



Maitrey Educational Society's

# Nagarjuna

**Institute of Engineering, Technology & Management**

**College Address :** Village Satnavari, Amravati Road, NAGPUR - 440 023

**Mobile No. :** 9579850361, 362, 363

**E-mail :** maitrey.ngp@gmail.com **Website :** www.nietm.in

## National Assessment and Accreditation Council

### AQAR 2020-21

#### NAAC CRITERIA-3: Research, Innovations and Extension

#### 3.4 Collaboration

3.4.1	The Institution has several collaborations/linkages for Faculty exchange, Student exchange, Internship, Field trip, On-the- job training, research etc during the year
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## Criteria-3: Research, Innovations and Extension

### Metric No. 3.4.1

#### Contents

Sr. No.	Particulars	Page No
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3	Behavior of Structural Members Subjected to Load	5 - 6
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3.4.1 The Institution has several collaborations/linkages for Faculty exchange, Students exchange, Internship, Field trip, On-the-job training, research etc during the last five years.

Sr. No.	Title of the collaborative activity	Name of the collaborating agency with contact details	Name of the participant	Year of collaboration	Number of Students Participated in Such Activity	Duration	Nature of the activity
1	Visit to Water treatment Plant at 8th Mile	Water Resource Department	Students of Final year Civil Engineering	2020	28	3/03/2021	Processing of water treatment
2	Behavior of Structural Members Subjected to Load	G. H. Raisoni College, Nagpur	Students of Final year Civil Engineering	2020	35	04/05/2021	Online Mode
3	Computer Training	Web development Program (APS Technologies)	Students of Computer Dept.	2020	35	18/08/2020	Online mode
4	Electrical Engineering Association	GRASP IT UP	Students of Electrical Engineering	2020	41	26/12/2020	Online mode
5	PRAYAS	SANDIP UNIVERSITY 9823173361	Students of Electrical	2020	53	11/12/2020	Online mode



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Village Satnavri, Amravati Road, Nagpur - 44 00 23  
Email: maitrey.ngp@gmail.com, website: www.nietm.in, Phone No.: 07118 322211, 12

## Institutional Collaboration Activities

Title of the collaborative activity	Visit to Water treatment Plant at 8th Mile
Name of the collaborating agency with contact details	Water Resource Department
Name of the participant	Students of Final year Civil Engineering
Year of collaboration	2020
Number of Students Participated in Such Activity	35
Duration	3/7/2021
Nature of the activity	Processing of water treatment

## FIELD VISIT TO WATER TREATMENT PLANT

Civil Engineering Department NIETM organized a field visit to Water Treatment Plant (Pench IV), Godhani, Nagpur as a part of Environmental Engineering studies. 35 final year civil engineering students joined the visit under the guidance of Asst. Professor Ms. Baisare.

Mr. Praveen explained well about the structure and working of the water purification plant and offered us a visit to the concerned areas. Students got an excellent benefit by visiting the water purification plant in Nagpur with a capacity of 115 million liters /day and understand about the purification methods.

The Pench IV water treatment plant has Veolia's patented technologies of Multiflo™ and TGV Filters. Multiflo is a compact clarifier that combines coagulation, flocculation and lamella settling, all in a single unit. This proves to be more efficient and occupying one-fourth of the space required for a conventional clarifier. The plant also includes a TGV Filtraflo which is a rapid gravitational filter using granular media to separate impurities from water plant is also equipped with sludge treatment to reduce the water losses in the plant.

Before the water is distributed into the public houses, the water has to undergo the water treatment process such as follows: -

Aeration are to eliminate unneeded dissolved gases such as (CO<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>).

- It is also to increase DO level in water and remove DOC
- Coagulation is the removal of turbidity from the water.
- Turbidity is a cloudy appearance of water caused by small particles suspended therein. Water with little or no turbidity will clear.
- Flocculation is mixing process in which particles are brought into contact in order to promote their agglomeration
- Sedimentation is to remove suspended material from water by the action of gravity.
- Filtration is to remove suspended particles from water by passing the water through medium such as sand.
- Disinfection is to destroy pathogens within a practicable period of time.

