Kalyani Charitable Trust's
Late G. N. Sapkal College of Engineering
Kalyani Hills, Anjaneri, Trimbakeshwar Road,
Nashik – 422 213

Department of Electrical Engineering

List of Industrial Visit

Academic Year	Class	Details of Organization Visited	Date	Ref. File No. of Institute level Criteria file (Original Report)
2018-19	SE,TE&BE	Telwane Power Equipment	28/07/2018	File 3.05
		Hydro Power Plant Karanjwan	7/8/2018	
		State Load Dispatch Centre Kalwa,Mumbai	11/9/2018	
		132 KV Substation Satpur,Nasik	19/9/2018	
		Nashik Engineering Cluster,Nasik	20/9/2018	
2019-20	SE,TE&BE	Industrial Visit to HVDC Padge Terminal, Thane	1/10/2019	File 3.05
		Industrial Visit at Nashik Transformer Industries,Satpur,Nashik	29/01/2020	
2021-22	SE,TE&BE	Industrial Visit at Nashik Transformer Industries,Satpur,Nashik	25/04/2022	File 3.05
		Industrial Visit At Setu Electricals,At Post Dhakambe,Dindori Road,Nashik	7/5/2022	
2022-23	SE,TE&BE	Industrial Visit at Nashik Transformer Industries,Satpur,Nashik	23/03/2023	File 3.05
		Industrial Visit at Setu Electricals,At post Dhakambe,Dindori Road,Nashik	23/03/2023	

Prof. R.N.Baji
Head of Electrical Department

Late G. N. Sapkal College of Engineering * KCT's * Anjaneri Nashik 422 212

Prof. (Dr.) S. B. Bagal
Principal
Prof.(Dr.) Sahebrao B. Bagal
Principal
Late G. N. Sapkal College of Engineering
Anjaneri, Nashik-422 213.

KALYANI CHARITABLE TRUST'S
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Website: www.sapkalknowledgehub.org, E-mail: gns_engineering@sapkalknowledgehub.com

-: A Report on Industrial visit: -

- **Title-** Industrial Visit to Telawne Power Equipment Pvt.Ltd.

- **Objectives of Visit-** i) To understand knowledge of Manufacturing of Transformer.

  ii) To Understand Assembly of different types of transformers like Power transformers, distribution transformers. instrument transformers.

- **Overview of visit-** Subject- Electrical Installation Testing & Maintenance
  Class & Division- TE Electrical Engg.
  No of students- 40
  Day & Date-Saturday,28th July 2018

- **Name & Address of Company -** Telawne power equipment pvt.ltd.
  R-457, MIDC,Rabal,Dist-Thane
  Pin Code-422701

- **Company Information-** This Telawne power equipment pvt ltd.

  situated at MIDC, Rabal which is

  at near Belapur, Dist.-Thane.

- **About Industry:** Established its 1st Group Company M/s. Telawne Cromptek with a land of 800 sq. mt. by Mr. Sudhakar Telawne with vast experience of over 17 years from reputed Transformer manufacturer in Mumbai in Technical & Engineering departments.ME Excellence Award 2014, New Launch for Pad Mounted and Tower Substation, International Exhibitions India International Technical Fair 2013 PLOVDIV, Bulgaria (Russia), Participated in the Exhibition at Power Sri Lanka 2014. Type Tested 5000 and 10000 KVA Oil Distribution Transformer at ERDA.

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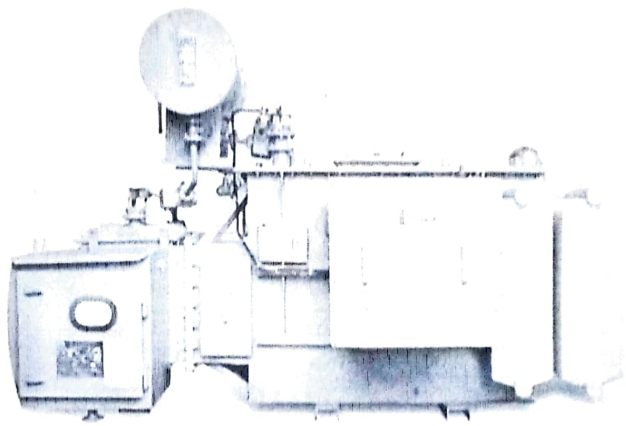
❖ Points Studied in details-

The Industry is an Assembly & Testing of the following major electrical equipment-

- Oil Immersed Distribution transformers
- Power Transformer
- Extra High Voltage Transformer
- Cast Resin Dry Type Transformer
- Vacuum pressure Impregnated Dry Type Transformer

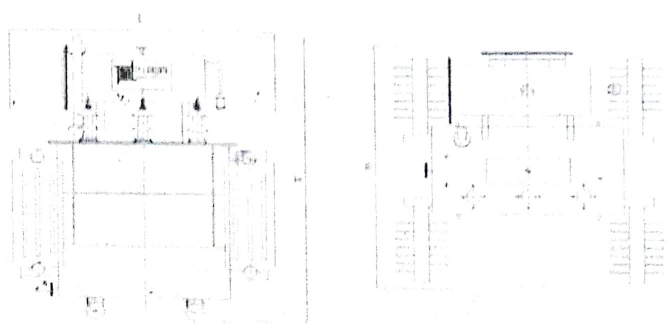
❖ OIL IMMERSED DISTRIBUTION TRANSFORMERS:



➢ Features

- Highest dielectric insulation property to withstand Lightening Impulse.
- Mechanical design to withstand short circuit forces arising during faults.
- Optimum oven heating under vacuum as to achieve desired compression height and maximum insulation resistance (IR) to windings.
- Adequate ducts between layers, coils, discs for maximum oil flow and reduced hot spot temperature.
- Step-lap designed CRGO laminations for lower losses and excitation current.
- Pre-compressed Insulation material for minimal moisture absorption

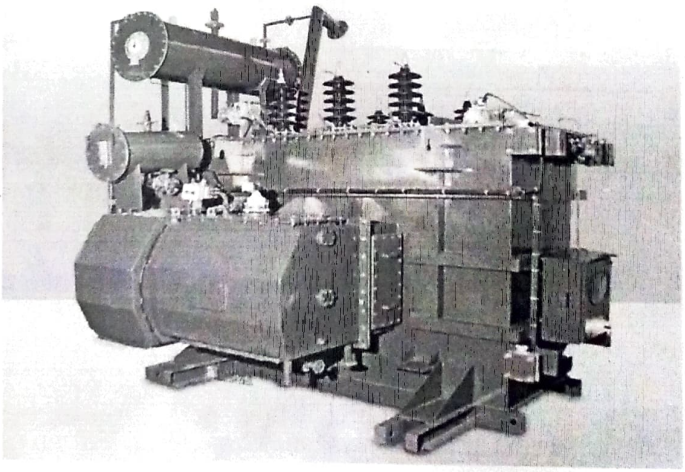
➢ Diagram



➢ Technical Specification

Duty, Type	Outdoor / Indoor, Pole or Ground Mounted
Voltage Class	3.3, 6.6, 11, 22, 33 kV or any specific
No of Phases	1 or 3 Phase
Frequency	50/60 Hz
Vector Group	Dyn1 or Dyn5 or Dyn11 or any specific
Insulating Fluid	PCB FREE Mineral Oil, both inhibited & uninhibited, as per IS/IEC, ASTM D3487 and customer requirement
Class of Insulation	Class A
Tap Changer	Off Circuit or On Load
Tapping Range	±2.5% X 2 for OCTC or + 1.25% X 4 & - 1.25% X 8 for OLTC or as per customer requirement
Winding Material	Aluminium or Copper with multi paper covering
Applicable Standards	IS 2026, IEC 60076, ANSI, IEEE
Painting	Enamel, Epoxy, Polyurethane or customer specific

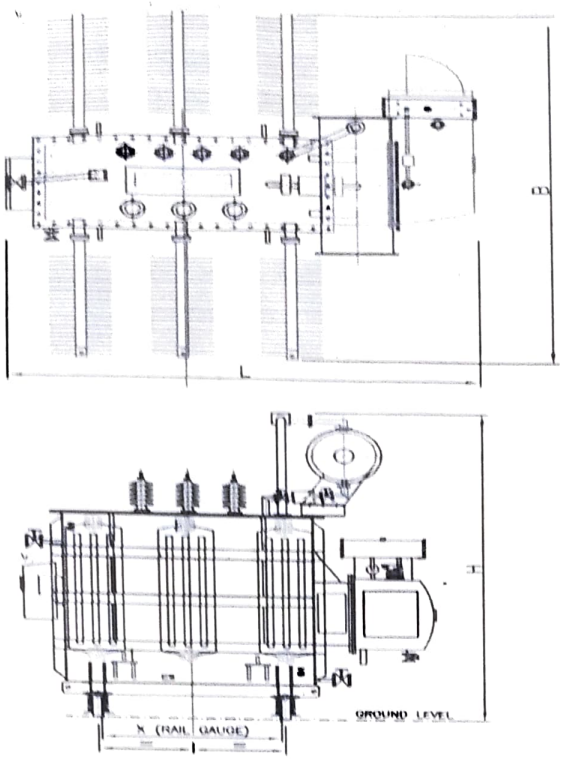
❖ POWER TRANSFORMER



➢ Features

- Highest dielectric insulation property to withstand lightening impulse.
- Mechanical design to withstand short circuit forces arising during faults.
- Optimum oven heating under vacuum as to achieve desired compression height and maximum insulation resistance (IR) to windings.
- Adequate ducts between layers, coils, discs for maximum oil flow and reduced hot spot temperature.

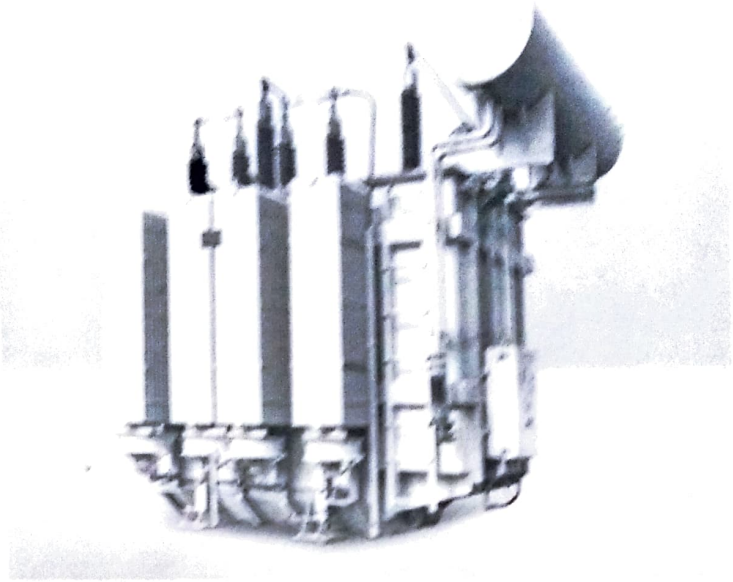
➢ Diagram



➢ Technical Specification

Duty, Type	Outdoor / Indoor
Voltage Class	11, 22, 33, 66 kV or any specific
No of Phases	3 Phase
Frequency	50/60 Hz
Vector Group	Dyn5 or Dyn11 or YNyn0 any specific
Insulating Fluid	PCB FREE Mineral Oil, both inhibited & uninhibited, as per IS/IEC, ASTM D3487
Class of Insulation	Class A
Tap Changer	Off circuit or on load tap changer
Tapping Range	+2.5% X 2 for OCTC or + 1.25% X 4 & - 1.25% X 8 for OLTC or as per customer requirement
Winding Material	Copper with multi paper covering
Applicable Standards	IS 2026, IEC 60076, ANSI, IEEE
Painting	Enamel, Epoxy, Polyurethane or customer specific

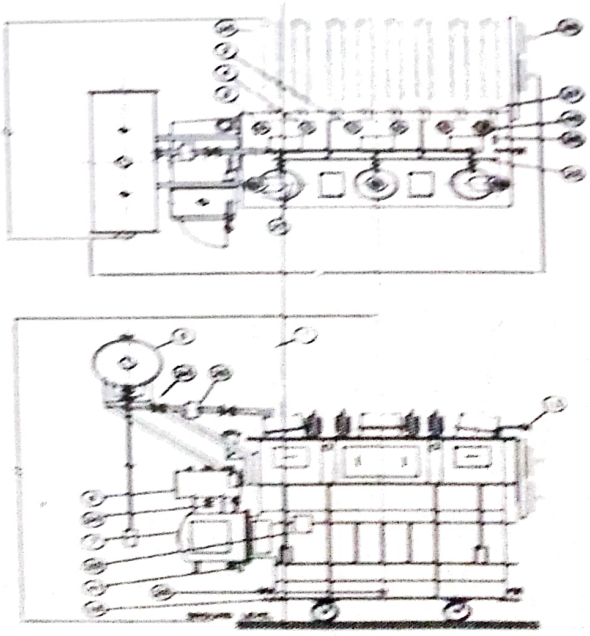
❖ EXTRA HIGH VOLTAGE TRANSFORMER



➢ **Features**

- Highest Dielectric insulation property to withstand Lightning impulse
- Step lap designed CRGO laminations for lower losses & excitation current.
- Pre-heating of coils under vacuum as to achieve desired compression height & max shrinking of coils.
- Preinal wood clamping rings for uniform compression of primary & secondary winding.
- Coil clamping screws for sustaining high mechanical strength due to short circuit forces.
- Adequate ducts between layers, coils, discs for max oil flow & reduced hot spot temperature.

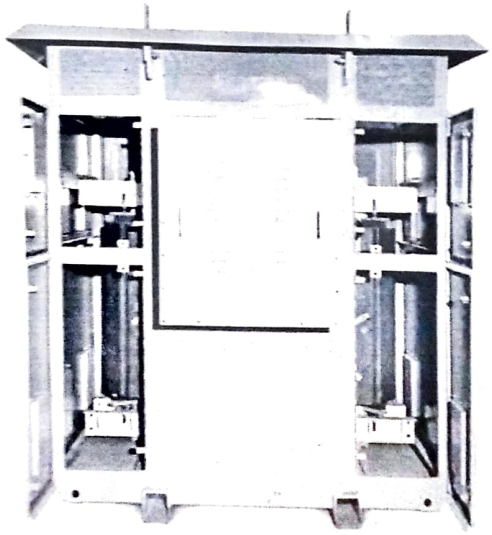
➢ **Diagram**



➢ **Technical Specification**

Duty, Type	Outdoor / Indoor
Voltage Class	66, 100, 110, 132, 220 kV or any specific
No of Phases	3 Phase
Frequency	50/60 Hz
Vector Group	Dyn5 or Dyn11 or YNyn0 any specific
Insulating Fluid	PCB FREE Mineral Oil, both inhibited & uninhibited, as per IS / IEC, ASTM D3487
Class of Insulation	Class A
Tap Changer	Off Circuit or On load tap Changer
Tapping Range	±2.5% x 2 for OCTC or +1.25% x 4 & -1.25% x 8 for OLTC or as per customer requirement
Winding Material	Copper with multi paper covering
Applicable Standards	IS 2026, IEC 60076, ANSI, IEEE
Painting	Epoxy, Polyurethane or customer specific

❖ CAST RESIN DRY TYPE TRANSFORMER



➢ **Features**

- Environment Friendly
- Fire Resistance
- Non-Hygroscopic

- **Technical Specification**

Duty, Type	Outdoor / Indoor Ground Mounted Type
Voltage Class	UPTO 33 kV
No of Phases	3 Phase
Frequency	50/60 Hz
Vector Group	Dyn1 or Dyn5 or Dyn11 or any specific
Insulating Fluid	F or H with Temp Rise of 90 or 115 Deg C or as per customer requirement
Class of Insulation	Class A
Tap Changer	Off Circuit or On Load
Tapping Range	+ 2.5% X 2 for OCTC or + 2.5% X 2 & - 2.5% X 6 for OLTC or as per customer requirement
Winding Material	Aluminum or Copper with multi paper covering
Applicable Standards	IS 11171, IEC 60726
Painting	Powder coated with RAL 7032 shade or as per customer requirement

Prof.U.S. Jathar
Industrial Visit Coordinator

Prof.R.N. Baji
Head of Electrical Department

31/07/2018

Sapkal College of Engineering, Anjaneri, Nashik 422 212

Date: 27th July 2018

To

Principal,

Late G. N. Sapkal College of Engg.

Anjaneri, Nashik

This is to certify that 40 Third year Electrical Engineering students of Late G. N. Sapkal College of Engineering along with 2 faculty members have visited Telawne Power Equipment Pvt Ltd, Dist-Thane on 28th July 2018 between 10 am to 5 pm. During the visit they have seen Power Equipments, Transformers etc.

This certificate is issued on their request.

Thanking you.

From

Authorized Signatory

28/7

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-: A Report on Industrial visit: -

- **Title-** Industrial Visit to Hydro Power plant, Karanjwan.
- **Objectives of Visit-** i) To understand knowledge about hydro power plant.
  ii) To Understand the working of hydro power plant as well as their function of each equipement.
- **Overview of visit-** Subject- Electrical Installation Testing & Maintenance
  Class & Division- SE & BE Electrical Engg.
  No of students- 120
  Day & Date-Saturday,7th September 2018
- **Name & Address of Plant -** Hydro Power plant,Karanjwan.
  Tal-Dindori , Dist-Nashik
- **Plant Information-** In this hydro power plant Electricity is generated by using water.
- **About Power plant:** In the late 19th century, hydropower became a source for generating electricity. Since the early 20th century, the term has been used almost exclusively in conjunction with the modern development of hydroelectric power.
  3 MW Power generated in this Hydro Power Plant.

