Jayawantrao Sawant College of Engineering
(Approved by AICTE, New Delhi, Govt of Maharashtra and Affiliated to University of Pune)
Prof.Dr. T.J.Sawant
D.E.E., B.E.(Electrical), MISTE,Ph.D
FOUNDER SECRETARY
Dr. Rajendra D. Kanphade
M.E. Ph.D. (Electronics Engg.)
LMISTE, FIETE, SMIEEE
Principal

Visit Report of Solar PV system for T.E. Electrical Students,

A building Rooftop and pharmacy Building rooftop

DATE OF VISIT: 10.10.2024 for Single phase Solar PV system and three phase Solar PV system

Venue: A Building Rooftop (1 ph.) , JSCOE and Pharmacy Building Rooftop (3 Ph.)

Class: TE Electrical

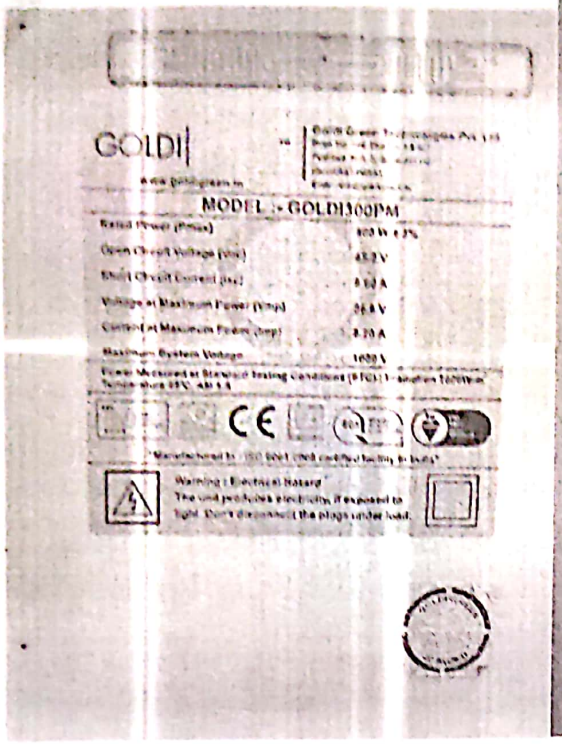
Faculty Coordinator: Dr. P. N. Gokhale, Miss Sarita More, Lab Assistant

Industrial visit of TE Electrical students was arranged to Study the single phase inverters (CO5), Three Phase Inverters(CO6), integration of Renewable Energy(block diagram of interconnections), Inverter specifications for the subject Power Electronics.

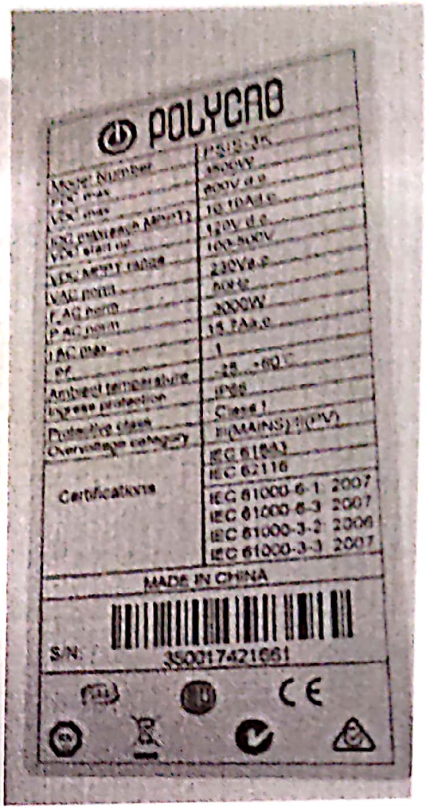
Total 30 students and 2staff members visited Single phase Solar PV system and three phase Solar PV system

Dr. Priya Gokhale interacted with students and all details about working of Single phase Solar PV system and three phase Solar PV system were explained.

