PRASAD V POTLURI
SIDDHARTHA INSTITUTE OF TECHNOLOGY

(AUTONOMOUS)
KANURU, VIJAYAWADA - 520 007.
(Sponsors : Siddhartha Academy of General & Technical Education, Vijayawada)
Affiliated to JNTUK, Kakinada (College Code : 50)
Approved by AICTE, Accredited by **NAAC** with **'A+' Grade**
UG Programs are Accredited by NBA
An ISO 9001 : 2015 Certified Institution

Ref : PVPSIT/50/EEE

Date : 16.10.2023

To

The Managing Director
Sai Tesla Power Tech,
#9-30, Surampalle,
Nuzvid Road,
Vijayawada, Andhra Pradesh – 521212,
INDIA.
Ph: 9959989041

Sir,

Sub: **Request for permission to industrial visit**- Reg.

PVP Siddhartha Institute of Technology, sponsored by Siddhartha Academy of General & Technical Education, Vijayawada-10 is established in 1998 to impart Technical Education at UG & PG level to the students.

Industrial visits will help the students in enhancing their practical skills, which in turn augment theoretical knowledge. I shall be glad if you would kindly permit the II B.Tech EEE students (72) along with two faculty members to visit the industry in the month of October 2023.

I request to kindly grant the permission and intimate us so that we can make necessary arrangements.

Thanking you,

Yours Sincerely,

(Dr. Ch.Padmanabha Raju)
HEAD
Dept.of Electrical & Electronics Engg.
PRASAD V.POTLURI
SIDDHARTHA INSTITUTE OF TECHNOLOGY
KANURU, VIJAYAWADA-520007.

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Labels

1 of 1,386

---------- Forwarded message ---------
From: **sai tesla** <saipowertech9@gmail.com>
Date: Wed, Oct 18, 2023, 09:49
Subject:
To: Borra, Surya Prasada Rao <suryaborra1679@pvpsiddhartha.ac.in>

To
The Principal
PVPSIT
With reference to your letter, I am pleased to confirm the visit of II EEE students to our organisation on 26.10.2023
With regards
N. Raju
Managing Director
Sai Tesla Power tech

On Tue, 17 Oct, 2023, 10:55 Borra, Surya Prasada Rao, <suryaborra1679@pvpsiddhartha.ac.in> wrote:
Dear Sir
Please provide a slot on 26.10.2023 for our II B.Tech students to visit your esteemed organization
Thanking you

Reply Forward

91°F
Haze

Search

12:56
18-10-2023

PVP SIDDHARTHA INSTITUTE OF TECHNOLOG,KANURU,VIJAYAWADA-7
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

INDUSTRIAL VISIT REPORT

SUMMARY REPORT ON EVENT ORGANIZED Academic Year 2023-24	
Date of Visit	**26.10.2023**
Place of Visit	**Sai Tesla Power Tech, Surampalli**
Contact Person Details	N. Raju, Manager
Brief Report on the Event	An industrial visit has been organized by the Department of Electrical and Electronics Engineering for II-year I semester students on 26th October 2023. The main objective of the visit was to provide technical exposure to the students about the manufacturing process and technology of Transformer. It is aimed at giving Industrial exposure and Entrepreneurship skills to students.
No. of the participants	Student Participants-56 (II year) Faculty Participants-2 1) Dr.C.Kumar, Associate Professor 2) Mr.B.Mohan, Assistant Professor
Consolidated Feedback	Good
Suggestions if any	NIL

Coordinator

HOD

HEAD
Dept.of Electrical & Electronics Engg.
PRASAD V.POTLURI
SIDDHARTHA INSTITUTE OF TECHNOLOGY
KANURU,VIJAYAWADA-520007.