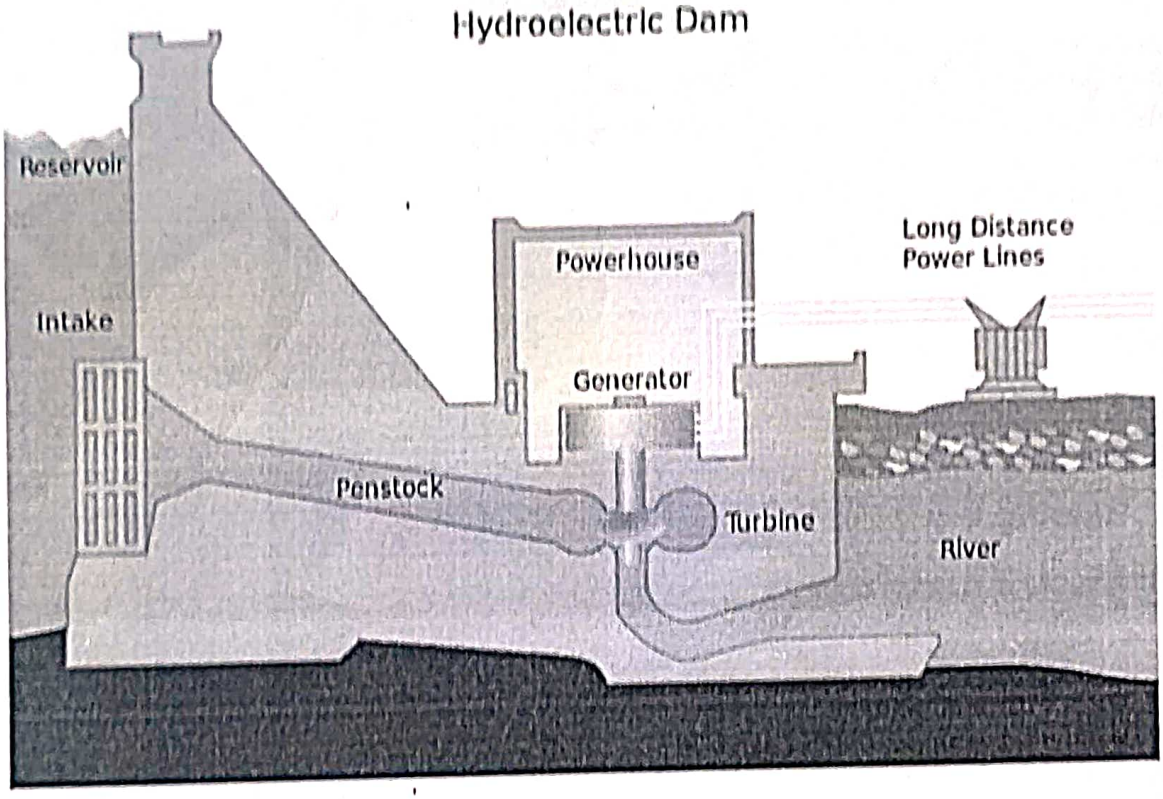
- **Points Studied in details-**

Hydropower or hydroelectricity refers to the conversion of energy from flowing water into electricity. It is considered a renewable energy source because the water cycle is constantly renewed by the sun.

KCT's Late G. N. Sapkal College of Engineering
Anjaneri
Nashik
422 212

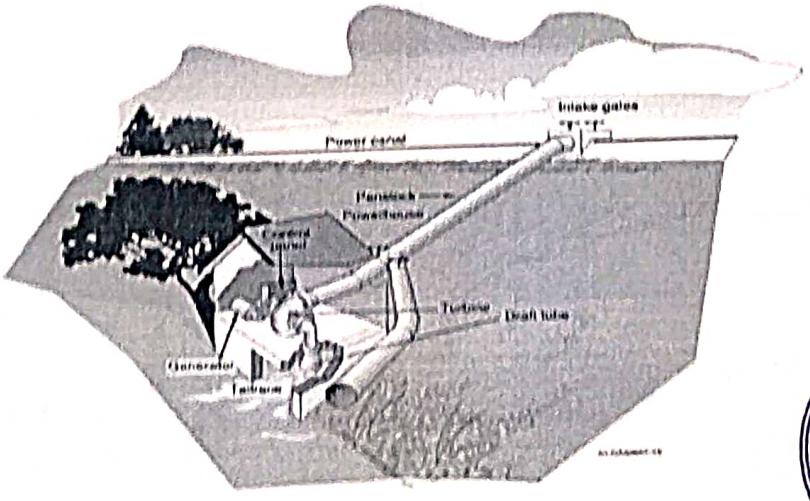
1. **Pumped storage facilities** are similar but have a second reservoir below the dam. Water can be pumped from the lower reservoir to the upper reservoir, storing energy for use at a later time.
2. **Run-of-river facilities** rely more on natural water flow rates, diverting just a portion of river water through turbines, sometimes without the use of a dam or reservoirs. Since run-of-river hydro is subject to natural water variability, it is more intermittent than dammed hydro.

Hydropower is the largest contributor of all renewable energy sources and accounts for 6.7% of worldwide electricity production.



Today, modern hydro plants produce electricity using turbines and generators, where mechanical energy is created when moving water spins rotors on a turbine. This turbine is connected to an electromagnetic generator, which produce electricity when the turbine spins.

Hydro plant facilities can be categorized into three sizes: large (>30 MW), small (100 kW - 30 MW), or micro (<100 kW).



❖ Working of Hydro Power Plant:-

The dam is an artificial concrete barrier constructed across the way of the river. The catchment area behind the dam creates a huge water reservoir. The pressure tunnel takes water from the dam to the valve house. In the valve house, there are two types of valves available. The first one is main sluicing valve and the second one is an automatic isolating valve. The sluicing valves control the water flowing to the downstream and automatic isolating valves stop the water flow when the electrical load is suddenly thrown off from the plant. Automatic isolating valve is a protecting valve does not play any direct role control the flow of water to the turbine. It only operates during emergency to protect the system from burst out.

The penstock is a steel pipeline of suitable diameter connected between the valve house and powerhouse. The water flows down from upper valve house to lower powerhouse through this penstock only. In the powerhouse there are water turbines and alternators with associated step up transformers and switchgear systems to generate and then facilitate transmission of electricity. At last, we will come to the surge tank. The surge tank is also a protective accessory associated with **hydroelectric power plant**. It is situated just before the valve house. The height of the tank must be greater than the head of the water stored in the water reservoir behind the dam. This is an open top water tank.

The purpose of this tank is to protect the penstock from bursting out when suddenly turbine refuses to take water. At the entry point of turbines, there are turbine gates control by governors. The governor opens or closes the turbine gates according to the fluctuation of the electrical load. If the electrical load is suddenly thrown off from the plant, the governor closes the turbine gates and water is blocked in the penstock. Sudden stopping of water can cause a serious burst of penstock pipeline. The surge tank absorbs this back pressure by swing the level water in this tank.

Prof.U.S. Jathar
Industrial Visit Coordinator

Prof.R.N. Baji
Head of Electrical Department

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-: A Report on Industrial visit: -

- **Title-** Industrial visit to **State Load Dispatch Centre, Kalwa.**
- **Objectives of Visit-** i) To understand knowledge about Load Dispatch Centre.

  ii) To Understand the working Load distribution, Load Sharing, load Monitoring. Power quality etc.
- **Overview of visit-** Subject-i) Power System Operation & Control.
  ii) PLC & SCADA its Application
  Class & Division- BE Electrical Engg.
  No of students- 70
  Day & Date-**Tuesday,11th September 2018**
- **Name & Address of Centre -** State Load Dispatch Centre, Kalwa
  Tal-Airoli, Dist-Thane
- **Centre Information-** Kalwa Load Dispatch Centre comes under Transmission Company, it owns & operates most of Maharashtra Electric Power Transmission system
- **About Load Centre-** At state level minute to minute operation of power system is coordinated from a Load dispatch centre which at the receiving end.in one-way wonderland as it handling no of changes, demand supply etc.

❖ Points Studied in details:-

Maharashtra State Electricity Transmission Company limited, a wholly owned corporate entity under the Maharashtra Government, was incorporated under the Companies Act, in June, 2005 after restructuring the erstwhile Maharashtra State Electricity Board to transmit electricity from its point of Generation to its point of Distribution.

It owns and operates most of Maharashtra's Electric Power Transmission System. MSETCL operates a transmission network of 46217.90 Circuit KM of transmission lines and 660 EHV Substations with 123846.5 MVA transformation capacity. This infrastructure constitutes most of the inter regional as well as intra-regional electric power transmission system in the State. Today, MSETCL is the largest state transmission utility in the country.

The load dispatch center is the nerve centre for the operation, monitoring and control of the power system. The SLDC Kalwa near Mumbai is fully computerized and has ultra-modern facilities. Mahatransco also has a Load Dispatch center at Ambazari near Nagpur. To keep up with the increase in Power generation in the next 5 years, Mahatransco also has planned to establish a robust transmission network. It is implementing an ambitious expansion plan over the period 2011-12 to 2015-16, to meet the evacuation and grid strengthening needs of the future. The adoption of predictive maintenance practices has helped the company to reduce interruptions and improve the network's availability to 99.73% (HVAC) and 99.30% (HVDC).

At state level minute to minute operation of a power system is Coordinated from a LDC which at the receiving end or load side. In one way LDC is a Wonderland as it is handling no. of changes, demand supply irregularities daily.It gives safe and secure grid operation. It is located in state capital. It is further connected to 3/4 sub LDC's which in turn are connected to major substations and generating stations, hence LDC will get information about major changes in generating station plus whether condition information from different locations in the state. In earlier days it was only with few telephones and few engineers to keep the record. State LDC is connected to regional LDC (RLDC), where RLDC monitors a whole region eg. Southern RLDC in Bangalore monitors A.P. tamilnadu, Karnataka, Kerala and Pondichery. RLDC also gets information from generating station & substations of central utilities (NTPC,NPC, POWER GRID etc). LDC at state plus regional level is connected to all these locations using reliable communication media that can carry information and voice.

❖ Role of SLDC:-

1)As per the Electricity Act, 2003, the State Load Dispatch Centre (SLDC) shall be the apex body to ensure integrated operation of the power system in a State.

2)SLDC shall exercise supervision and control over the intra-State transmission system.

3)SLDC will be responsible for carrying out real time operations for grid control and dispatch of electricity within the State through secure and economic operation of the State grid in accordance with the Grid Standards and the State Grid Code.

4)The SLDC shall comply with the directions of the RLDC.SLDC shall keep accounts of the quantity of electricity transmitted through the State grid.

❖ Main and important functions of load dispatch center

- Load generation balance and quality of supply
- Maintenance scheduling of generating units and transmission lines
- Economic load dispatch
- Grid discipline
- Load forecasting or demand estimation
- System security and islanding facility
- Black start preparedness
- Energy distribution and load pattern study
- Communication and SCADA management
- Event analysis and preventive measures
- Coordination with neighbor grids
- Public relations and consumer interaction

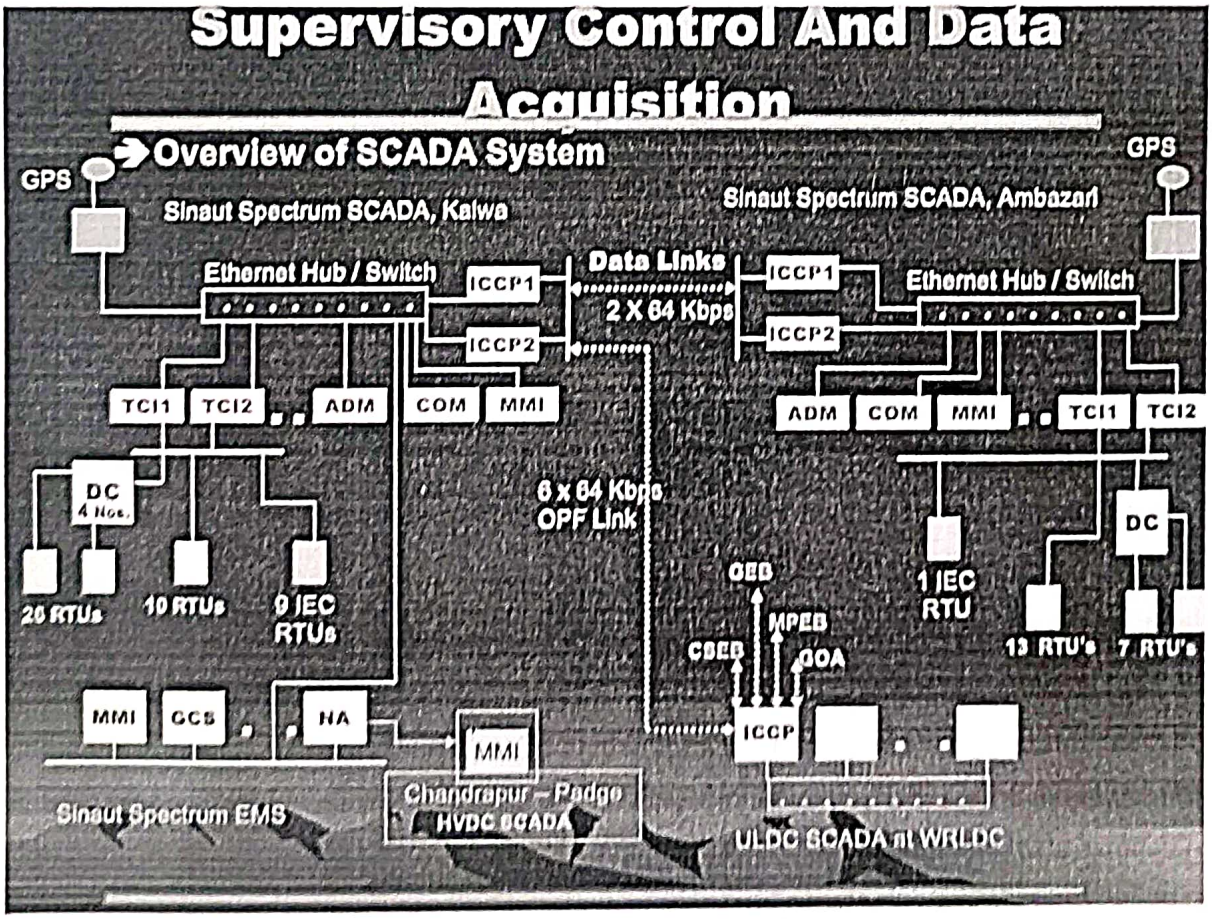
❖ Use of SCADA in Load Dispatch Center

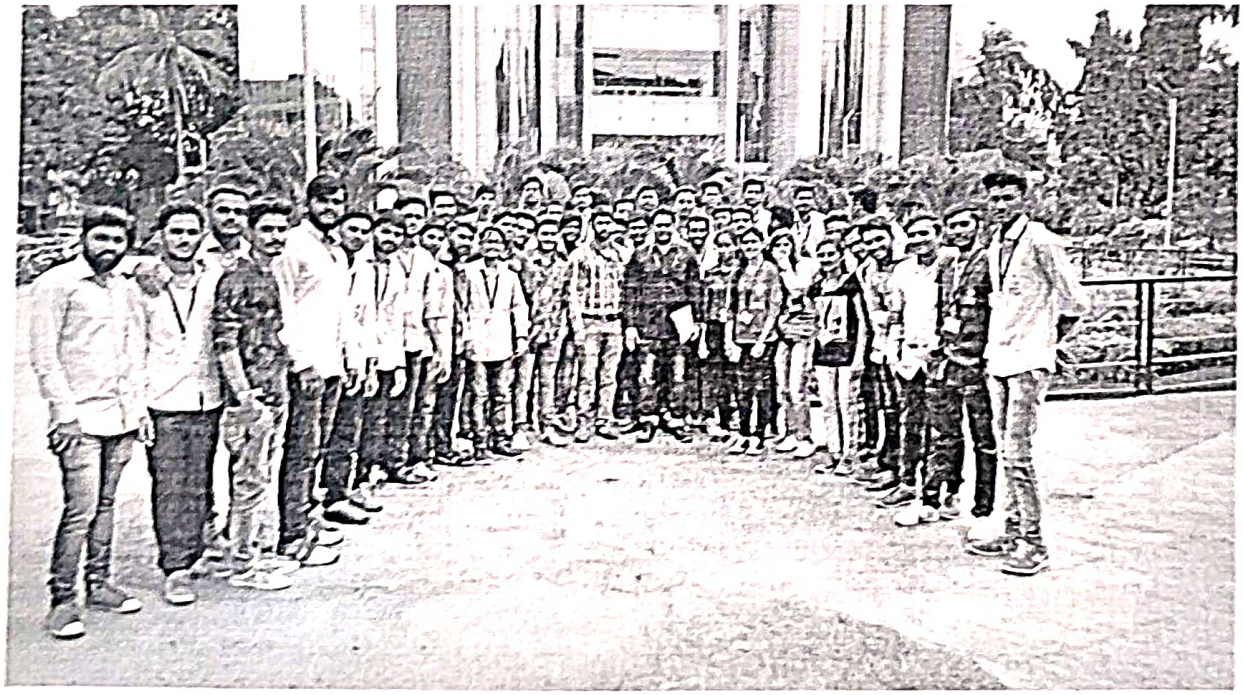
There are multiple agencies within a state engaged in generation, transmission, and distribution of electricity. State Load Dispatch Centre monitors these operations and keeps the account of quantity of electricity transmitted through the state grid. SCADA is a part of it. Supervisory Control and Data Acquisition System (SCADA) is a high tech computer system with associated communication network that enables supervision and control of power system network. SCADA is the technology that enables a user to collect data from one or more distant operator to stay or visit frequently to the work locations. It includes the man machine interface, It allows an operator to make set point changes on distant process controllers, to open or close valve or switches, to monitor alarms to collect measurement information SCADA is best applicable to processes that are spread over large areas and it is suitable for

1. groups of small hydroelectric generating stations that are turned on and off
2. oil and production facilities, pipelines for gas, oil, chemicals, water which are located at far distances
3. electric transmission systems irrigation system etc.