## OBJECTIVE

The objectives of visiting the water treatment plant are: -

- To study the types of water treatment plant used



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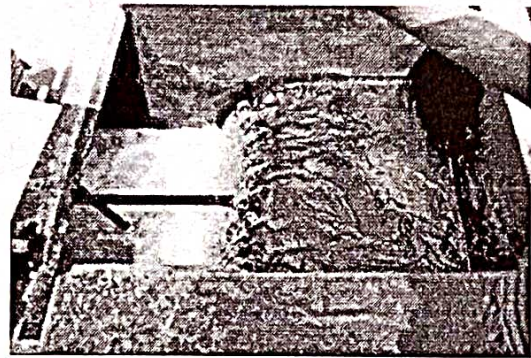
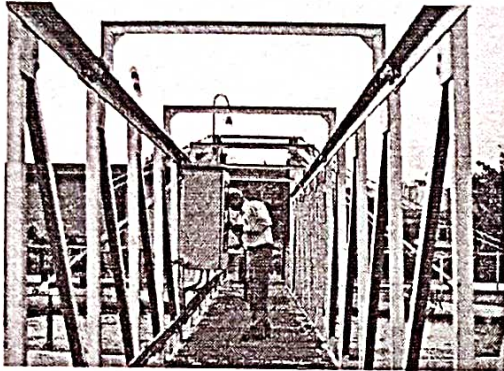
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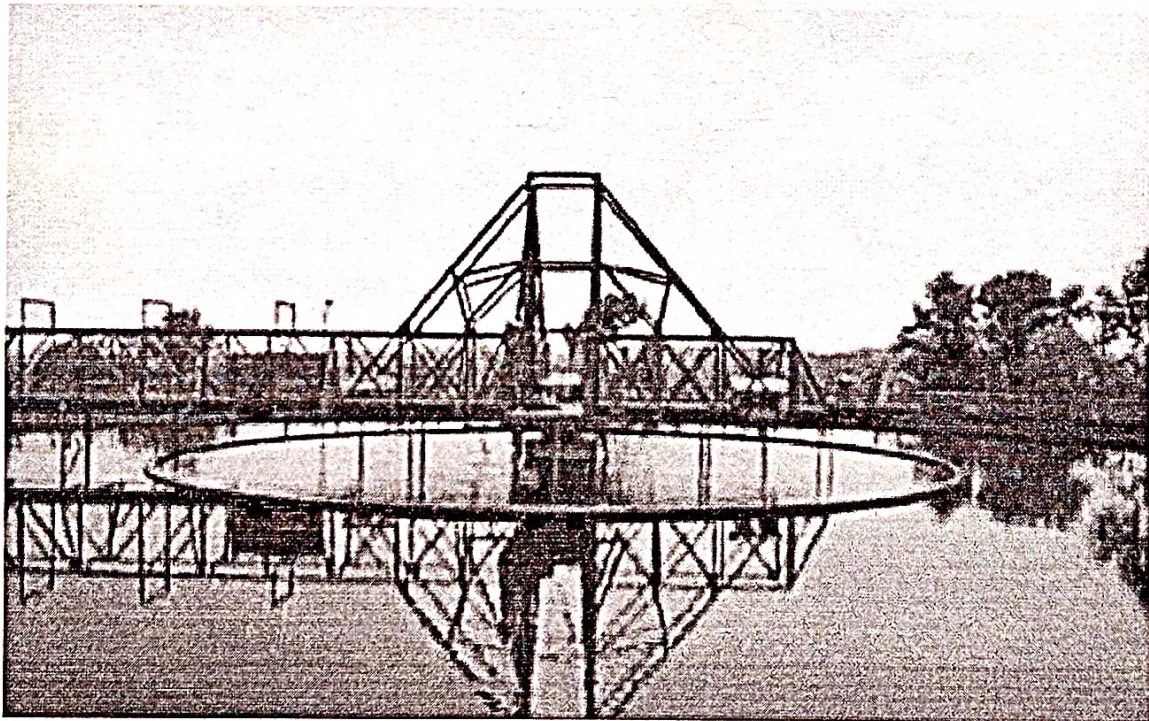
- To study the process of water treatment.

## WATER TREATMENT PROCESS

1. **COLLECTION:** The raw water which is supplied to the water treatment plant comes from river.
2. **COAGULATION:** The raw water is first treated with chemical coagulant alum. The dose of alum varies depending upon the turbidity, color, temperature & pH of the water.
3. **FLASH MIXING:** Treated water is then subjected to violent agitation in a mixing chamber for a few minutes. This allows quick and rapid dissemination of alum throughout the bulk of the water.



*Flash Mixing*



*Clariflocculator*



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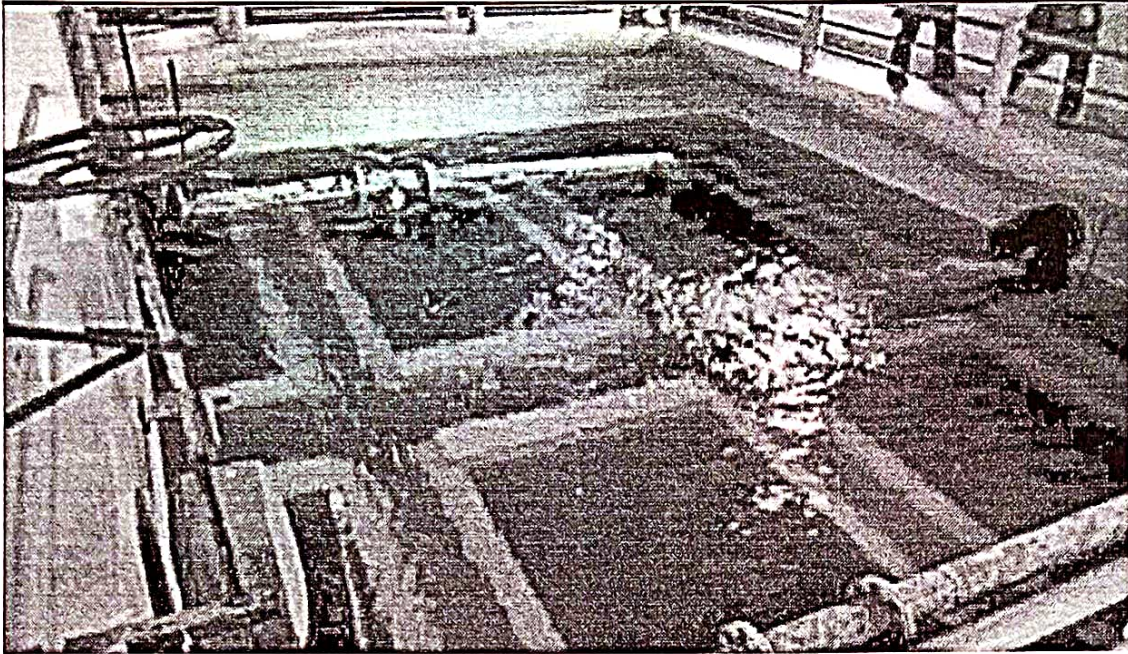
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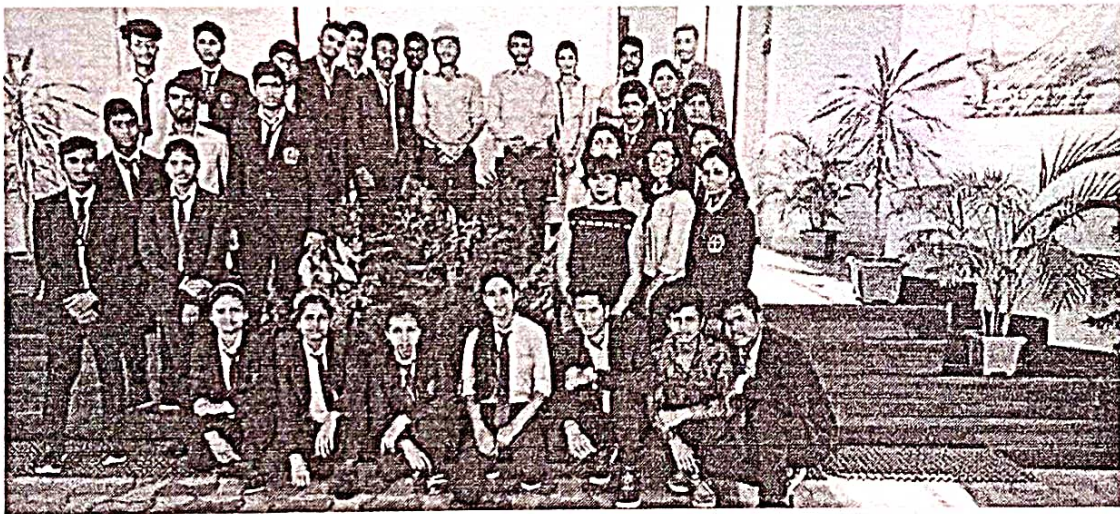
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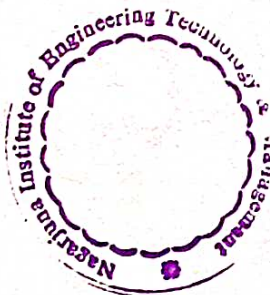