PVP SIDDHARTHA INSTITUTE OF TECHNOLOGY, VIJAYAWADA - 520 007

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

AUTONOMOUS (PVP 20 REGULATION)

II B. Tech. I sem STUDENT LIST A.Y. 2023 - 24

Industrial Visit - Sai Tesla Power Tech, Surampalli - 26.10.2023

Sl. No.	Regd. No.	Name of the student	Student Sign
1	22501A0201	AKKALA LAKSHMI CHAITANYA	
2	22501A0202	AMBATI NITHIN REDDY	ABSENT
3	22501A0203	AREPALLI MONIKA	A. monika
4	22501A0204	AREPALLI NAGA VENKATA LAKSHMAN	A. Lakshman
5	22501A0205	BALARAJU ADITYA SRIKAR VARMA	B. Adithya
6	22501A0206	BATCHU NAGA MALLESWARI	Malleswari
7	22501A0207	BATTULA GNANESHWAR	B. Gnaneshwar
8	22501A0208	BEJJI USHA RANI	B. Usha
9	22501A0209	BETHALA SUMANJALI	
10	22501A0210	BHASURU BALAJI	AB
11	22501A0211	BONU MEGHANA	AB
12	22501A0212	BORUKATI SHANMUKHA PRIYA	AB
13	22501A0213	CHAMANA POORNIMA	B. Shanu
14	22501A0214	CHEPARTHI GANESH	AB
15	22501A0215	CHILLIMUNTHA NAGA MAHA LAKSHMI	
16	22501A0216	CHINDA PAVANI	Mahal
17	22501A0217	DALAI CHANDRIKA	AB
18	22501A0218	DALAYI GANESH	AB
19	22501A0219	DOPPA BHAVANI	D. Ganesh
20	22501A0220	GANGISETTI TEJASWI	D. Bhavani
21	22501A0222	GOGINENI YAMINI	G. Tejaswi
22	22501A0223	JOGI ROOPA SRI	G. Yamini
23	22501A0224	JUVVANAPUDI SUPRAJA	J. Roopa Sri
24	22501A0225	KAKARLA KEERTHI	J. Supraja
25	22501A0226	KODALI KAVYA	AB
26	22501A0227	KONDAPALLI BHANU SREE	Kavya. K.
27	22501A0228	KOTHARI JAYESH KUMAR	K. Bhanu
28	22501A0229	KOYYANA TARUN KUMAR	Sayesh. K
29	22501A0230	LINGATHOTI ABHINANDANA	Tarun
30	22501A0231	MATTA YATISH SOMA SAI BABA	Abhi
31	22501A0232	MEESALA ZIPPORAH	AB
32	22501A0233	MUDHRABOYINA PAVAN	M. Zipporah
33	22501A0234	NAGADESI JAHNAVI	M. Pavan
34	22501A0235	NARRA SAI DIVYESH	N. Jahnavi
35	22501A0236	OKIL RAHUL	N. Sai Divyesh
36	22501A0237	OMMI MEGHANA	O. Rahul
37	22501A0238	PAILA AKIL	O. Meghana
			AB

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY, KANURU, VIJAYAWADA-7

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

INDUSTRIAL VISIT REPORT

Year of Study: II B.Tech I Sem **Date: 26.10.2023**

Name of the Industry: Sai Tesla Power Tech

(Transformer Maintenance Services and Erection of Transformers)

An industrial visit to Sai Tesla Power Tech Surampalli (V), Nunna (M), Vijayawada Rural was organized by the department of EEE, **Entrepreneurship Development Cell (ED Cell), PVPSIT** on 26.10.2023. 56 students and 2 faculty members visited the industry. To understand how the production activity, and management process and also to acquire knowledge and experience.

We are II B.Tech I Sem students who went to **Sai Tesla Power Tech** by college bus. They had given a briefing of rules and guidelines to be followed by everyone inside the industry.

In the real-time industry of transformer construction, maintenance, services, and tests conducted on the transformer and also various important equipment which are very much needed to enhance the efficiency of the transformer and enhance the life span of the transformer are explained.