❖ The direct benefits of a modern SCADA system are:

Constant access to Real Time picture of entire network showing power system voltage, frequency, MW, MVAR, etc. Supervision, monitoring and control of power in Real Time. Optimal operation of power system, i.e. generation and associated resources. Minimum of outage and faster restoration of the system in the event of Grid disturbances. Improvement in the quality of supply through better control of frequency, voltage and other parameters. Less dependence on basic telephone system. When it comes into existence


Supervisory Control And Data Acquisition
Overview of SCADA System
GPS
Sinaut Spectrum SCADA, Kalwa
Ethernet Hub / Switch
ICCP1
ICCP2
Data Links
2 X 64 Kbps
TCI1
TCI2
ADM
COM
MMI
DC
4 Nos.
6 X 64 Kbps
OPF Link
20 RTUs
10 RTUs
9 IEC RTUs
MMI
GCS
NA
MMI
Sinaut Spectrum EMS
Chandrapur – Padge
HVDC SCADA
GPS
Sinaut Spectrum SCADA, Ambazari
ICCP1
ICCP2
Ethernet Hub / Switch
ADM
COM
MMI
TCI1
TCI2
DC
1 IEC RTU
13 RTU's
7 RTU's
OEB
MPEB
CBEB
OOA
ICCP
ULDC SCADA at WRLDC



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-: A Report on Industrial visit: -

- **Title-** Industrial visit at 132 KV substation,Satpur,Nashik

- **Objectives of Visit-** i) To understand knowledge of substation working.

  ii) To Understand Switchgear equipement, working of power transformer, circuit breaker, bucholz relay, lightening arrester etc

- **Overview of visit-** Subject- Electrical Installation Testing & Maintainance
  Class & Division- TE Electrical Engg.
  No of students- 65
  Day & Date-Wednsday,19th September 2018

- **Name & Address of Substaion -** 132 /33 KV Substation Satpur.
  Dist-Nashik

- **Substation Information-** This 132 /33 KV substation situated at Satpur

  Dist.-Nashik.

Vision-To establish MSETCL as the best "State Transmission utility" in India by the year 2012 with reference to performance, network development and service standards.

Mission- We as a State Transmission Utility (STU) dedicate our- selves to plan, build-up, operate and maintain the intra –state transmission system to facilitate transmission of electricity from its source to load centers in a secure, reliable and economic manner for the best services to the consumers and society, offer enhanced career opportunity to our employees and generate reasonable return. We aim to provide an efficient transmission services in a transparent non-discriminatory manner by using best practices and standards laid from time to time.

❖ Points Studied in details-

A **substation** is a part of an electrical generation, transmission, and distribution system. Substations transform voltage from high to low, or the reverse, or perform any of several other important functions. Between the generating station and consumer, electric power may flow through several substations at different voltage levels. A substation may include transformers to change voltage levels between high transmission voltages and lower distribution voltages, or at the interconnection of two different transmission voltages.

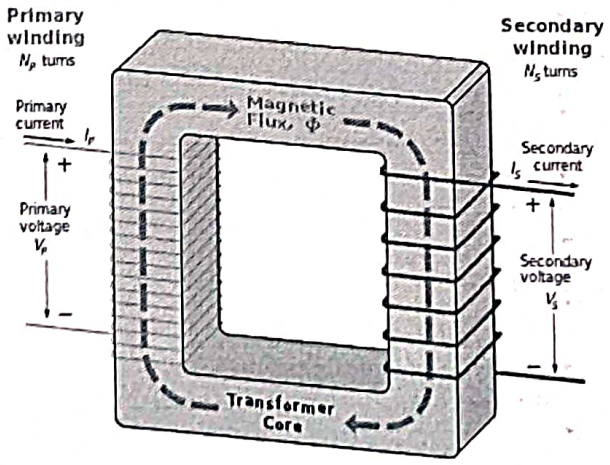
Substations may be owned and operated by an electrical utility, or may be owned by a large industrial or commercial customer. Generally, substations are unattended, relying on SCADA for remote supervision and control.

The word substation comes from the days before the distribution system became a grid. As central generation stations became larger, smaller generating plants were converted to distribution stations, receiving their energy supply from a larger plant instead of using their own generators. The first substations were connected to only one power station, where the generators were housed, and were subsidiaries of that power station.

The substation is an assembly of the following major electrical equipment-

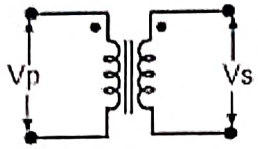
- Electrical Power transformers
- Instrument transformers
- Conductors& Insulators
- Isolators
- Bus bars
- Lightning arresters
- Circuit breakers
- Relays
- Capacitor banks and miscellaneous equipment

➢ Electrical Power Transformer-

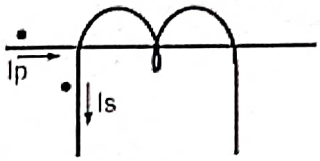


A static electrical machine used for transforming power from one circuit to another circuit without changing frequency is termed as Power transformer. The transformers are generally used to step down or step up the voltage levels of a system for transmission and generation purpose. These transformers are classified into different types based on their design, utilization purpose, installation methods

➢ Instrument Transformers



Symbol of VT



Symbol of CT

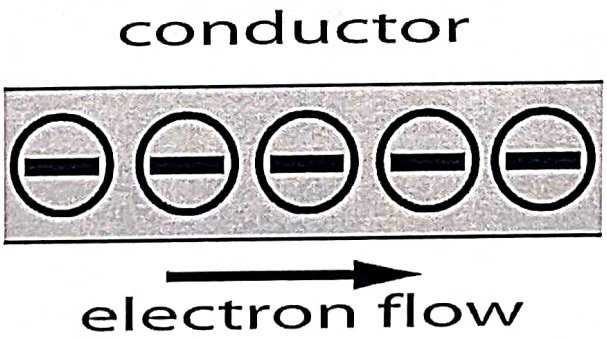
Current Transformer

Current transformer is used for the measurement of the alternating current by taking samples of the higher currents of the system. These reduced samples are in accurate proportions with the actual high currents of the system. These are used for installation and maintenance of the current relays in substations for protection purpose which are normally have low-current ratings for their operation.

Potential Transformer

Potential transformer is quite similar to the current transformer, but it is used for taking samples of high voltages of a system for providing low-voltage to the relays of protection system and also to the low-rating meters for voltage measurement. From this low-voltage measurement, the actual system's high voltage can be calculated without measuring high voltages directly to avoid the cost of the measurement system

➢ Conductors



The material or object that obeys the electrical property conductance (mostly made of metals such as aluminum and copper) and that allows the flow of electric charge is called conductor. Conductors permit free movement of the flow of electrons through them. These are used for the transmission of power or electrical energy from one place (generating station) to another place (consumer point where power is consumed by the

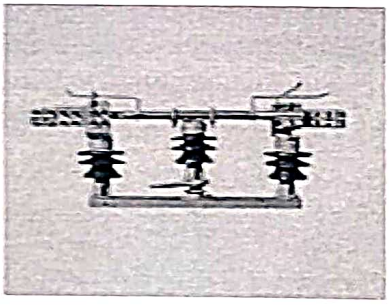
loads) through substations. Conductors are of different types and mostly aluminum conductors are preferred in practical power systems.

- **Insulators-**

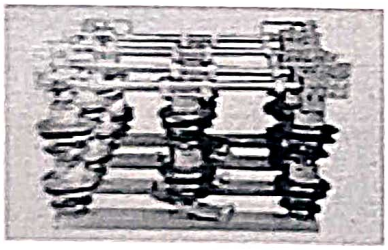
The metal which does not allow free movement of electrons or electric charge is called as an insulator. Hence, insulators resist electricity with their high resisting property. There are different types of insulators such as suspension type, strain type, stray type, shackle, pin type and so on. A few types of insulators are shown in the above figure. Insulators are used for insulation purpose while erecting electric poles with conductors to avoid short circuit and for other insulation requirements.

- **Isolators**

11 KV ISOLATORS

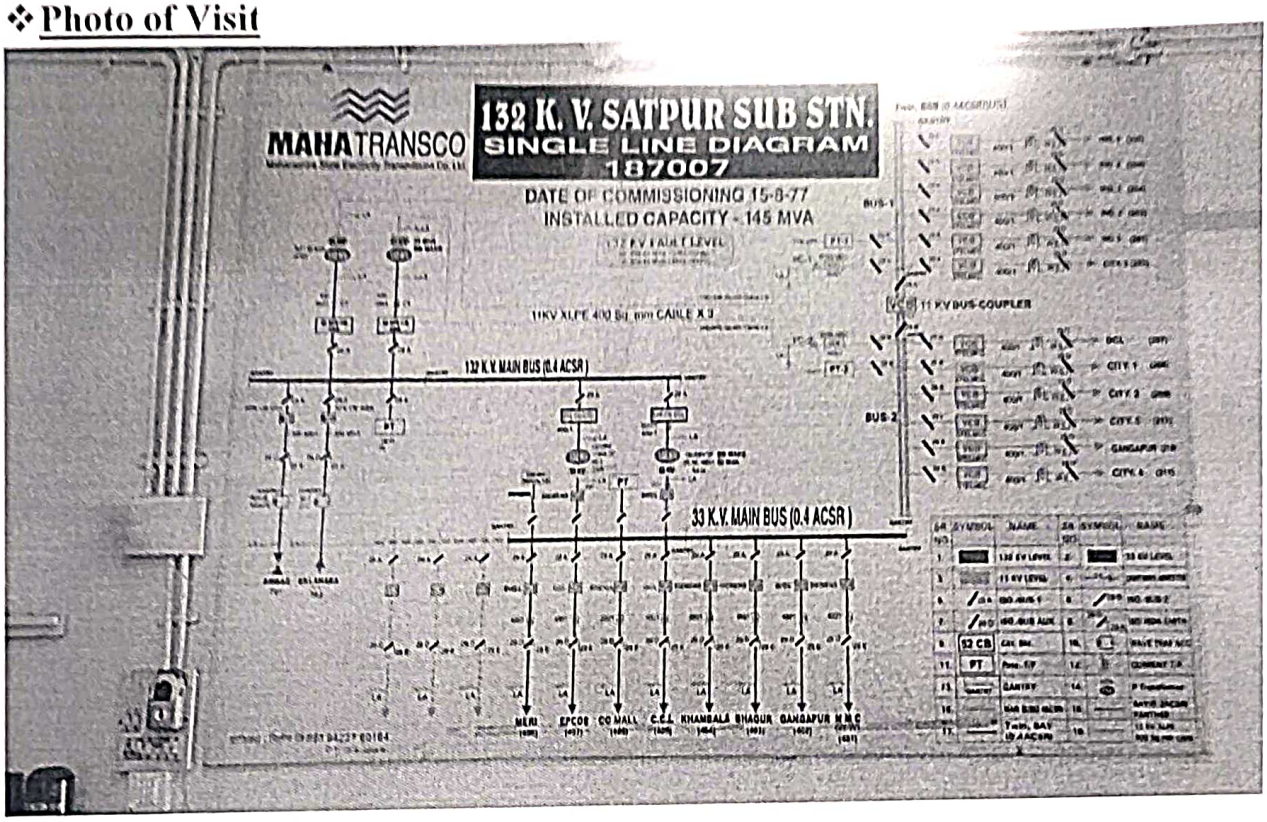


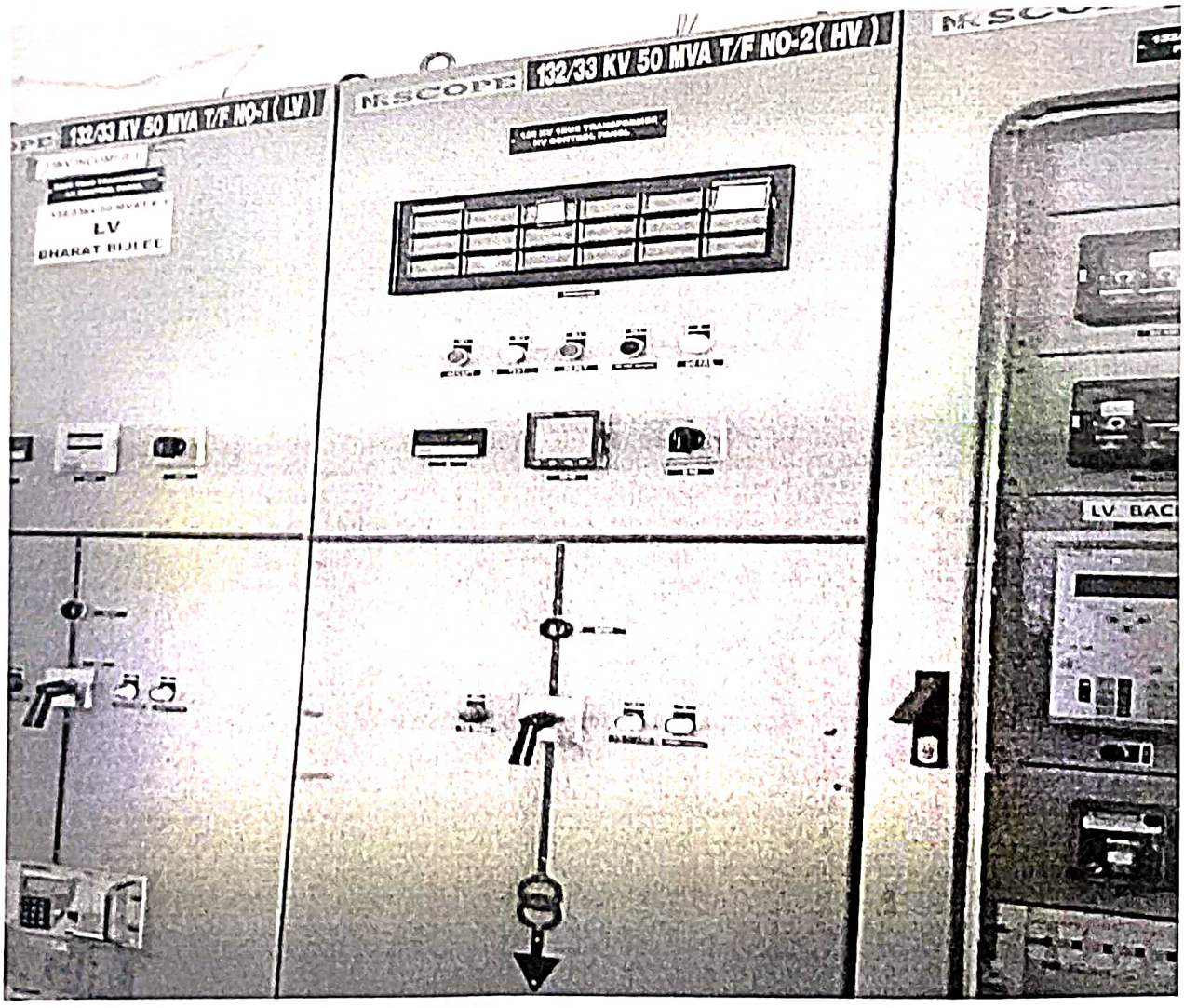
33 KV ISOLATORS



Isolator is a manually operated mechanical switch that isolates the faulty section or the section of a conductor or a part of a circuit of substation meant for repair from a healthy section in order to avoid occurrence of more severe faults. Hence, it is also called as a disconnector or disconnecting switch. There are different types of isolators used for different applications such as single-break isolator, double-break isolator, bus isolator, line isolator, etc.