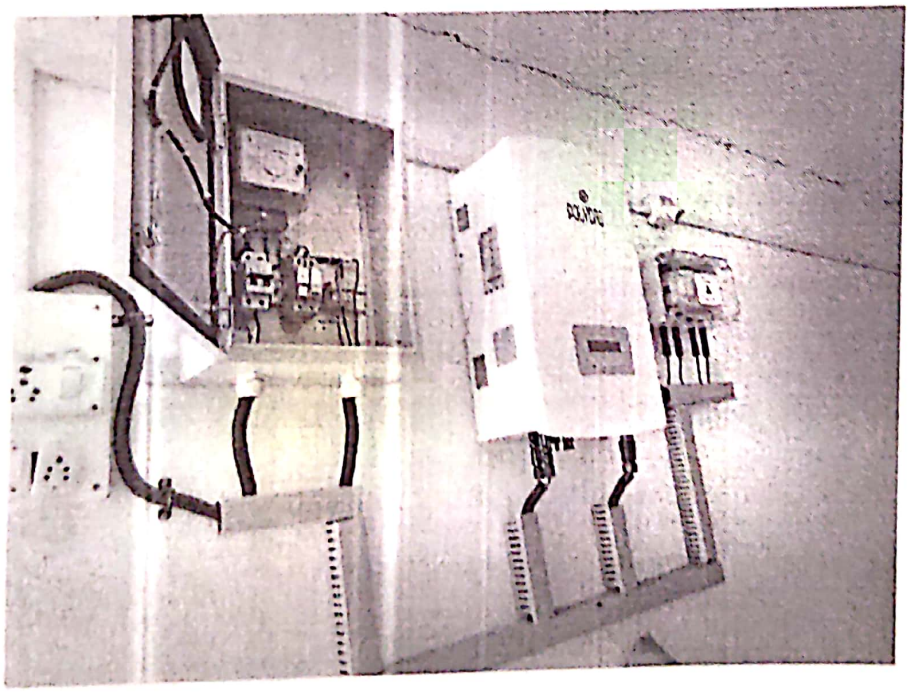
Glimpses of Visit are given below.