In the following sections, we have visited and got explanations from industry experts.

They explained the process of manufacturing transfers and how the transformers transfer electrical energy from one circuit to another circuit. They also explained primary winding and secondary winding in the transformers. It can hold 11 KV to 440 V, the number of turns of the primary winding and secondary winding depends upon the capacity of the transformers.

Distribution Transformer Making of LT and HT Windings

They even showed us the wrapping machine that provides insulation to the windings, and also the Meggar that contains a value of 10 Mega ohm.

Distribution transformers consist of a magnetic core made from **laminations** of sheet silicon steel (transformer steel) stacked and either glued together with resin or banded together with steel straps, with the primary and secondary wire windings **wrapped** around them. This core construction is designed to reduce core losses, and dissipation of magnetic energy as heat in the core, which are an economically important cause of power loss in utility grids. **Core losses** are caused by two effects; hysteresis loss in the steel, and **eddy currents**. Silicon steel has low **hysteresis loss**, and the laminated construction prevents eddy currents from flowing in the core, which dissipates power in the resistance of the steel. The

efficiency of typical distribution transformers is between about 98 and 99 percent. Where large numbers of transformers are made to standard designs, a wound C-shaped core is economical to manufacture. A steel strip is wrapped around a former, pressed into shape, and then cut into two C-shaped halves, which are re-assembled on the copper windings.

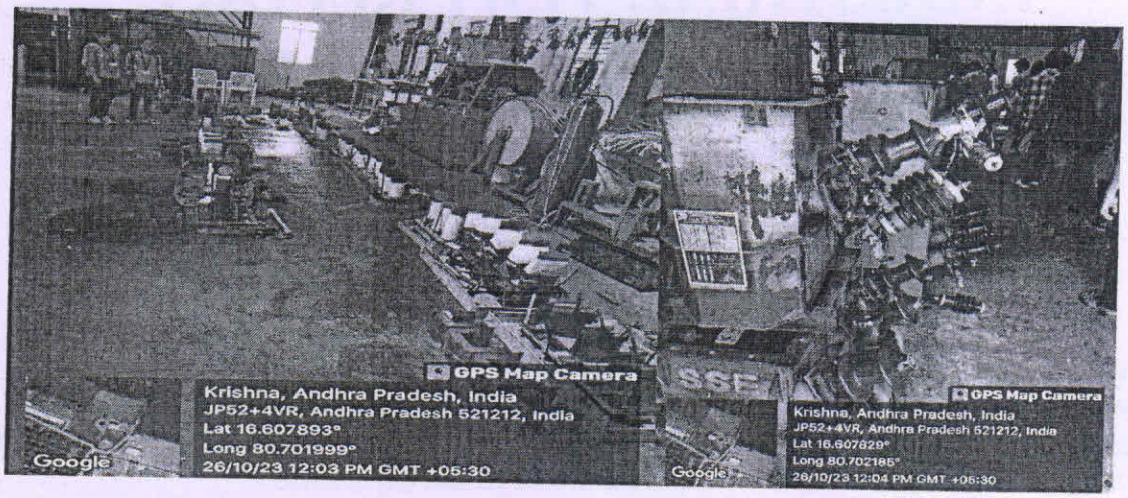


Figure: Transformer LT, HT windings process and transformer bushings.

The primary coils are wound from enamel-coated copper or aluminum wire and the high-current, low-voltage secondaries are wound using a thick ribbon of aluminum or copper. The windings are insulated with resin-impregnated paper. The entire assembly is baked to cure the resin and then submerged in a powder-coated steel tank which is then filled with transformer oil (or other insulating liquid), which is inert and non-conductive. The transformer oil cools and insulates the windings, and protects them from moisture. The tank is temporarily evacuated during manufacture to remove any remaining moisture that would cause arcing and is sealed against the weather with a gasket at the top.