*Sand Filtration Bed*



*CIVIL Engineering Students*

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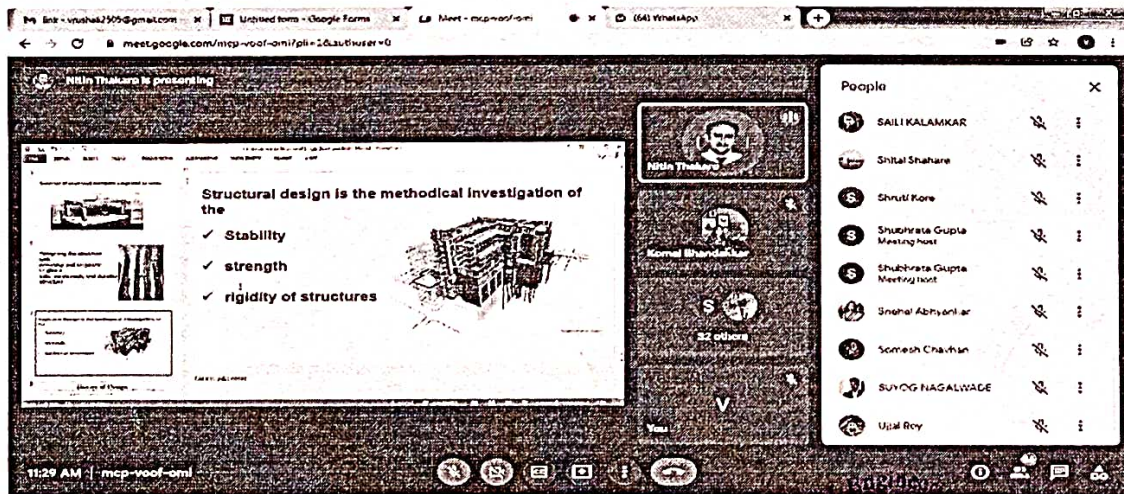
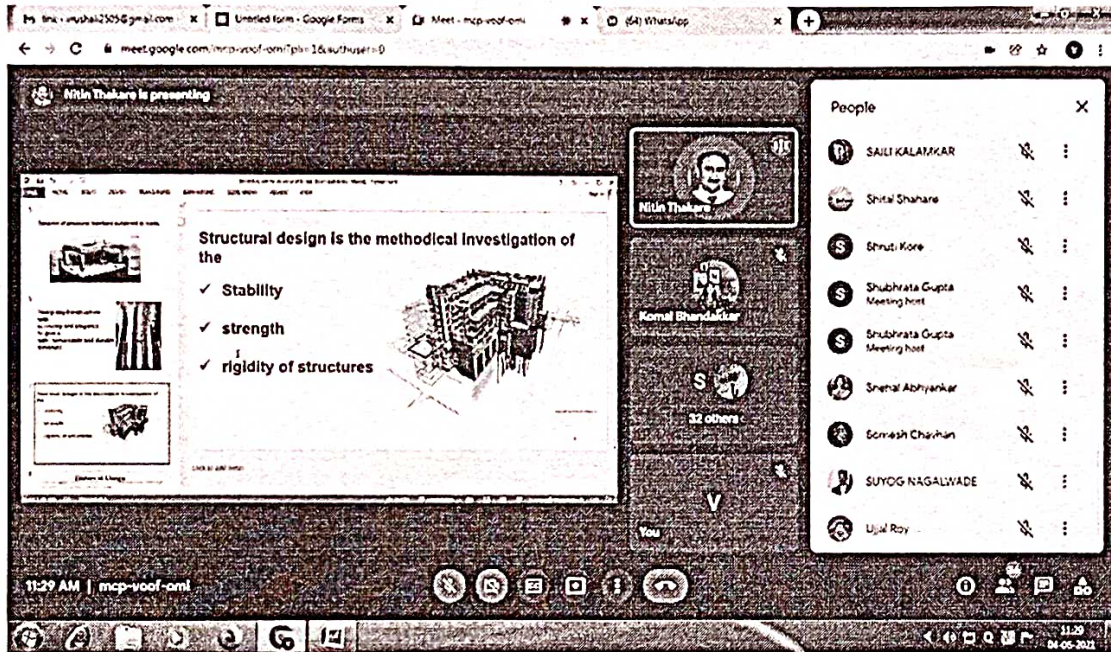
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Title of the collaborative activity	Behavior of Structural Members Subjected to Load
Name of the collaborating agency with contact details	G. H. Raisonni, Nagpur
Name of the participant	Students of Civil Engineering Department
Year of collaboration	2021
Number of Students Participated in Such Activity	35
Duration	04/05/2021
Nature of the activity	Online Mode