Solar Panel specification photo,

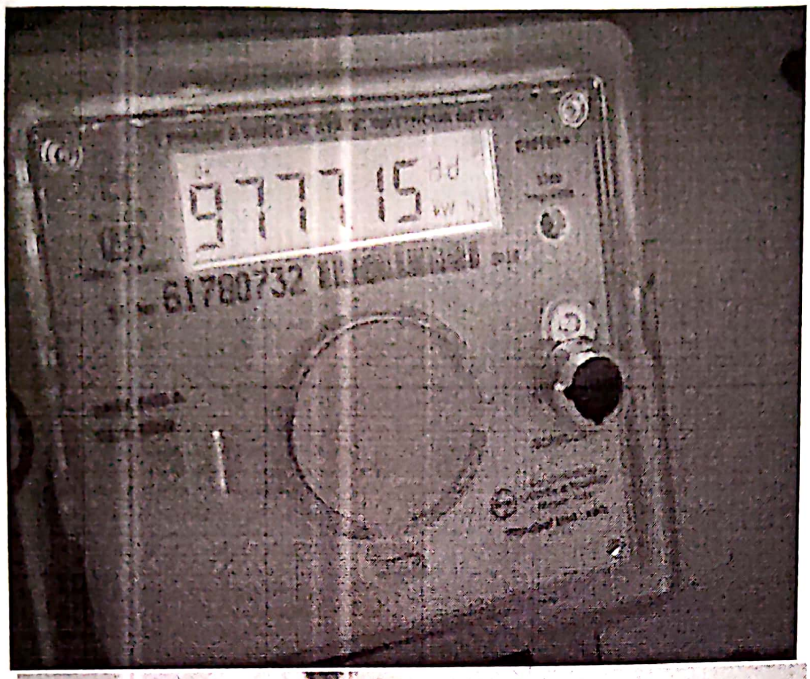


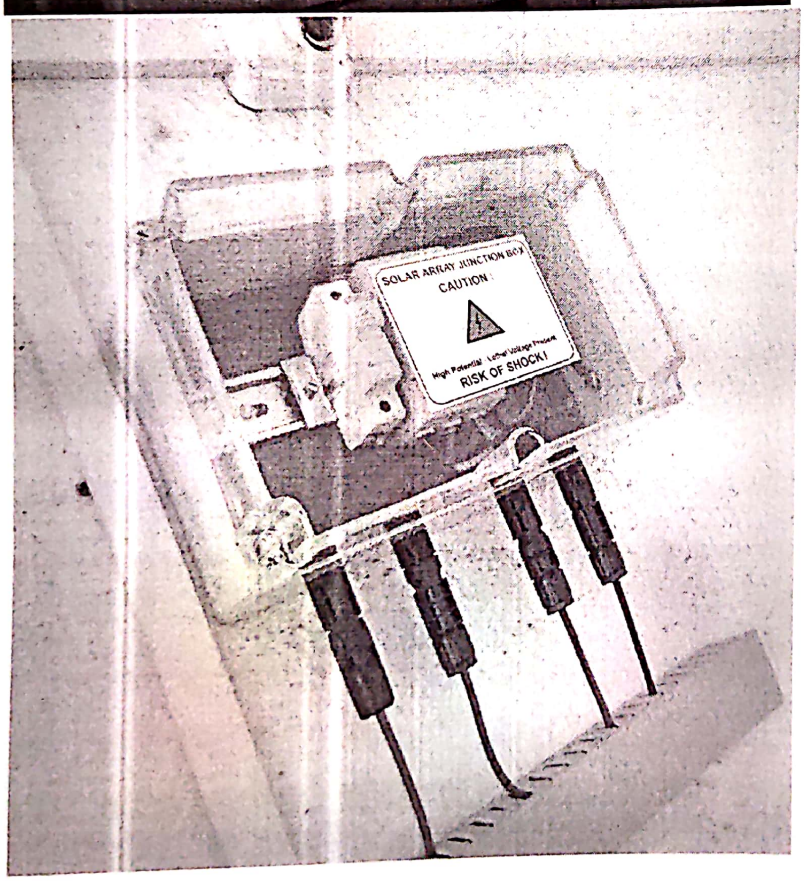
Inverter Specification



Inverter placed indoor along with KWH meter

KWH Meter Reading on 10.10.2024





Solar Array Junction box:

POLYCAB | SOLAR

SOLAR GRID -TIE STRING INVERTER

TECHNICAL SPECIFICATIONS

	PSIS SERIES (1Φ)						PSIT SERIES (3Φ)											
INPUT SIDE																		
Maximum Input Power (kW)	1.2	1.8	2.4	3.5	3.6	5.0	5.0	7.5	10.5	15	20	25	30	40	50			
Maximum Input Voltage (V)	450		500		500					1000								
Starting Input Voltage (V)	80			120			150			200								
Maximum Input DC Voltage Range (V)	80-400			100-500			200-800			250-950								
Maximum Input Current (A)	10			10+10	15+15		15+15	15+15		15+15+15+15								
MPPT Number / No. of strings per MPPT	1/1			2/1			2/1			4/2								
OUTPUT SIDE																		
Rated Output Power (kW)	1	1.5	2	3	3	5	5	7.5	10	15	20	25	30	40	50			
Rated AC Grid Voltage (V)	220/230/240						380/400/415											
AC Grid Voltage Range (V)	180-270 (Adjustable)						310-470 (Adjustable)						304-528 (Adjustable)					
Operating Phases	Single Phase						Three Phase											
Nominal AC Output Current (A)	4.3	6.5	8.7	13	17.4	21.7	8.7	14.5	21.7	29	38.5	43.5	43.5	58.1				
Maximum AC Output Current (A)	4.3	6.5	8.7	13	17.4	21.7	10	16.7	25	33.3	41.7	47.6	47.6	62.9				
Output Power Factor	>0.99						0.8 leading - 0.8 lagging											
Grid Current THD	< 3%						< 3%											
DC Injection Current (mA)	< 20						< 20			< 50								
Rated Grid Frequency (Hz)	50						50											
Operating Frequency Range (Hz)	47 - 52						47 - 52											
EFFICIENCY																		
Max Efficiency	96.7%			97.5%		97.8%	98.2%		98.3%	98.5%								