❖ Photo of Visit

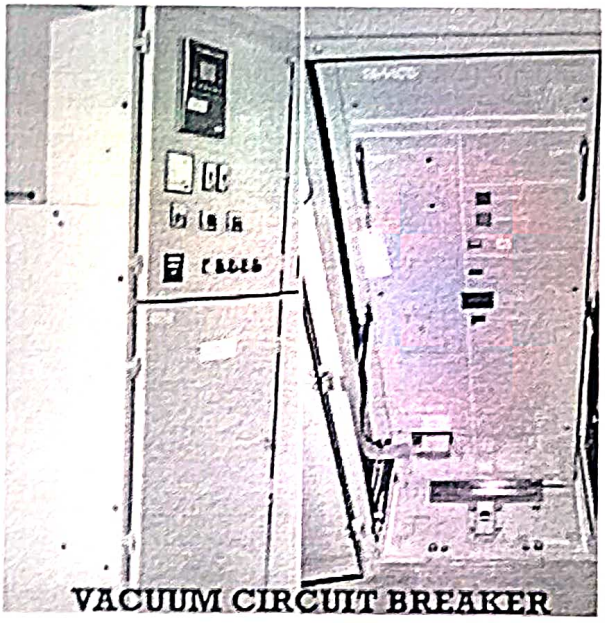




- **Lightening Arresters**

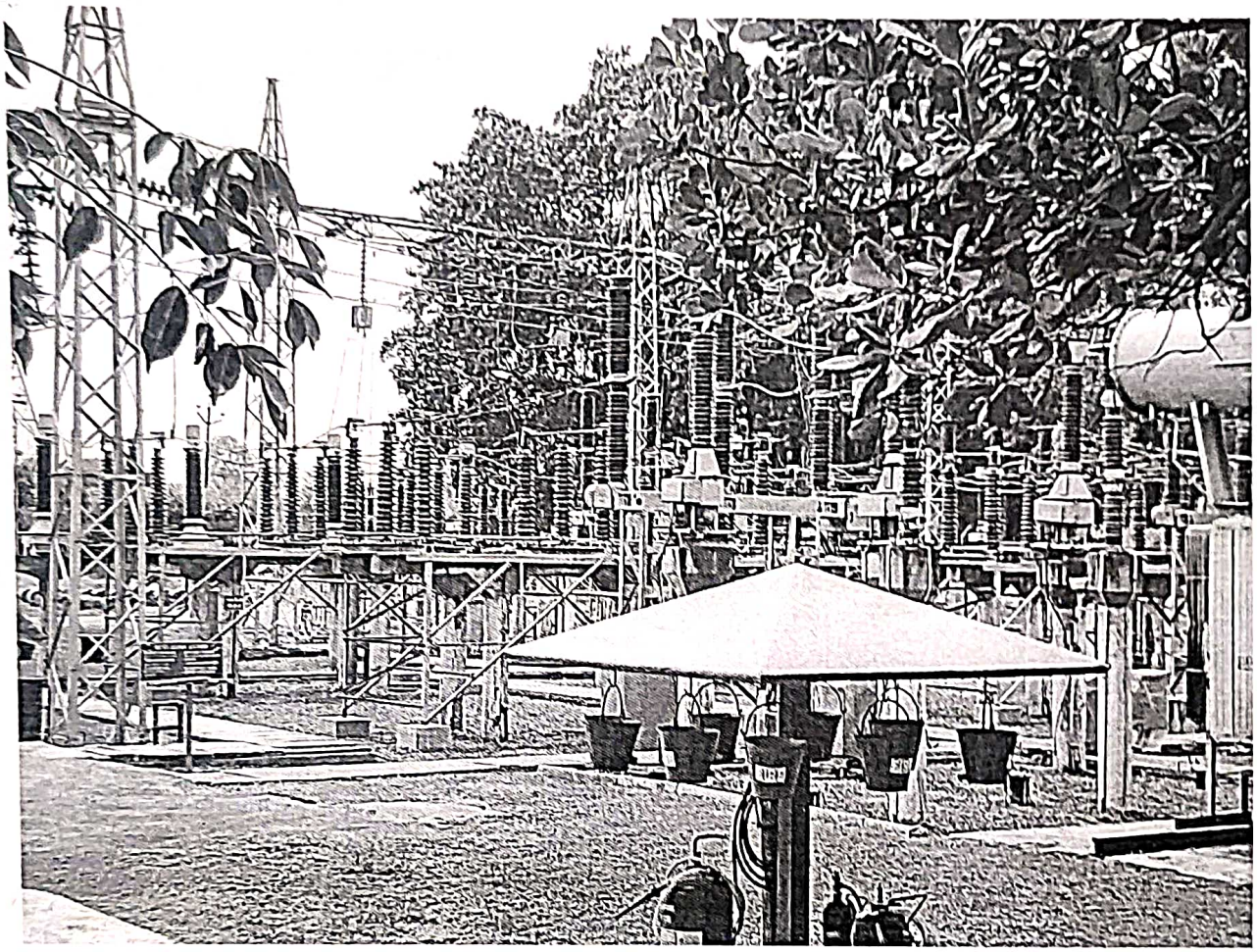
The substation equipments such as conductors, transformers, etc., are always erected outdoor. Whenever light surges occur then, a high-voltage pass through these electrical components causing damage to them (either temporary or permanent damage based on the amount of voltage surge). Therefore, to avoid this difficulty, lightening arresters are placed to pass the entire lightening surges to earth. There are other arresters which are used to ground the switching surges called as surge arresters.

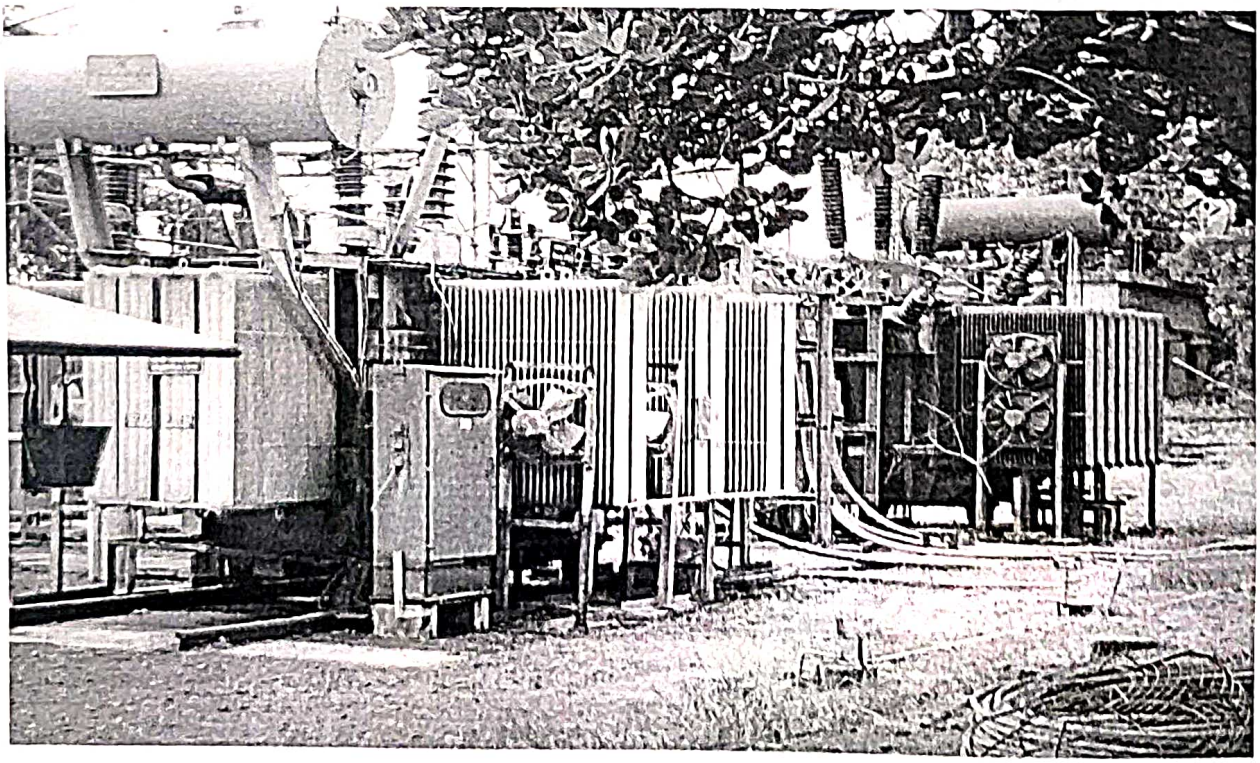
- **Circuit Breakers**



VACUUM CIRCUIT BREAKER

For the protection of substation and its components from the over currents or over load due to short circuit or any other fault the faulty section is disconnected from the healthy section either manually or automatically. If once the fault is rectified, then again the original circuit can be rebuilt by manually or automatically. Different types of circuit breakers are designed based on different criteria and usage. But in general mostly used circuit breakers are Oil circuit breaker, Air circuit breaker, SF6 circuit breaker, Vacuum Circuit Breaker.





Date: 19th September 2018

To

Principal,

Late G. N. Sapkal College of Engg.

Anjaneri, Nashik

This is to certify that 60 Third year Electrical Engineering students of Late G. N. Sapkal College of Engineering along with 2 faculty members have 132 KV Substation, Satpur,Dist-Nashik on 19th September 2018 between 10 am to 5 pm. During the visit they have seen Substation, Protective Equipment's, Transformers etc.

This certificate is issued on their request.

Thanking you.

From

Authorized Signatory

DY. EXE. ENGINEER
132 K.V. SATPUR S/S
M. S. E. T. C. L.

KALYANI CHARITABLE TRUST'S
LATE G. N. SAPKAL COLLEGE OF ENGINEERING
Kalyani Hills, Anjaneri-Vadholi, Trimbakeshwar Road, Dist: Nashik – 422 212 (India)
Tel.: +91 – 2594 – 220168/71, Fax : +91 – 2594 – 220174
Website:www.sapkalknowledgehub.org E-mail: gns_engineering@sapkalknowledgehub.com

-: A Report on Industrial visit: -

- **Title-** Industrial Visit to Nashik Engineering Cluster.
- **Objectives of Visit-** i) To understand knowledge about Testing.
  ii) To Understand the Testing of Electric Meters as well as Calibration of equipment.
- **Overview of visit-** Subject- Electrical Measurements & Instrumentation
  Class & Division- SE
  No of students- 45
  Day & Date-thursday,20th September 2018
- **Name & Address of Company** Nashik Engineering Cluster
  C-10, MIDC Ambad, Near XLO point.
  Nashik-422010
- **Plant Information-** In this Industry testing & Calibration is Carried out on Equipment.
- **About Power company:** Nashik Engineering Cluster was registered at Registrar of Companies Mumbai on 12 September, 2007 and is categorized as Company Limited by Guarantee and a Non-govt company. Nashik Engineering Cluster's Corporate Identification Number (CIN) is U91990MH2007NPL174059 and Registration Number is 174059.Nashik Engineering Cluster currently have 9 Active Directors / Partners: Ashok Bankatlal Bang, Balbirsingh Balwantsingh Chhabra, Narendra Johrimal Goliya, Nishikant Tulsiram Ahire, Vikram Deokisan Sarda, Vikram Deokisan Sarda, Sharad Chotalal Shah, Sushil Kumar Jain, Narendra Karbhari Birar, and there are no other Active Directors / Partners in the company except these 9 officials.Nashik Engineering Cluster is involved in Activity and currently company is in Active Status

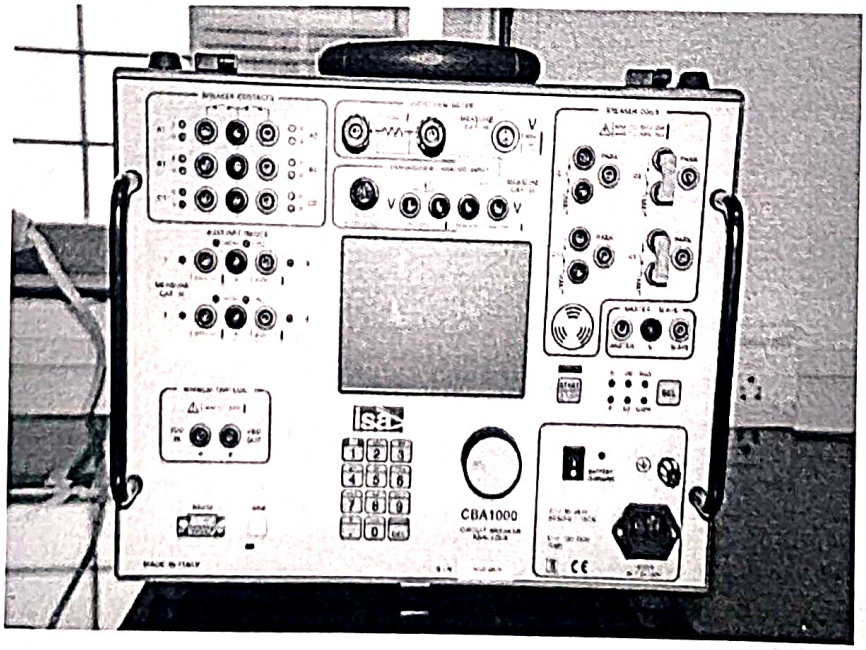
KCT's Late G. N. Sapkal College of Engineering Anjaneri Nashik 422 212

➢ CAPACITANCE TAN DELTA TEST SET UP

- **OEM Name** : HAEFELY
- **Specification/Capacity : Range** : up to 20kV
  Tan δ measuring range. (0-100)
- **Application :** To Measure PF,QF, Short Circuit Impedance, Excitation Current, Capacitance, Power, Losses, Impedance, Inductance, Reactance, Frequency Response

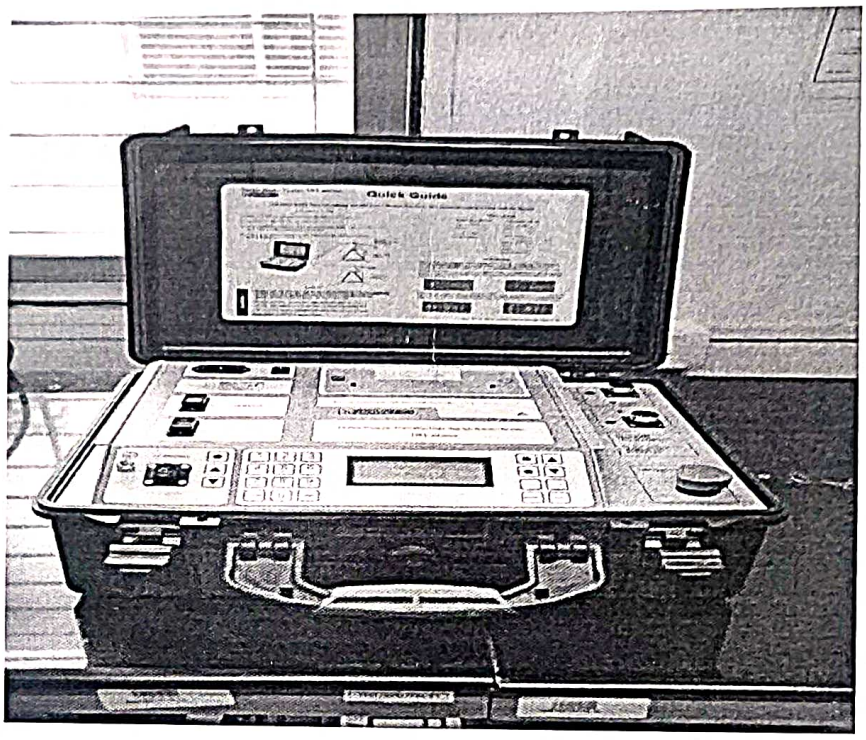
➢ CIRCUIT BREAKER ANALYZER

- **OEM Name** : ISA
- **Specification/Capacity** : Range:100 μs ± 0.025% Of The Time Range
- **Application** : CB Timing Test, CB Movement And Anolog Signal Test, Stat. & Dyn Resistance Test, Two Ground Test With BSG 1000, First Trip Test & Switch Sync Test



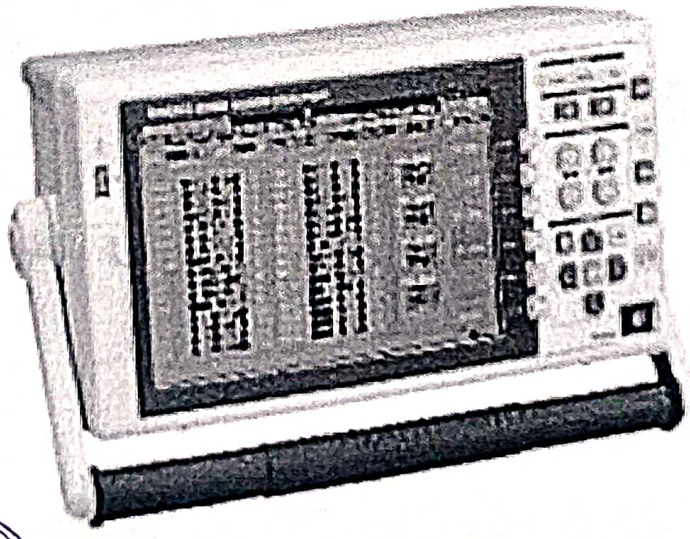
➢ TRANSFORMER TURN RATIO METER

- **OEM Name:** DV POWER
- **Specification/Capacity:** Range: 0.8-5000
- **Application:** To Check the Transformer Turn Ratio



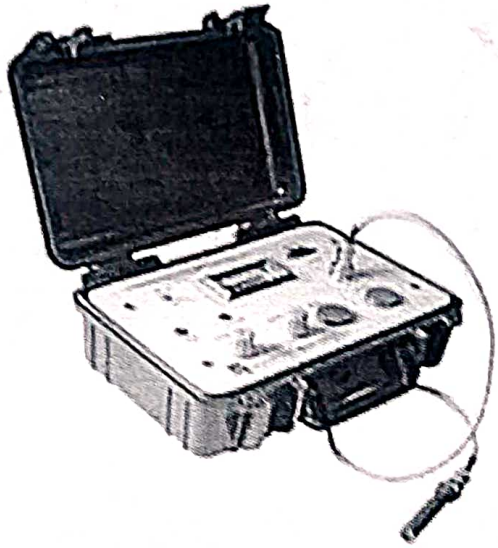
➢ POWER ANALYZER

- **OEM Name :** HIOKI
- **Specification/Capacity :**
  Measurable Lines: 1P2W, 1P3W, 3P3W, 3P3W2M, 3P3W3M
  10A to 500A -1V to 1000V -0.2PF to UPF
- **Application:** To Measure the Voltage, Current, Power, Power Factor, Power Loss
-