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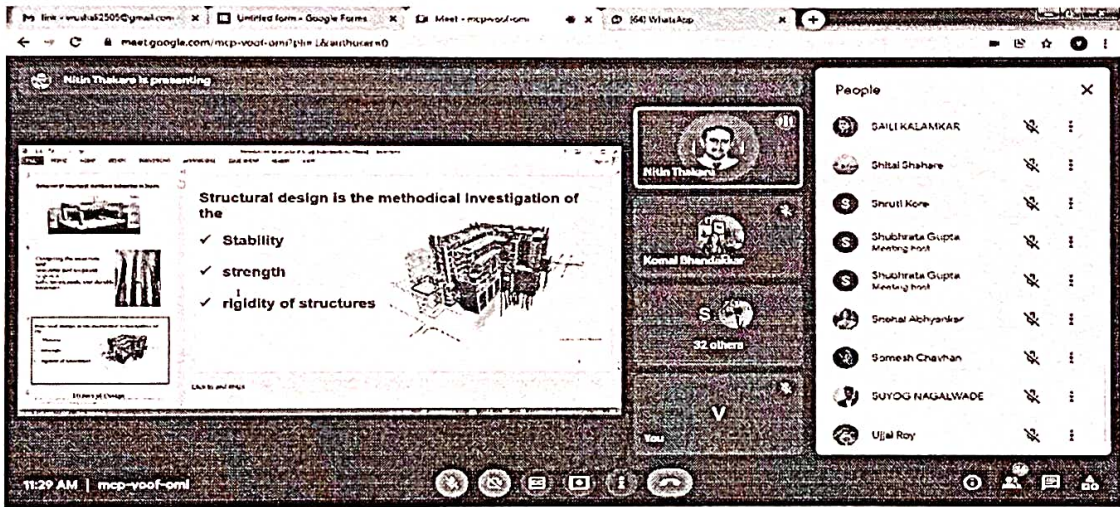
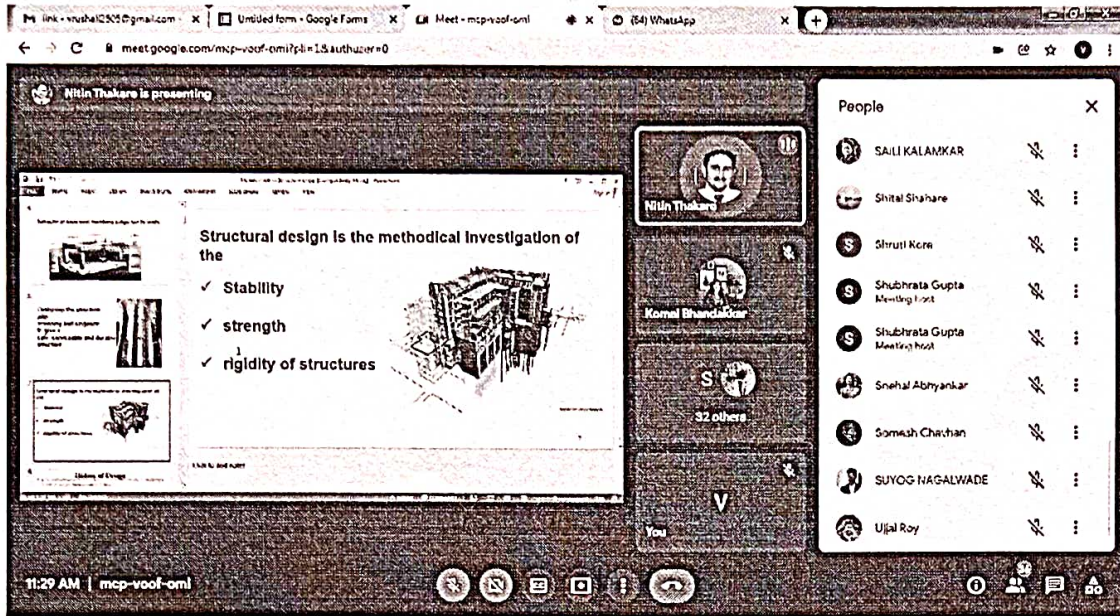
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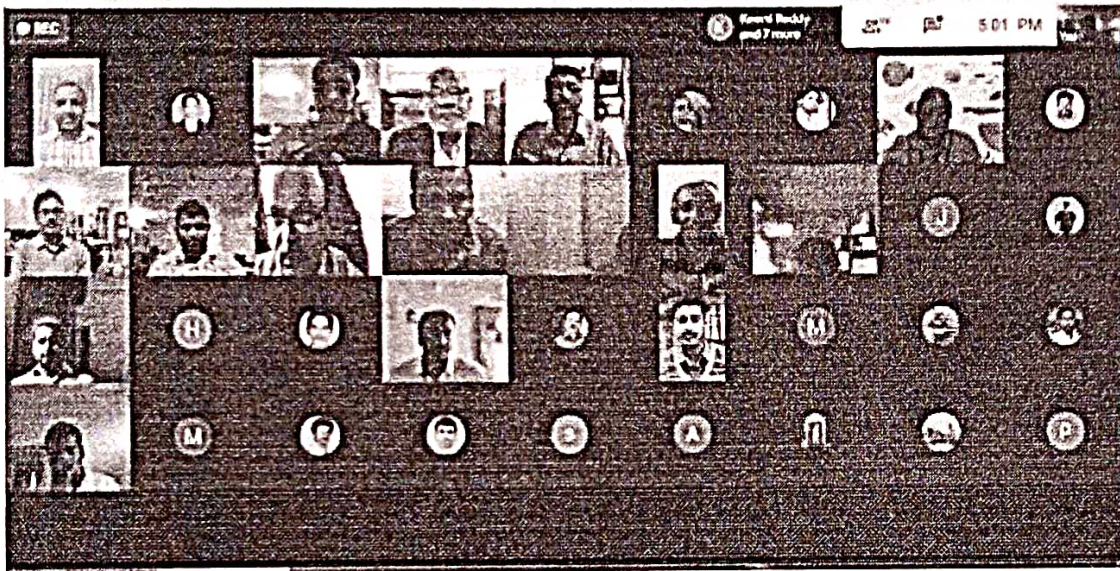
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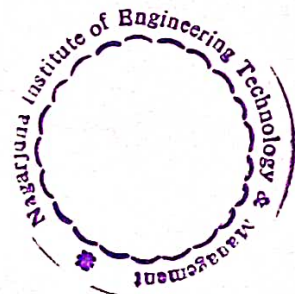
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### Institutional Collaboration Activities