Euro Efficiency	96.2%			96.8%		97%	97.5%		97.5%	97.5%								
MPPT Efficiency	>99.50%						>99.50%											
PROTECTIONS																		
Built-in Protections	DC Reverse Polarity, Short Circuit, Output Over Voltage, Output Over Current, Insulation Resistance Monitoring, Residual Current Detection, Surge Protected, Grid Monitoring, Islanding Protection, Temperature Protection																	
GENERAL DATA																		
Dimensions (mm)	270W X 433H X 104D			230W X 565H X 172.5D			430W X 613H X 269D			530W X 700H X 356.5D								
Weight (Kg)	5.2	5.0		13.8	15.8		29	30		57.2	58.2							
Topology	Transformerless						Transformerless											
Self Consumption (Watt) (Night)	< 1						< 1											
egress protection	IP 65						IP 65											
Noise emission (dBA)	< 30 (Typical)						< 30 (Typical)											
Cooling	Natural Cooling						Natural Cooling											
Maximum Operational Altitude (Mtrs.)	4000						4000											
Designed Life (Years)	>20						>20											
Operating Ambient Temperature Range	-25 to 60°C						-25 to 60°C											
Operating Surrounding Humidity	0 - 100%						0 - 100%											
FEATURES																		
DC Connection	MC4 Connector																	
AC Connection	IP67 Rated Plug						IP67 Rated Plug			Terminal Connection								
Display	LCD 2 X 20Z						LCD 2 X 20Z			7" LCD Colour Screen								
Interface	RS 485, Wi-Fi / GPRS (optional)																	
CERTIFICATE																		
Grid Connection	IEC 61727, EN50438, VDE0126-1-1, AS477, G83/2, G59/3																	
Anti-islanding protection	IEC 62116																	
Environmental testing	IEC 60068-2																	
Safety	IEC 62109-1/2, AS3100																	
EMC	IEC61000, EN61000-6-1:2007, EN61000-6-3:2007																	