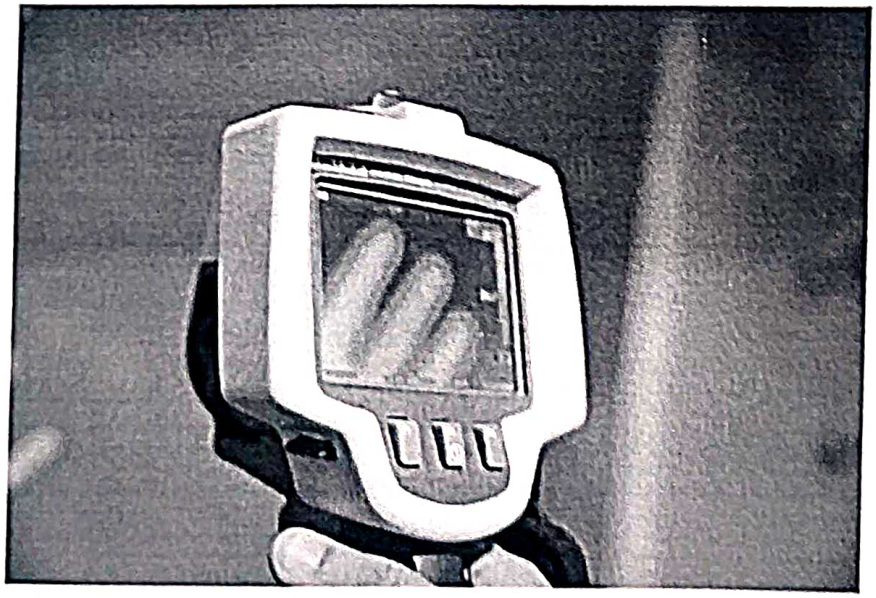
➢ CONDUCTIVITY METER

- **OEM Name:** Quadrant Measurement
- **Specification/Capacity:** Cu-Al IAC %
- **Application:** To Check the Conductivity Copper, Aluminum, Brass
-



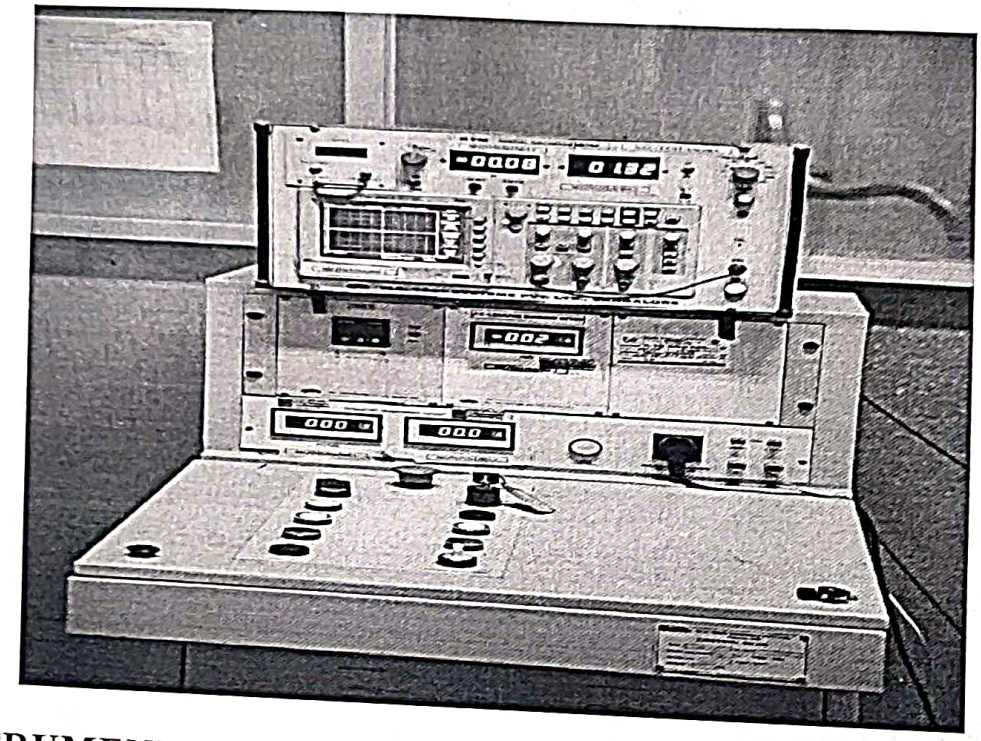
➢ THERMO VISION CAMERA

- **OEM Name:** Fluke USA
- **Specification/Capacity:** Temperature Measuring Range: -20 °C to +600 °C
- **Application:** Hot Spot Detection



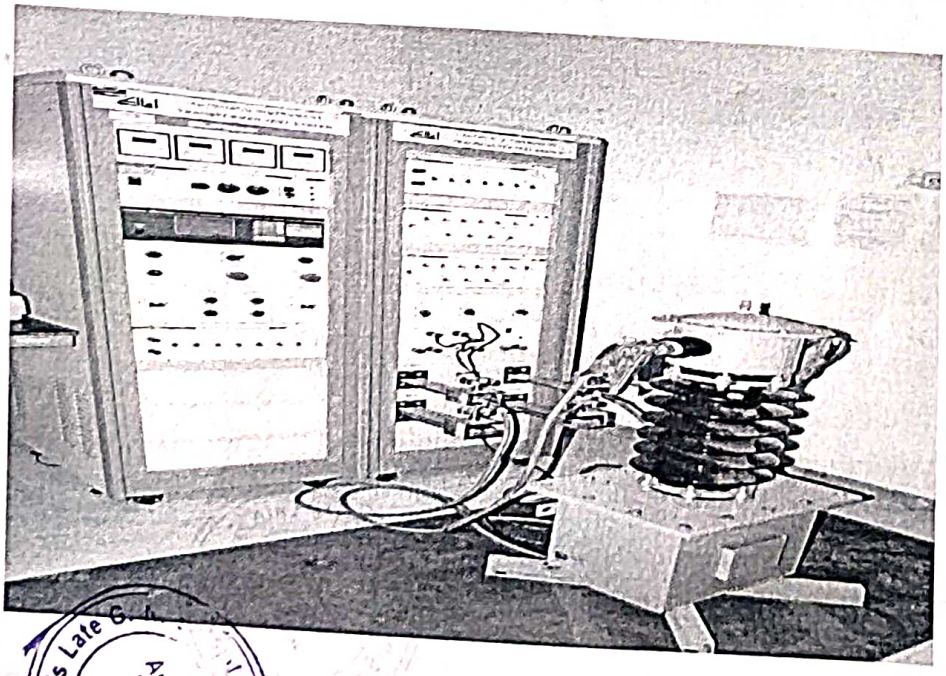
➢ PARTIAL DISCHARGE TEST SYSTEM

- **OEM Name** : WS Test System
- **Specification/Capacity** : Range : 0-100kV
  pC Range : 0 to 50000pC
- **Application** : To Check The Partial Discharge Value

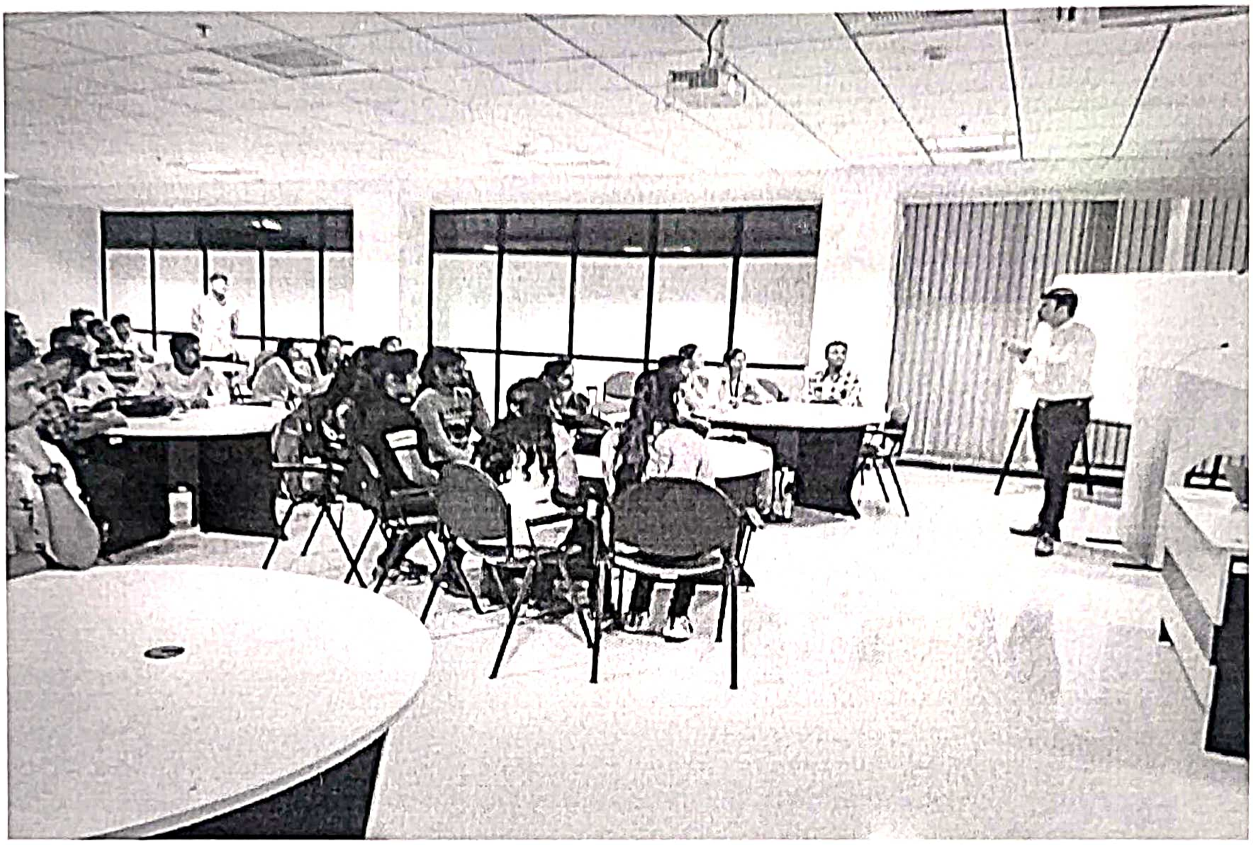


➢ INSTRUMENT TRANSFORMER TEST SET UP

- **OEM Name** : Eltel Industries
- **Specification/Capacity :**
  CT Range : 5 To 3200/1-5A
  CT Accuracy Class : 0.005%
  PT Range : 3.3 To 33kV
  PT Accuracy Class : 0.05%
- **Application** : To Test The Instrument Transformer



❖ **Photo of Visit:-**



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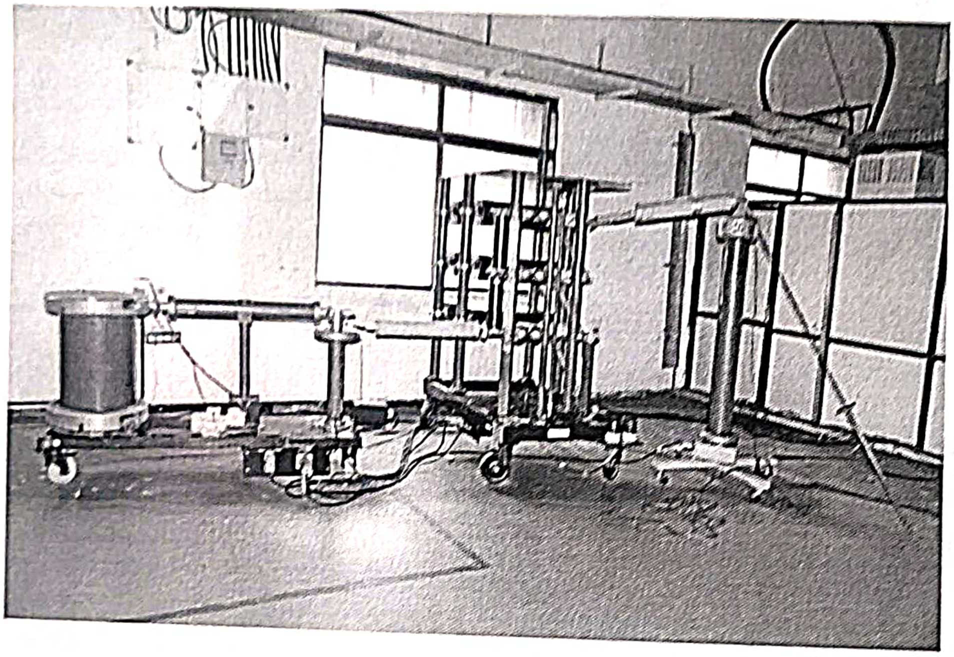
Anjaneri
Nashik
422 212

❖ **Points Studied in details-**

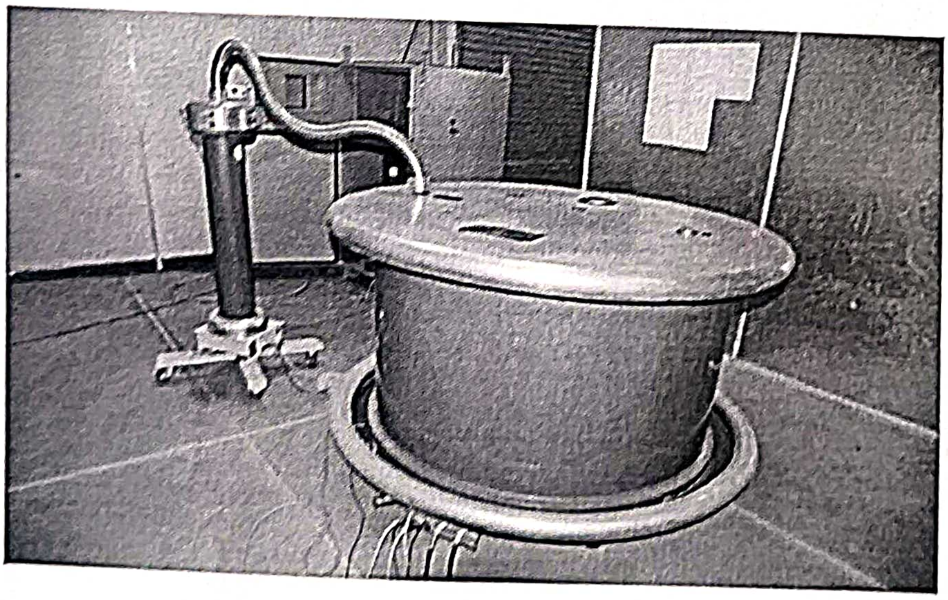
➢ LIGHTNING IMPULSE TEST SYSTEM

- **OEM Name**: WS Test System
- **Specification/Capacity**: Range: 0-300kVp -15kJ
- **Application**: To Check the Dielectric Strength of Electrical Products



➢ HV TEST SYSTEM

- **OEM Name:** WS Test System
- **Specification/Capacity:** Range: 0-100kV -100mA
- **Application:** To Check the Insulation Level of Electrical Products



Prof.U.S. Jathar
Industrial Visit Coordinator

KCT's Late G. N. Sapkal College of Engineering
Anjaneri
Nashik
422 212

Prof.R.N. Baji
Head of Electrical Department

SAPKAL KNOWLEDGE HUB

Department Of Electrical Engineering

BE Electrical

Industrial Visit Report

Date of Visit :	1st October 2019
Time :	6:00 am to 5:00 pm
Organization Visited :	HVDC Terminal Station, MSETCL, Padgha, Mumbai 421101
No. of Student :	56
Faculty Accomplished :	Proff. S. S. Tidke Mam Proff. P. V. Mohod Mam Proff. N. V. Hadpe Sir Mr .Vishal Shinde Sir

The Maharashtra State Electricity Board (MSEB) built a 1,500 MW HVDC link between the cities of Chandrapur and Padghe (near Mumbai) - the first HVDC transmission link to Mumbai. The converter terminals were constructed by ABB (Sweden and India) and Bharat Heavy Electricals Limited (BHEL) of India. The 500 kV Chandrapur - Padghe HVDC Bipole feeds Mumbai on the west coast with 1,500 MW from a thermal power generation plant located near Chandrapur in the eastern part of Maharashtra State 752 km away. The link helps to stabilize the Maharashtra grid, increasing power flow on the existing 400 kV AC lines while minimizing total line losses.

±500 KV HVDC Padghe Plant Specification:

Commissioning year:	1999
Power rating:	1,500 MW
No. of poles:	2
AC voltage:	400kv (on both side)
DC voltage:	+/- 500 kv
Length of overhead DC line	752 km
Main reason for choosing HVDC:	Long distance, network stability, environmental concerns
Application:	Connecting remote generation

The main objective of this visit can be briefed as :

- Visit is compulsory as a part of curriculum designed by Savitribai Phule Pune University for the subject of Power Quality, This visit was fruitful for students to bridge the gap between the theoretical and practical knowledge.