A **Buchholz relay** is an electrical transformer **protection device**. For the conservator type, a **gas-actuated relay** or Buchholz relay is installed between the **conservator tank** and the **main tank.** Gas-actuated relays have two functions, whereas a Buchholz Relay has three. The Buchholz relay is named after its inventor, **Max Buchholz**.

The function of a **conservator** is to take up the contraction and expansion of oil without allowing it to come in contact with outside air.

A **breather** is an accessory of liquid-immersed power transformers attached to the conservator tank. They serve as the breathing point of the transformer. The breather contains silica gel crystals which have a tremendous capacity of absorbing moisture.

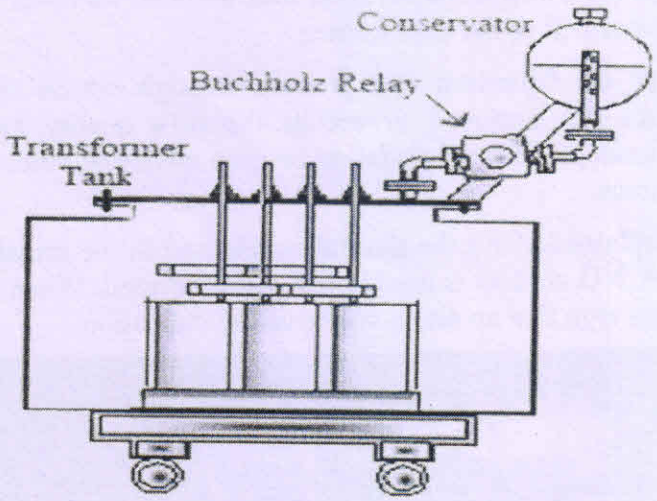
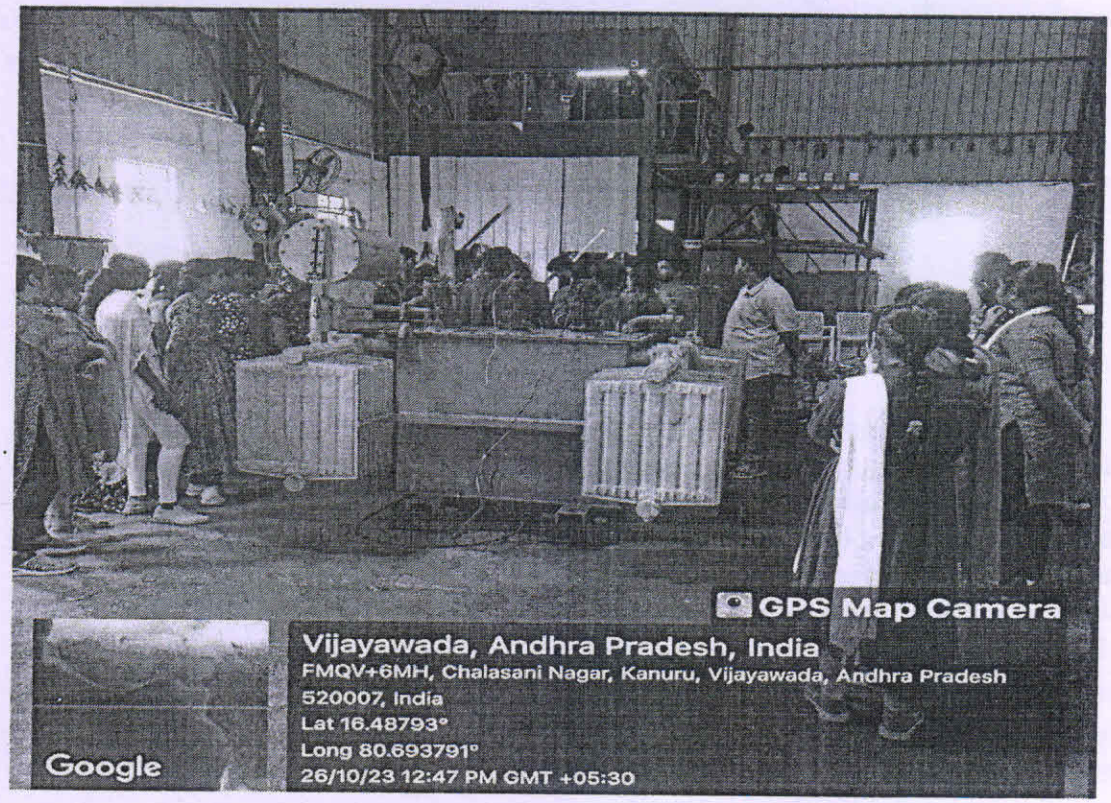


