual tour to any Industry or any research lab can be arranged.

4. Any other topic

- Guest lecture on role of Chemistry in Technology or Role of Science in

	Technology can be scheduled. An expert person will be suggested by sir.
Attendance / Response	Valuable inputs given by Prof. Bhanage encouraged our faculties to add more innovative ideas and activities their teaching methodologies so the course becomes more result oriented and beneficial for students.
Further scope / continue this activity ?	Activity helped to upgrade our lesson plans and incorporate various suggestions provided by experts supporting maximally benefit to students by the course therefore should be continued in coming semesters.
Photographs	

Note: The Industry expert was not present because of some unavoidable circumstances.

Sonaali

Prof Sonaali Borkar
Cluster Mentor, Applied Chemistry and EVS
In-charge First Year Engineering

VIT

Department of First Year Engineering

2020-21 (Odd semester)

Activity Report

Name of the Institute	Vidyalankar institute of Technology
Name of Department	**Applied Sciences**
Activity Title	**Cluster workshop**
Activity Date, Time and Venue	1. Monday, 23/11/2020 (i) Work on the first draft of AAP 11:00 am to 01:00 pm (ii) Advisory Panel meeting- 2:30 pm to 3:15 pm 2. Tuesday, 24/11/2020 (i) Hands-on practice of Virtual lab experiments from 10:30 am to 01.00 pm (ii) Work on the AAP to incorporate suggestions by Expert 2:00 pm to 3:30 pm
Agenda of Meeting	1. Cluster Workshop for next semester and the training to lab assistants for virtual lab as a continuation. 2. Advisory panel meet with External Academic Mentor & External Industry Mentor
Attended by	Prof. Sonaali Borkar Nilima Main Mr. Nivrutti Pitale
Current Profile and Professional Achievements of Expert	**Academic Expert:** Prof. Bhalchandra Bhanage Professor, Institute of Chemical Technology, Mumbai. **Industry Expert:** Dr. Pankaj Desai Director, IP Services at Clarivate Analytics
Activity Conduction Report	• This Cluster workshop would help in the detailed planning of Academic Administrative Plan (AAP). • Advisory panel meeting with experts in Academic field helped us to be

	updated about currents trends in the field. • The suggestions from the experts will help us immensely in modifying the lesson plans & planning the Beyond Syllabus Activities (BSAs). • The laboratory assistant need to have the skills needed to conduct the experiments on the Virtual lab platforms. • During the hours of cluster workshop, the actual hands-on training was provided to the lab assistant. He was guided about his role during the practical sessions. • In the Academic cluster meeting, Prof. Bhanage referred Academic Administration Plans of Engineering Chemistry I, syllabus and suggested inputs regarding Specific measures for improving the course outcome attainment level for Engineering Chemistry I, Suggestion on New practical experiment relevant to Industry based (Problem Based Learning) & virtual labs, Virtual Industrial visits to enrich the practical application experience of students and guest lectures, etc.
Attendance / Response	• Valuable inputs given by Prof. Bhanage encouraged our faculties to add more innovative ideas and activities their teaching methodologies so the course becomes more result oriented and beneficial for students. • The hands-on training to the lab assistant had enriched his knowledge.
Further scope / continue this activity ?	• The changes suggested by experts will be incorporated in the draft AAP. • The lab plan is ready, need to work on the submission document.

	• Lab assistant will actually perform all the experiments on the virtual lab platform and have an experience.
Photographs	

Note: The Industry expert was not present because of some unavoidable circumstances.

Sonaali

Prof Sonaali Borkar
Cluster Mentor, Applied Chemsitry and EVS
In-charge First Year Engineering

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