Note: Specifications are subject to change

Corporate Office:
POLYCAB WIRES PVT. LTD.
Polycab House, 771 Mogul lane, Mahim (W), Mumbai 400 016.
Email: solar@polycab.com | Web: www.polycab.com

For Consumer Complaint Contact : Official, Consumer Care Cell
Polycab House, 771, Mogul Lane, Mahim (W), Mumbai 400 016, Maharashtra, India.
Tel: 91-22-2432 7070 - 4 8735 1400 | Fax: 91-22-24327075

Solar Division Marketing Office:
POLYCAB WIRES PVT. LTD.
Off. No. 34, Sangam Project Phase-2, Near RTO Pune,
Near Sangam Bridge, Opp. Air India Office, Pune- 411001.

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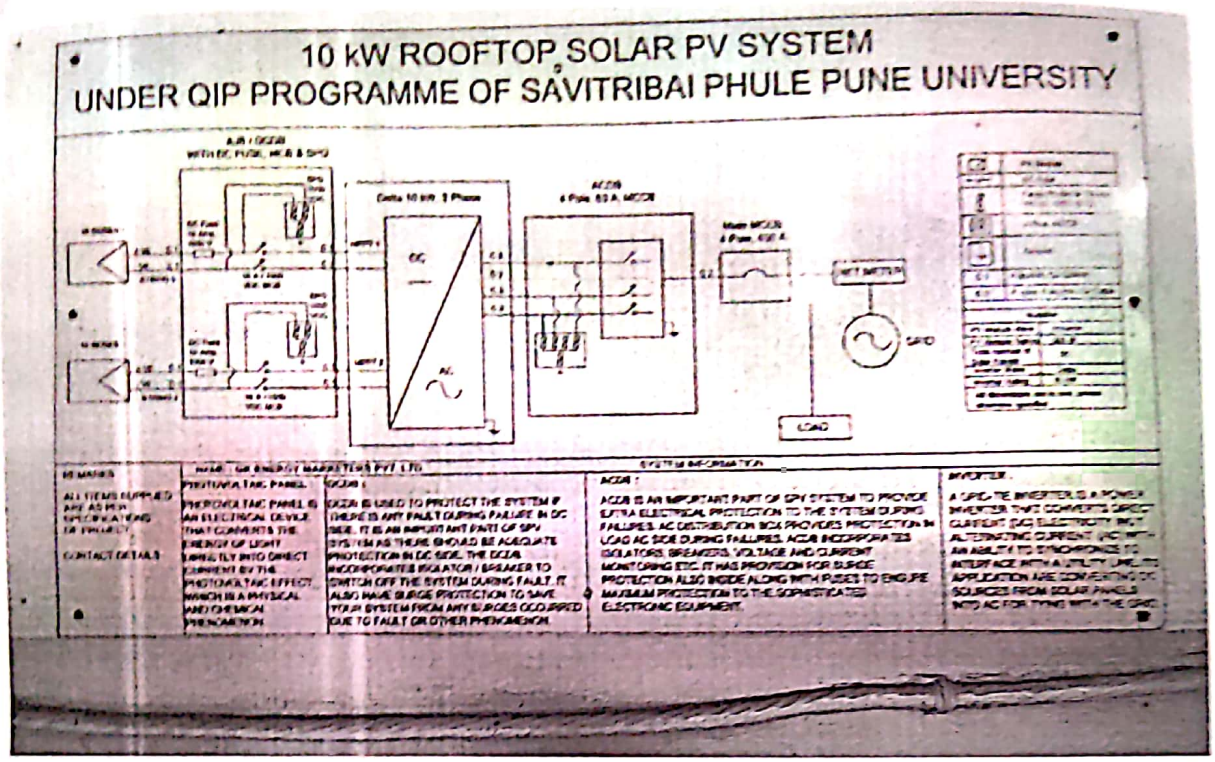
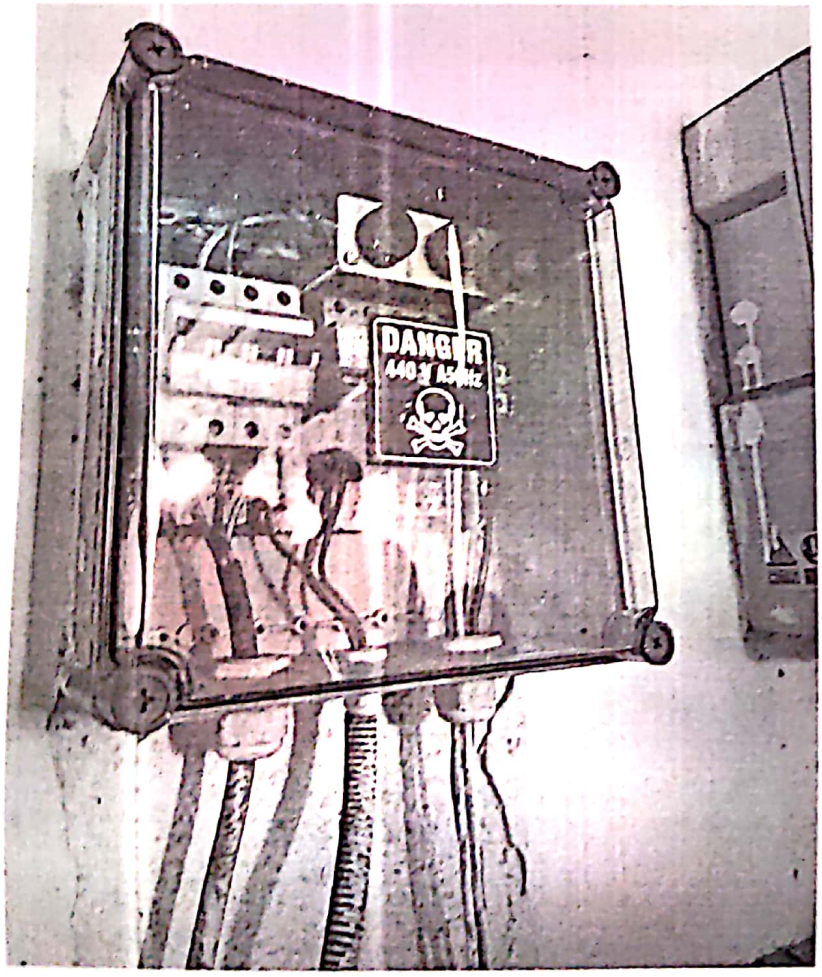
Authorised Distributor / Dealer

Total 9777 units are generated through single phase Solar PV system and 52000 units are generated through three phase solar PV system.





Branch

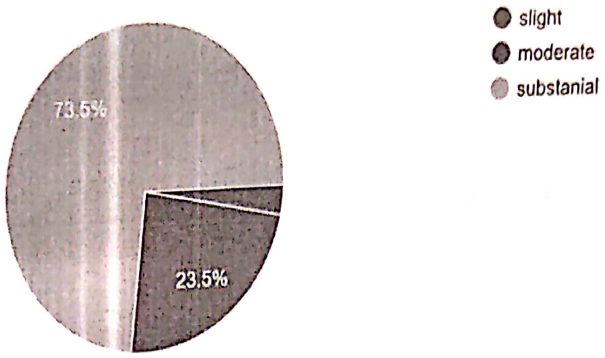
No. of Faculty atten

Also importance of Rain water harvesting system, its collection points and Ground water Recharge collector is explained and system near A building (Nakshtra Garden), B and C Building (Near Kala Mandal) was shown to students