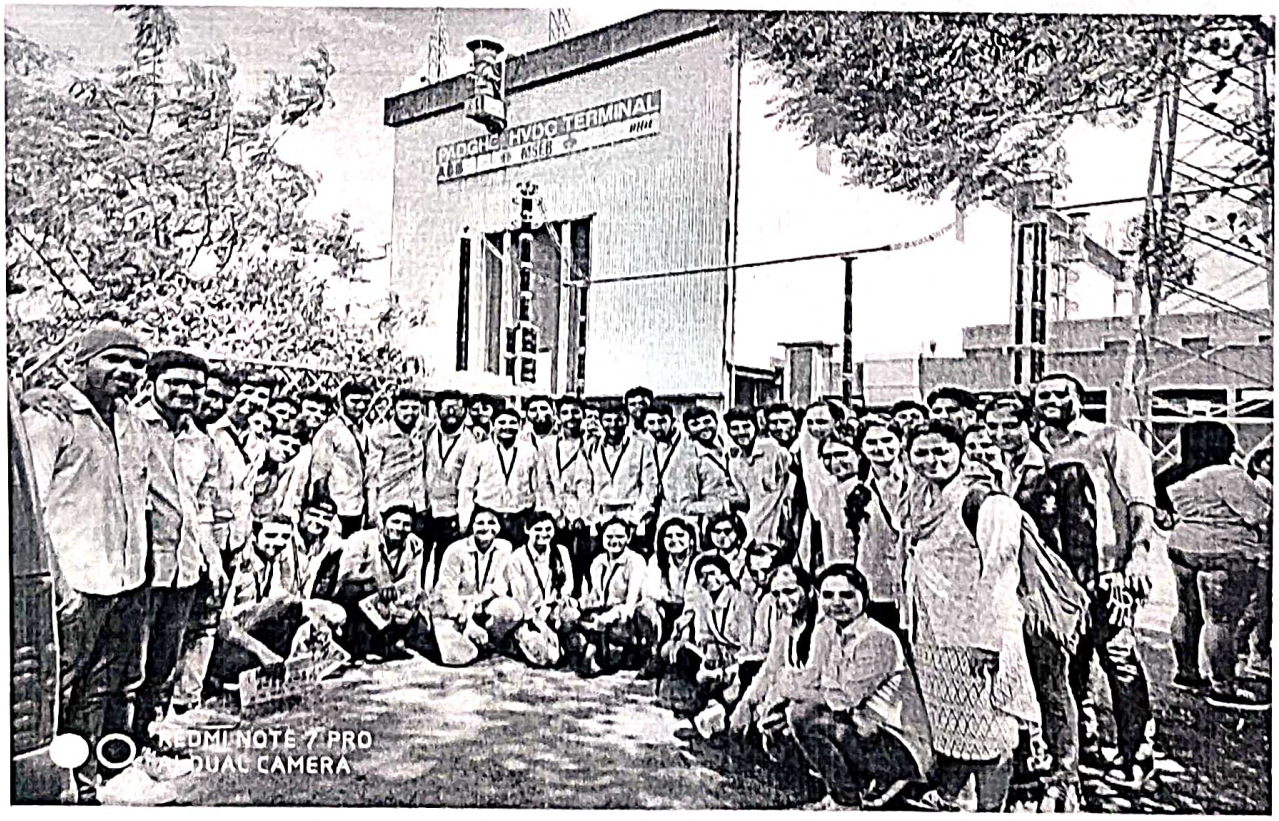
Outcome of the visit

- Students got the basic idea about Transmission Line Power Flow, Convert DC to AC, Thyristor Bank, DC and AC Switchyard Operation, Electrode Station, PLCC and SCADA System Operation, etc.
- Students got information about how to transmit power from Chandrapur and Padghe HVDC Terminal Station. Students observed the whole working process of Conversion of DC to AC.

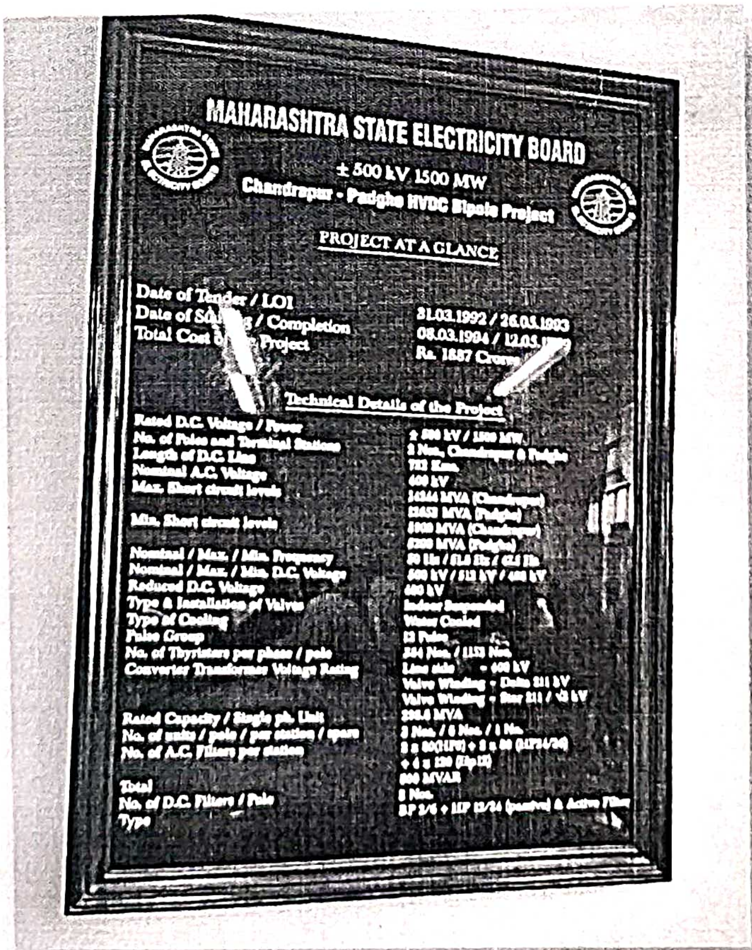
Student got information of various section of Padghe HVDC Terminal Station. ⍰ AC Switchyard ⍰ DC Switchyard ⍰ Control Room ⍰ Safety Section

Mr. Sunil Shenava (Ex.Engineer) gives the whole information about how to works HVDC terminal Station also explains HVDC Chandrapur to Padghe indication and control panel. After explanation students have visited to DC and AC Switchyard. In DC Switchyard 2 pole coming from Chandrapur power station. Mr. Sunil Shenava have explain details about centre tap isolator, lighting arrester, capacitor bank, smoothing reactor, etc. After students have visited to AC Switchyard, in AC Switchyard Mr. Yogesh Kaware explain details about AC power Transmission and Explain various equipment's in AC Switchyard.

Students found satisfactory about the industrial visit at HVDC Terminal Station, MSETCL, Padgha, Mumbai 421101




PADGHE HVDC TERMINAL
ABB
MSEB
AI DUAL CAMERA


MAHARASHTRA STATE ELECTRICITY BOARD
± 500 kV 1500 MW
Chandrapur - Padghe HVDC Bipole Project
PROJECT AT A GLANCE
Date of Tender / LOI
Completion
Project
31.03.1992 / 26.05.1993
08.03.1994
Technical Details of the Project
Rated D.C. Voltage / Power
No. of Poles and Terminal Stations
Length of D.C. Line
Nominal A.C. Voltage
Max. Short circuit levels
Min. Short circuit levels
Nominal / Max. / Min. Frequency
Nominal / Max. / Min. D.C. Voltage
Reduced D.C. Voltage
Type & Installation of Valves
Type of Cooling
Pulse Group
No. of Thyristors per phase / pole
Converter Transformer Voltage Rating
Rated Capacity / Single ph. Unit
No. of units / pole / per station / spare
No. of A.C. Filters per station
Total
No. of D.C. Filters / Pole
Type
400 kV
Indoor Suspended
Water Cooled
Line side
Valve Winding

Kalyani Charitable Trust's
LATE G. N. SAPKAL COLLEGE OF ENGINEERING
Sapkal Knowledge Hub, Kalyani Hills, Anjaneri, Trimbakeshwar Road, Nashik - 422 213. (India)
Tel.: + 91 - 2594 - 220168/69/70, Fax: + 91 - 2594 - 220174
E-mail : gns_engineering@sapkalknowledgehub.org | www.sapkalknowledgehub.org

Affiliated to : Savitribai Phule Pune University (ID. No.PU/NA/Engg./152/2009 Ref.No.-CA/6501 Dated- 18/11/2009)
Approved by : A.I.C.T.E., New Delhi (F.N: 06/07/MS-Engg/2008/O-17, Dated- 11th June 2009)
Govt. of Maharashtra (No. GEC-2009/(67/09)/T.E.- 4, Dated- 15th June 2009
D.T.E., M.S., Mumbai (No.2/NGC/Engg./Approval/2009/535, Dated - 23rd July 2009)

Ref:KCT'S/LGNSCOE/2019-20/ 215

Date:13.09.2019

To,
Superintending Engineer,
HVDC Terminal Station,
MSETCL,
Mumbai-Nashik Highway,
Padgha,Thane.
Pincode- 421101.

Sub- Requesting permission for Industrial visit at **HVDC Terminal Station, MSETCL, Padgha.**

Dear Sir,

This is a request to seek your kind permission for Industrial visit in your esteemed organization. As per our university norms, engineering students are expected to visit prominent industries and companies for an exposure to the latest trends. Consequently, **BE and TE students of the Electrical Engineering Department** of our college, desire to visit your organization.

At this Juncture, it is a pleasure for me to introduce to you, our college and department on behalf of the students and faculty. Late G N Sapkal college of Engineering started in 2009 with four branches that are Mechanical, Civil, Computer and Electronics & telecommunication & Electrical Engg Branch Started in 2013 as one of the reputed institute in Nasik, Maharashtra & a Part of **"SAPKAL KNOWLEDGE HUB"** affiliated to Savitribai Phule Pune university and approved by DTE, Mumbai & AICTE, New Delhi and for more information you can refer our site i.e. **www.sapkalknowledgehub.org/lgnscoe.**With Reference to above mention subject, we would like to send a batch of 80 students accompanied by 02 staff members to **HVDC Terminal Station, MSETCL, Padgha** between **23rd -28th September 2019**. The list of student and staff is attached to letter for your kind information.

I request you, to kindly accord the necessary permission for the above visit and arrange your staff for guiding the students. We assure you that our students will observe the rules & regulations that are prescribed by your organization.

We shall be grateful for a favorable response.

Thanking You.

Prof.R.N. Baji
HOD of Electrical Engg

13/09/2019
Yours truly,
Prof. (Dr.) S.B. Bagal
Principal

Visited on Dt. 01/10/19
at HVDC, Padgha
Dy. E., RTC, Pdg.

Kalyani Charitable Trust's
LATE G. N. SAPKAL COLLEGE OF ENGINEERING
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Affiliated to : Savitribai Phule Pune University (ID. No.PU/NA/Engg./152/2009 Ref.No.-CA/6501 Dated- 18/11/2009)
Approved by : A.I.C.T.E., New Delhi (F.N: 06/07/MS-Engg/2008/O-17, Dated- 11th June 2009)
Govt. of Maharashtra (No. GEC-2009/(67/09)/T.E.- 4, Dated- 15th June 2009
D.T.E., M.S., Mumbai (No.2/NGC/Engg./Approval/2009/535, Dated - 23rd July 2009)

Ref: KCTs/IIB/LGNSCOE/2022-23/513

Date-14/03/2023

To,
Director,
Nashik Transformer,
F-43, MIDC, Satpur, Nashik, Maharashtra-422007

Sub- Requesting permission for Industrial visit to your Industry.

Dear Sir,

This is a request letter to seek your kind permission for an industrial visit to Nashik Transformer . As per our university norms, engineering students are expected to visit prominent industries and companies for an exposure to the latest trends. Consequently, the **Second Year, Third Year** students of **Electrical Engineering Department** of our college, desire to visit your organization.

At this juncture, it is a pleasure for me to introduce to you, our college and department on behalf of the students and faculty. Late G N Sapkal College of Engineering started in 2009 as one of the institutes of Sapkal Knowledge Hub affiliated to Savitribai Phule Pune University and approved by DTE, Mumbai & AICTE, New Delhi.

In the above background, we would like to send a batch of about **60 students** accompanied by **02 staff members** to visit substation at Nashik Transformer, on **3rd Week of March 2023.** The list of student and staff is attached to letter for your kind information. I request you, to kindly accord the necessary permission for the above visit and arrange for guiding the students. We assure you that our students will observe the rules & regulations that are prescribed by Substation.

We shall be grateful for a favorable response.

Thanking You.

permission granted to 23/03/23 for visit.
9923602785

Yours truly,

Prof. (Dr.) S.B. Bagal
Principal

received

NASHIK TRANSFORMER INDUSTRIES F-43, MIDC, SATPUR NASHIK

KCTs Late G.N. Sapkal College of Engineering

Late G. N. Sapkal College of Engineering Anjaneri Nashik 422 212

Kalyani Charitable Trust's
Late G. N. Sapkal College of Engineering
Sapkal Knowledge Hub, Kalyani Hills, Anjaneri, Trimbakeshwar Road,
Nashik - 422 212, Maharashtra State, India
Tel: +91-2594-220168/71; Fax: +91-2594-220174
Website: www.sapkalknowledgehub.org,
E-mail: gns_engineering@sapkalknowled

ELECTRICAL ENGINEERING DEPARTMENT

NOTICE

Date: 21-03-2023

All Second & Third Year Students are hereby informed that department has organized Industrial visit at "**Nashik Transformers**" At post Satpur, Nashik on **23 March 2023 at 11:00 AM**. All students should compulsory remain present 15 minute before the visit at company gate with proper college uniform, ID card & Shoes. A Strict action will be taken for those who were absent.

Prof. R.U.Pawar
Industrial Visit i/c

Prof. R. N. Baji
HoD

Prof.(Dr.) S.B.Bagal
Principal

G. N. Sapkal College of Engineering
Anjaneri
Nashik
422 212

KALYANI CHARITABLE TRUST'S
LATE G. N. SAPKAL COLLEGE OF ENGINEERING
Kalyani Hills, Anjaneri-Vadholi, Trimbakeshwar Road, Dist: Nashik – 422 212 (India)
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Website: www.sapkalknowledgehub.org E-mail: gns_engineering@sapkalknowledgehub.com

ELECTRICAL ENGINEERING DEPARTMENT

-: A Report on Industrial visit: -

- **Title-** Industrial visit at Nashik Transformer Industries, Satpur, Nashik

- **Objectives of Visit-** i) To understand knowledge of transformer working.
  ii) To Understand installation of transformer, parts of transformer, design of transformer, testing of transformer, etc

- **Overview of visit-** Subject- Electrical Machines-1, Computer Aided Design of Electrical machines
  Class & Division- SE & TE Electrical Engg.
  No of students- 42
  Day & Date-Thursday, 23rd March 2023

- **Name & Address of Industry -** Nashik Transformer Industries, Satpur. Dist-Nashik

- **Industry Information-** This Nashik Transformer Industries situated at Satpur MIDC Dist.-Nashik.

About the Visit:

- This visit was arranged as per the university syllabus for the S.E. & T.E. Electrical under the subject of Electrical Machine-I & Computer Aided Design of Electrical machines. This visit was very helpful to the students for the understanding the construction, working & design of Electrical transformer, Current transformer & Potential transform.

G. N. Sapkal College of Engineering * KCT's Late * Anjaneri Nashik 422 212

❖ Points Studied in details-

GENERAL FABRICATION STRUCTURE

Meeting the ever increasing demand of Steel structure, we, at Nashik Transformer Industries are pleased to offer an exclusive gamut of Hot Dip Galvanized and fabricated steel structures for electrical and other infrastructures. We offer structures from standard to customized specification requirements in all shapes, sizes and dimensions.

- High load bearing capacity
- Long life and reliability

We are the leading Supplier and Manufacturer of Transformer Fabrication Services such as MS Transformer Tank Fabrication, Transformer Surface Treatment and Transformer Surface Coating from Nashik. Owing to the expertise of our professionals, we are betrothed in offering Transformer Fabrication Service. Our proficient professionals offer these services by using advanced technology in line with industry norms. Furthermore, we render these services to our clients as per their demands in different specifications. Customers can avail these services from us at industry leading prices.

TRANSFOMER MAINTENANCE

Nashik Transformer Industries performs interventions of maintenance and electrical repair on transformers, from the replacement of damaged parts to the renovation of the electrical component. Furthermore, Nashik Transformer Industries provide on-site maintenance on transformers in medium and high voltage. Maintenance can be counted on to maintain the performance quality, reliability and life of the transformers throughout your electric power system by providing complete transformer service solutions.

TRANSFOMER INSTALLATIONS

With a complete understanding of the domain, we are involved in providing Power Transformer & Distribution Transformer Installation Services. These services are rendered by our prestigious clients using the latest technologies and optimum quality transformers that are procured from the most reliable vendors of the market. on In Installation transformers of medium and large coreform design, from the smallest Padmount, to the largest Generator Step-Up with full security, quality and caution.

❖ Points Studied in details-

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Transformers are among the expensive assets used by industries in an electrical system. Usually replacement of transformer costs more than transformers repairing services. To compensate the cost, manufacturers bring the option of remanufacturing or restoring the

transformers. Repair consists of Portable Fault Gas Detector provides a sensitive and effective means for detecting faults in electrical transformers having gas space above the insulating oil.

POWER TRANSFORMER

A power transformer is characterized by inner and outer low voltage winding sections and a high voltage winding section disposed there between. The low voltage windings are comprised of a plurality of pancake coils, and the high voltage winding are comprised of a plurality of conductor strands spirally wound for a plurality of coil layers. A Power transformer is an electrical device that transfers energy between two or more circuits through electromagnetic induction. The low and high voltage winding sections are laterally spaced with the low voltage windings disposed in side-by-side positions and adjacent to the high voltage windings. The high voltage windings have a smaller turn height than the low voltage windings and have conductor strands of smaller gauge than the pancake coils of the low voltage windings.

PRODUCT RANGE:

25KVA to 2000KVA (11,22,&33/0.433KV)

Our all range of various products are tested and approved by ERDA Baroda (NABL APPROVED LABORATORY

APPLICATIONS:

Chemical, Pharmaceuticals, Steel, Textile, Engineering, Plastic, Cement, Refineries, Mining, Captive Power Projects, Hydro Power Projects, Wind Mill Farms, Construction Houses, Pharma, Electrical, Electronics, Renewable Energy, Automobile. A Power transformer is an electrical device that transfers energy between two or more circuits through electromagnetic induction.

FEATURES:

- Power Transformer gives Better distribution of power
- Better distribution of power
- Health & safety engineered into products
- Integrated monitoring & control solutions including smart cooling
- High fire point environmental fluid if beneficial
- Less maintenance

DISTRIBUTION TRANSFORMER

A distribution transformer is a transformer that provides the final voltage transformation in the electric power distribution system, stepping down the voltage used in the distribution lines to the level used by the customer. If mounted on a utility pole, they are called pole-

mount transformers. If the distribution lines are located at ground level or underground, distribution transformers are mounted on concrete pads and locked in steel cases, thus known as pad-mount transformers.