Title of the collaborative activity	Web development Program (APS Technology)
Name of the collaborating agency with contact details	APS Technology Pvt., Ltd, Nagpur.
Name of the participant	Students of Computer Science Department
Year of collaboration	2021
Number of Students Participated in Such Activity	35
Duration	04/05/2021
Nature of the activity	Online Mode



People	Info	Activities
Akash Koche		
Aman Kumbhal...		
Amit Meshram		
Bina Rewatkar		



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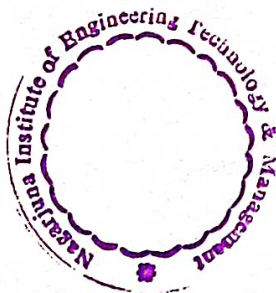
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-  Diksha Bansod   
-  Gaurav Shahu   
-  hemant Bharve   
-  Janhvi Dubey   
-  Mahi Gedekar   
-  priya akotkar   
-  Shubham Ingole   
-  Susmit Masram   
-  Vaishnavi Mara   



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## Institutional Collaboration Activities

Title of the collaborative activity	GRASP IT UP
Name of the collaborating agency with contact details	Electrical Engineering Association, GCOA
Name of the participant	Students of Electrical Engg., Department
Year of collaboration	2020
Number of Students Participated in Such Activity	41
Duration	26/12/2020
Nature of the activity	Online Mode

**ELECTRICAL AND ELECTRONICS ENGINEERING ASSOCIATION (EEEE)**  
(Academic Year 2020 - 21)

**NAGARJUNA**  
**INSTITUTE OF ENGINEERING TECHNOLOGY & MANAGEMENT**

**EEEE Presents..**

**GRASP IT UP!!!**  
Lets Interact and test who grasps it faster!!

**26<sup>th</sup> Dec 2020**  
**2:30PM-3:30PM**  
**Google meet**

**Faculty Coordinators:**  
Mr. Yogesh Bais  
Mr. Sandip Thakre

**Student Coordinators:**  
Mr. Alpesh Bahadure  
Mr. Shubham Raut

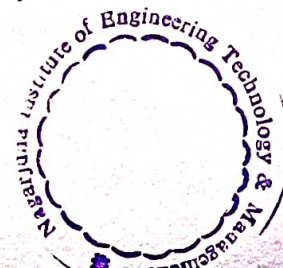
**Register at**  
<https://forms.gle/bhXLLrv4pvGcGHr8>

**Dr. Dinesh Rojatar**  
Professor & Head, Dept. of EEE

### Description

The event "Grasp it Up" is non-technical event which consists of 3 rounds. In the first round, few blurred images will be displayed and participants must guess the person/place. In the second round "Guess the word", 3 pictures will be displayed and participants must combine them and form a meaningful word. In third round "Reveal the mystery", few short videos are shown where

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participant must guess the meaning behind it. This activity will help students to interact in a better way without any fear and spontaneity.

