

An
Industrial Visit Report
At
ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION
Makarpura GIDC, Vadodara



ERDA Road, GIDC, Makarpura, Vadodara - 390 010,
Tel.: 0265 3043128-3043131, 3043133, 2642942, 2642964, 2642377



Total Students: 45 (M.E.-I, B.E.-IV Shift-I & Shift-II)

Faculty : 1. Dr. Nilesh V. Shah
2. Prof. Hemin D. Motiwala

Brief Introduction of ERDA

Electrical Research and Development Association popularly known, as ‘ERDA’ is a premier Testing Calibration, Certification and Research Organization of India. ERDA (www.erda.org) was established by the Indian Electrical Industries & Utilities with the support of Government of India and Gujarat and has acquired four decades of experience as a service provider. It is a not-for-profit sector organization.

ERDA’s main laboratory complex is located in a 25 acre plot at Makarpura Industrial Estate, Vadodara, Gujarat. This laboratory complex has fully established and integrated facilities for providing services in areas of Certification Testing, Calibration, Research & Development, Residual Life Assessment (RLA), Condition Monitoring, Energy Audits & Management, Third Party Inspection (TPI) & Power Systems to the Indian Electrical & Power Sector in particular, and the Industrial Sector in general.

The major certification test facilities at the laboratory complex at Vadodara include Three ‘Online stations for Short Circuit Testing’, Station for Switchgear & Distribution Transformers upto 33 kV, Motors & Pumps, Refrigerators, Cables, High Voltage Impulse, Ingress Protection (40 ton capacity), Loss of Coolant Accident (LOCA) Qualification, Seismic Testing, State-of-the-art EMI/EMC Laboratory comprising of a 10 cubic metre Anechoic Chamber compliant with SVSWR as per CISPR 16-1-4 as well as MIL Standards, Solid & Liquid Dielectrics Laboratory, Mechanical Testing, Soft Magnetic Materials Laboratory catering to evaluation of CRGO / CRNO Laminations, etc.

Over 100 types of products are evaluated at ERDA with a customer base of more than 5,000.

Student’s Visit Report

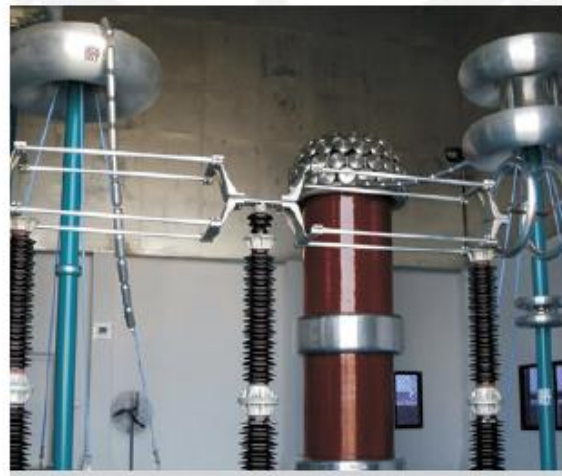
As a part of our curriculum of study, we have visited the “ERDA”, the esteemed association in the field of testing and research, especially electrical equipments. We have started our visit at sharp 9:30 AM in the morning on the date 29/12/2018 and reached to the location at 12:45 PM. Then after, we were accommodated to the conference hall for small presentation and video about the “ERDA” by the marketing key officials. They gave us brief information of ERDA about the testing facilities available, clients (national/international), rules, regulation, safety etc. At the end of this session, we moved for the lunch arrangement done by them. After the refreshment, our visit was started at 2:15 PM as per schedule given by them. We were taken to the different location mentioned below:

1. Online Short Circuit and High Voltage Lab

Our first visit was started with the ‘High Impulse Voltage’ test facility available in the high voltage lab. This test is performed on the electrical equipments like insulators, C.T, P.T., transformers etc to check the dielectric strength of the insulation. The involved technical person in this lab has explained everything about the test facilities as well as the technical details along with the procedure of testing step by step at very high voltage level (upto 1600kV). Hence, we understand the theoretical concept studied in the ‘High Voltage Engineering’ subject (Sem-6). test is performed on the equipments. It was really a good experience about to see giant size of “Impulse Generator” to generate the Lightning Impulse as well Switching Impulse. It can be seen in the photograph below connected to test the equipments.