Distribution transformers normally have ratings up to 200 kVA, although some national standards can describe units up to 5000 kVA as distribution transformers. Since distribution transformers are energized for 24 hours a day (even when they don't carry any load), reducing iron losses has an important role in their design. As they usually don't operate at full load, they are designed to have maximum efficiency at lower loads. To have a better efficiency, voltage regulation in these transformers should be kept to a minimum. Hence they are designed to have small leakage reactance.

PRODUCT RANGE:

25KVA to 2000KVA (11, 22, & 33/0.433KV)

Our all range of various products are tested and approved by ERDA Baroda (NABL APPROVED LABORATORY).

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FEATURES:

- Primary and secondary terminals or studs
- Steps down the high voltage to low voltage
- Tin-plated high and low voltage bushing terminals to accommodate aluminum or copper conductors.
- Robust construction having excellent short circuit and thermal withstand capabilities.
- Proven technology, effectively improving the quality and reliability of the electrical distribution system.
- Reduced Life cycle costs

Photo 3: Understanding of Transformer Core & Winding Assembly to the students

Photo 4:Mr. Shubham Dhondage, Director, NTI explaining of Transformer Winding Assembly to SE & TE Students

❖ Photo of Visit

Photo 1: Industrial visit at Nashik Transformer Industries

Photo 2: Students understanding theory vs Practical knowledge about transformer in Industry

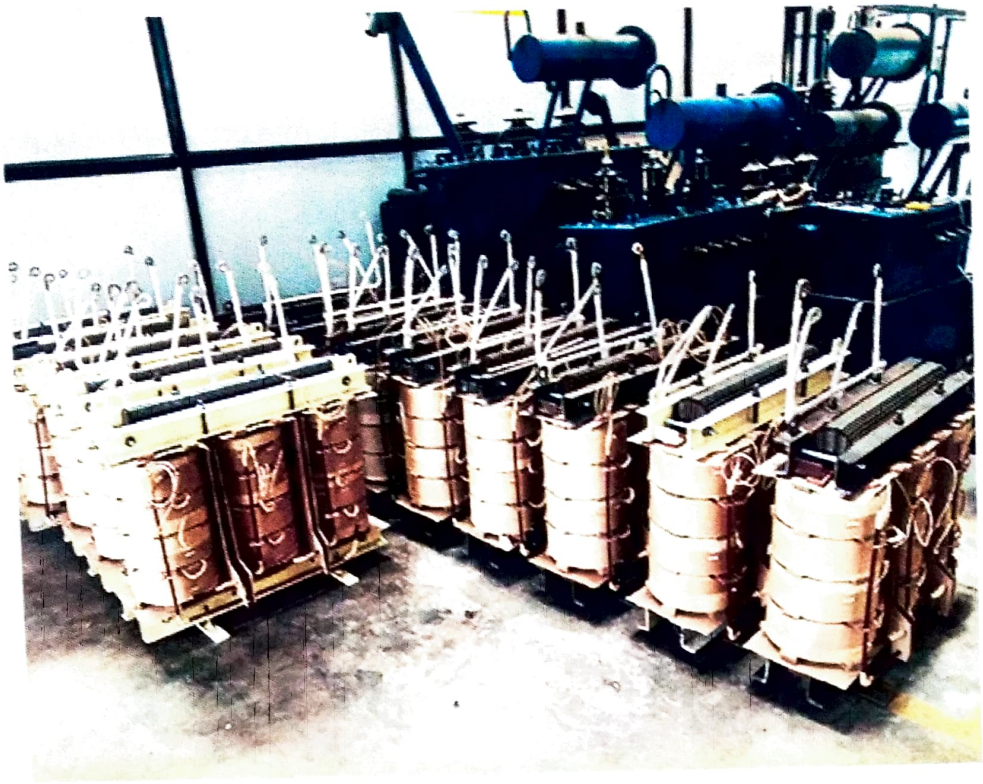

Photo 5: Types of Core Assembly

Prof. R. U. Pawar
Industrial Visit Coordinator

Prof. R.N. Baji
Head of Electrical Department

Prof. (Dr.) S. B. Bagal
Principal

G. N. Sapkal College of Engineering ★ KCT's Late
Anjaneri
Nashik
422 212

Date: 23March 2023

To

Principal,

Late G. N. Sapkal College of Engg.

Anjaneri, Nashik

This is to certify that Second Year,Third Year & Final Electrical Engineering students of Late G. N. Sapkal College of Engineering along with 2 faculty members have visited Nashik Transformer Industries, Satpur, Nasik on 23 March 2023 between 10 am to 5 pm. During the visit they have seen Distribution transformer assembly and manufacturing etc.

Thanking you.

From

27/03/2023.

Authorized Signatory

NASHIK TRANSFORMER INDUSTRIES NASHIK F-43, MIDC, SATPUR

Late G. N. Sapkal College of Engineering Anjaneri Nashik 422 212

KALYANI CHARITABLE TRUST'S

LATE G. N. SAPKAL COLLEGE OF ENGINEERING

SAPKAL KNOWLEDGE HUB

Kalyani Hills, Anjaneri-Vadholi, Trimbakeshwar Road, Dist: Nashik - 422 212 (India)
Tel.: +91 - 2594 - 220168/71. Fax : +91 - 2594 - 220174
Website:www.sapkalknowledgehub.org, E-mail: gns_engineering@sapkalknowledgehub.com

Department of Electrical Engineering

Attendnce sheet

industrial visit at "Nasik Transformers" on 23.03.2023

Sr.No	Name of Student	Class	Sign
1	Pratik Bhandare	B.E	Pratik
2	Tejaswini Kushade	BE	[signature]
3	Pallavi gore	BE	[signature]
4	Prashant Chalse	BE	[signature]
5	Ritesh Deore	BE	[signature]
6	Aditya Dhanwate	TE	Dhanwate
7	Kiran Bhare	TE	Kiran
8	Amit Tarware	TE	Amit
9	Patil Hardeep D	B.E	[signature]
10	Nikhil Kalal	T.E	Nikhil
11	Siddhesh Sindhikar	T.E	[signature]
12	Gawali khushabu	T.E	[signature]
13	Saurabh Kulkarni	T.E	[signature]
14	Sivani Shivani Halde	T.E	[signature]
15	Tejas D. Suryawanshi	T.E.	[signature]
16	Tejas T. Jadhe	T.E.	[signature]
17	~~Nikhil T. Kakad~~	T.E.	
18	Omkar S. wadwale	T.E	[signature]
19	Milesh R. shejwal.	T.E.	[signature]
20	Sanket M. Birari	BE	[signature]
21	Rushikesh D Sawant	BE	[signature]
22	Aniket S Kaluhkhe	BE	[signature]
23	Dipali Bokad	BE	[signature]
24	Mahendra Zole	TE	[signature]
25	Rushikesh Sathbai	BE	[signature]
26	Parth vidhate	BE	[signature]
27	Nikhil Gite	BE	[signature]
28	Ketan Suryawanshi	TE	[signature]
29	MAHESH Dangare	BE	MAhesh
30	Sandeep pawar	BE	[signature]
31	Yash K. mali	TE	[signature]
32	Aaditya chaudhari	TE	[signature]
33	shubham karalwad	TE	S Karalwad
34	Shubham Deole	BE	Deole

Late G. N. Sapkal College of Engineering, Anjaneri Nashik 422 212 - KCT's

KALYANI CHARITABLE TRUST'S

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Department of Electrical Engineering

Attendnce sheet

industrial visit at "Nasik Transformers" on 23.03.2023			
Sr.No	Name of Student	Class	Sign
1	Shubham Jeole	BE	
2	Dukale mahesh	TE	
3	Shubham Karaband	TE	
4	Aditya S. Chaudhari.	TE	
5	Yash. K Mali.	TE	
6	Rohit. B. Alhat	TE	
7	Darshana Dinesh Jadhav	SE	
8	Ashwini Bapu Borse	SE	
9	Shreyas. S. Giri	SE	
10	Kaustubh V. Waykole	TE	
11	Shubham Bhoi	BE	
12	Saif sayyed	BE	
13	prasad Khairnar	BE	
14	Suyash chide	BE	
15	AHER. MAHESH. S.	TE	
16	Rohit Jitendra Sonawane	TE	
17	Nikam Anant Shivaji	BE	
18	Chandrakala A. Ratmale	TE	
19	Samruddhi K. Sonawane	TE	
20	Sandesh R. Jadhav	SE	
21	Pranav. V. Potdar.	SE	
22			
23			
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30			

Late G. N. Sapkal College of Engineering • KCT
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ELECTRICAL ENGINEERING DEPARTMENT

NOTICE

Date: 23-04-2022

All Second & Third Year Students are hereby informed that department has organized Industrial visit at "**Nashik Transformers**" At post Satpur, Nashik on **25 April 2022 at 11:00 AM**. All students should compulsory remain present 15 minute before the visit at company gate with proper college uniform, ID card & Shoes. A Strict action will be taken for those who were absent.

Prof.P.R.Gajare
Industrial Visit i/c

Prof. R. N. Baji
HoD

Prof.(Dr.) S.B.Bagal
Principal

K.C.T.'s Late G. N. Sapkal College of Engineering
Anjaneri
Nashik
422 212

ELECTRICAL ENGINEERING DEPARTMENT

-: A Report on Industrial visit: -

- **Title-** Industrial visit at Nashik Transformer Industries, Satpur, Nashik

- **Objectives of Visit-** i) To understand knowledge of transformer working.
  ii) To Understand installation of transformer, parts of transformer, design of transformer, testing of transformer, etc

- **Overview of visit-** **Under the** Subject- Electrical Machine-1 & Computer Aided Design of Electrical machines
  Class & Division- SE & TE Electrical Engg.
  No of students- 35
  Day & Date-Monday, 25th April 2022

- **Name & Address of Industry -** Nashik Transformer Industries, Satpur. Dist-Nashik

- **Industry Information-** This Nashik Transformer Industries situated at Satpur MIDC Dist.-Nashik.

About the Visit:

This visit was arranged as per the university syllabus for the S.E. & T.E. Electrical under the subject of Electrical Machine-I & Design of Electrical machines. This visit was very helpful to the students for the understanding the construction, working & design of Electrical transformer, Current transformer & Potential transform.

❖ Points Studied in details-

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FEATURES:

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- Proven technology, effectively improving the quality and reliability of the electrical distribution system.
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❖ **Photo of Visit**

Photo 1: Industrial visit at Nashik Transformer Industries

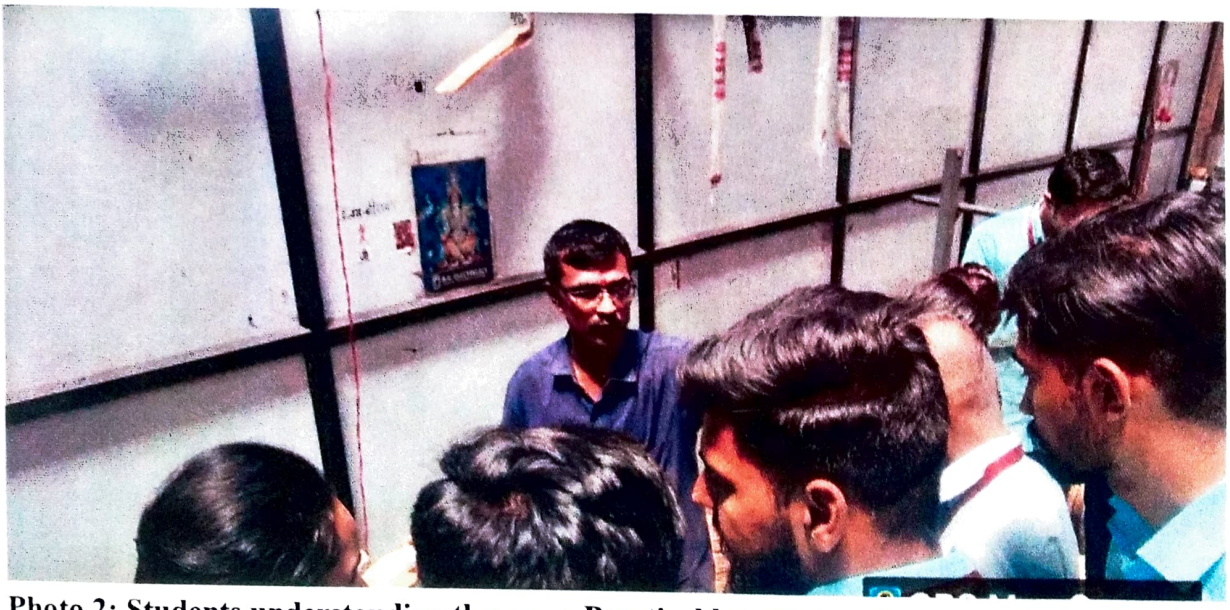

Photo 2: Students understanding theory vs Practical knowledge about transformer in Industry

Photo 3: Understanding of Transformer Core & Winding Assembly to the students

Photo 4: Types of Core Assembly

Prof. P. R. Gajare
Industrial Visit Coordinator

Prof. R.N. Baji
Head of Electrical Department

Prof. (Dr.) S. B. Bagal
Principal

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Website: www.sapkalknowledgehub.org, E-mail: gns_engineering@sapkalknowledgehub.com

Electrical Engineering Department

Date:25.04.2022

Industrial Vist at Nasik Transformers, Satpur , Nasik

Sr. no.	Name of Students	Sign	Sr. no.	Name of Students	Sign
1.	Athat Rohit Balasaheb	Rohit	21	Shivade ganesh	Ganesh
2.	Barhe Kiran Tayram	Kiran	22	Kakad Nikhil	Nikhil
3.	Bhagat Satish Laxman	Satish	23	Shivani Halde	Shivani
4.	Bhawar Prem Rohidas	B.P.R	24	Inlaykole Kaustubh	K. Kaustubh
5.	Bhoye Pranali Balwant	Pranali	25	Sonawane rohit	SR
6.	Mali vaibhav K	MKvm	26	karaband shubham	Shubham
7.	Chaudhari Aditya Sanjay	Aditya	27	Mahesh Aher.	Aher
8.	Mali YASH	Yashmali	28	Sonawane Samruddhi	SS
9.	Patil Gitesh	Gitesh	29	Nirbhawane Dinesh	Dinesh
10	Chavan Yogesh Avinash	Chavan	30	ketan Sahebrao	Ketan
11	Tarware Amit	Amit	31	wadwale omkar	Omkar
12	Dhanwate Aditya	Aditya	32	Kulkarni Saurabh.	K.S
13	Sindhikar Siddhesh	Sid	33	Zole mahendra	Mahesh
14	Rajput karansing	Rajput	34	Mahajan Vipul.	Vipul
15	Dukale Mahesh	D.Mahesh	35	Rautmale Chandrakala	Chandra
16	Sathe Tejas	Tejas			
17	Gavali Khushabu	Khushbu			
18	Suryavanshi Tejas	Tejas			
19	Gite Tejas.	T.gite			
20	Shejal nilesh	Shejal			

Visit Coordinator

HOD

K.C.T.'s Late G. N. Sapkal College of Engineering Anjaneri Nashik 422 212

Kalyani Charitable Trust's
LATE G. N. SAPKAL COLLEGE OF ENGINEERING
Sapkal Knowledge Hub, Kalyani Hills, Anjaneri, Trimbakeshwar Road, Nashik - 422 213. (India)
Tel. : + 91 - 2594 - 220168/69/70, Fax : + 91 - 2594 - 220174
E-mail : gns_engineering@sapkalknowledgehub.org | www.sapkalknowledgehub.org

Affiliated to Savitribai Phule Pune University (ID. No.PU/NA/Engg./152/2009 Ref.No.-CA/6501 Dated- 18/11/2009)
Approved by : A.I.C.T.E., New Delhi (F.N. 06/07/MS-Engg/2008/O-17, Dated- 11th June 2009)
Govt. of Maharashtra (No. GEC-2009/(67/09)/T.E.-4, Dated- 15th June 2009
D.T.E., M.S., Mumbai (No.2/NGC/Engg./Approval/2009/535, Dated - 23rd July 2009)

Ref: KCT'S/LGNSCOE/2019-20/ 599 Date:24/01/2020

To,
Mr. Shubham Dhondge,
Managing Director,
Nashik Transformer Industries.
F-43, MIDC, Satpur,
Nashik,

Sub- Requesting permission for Industrial visit at **Nashik Transformer Industries**
Dear Sir,

This is a request to seek your kind permission for Industrial visit in your esteemed organization. As per our university norms, engineering students are expected to visit prominent industries and companies for an exposure to the latest trends. Consequently, **SE and TE students of the Electrical Engineering Department** of our college, desire to visit your organization.

At this Juncture, it is a pleasure for me to introduce to you, our college and department on behalf of the students and faculty. Late G N Sapkal college of Engineering started in 2009 with four branches that are Mechanical, Civil, Computer and Electronics & telecommunication & Electrical Engg Branch Started in 2013 as one of the reputed institute in Nasik, Maharashtra & a Part of "**SAPKAL KNOWLEDGE HUB**" affiliated to Savitribai Phule Pune university and approved by DTE, Mumbai & AICTE, New Delhi and for more information you can refer our site i.e. **www.sapkalknowledgehub.org/lgnscoe.**With Reference to above mention subject, we would like to send a batch of 60 students accompanied by 03 staff members to **Nashik Transformer Industries** on **29th January, 2020**. The list of student and staff is attached to letter for your kind information.

I request you, to kindly accord the necessary permission for the above visit and arrange your staff for guiding the students. We assure you that our students will observe the rules & regulations that are prescribed by your organization.