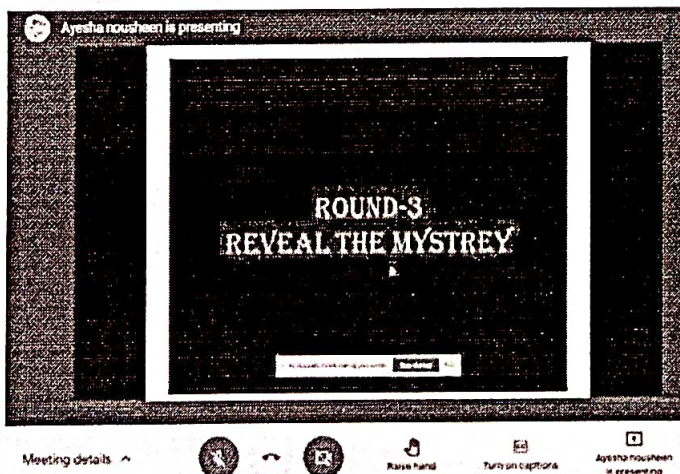
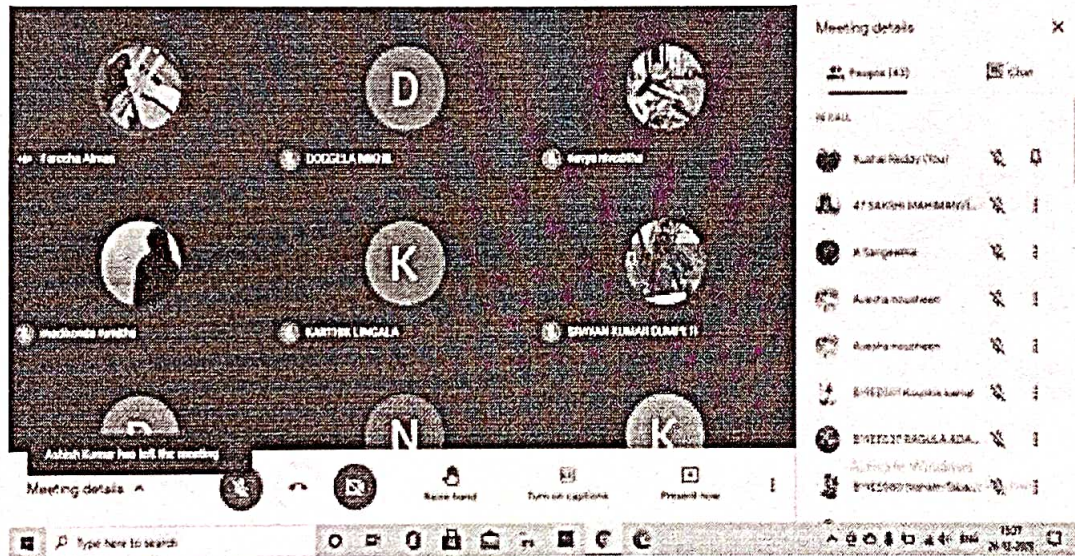
## Response

The response from the students was impressive and a total of 67 members are from First, Second and Third year have attended the association, took active participation and the main objective of organizing the activity of cultivating spontaneity in answering the questionnaire was satisfactorily fulfilled.

## Organizing Team

1. M. Rumitha (Joint Secretary)
2. Ayesha Nousheen (Executive Member)
3. Fareeha (Spokes Person)
4. Alpesh (Executive Member)
5. Nikhil (Executive Member)

## Screen Shots:



*(Signature)*  
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*(Signature)*  
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### Institutional Collaboration Activities

Title of the collaborative activity	PRAYAS
Name of the collaborating agency with contact details	SANDIP UNIVERSITY, NASHIK
Name of the participant	Students of Electrical Department
Year of collaboration	2020
Number of Students Participated in Such Activity	53
Duration	11/12/2020
Nature of the activity	Online Mode

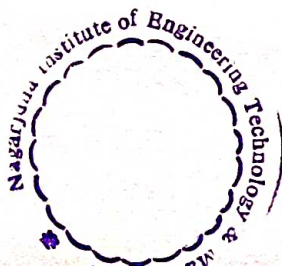
PRAYAS is the annual, one-day science and technology festival of NIEM organized by students of Technical club , an independent body of students who organize this event along with many other outreach programs around the year. The symposium is known for hosting a variety of events that include competitions, events, paper presentations as well as workshops organized by the elite student bodies from across eight branches of NIETM. Due to the Covid Pandemic outbreak we were unable to conduct the technical fest offline this year, but with the same enthusiasm and determination we have conducted PRAYAS'20 in Virtual Mode with a theme Virtualis - a fest like never before.

PRAYAS 2020, the one-day technical event conducted in our institute has been an excellent platform for all the eager tech aspirants for showing out their inner talent and passion towards their respective engineering subject. The department of Electrical Engineering has conducted various programs or events for the students and has given good knowledge and a great experience to those who have participated in them. The main attraction of all was "DESIGN OF ELECTRIC VEHICLE– The Virtual Practicality" workshop which has been both fun and educational for those who have participated.

This workshop is mainly “FOR THE STUDENTS, BY THE STUDENTS!”. It is conducted by the final year students of the Electrical department of NIETM as part of PRAYAS. Students who participated in the workshop gained knowledge on how to design the components of an EV (Motor, Moor Controller, Chassis, Battery, Suspension System, etc.) according to the requirement, and also able to Fabricate the designed Electric Vehicle. Hence, the workshop brings out actual engineering spirit of Designing and Fabrication along with the acquisition of detailed knowledge on the most happening near future Tech. in blended mode.

Along with this, six events such as paper presentation, poster presentation, and electrical expo events were conducted which helped the students to present their ideas and their prototypes. Also, other fun events such as MR. MS. ELECTRON, and TECH-SET-WIN have provided a joyous experience for everyone overall PRAYAS has been a blast. The best performers in each event were rewarded for their efforts and hard work.

The event would not have been successful without the support of department faculty members, staff and students who have helped in organizing it.