400 kV Current Transformer under High Voltage Test



400 kV Transmission line hardware under RIV Test

Impulse Voltage Generator	1200 kVp (60 kJ), 800 kVp (40 kJ)
Impulse Voltage Divider	1200 kVp, 800 kVp, 300 kVp
H. V. A. C. Transformer	600 kVrms
Multiple Chopping Gap	1200 kVp
Low Resistance Non Inductive Shunts	0.1, 0.5, 1.0 Ω
Digital Impulse Analyzer System	12 Bit Nicolet with software
PD/RIV Measurements	PD / RIV Measuring Instrument
Sphere gaps	500 mm sphere gap

Apart from this, we were thought the partial discharge measurement perform on the cables and different equipments by the expert in that domain. Finally, we were guided in the calibration department to perform the calibration test on the highly rated C.T. & P.T. measuring instruments

by the technical person under the same roof. We have asked so many questions regarding the testing facilities i.e. 1). upto what rating C.T. & P.T. are going to be tested? 2). under which standard the test is performed? 3). Safety measure to be kept in mind while testing the equipment? Etc. At the end of this session, we have visited the short circuit lab. This lab is doing short circuit test on transformer and it was extremely explained by the technical person.

2. Switchgear and Protection Lab

Thereafter, we were at this laboratory and learnt the test performed on different equipments like C.T., P. T., switches used in home appliances and industrial purpose, relays, different substation components etc. It was really very helpful learning experience regarding the different components testing. Accordingly, we have visited the energy meter testing bench facility under this roof also. It was a great experience to see the energy meter testing currently going on. It was known from them that they are doing testing of energy meter make not only from India but International also.



20 kA high current Source

3. Lamp and Luminaries Lab

Feeling of great experience in the above laboratory made us more curious on the entrance of this laboratory building as this laboratory is recently developed. This lab is engaged in various tests on lamp/LED as well as to measure the lumens of the lamp. We have observed the different test

carried out on the LED lamps and lumens measurement techniques and set up. They have designed the dark room and testing bench to measure the lumens of different types of lamps/LED as per IS, IEC standards.



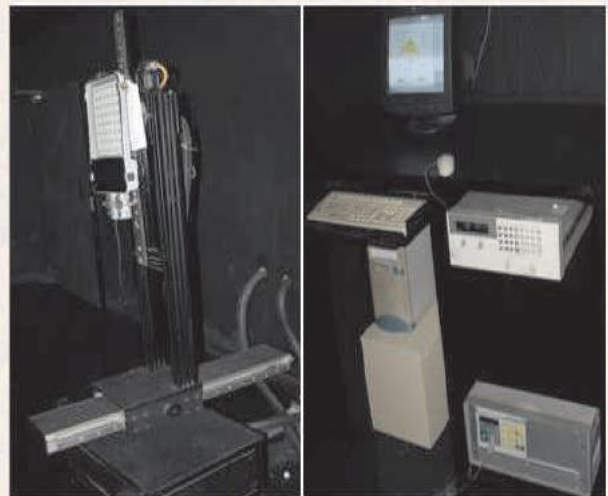
Photometric integrators (1m & 2.5m diameter)



Life test set up for CFL lamps



Digital Torsion Test Apparatus



Computerized Control Goniophotometer along with Lumbase software, PRC, Germany

Finally, we learn so many things after visiting the “ERDA” especially the various tests performed on the LED lamp and luminaries. LED lamps are the emerging trend in the movement of energy saving in the world. So, we are very thankful to the Director Dr. M.K. Shah, Mrs. Lata Shah and all technical and non technical supporting staff cooperation of the entire department during the visit.


After all, we can't forget the kind support from our faculty members **Dr. Nilesh V. Shah** and **Prof. Hemin D. Motiwala** for their efforts to arrange and to accompany this successful visit. We oblige these faculty members in enhancement of our knowledge lifelong.

We are also very much thankful to our HOD, Dr. Shabbir S. Bohra and our principal madam Dr. Vaishali Mungurwadi to give permission for the visit.

Unfortunately, we were unable to get the much more photographs inside/ outside the "ERDA" campus for the security reasons.

Above all laboratory photographs are taken from their website.