Figure: Schematic diagram of Transformer.



Dry Heat Oven for Transformer

This drying oven can be widely used in the production of transformer industry, transformer coil impregnation drying (solidifying) process and epoxy pouring solidifying process, transformer active parts drying, etc. It features high precision temperature control, easy operation, energy saving, safety and high reliability.

While using the transformer heat is produced in it, so to protect from the blasts of the transformer oil is used for the cooling and for the protection of the transformer. They also gave a brief explanation about the oil used in the transformer. When the oil reaches the rectifier of the transformer it gets cooled down by the surrounding air.

They also showed us the transformer oil filter machine that removes the impurities in the oil and provides pure oil to the transformer

Transformer oil filtration is a process through which sludge, dissolved moisture, and gasses are removed to secure the oil's quality and performance. Transformer oil is susceptible to degradation as time advances since it is exposed to acid, dust, and moisture.

They also explained about the gas that is released in the transformer to reduce the gas formation NCNO contact is used, when gas is formed. When the time that oil is decreased there is a sign that an alarm will give the indication.

Figure: Transformer oil filtration machine.

The power required for **open circuit tests and short circuit tests on a transformer** is equal to the power loss occurring in the transformer. The **open circuit test on the transformer** is used to determine core losses in the transformer and parameters of the shunt branch of the equivalent circuit of the transformer. The **short-circuit test of a transformer** is used to determine copper losses in the transformer at full load. It is also used to obtain the parameters to approximate the equivalent circuit of a transformer.

They explained about the Tap changer transformers, which are of two types offload tap changer and on-load tap changer. The tap changer that is used in this industry is off load tap changer. Off-load tap changer regulates the output voltage of the transformer by altering the number of turns in one winding and thereby change the turns ratio of the transformer.

In **off load tap changer transformer**, the main supply connection is disconnected while changing the tap. Whereas **on-load tap changer transformer** there will be continuous power supply even when tap positions change. The main advantage of OLTC is that is can operate without disconnecting.