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NAME OF THE EVENT	NUMBER OF PARTICIPANTS
Workshop on Design of Electric Vehicle	10
Paper Presentation	06
Poster Presentation	08
Electrical Expo	03
Mr. Ms. Electron	12
Tech-Set-Win	15

## Screenshots during the workshop live session

**EV Battery (rechargeable electric batteries)**

- Is a storage of Energy (electron) for an Electric Vehicle
- Replaces a petrol tank in a ICE vehicle
- Storage of fuel (petrol) used to drive a vehicle, even taking into account four-times higher drive efficiency of EV w.r.t ICE engine, Battery
- Weight 10-12 times higher than filled petrol tank per km of drive
- Size 5 to 6 times higher than petrol tank required per km of drive
- Costs is much much higher than an empty petrol tank
- But cost of petrol per km much higher than electricity costs per km
- Battery has much higher CAPEX, but EV has much lower OPEX

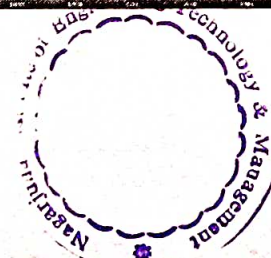
- Consider a battery with a capacity of C to start with
- Over time the capacity decreases due to:
  - Aging or time: Calendar life (typically 1% to 2% of capacity loss per year)
  - Charge/discharge cycles as batteries are charged / discharged, battery capacity decreases

*90-10*

**Factors Effecting Battery Life**

- Consists of Cathode, Anode and Electrolyte
- Cells are always that have lost or gained electrons and thus electrically charged; ion flow made possible with an electrolyte. A Separator which is an insulator (electrically isolates the electrodes) but allows the movement of ions
- Charging: Electrons (in electrolyte) move through Separator inside the battery towards cathode - creates voltage potential between cathode and anode
- Discharge: Current from positive (+) cathode through external electric circuit (load) to negative anode

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• Working principle is based on Magnetic locking between stator poles (formed due to rotating magnetic field) and rotor poles (formed by permanent magnets).

Fig. 1.2 Pole or 4 Pole surface mounted Motor

## Screenshots during the Paper presentation live session

**TYPES OF CONVERTERS :-**

- AC to DC Converter
- Uncontrolled Converter (Diode Rectifier) - It converts Alternating Current to Pulsating DC.

Quadrant 1 : Diode act as short circuit.  
Quadrant 3 : Diode act as open circuit.

**CONTENTS**

- INTRODUCTION
- UNDERSTANDING SOLAR FLOATING PV
- COMPONENTS OF PV SYSTEM
- PV FLOATING PLANTS OUTLINE
- ADVANTAGES

(15)

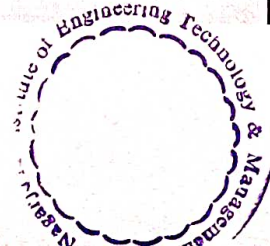
- SD ABEE BUNNISA (You)
- Paper presentation >
- Shivani Donthula >
- ASHOK VALABHOJU >