* Name

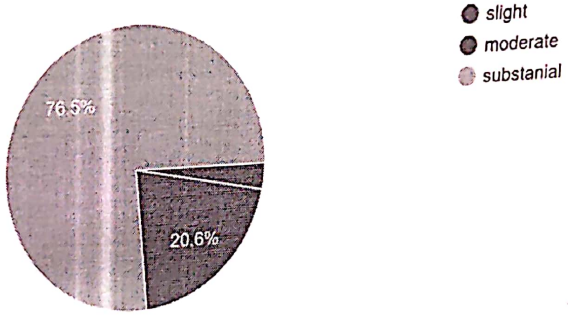
Quality of Demonstration during visit

34 responses



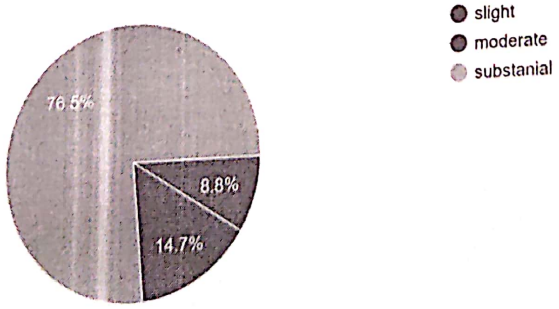
Effective for academic syllabus

34 responses



Effectiveness of discussions

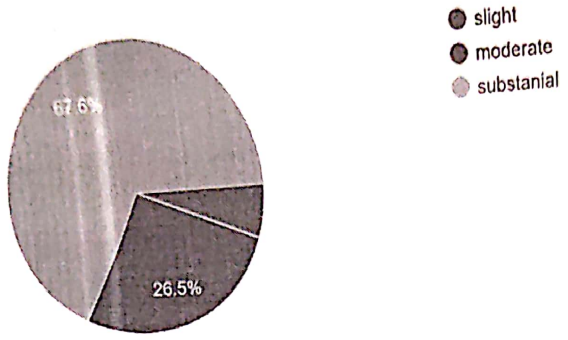
34 responses



Feedback collected online and analysis is given below.

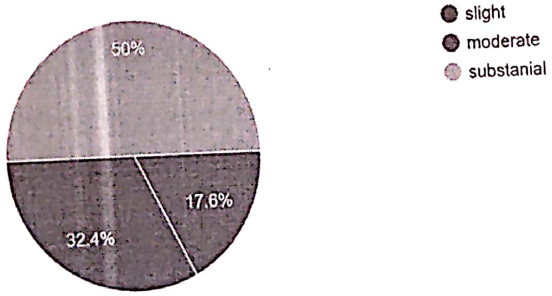
Clarity of communication

34 responses



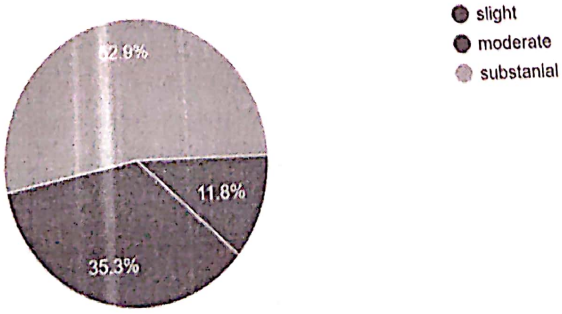
Travelling during visit

34 responses



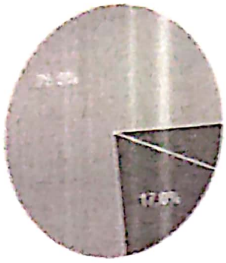
Duration of site visit

34 responses



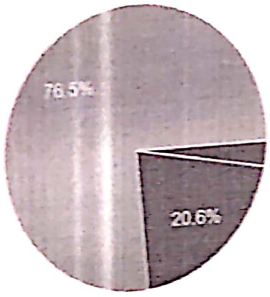
Technical knowledge gain from visit

34 responses



Overall industrial Environment

34 responses



Suggestions and Feedback received from students.

Great and informative visit

All doubts are clear. Thank you for visit

Communication with students is very good ..

Visit was good. Take more external activities like in manufacturing industry, power plants, substations, etc.

It was very nice. Because of The visit of solar-power plant the overall working is more understanding

Good

Summary: The Visit gave insight to practical applications of Inverter and basic knowledge about Solar PV system, Inverter specifications, power generation and conversion to AC and off grid working.

JSPM's JSCOE ELECTRICAL ENGINEERING DEPARTMENT SAWANT COLLEGE OF ENGINEERING

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