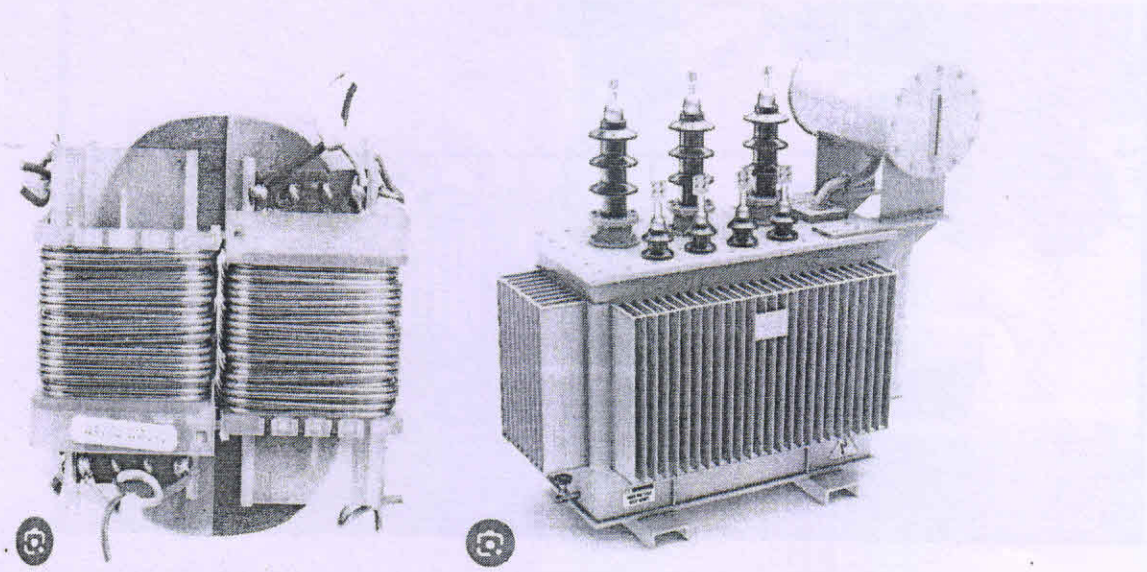
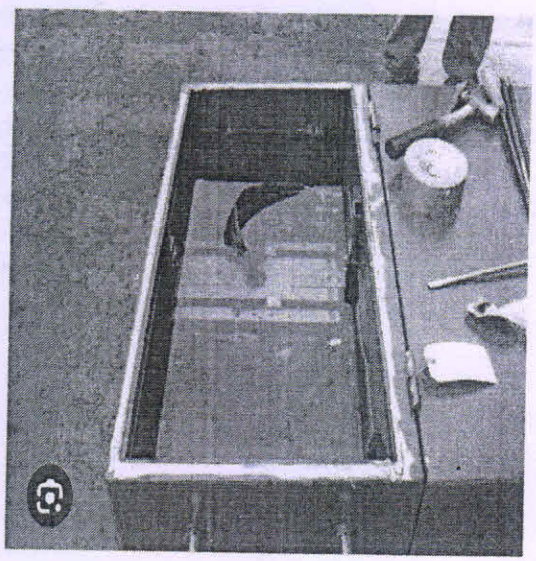


Figure: Primary and Secondary windings of a Core Transformer

Potential Transformer

Current Transformer



Conclusion: As discussed about the transformers designing and manufacturing, protection care, maintenance services that shown to us when we visited the industry, all the students with interest took up necessary information about the transformers. So, we are thankful to management of PVPSIT and dept. of EEE, because these type of industrial visits for students helps to gain more knowledge in the core subjects. We also gained the experience of industry exposure through visit.

Faculty accompanied the industry along with students/Faculty Coordinators:

1. **Dr. C. Kumar, Associate Professor** C. Kumar
2. **Mr. B. Mohan, Assistant Professor** B. Mohan

Prasad V Potluri Siddhartha Institute of Technology, Vijayawada
Dept. of Electrical & Electronics Engineering

Feedback Form [Industrial visit]

Name of Student: A. Lakshmi Chaitanya. Roll No. 22501A0201

Year/Semester: II nd, 1 st sem section: 1 Date/Time of Visit: 26/10/23 / 10:00 to 4:00 p

Name & Address of the industry/ Company Visited: Sai Tesla powel, tech Surampalli

Tick the most appropriate option without any bias:

	Strongly Disagree				Strongly Agree
1. The visit was technology oriented	1	2	3	✓ 4	5
2. The program was applicable to my future needs	1	2	3	4	✓ 5
3. Enhancement in skills	1	2	3	✓ 4	5
4. The program was well planned within the allotted time	1	2	✓ 3	4	5
5. The Resource/Industry person was a good communicator	1	2	3	4	✓ 5
6. The material was presented in an organized manner	1	2	3	4	✓ 5
7. Able to see the unit operations closely and understand it's functioning	1	2	3	4	✓ 5
8. I would be interested in attending such visits in future	1	2	3	4	✓ 5

9. Any suggestions for improvement?

Need more industriale trips for great knowledge in EEE.

Please return this form to the coordinator

Signature of student