**BUTTERFLY-SHAPED TRANSMITTING COIL FOR WPT SYSTEM IN BIOMEDICAL IMPLANT.**

Presented by  
P.KRISHNA YARDHAN  
&  
CH.VAISHNAVI

**SCHEMATIC DIAGRAM**

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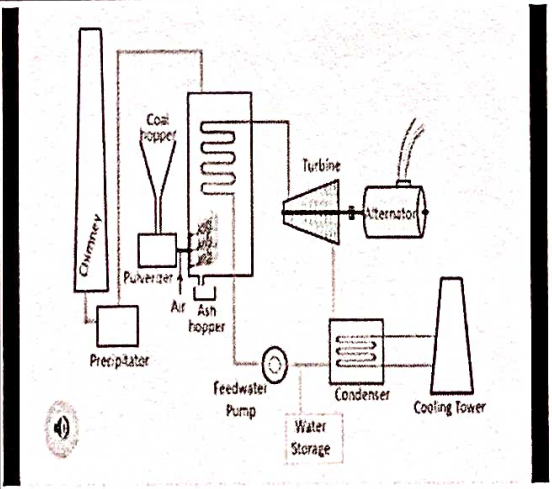
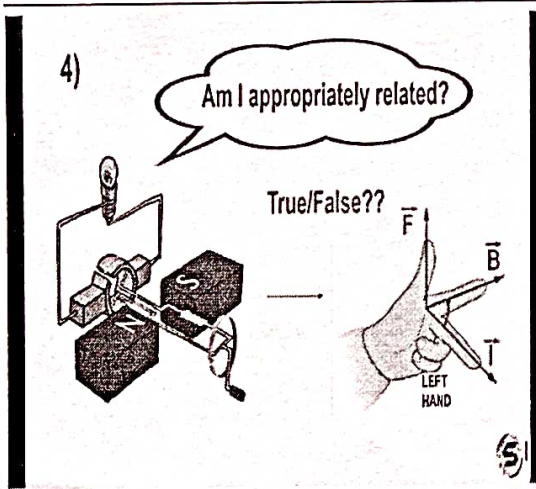
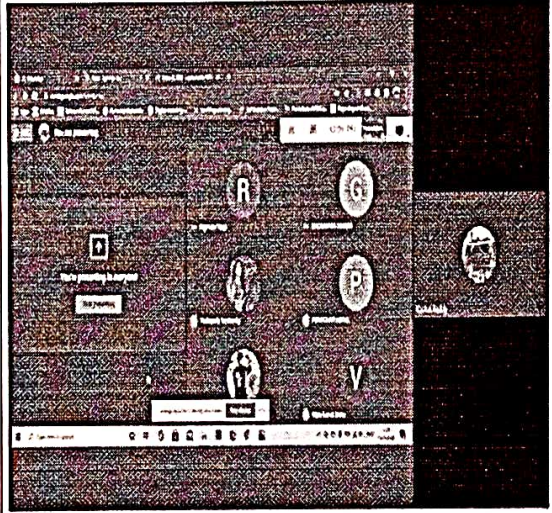
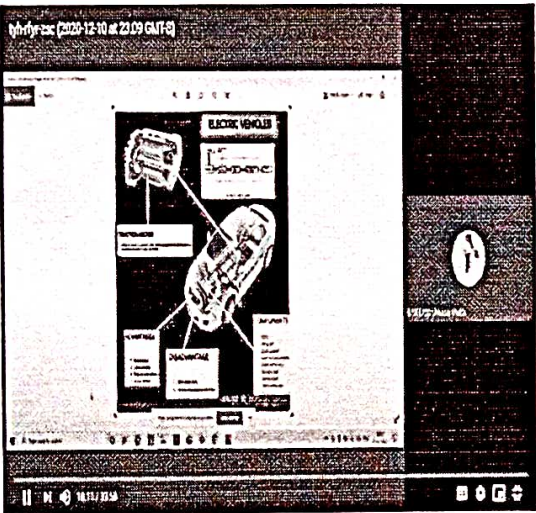
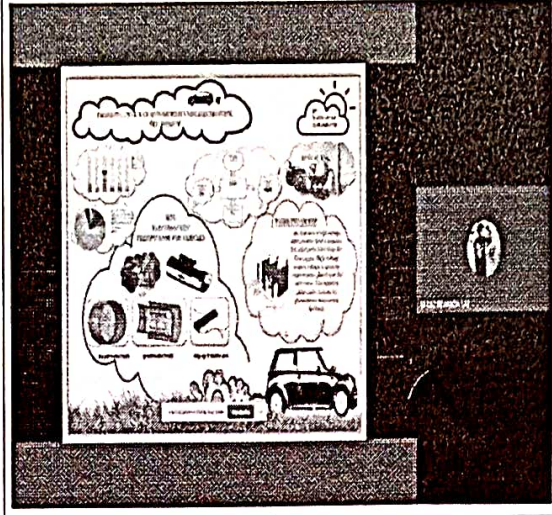
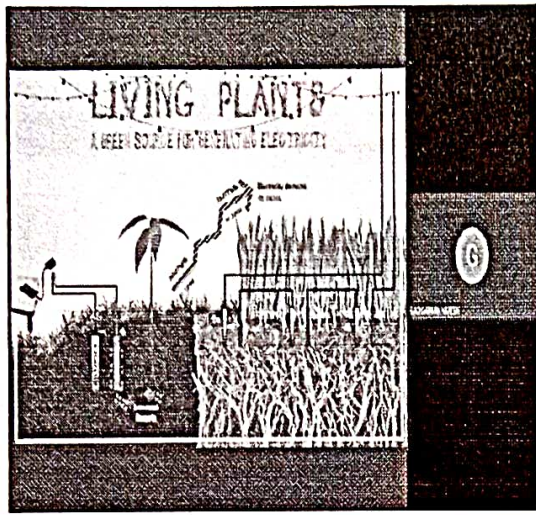




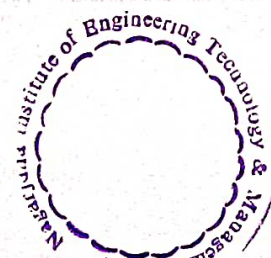
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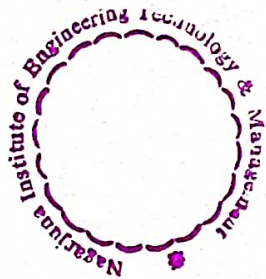
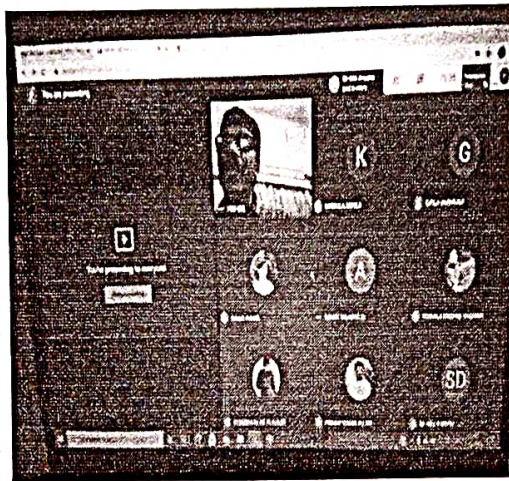
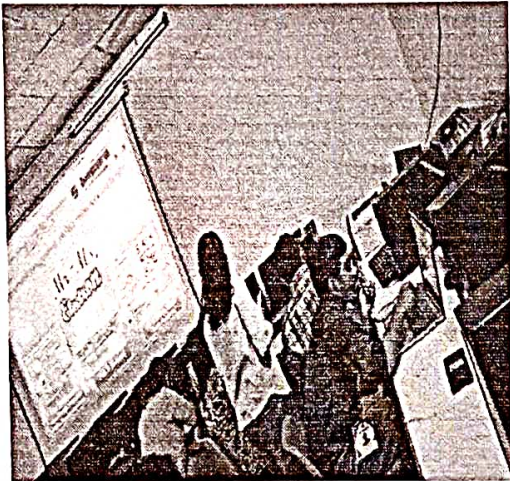
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