We shall be grateful for a favorable response.

Thanking You.

Yours truly,

Prof. (Dr.) S.B. Bagal
Principal

Received & Conducted
on 29/01/2020
Jaydev Vaidande.

NASHIK TRANSFORMER INDUSTRIES · NASHIK · F-43, MIDC, SATPUR

Late G. N. Sapkal College of Engineering · K.C.T.'s · Anjaneri Nashik 422 213

Kalyani Charitable Trust's
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ELECTRICAL ENGINEERING DEPARTMENT

NOTICE

Date: 27-01-2020

All Second & Third Year Students are hereby informed that department has organized Industrial visit at "**Nashik Transformers**" At post Satpur, Nashik on **29 January 2020 at 11:00 AM**. All students should compulsory remain present 15 minute before the visit at company gate with proper college uniform, ID card & Shoes. A Strict action will be taken for those who were absent.

Prof. [illegible]. Hadpe
Industrial Visit i/c

Prof. R. N. Baji
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ELECTRICAL ENGINEERING DEPARTMENT

SEM-II A.Y.2019-20

-: A Report on Industrial visit: -

- **Title-** Industrial visit at Nashik Transformer Industries, Satpur, Nashik

- **Objectives of Visit-**
  i) To understand knowledge of transformer working.
  ii) To Understand installation of transformer, parts of transformer, design of transformer, testing of transformer, etc

- **Overview of visit-** Subject- Electrical Machines-1, Design of Electrical machines
  Class & Division- SE & TE Electrical Engg.
  No of students- 39
  Day & Date-Wednesday, 29th January 2020

- **Name & Address of Industry -** Nashik Transformer Industries, Satpur. Dist-Nashik

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About the Visit:

This visit was arranged as per the university syllabus for the S.E. & T.E. Electrical under the subject of Electrical Machine-I & Design of Electrical machines. This visit was very helpful to the students for the understanding the construction, working & design of Electrical transformer, Current transformer & Potential transform.

G. N. Sapkal College of Engineering Anjaneri Nashik 422 212

❖ Points Studied in details-

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- High load bearing capacity
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TRANSFOMER MAINTENANCE

Nashik Transformer Industries performs interventions of maintenance and electrical repair on transformers, from the replacement of damaged parts to the renovation of the electrical component. Furthermore, Nashik Transformer Industries provide on-site maintenance on transformers in medium and high voltage. Maintenance can be counted on to maintain the performance quality, reliability and life of the transformers throughout your electric power system by providing complete transformer service solutions.

TRANSFOMER INSTALLATIONS

With a complete understanding of the domain, we are involved in providing Power Transformer & Distribution Transformer Installation Services. These services are rendered by our prestigious clients using the latest technologies and optimum quality transformers that are procured from the most reliable vendors of the market. on In Installation transformers of medium and large coreform design, from the smallest Padmount, to the largest Generator Step-Up with full security, quality and caution.

TRANSFORMER REPAIRS

Transformers are among the expensive assets used by industries in an electrical system. Usually replacement of transformer costs more than transformers repairing services. To compensate the cost, manufacturers bring the option of remanufacturing or restoring the transformers. Repair consists of Portable Fault Gas Detector provides a sensitive and effective means for detecting faults in electrical transformers having gas space above the insulating oil.

POWER TRANSFORMER

A power transformer is characterized by inner and outer low voltage winding sections and a high voltage winding section disposed there between. The low voltage windings are comprised of a plurality of pancake coils, and the high voltage winding are comprised of a plurality of conductor strands spirally wound for a plurality of coil layers. A Power transformer is an electrical device that transfers energy between two or more circuits through electromagnetic induction. The low and high voltage winding sections are laterally spaced with the low voltage windings disposed in side-by-side positions and adjacent to the high voltage windings. The high voltage windings have a smaller turn height than the low voltage windings and have conductor strands of smaller gauge than the pancake coils of the low voltage windings.

PRODUCT RANGE:

25KVA to 2000KVA (11,22,&33/0.433KV)

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APPLICATIONS:

Chemical, Pharmaceuticals, Steel, Textile, Engineering, Plastic, Cement, Refineries, Mining, Captive Power Projects, Hydro Power Projects, Wind Mill Farms, Construction Houses, Pharma, Electrical, Electronics, Renewable Energy, Automobile. A Power transformer is an electrical device that transfers energy between two or more circuits through electromagnetic induction.

FEATURES:

- Power Transformer gives Better distribution of power
- Better distribution of power
- Health & safety engineered into products
- Integrated monitoring & control solutions including smart cooling
- High fire point environmental fluid if beneficial
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DISTRIBUTION TRANSFORMER

A distribution transformer is a transformer that provides the final voltage transformation in the electric power distribution system, stepping down the voltage used in the distribution lines to the level used by the customer. If mounted on a utility pole, they are called pole-mount transformers. If the distribution lines are located at ground level or underground, distribution transformers are mounted on concrete pads and locked in steel cases, thus known as pad-mount transformers. Distribution transformers normally have ratings up to 200 kVA, although some national standards can describe units up to 5000 kVA as distribution transformers. Since distribution transformers are energized for 24 hours a day (even when they don't carry any load), reducing iron losses has an important role in their design. As they usually don't operate at full load, they are designed to have maximum efficiency at lower loads. To have a better efficiency, voltage regulation in these transformers should be kept to a minimum. Hence they are designed to have small leakage reactance.

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FEATURES:

- Primary and secondary terminals or studs
- Steps down the high voltage to low voltage
- Tin-plated high and low voltage bushing terminals to accommodate aluminum or copper conductors.
- Robust construction having excellent short circuit and thermal withstand capabilities.
- Proven technology, effectively improving the quality and reliability of the electrical distribution system.
- Reduced Life cycle costs

❖ **Photo of Visit**

Photo 1: Industrial visit at Nashik Transformer Industries

Photo 2: Students understanding theory vs Practical knowledge about transformer in Industry

Photo 3: Understanding of Transformer Core & Winding Assembly to the students

Photo 4:Mr. Shubham Dhondage, Director, NTI explaining of Transformer Winding Assembly to SE & TE Students

Photo 5: Types of Core Assembly

Prof. N. V. Hadpe

Industrial Visit Coordinator

Prof. R.N. Baji

Head of Electrical Department

Prof. (Dr.) S. B. Bagal

Principal

G. N. Sapkal College of Engineering Anjaneri Nashik 422 213

Kalyani Charitable Trust's
Late G. N. Sapkal College of Engineering
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Website: www.sapkalknowledgehub.org;
E-mail: gns_engineering@sapkalknowled

ELECTRICAL ENGINEERING DEPARTMENT

NOTICE

Date: 26-04-2023

All Second, Third & Final Year Students are hereby informed that department has organized Industrial visit at "**Setu Electrical & Transformers**" At post Dhakambe, Industrial Area, Dindori road, Nashik on **27 April 2023 at 2:00 pm**. All students should compulsory remain present 15 minute before the visit at company gate with proper college uniform, ID card & Shoes. A Strict action will be taken for those who were absent.

Prof. R. U. Pawar
Industrial Visit i/c

Prof. R. N. Baji
HoD

Prof.(Dr.) S.B.Bagal
Principal

SETU ELECTRICAL GOVT. ELECTRICAL CONTRACTOR M.C. No. NASHIK

KCT's Late G. N. Sapkal College of Engineering Anjaneri Nashik 422 212

KALYANI CHARITABLE TRUST'S
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Website: www.sapkalknowledgehub.org E-mail: gns_engineering@sapkalknowledgehub.com

ELECTRICAL ENGINEERING DEPARTMENT

-: A Report on Industrial visit: -

- **Title-** Industrial visit at Setu Electricals situated at Setu Electricals & Transformers, At post Dhakambe, Industrial area, Dindori road, Nashik,Dist.-Nashik.

- **Objectives of Visit-**
  i) To understand knowledge of transformer working.
  ii) To Understand installation of transformer, parts of transformer, design of transformer, testing of transformer, etc

- **Overview of visit-** Subject- Computer Aided Design of Electrical machines & Switchgear& Protection
  Class & Division- TE & BE Electrical Engg.
  No of students- 42
  Day & Date-Thursday, 27 April 2023

- **Name & Address of Industry -** Setu Electricals & Transformers, At post Dhakambe, Industrial area, Dindori road, Nashik, Dist-Nashik

- **Industry Information-** This Setu Electricals situated at Setu Electricals & Transformers, At post Dhakambe, Industrial area, Dindori road, Nashik,Dist.-Nashik.

About the Visit:

- This visit was arranged as per the university syllabus for the S.E. & T.E. Electrical under the subject of Electrical Machine-I & Computer Aided Design of Electrical machines. This visit was very helpful

About the Visit:

- This visit was arranged as per the university syllabus for the S.E. & T.E. Electrical under the subject of Electrical Machine-I & Computer Aided Design of Electrical machines. This visit was very helpful to the students for the understanding the construction, working & design of Electrical transformer, Current transformer & Potential transform.

❖ Points Studied in details-

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FEATURES:

- Power Transformer gives Better distribution of power
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- Proven technology, effectively improving the quality and reliability of the electrical distribution system.
- Reduced Life cycle costs

❖ Photo of Visit

Photo 1: Industrial visit at Setu Electricals & Transformers Industries

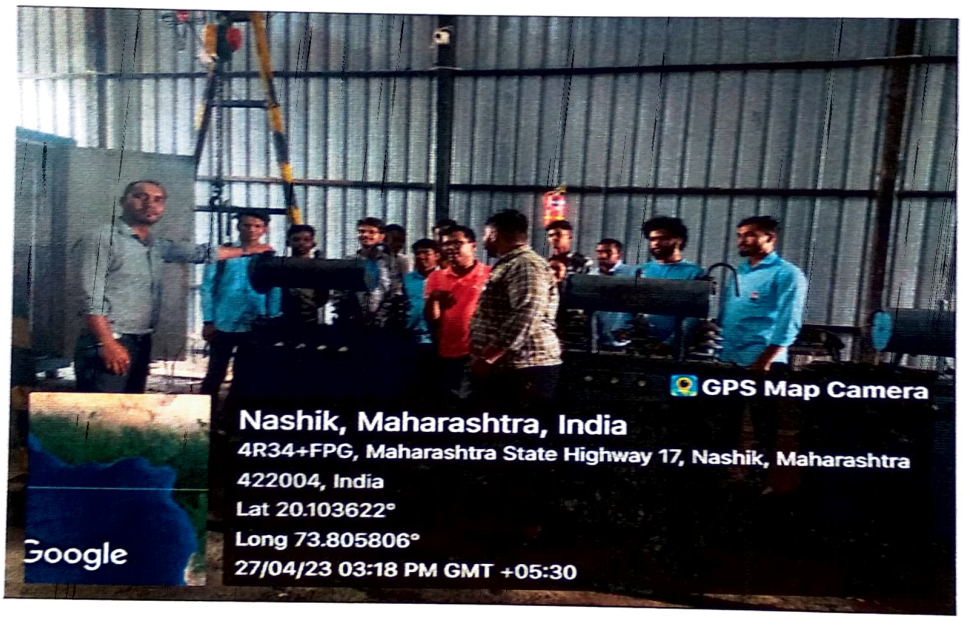

Photo 2: Students understanding theory vs Practical knowledge about transformer in Industry

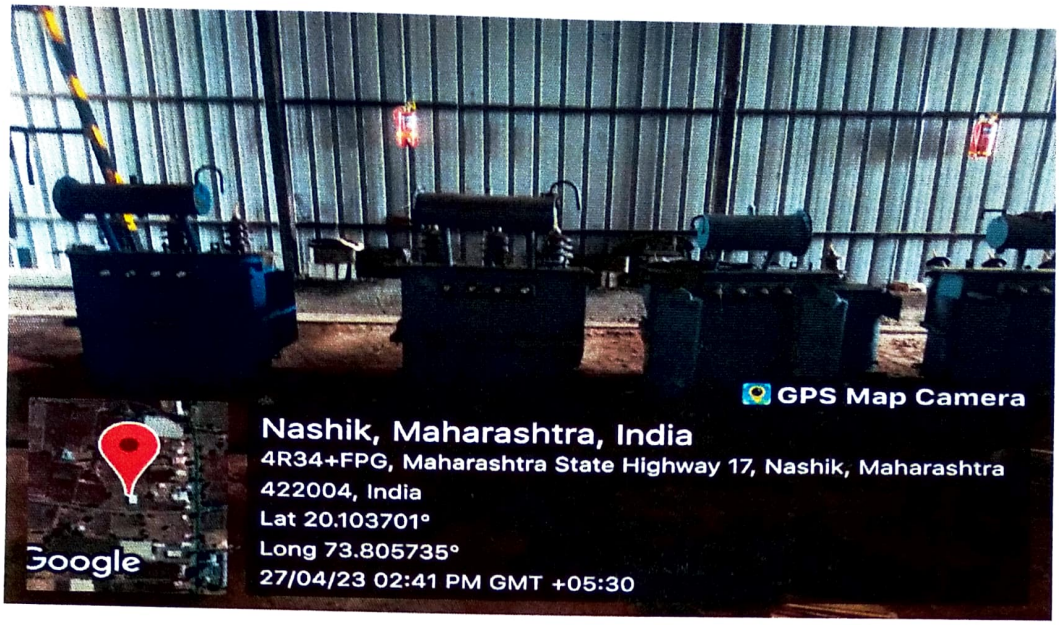

Photo 5: Types of Core Assembly

Prof. P. R. Gajare
Industrial Visit Coordinator
Department

Prof. R.N. Baji
Head of Electrical

Prof. (Dr.) S. B. Bagal
Principal

Late G. N. Sapkal College of Engineering ★ KCT's
Anjaneri
Nashik
422 212

Date: 27/04/ 2023

To

The Principal,

Late G. N. Sapkal College of Engg.

Anjaneri, Nashik

This is to certify that Second Year,Third Year & Final Electrical Engineering students of Late G. N. Sapkal College of Engineering along with 01 faculty members have visited Setu Electrical and Transformers, At Post Dhakambe,Industrial Area, Dindori road, Nashik.
on 27 April 2023 between 02 am to 5 pm. During the visit they have seen Distribution transformer,AC

DC Machine repairing and maintenance etc.

Thanking you.

From

Authorized Signatory

Late G. N. Sapkal College of Engineering
Anjaneri
Nashik
422 212

KALYANI CHARITABLE TRUST'S
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Electrical Engineering Department

Date27.04.23

Industrial Vist at Setu Electricals ,Dindori Road , Nasik

Sr. no.	Name of Students	Sign	Sr. no.	Name of Students	Sign
1	Bhandare Pratik		21	Nikam Anant	
2	Bhoi Shubham		22	patil Harshdeep	
3	Birari Sanket		23	Pawar Sandeep	
4	Bokad Dipali		24	Satbhai Rushikesh	
5	Borde Devdatta		25	Hiwale Sumeet	
6	Chalse Prashant		26	Yeole Shubham	
7	Chide Suyash		27	Sayyed Saif	
8	Kale Darshan		28	Borse Ashwini	
9	Deore Ritesh		29	Jadhav Darshana	
10	Gangurde Rushikesh		30	Hire Vishal	
11	Gite Nikil		31	Potdar Pranav	
12	Gore Pallavi		32	Shewale Aditya	
13	Gosavi Tanmay		33	Zole Mahendra	
14	Jagadale Anil		34	Mali Yash	
15	Kalunkhe Aniket		35	Aher Mahesh	
16	Khairnar Prasad		36	Patil Anuj	
17	Shirsath Kunal		37	Barhe Kiran	
18	Khrnade Tejaswini		38	Halde Shivani	
19	Dangare mahesh		39	Kulkarni Saurabh	
20	Narkhede Poonam		40	Kakad Nikhil	

Visit Coordinator

HOD

G. N. Sapkal College of Engineering ★ KCT's Late
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Nashik
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Kalyani Charitable Trust's
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E-mail: gns_engineering@sapkalknowled

ELECTRICAL ENGINEERING DEPARTMENT

NOTICE

Date: 05-05-2022

All Second, Third & Final Year Students are hereby informed that department has organized Industrial visit at "**Setu Electricals & Transformers**" At post Dhakambe, Industrial Area, Dindori road, Nashik on **07 May 2022 at 11:00 AM**. All students should compulsory remain present 15 minute before the visit at company gate with proper college uniform, ID card & Shoes. A Strict action will be taken for those who were absent.

Prof. P.R.Gajare
Industrial Visit i/c

Prof. R. N. Baji
HoD

Prof.(Dr.) S.B.Bagal
Principal

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ELECTRICAL ENGINEERING DEPARTMENT

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❖ **Title-** Industrial visit at Setu Electricals situated at Setu Electricals & Transformers, At post Dhakambe, Industrial area, Dindori road, Nashik,Dist.-Nashik.

❖ **Objectives of Visit-**
i) To understand knowledge of transformer working.
ii) To Understand installation of transformer, parts of transformer, design of transformer, testing of transformer, etc

❖ **Overview of visit-** Subject- Electrical Machines-I, Computer Aided Design of Electrical machines
Class & Division- SE & TE Electrical Engg.
No of students- 42
Day & Date-Thursday, 07 MAY 2022

❖ **Name & Address of Industry -** Setu Electricals & Transformers, At post Dhakambe, Industrial area, Dindori road, Nashik, Dist-Nashik

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Late G. N. Sapkal College of Engineering ★ KCT's
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About the Visit:

- This visit was arranged as per the university syllabus for the S.E. & T.E. Electrical under the subject of Electrical Machine-I & Computer Aided Design of Electrical machines. This visit was very helpful to the students for the understanding the construction, working & design of Electrical transformer, Current transformer & Potential transform.

Points Studied in details-

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