List of Students & Faculties:-

SARVAJANIK EDUCATION SOCIETY				
SARVAJANIK COLLEGE OF ENGINEERING & TECHNOLOGY				
 R. R.K. DESAI MARG, OPP. MISSION HOSPITAL, ATHWALINES, SURAT –395001				
<u>Electrical Engineering</u>				
<u>BE IV year Sem VIII</u>				
Industrial Visit at ERDA, Vadodara				
Date: - 29/12/2018				
Sr. No.	Enrolment No.	Name of the Student	Contact No. (Student)	Contact No. (Father)
1	140420109043	PATEL ANUJBHAI RAMESHBHAI	9726248722	9427679398
2	150420109002	PATEL ADITYA AMRISHBHAI	7600053644	9558817988
3	150420109004	AHUJA MEGHA DEEPAK	9428927866	9879362873
4	150420109006	BHATT MALAY VIMALKUMAR	9428370546	9825567988
5	150420109008	CHAMPANERIA ROHAN RAJESHBHAI	9408338812	9879112603
6	150420109013	CHAUHAN BHAVIKKUMAR RAMESHBHAI	9913042988	9978181687
7	150420109015	DAVE KARM MAYUR	8401812204	9879656071
8	150420109019	RATHOD DHARMIKKUMAR PANKAJBHAI	9173193670	9909933189
9	150420109021	DOBARIYA PIYUSHKUMAR CHIMANBHAI	7567566042	9825489637
10	150420109024	GANGADWALA TANVI PIYUSHKUMAR	9173362953	9016982675
11	150420109025	GHEEWALA TWINKLE SANJAYKUMAR	7405558883	9275017704
12	150420109026	GONDALIYA KISHAN DEVRAJBHAI	8980606531	9879828867
13	150420109029	KAMANI TEJAS VALLABHBHAI	8469470207	9974045954
14	150420109031	KATARIYA SAGARKUMAR MADHUBHAI	7359976402	9824937947

15	150420109034	MALAM MOHD SAIF SHEHZAD	8460026184	9998625830
16	150420109035	MODI FORAM RUPESHKUMAR	8460479763	9277755144
17	150420109044	PATEL BINJAL HARISHBHAI	8238615226	9426774217
18	150420109047	PATEL JYOTIKUMARI CHHAGANBHAI	7201064481	9979560126
19	150420109051	PATEL SMEET BHUPENDRABHAI	8141042995	9687419077
20	150420109053	PATIL PARTH SHASHIAKNT	9726338061	9327928949
21	150420109054	RAMANI SENIL JAYESHKUMAR	8758998266	9925508931
22	150420109059	SINGH ASHISHKUMAR SATYENDRA	9998137684	7383099841
23	150420109060	SOLANKI BHAVIKKUMAR GIRISHBHAI	9722971980	9824718382
24	150420109063	VAIWALA RAHUL JIGNESH	8460278172	9427891511
25	160423109001	ANSARI MOHAMMAD ASHIF MOHAMMAD SALIM	7048126756	9909505203
26	160423109003	CHITRODA RUTVIJ ASHOKBHAI	9428859710	9825347257
27	160423109005	LUNAGARIYA KINJAL CHAMANBHAI	9913595420	9925625373
28	160423109006	MEHTA ROHANKUMAR KETANKUMAR	9727146263	9879149730
29	160423109009	PARNERIA ABHISHEK RAJESHBHAI	7383323687	9904478263
30	160423109013	SINGH SATYAM KISHORESINGH	8866158949	9377479902
31	140420109043	TUSHAR BOSAMIYA	9879346370	
32	150420109538	PRASENJIT SINHA	7623079787	9727792785
33	150420109514	GUPTA RAHULKUMAR KISHANBHAI	8128570717	9427396196
34	150420109550	SHIVAM VYAS	8511526722	9998218060
35	150420109559	PATEL YASHKUMAR NATVARBHAI	8980953493	7567020051
36	150420109502	BHALIYA JAYDIPKUMAR JAYSUKHBHAI	9537300388	9979729860
37	150420109540	RAJPUROHIT VIPUL NARPATSINGH	8733818296	9429486618
38	160423109507	MODI VIRAL PARESHKUMAR	8460482819	8866399735
39	160423109510	PATEL VIKAS VIJAY	9714286597	9173470915
40	160423109511	PRAJAPATI MANANKUMAR BHARATKUMAR	9574553333	9879013737
41	160423109512	RANA SURAJ HEMANTKUMAR	8866383380	9925211384
42	170420707004	JOSHI GOPAL		
43	170420707010	PATEL MITESH		
44	170420707015	PATEL NIRAV		
45	160423109506	PARMAR DARSHIL	9925038582	
46	Name of Faculties	Dr. Nilesh V. Shah	9427808978	
47		Prof. Hemin D. Motiwala	9825866607	

